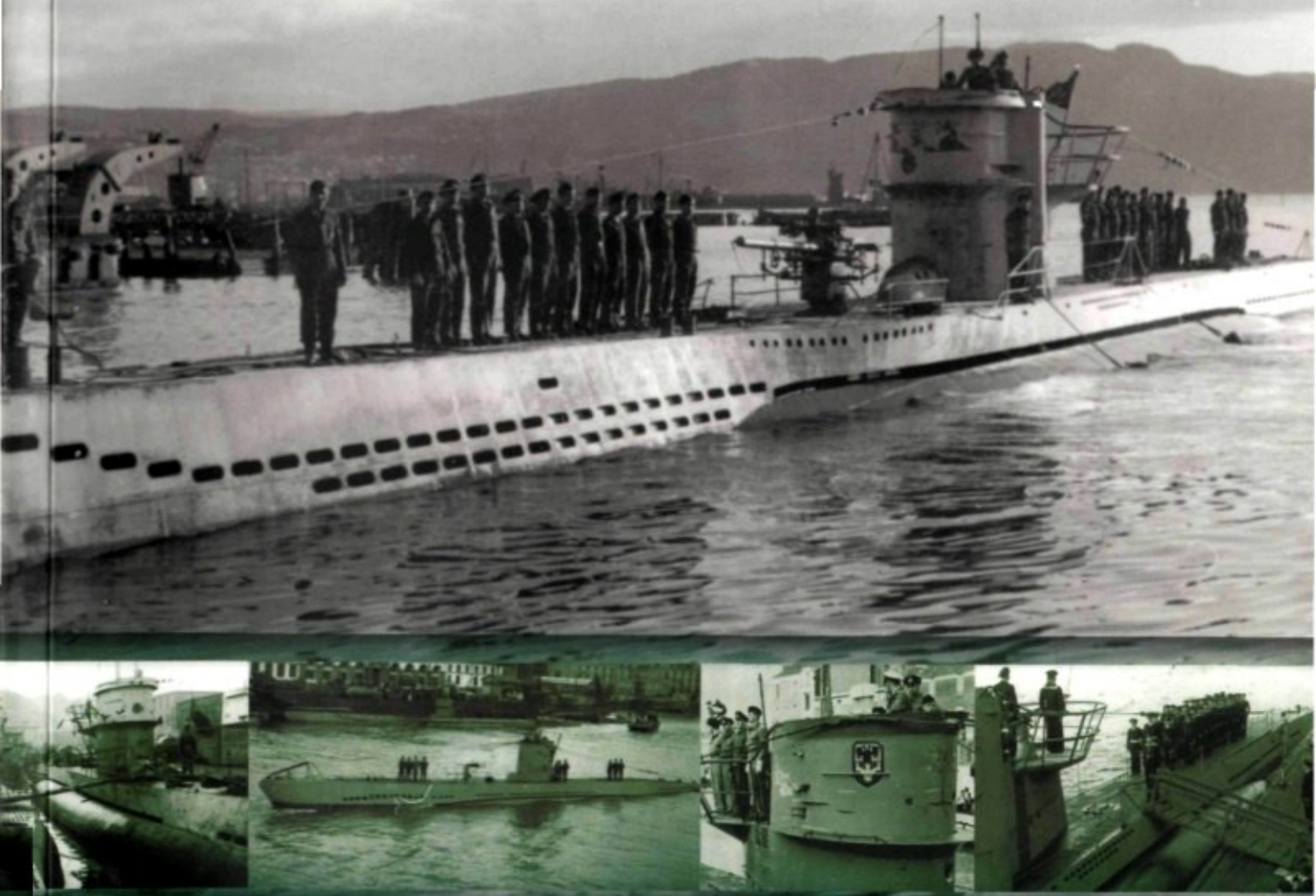
IMAGES OF WAR

THE U-BOAT WAR 1939-1945

RARE PHOTOGRAPHS FROM WARTIME ARCHIVES



IAN BAXTER

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This book is dedicated to my grandfather Frederick Ransom and my dear late grandmother Lillian May Ransom 1924-2006.

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Introduction

The U-Boat war is a unique visual record of Hitler's infamous submarine fleet and a grim account of those that lived, worked and risked their lives stalking the depths of the Atlantic and Mediterranean seas. The book analyses the development of the U-boat, the recruitment and training, and reveals how the crews tried to destroy essential Allied supplies across the Atlantic and bring Britain to its knees. Using some 250 rare and unpublished photographs together with detailed captions and accompanying text, the book provides an outstanding insight into the various operations and the claustrophobic existence of the crew, where they lived in cramped and often deplorable conditions. It depicts how this potent military force became one of the most dominant German fighting units during World War Two, and became such a worry to Allied shipping that even Winston Churchill himself claimed that the 'U-boat peril' was the only thing that ever really frightened him during the war. On their defeat hung the outcome of the war, and through courageous and determined resistance against overwhelming odds the Allies eventually inflicted such catastrophic damage on the U-boats that its losses were too great to continue. Of the 38,000 men that went to sea on board these deadly vessels, only 8,000 were to survive to tell the tale.

An interesting photograph taken during World War One showing a U-boat and some of its crew, together with a biplane being transported on the stern of the vessel. In 1914, Germany only had twenty-nine U-boats in service, but within three months they had sunk five British cruisers. Courtesy of Jim Payne

Three U-boatmen brave the rough seas in the North Sea during operations in 1915. In early February 1915 the Kaiser assented to the declaration of a war zone in the waters around the British Isles. Operations by the U-boats proved to be very effective and attacked merchant shipping without warning, sending many hundreds of tons of shipping to the bottom of the ocean. Courtesy of Jim Payne

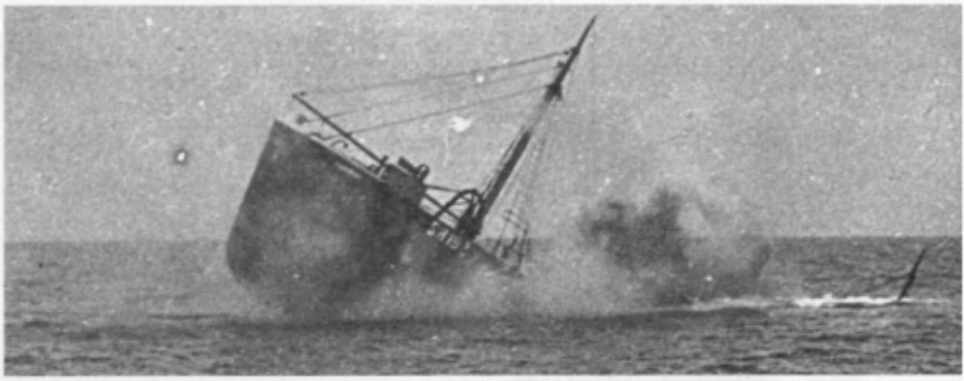
During operations in 1916 is U-25 operating on the surface of the water. Note the two wires running the length of the vessel which were attached to the conning tower. The wires were intended to help a submerged submarine slide under defensive nets. Courtesy of Jim Payne

The Author

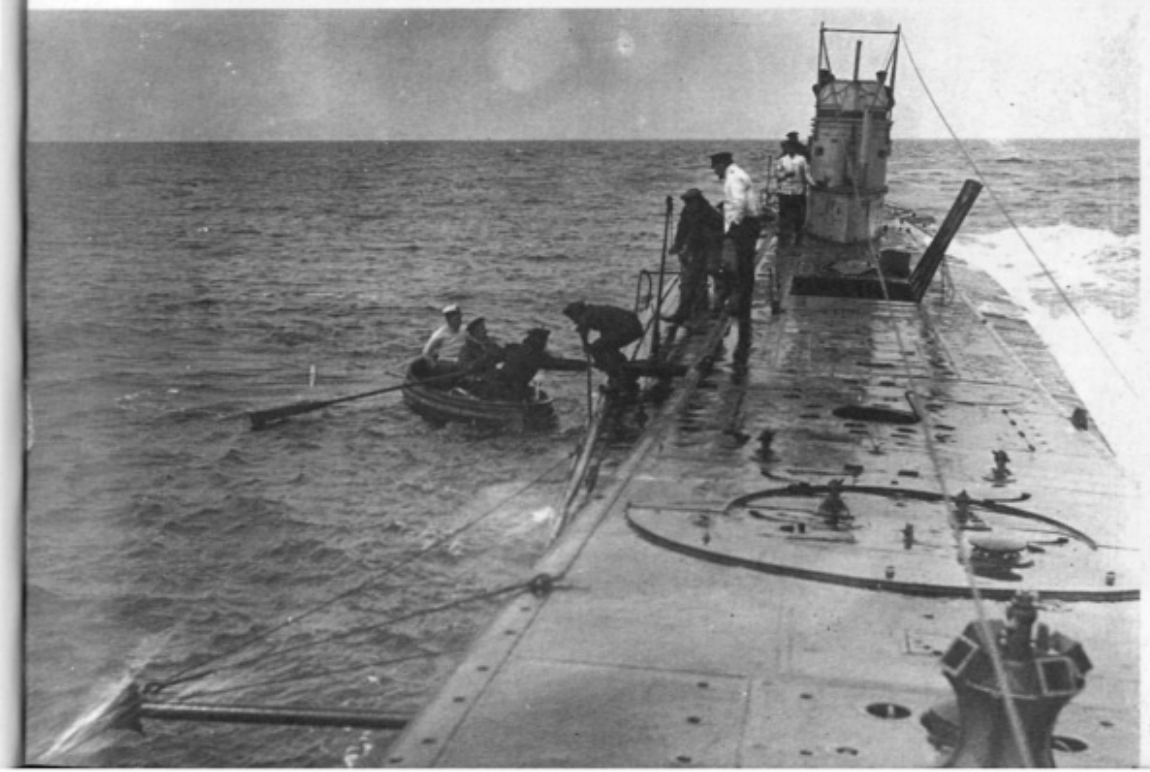
Ian Baxter is a military historian who specialises in German twentieth century military history. He has written more than twenty books including *'Wolf' Hitler's Wartime Headquarters, Poland – The Eighteen Day Victory March, Panzers In North Africa, The Ardennes Offensive, The Western Campaign, The 12th SS Panzer-Division Hitlerjugend, The Waffen-SS on the Western Front, The Waffen-SS on the Eastern Front, The Red Army At Stalingrad, Elite German Forces of World War II, Armoured Warfare, German Tanks of War, Blitzkrieg, Panzer-Divisions At War, Hitler's Panzers, German Armoured Vehicles of World War Two, Last Two Years of the Waffen-SS At War, German Soldier Uniforms and Insignia, German Guns of the Third Reich, Defeat to Retreat: The Last Years of the German Army At War 1943 – 1945, Operation Bagration – the destruction of Army Group Centre, German Guns of the Third Reich, Rommel and the Afrika Korps, the Sixth Army and the Road to Stalingrad, U-Boat War,* and most recently, *Hitler's Eastern Front Headquarters 'Wolf's Lair' 1941 – 1945.* He has written over one hundred journals including *'Last days of Hitler, Wolf's Lair, Story of the V1 and V2 rocket programme, Secret Aircraft of World War Two, Rommel At Tobruk, Hitler's War With His Generals, Secret British Plans To Assassinate Hitler, SS At Arnhem, Hitlerjugend, Battle Of Caen 1944, Gebirgsjäger At War, Panzer Crews, Hitlerjugend Guerrillas, Last Battles in the East, Battle of Berlin,* and many more. He has also reviewed numerous military studies for publication, supplied thousands of photographs and important documents to various publishers and film Production Company's worldwide, and lectures to various schools, colleges and universities throughout the United Kingdom and Southern Ireland.

U-25 in port being resupplied prior to its next mission against shipping around the British Isles in 1917. By this period of the war Germany found that the U-boat had been highly effective against enemy shipping and was optimistic that the losses would finally force Britain to seek an early peace before the United States could act effectively. Courtesy of Jim Payne

A U-boat crew pose for the camera during operations in the North Sea in 1917. When a new U-boat campaign was launched in February 1917, there were 57 U-boats already operating in the North Sea. Note the flak gun fitted to the deck of the vessel primarily used for defensive purposes.
Courtesy of Jim Payne



A boat has been attacked and sunk. By the end of World War One of the 360 U-boats built, 178 of them had been lost. However, more than 11 million tons of enemy shipping had been sunk.
Courtesy of Jim Payne



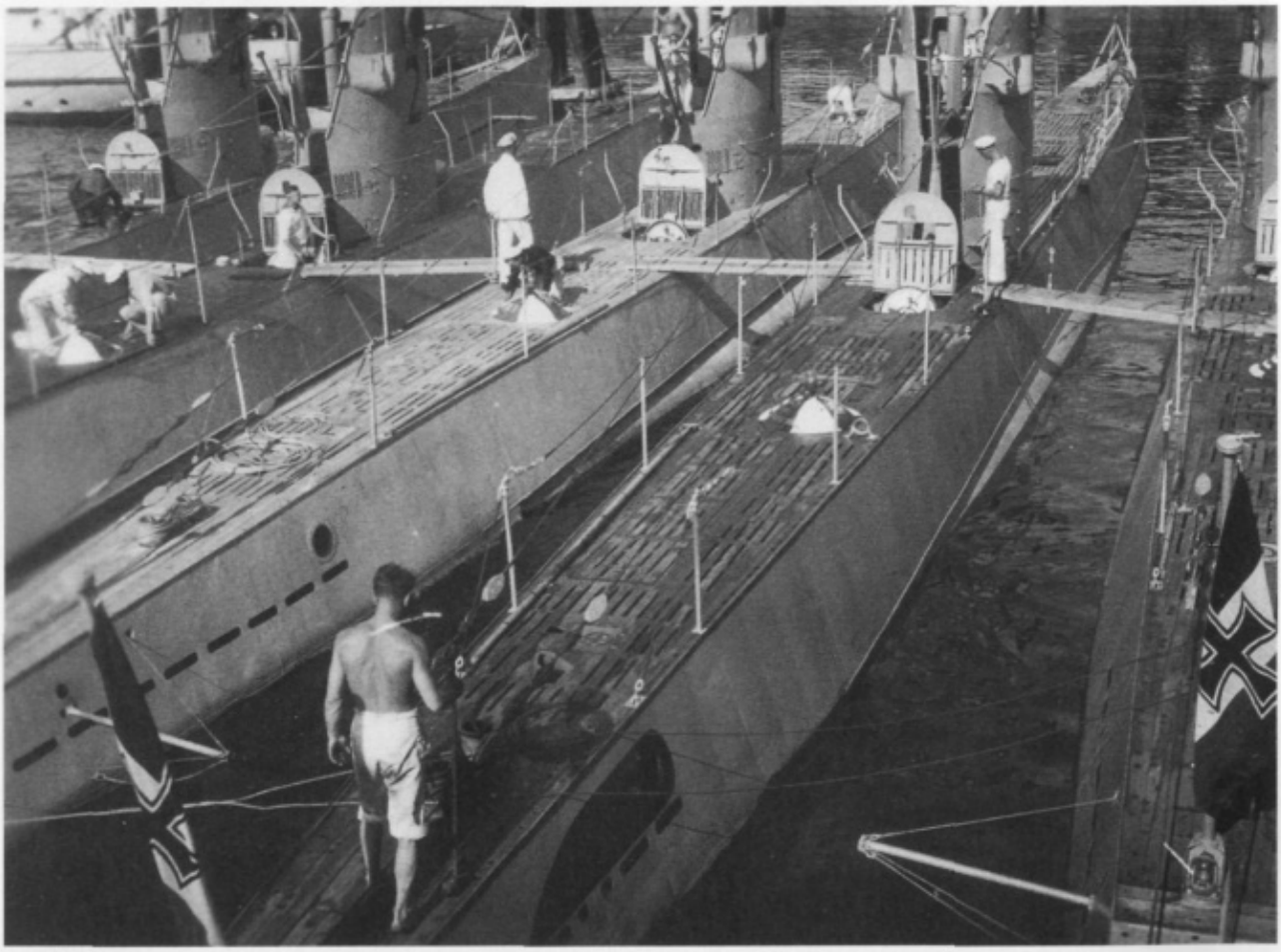
U-25 during operations in the North Sea in 1917. Three members of the crew can be seen in one of the vessels life boats which has been utilised to observe any damage whilst operating against enemy shipping. Courtesy of Jim Payne

Acknowledgements

It is with the greatest pleasure that I use this opportunity on concluding this book to thank those who helped make this volume possible. My expression of gratitude first goes to my German photographic collector Rolf Halfen. He has been an unfailing source; supplying me with a number of photographs that were obtained from numerous private sources. Throughout the research stage of this book Rolf searched and contacted numerous collectors all over Germany, trying in vain to find a multitude of interesting and rare photographs.

Further afield in the USA I am also extremely grateful to Richard White, who supplied me with a number of photographs that he sought from private photographic collections in Germany and other parts of the world. I also wish to thank Jim Payne for supplying me with *World War One images of U-25 that belonged to Friedrick Pohlm and photos from an* album of U-Boats during World War Two that belonged to Herbert Bruninghaus.

Here in this photograph at least five U-boats can be seen moored together. By the outbreak of the Second World War much of the U-boats design had been modified and was far superior to the boats that sailed during World War One.



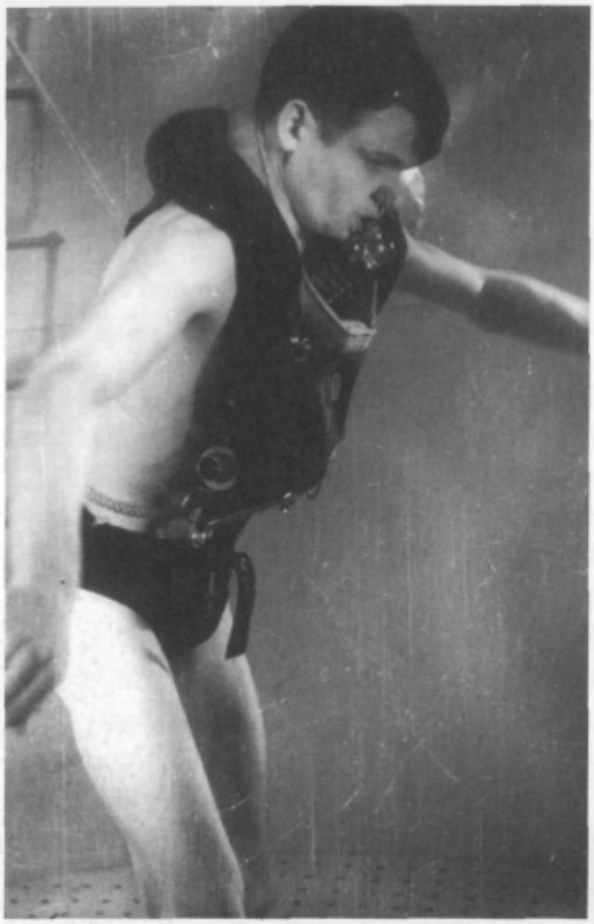
Chapter One

Recruitment & Training

Many still believe that during the Second World War all submarine crews were volunteers. Actually, contrary to popular belief the majority of young German sailors went through a traditional method of selection procedures. Many of the *Ubootwaffe* that were selected were in their early twenties. Their first contacts with U-boats were in the shipyards of Wilhelmshaven, Kiel, Hamburg and Bremen. Here they saw them being constructed, learned to find their way around inside them, and met their new commander who would share their lives onboard. Once the U-Boat had been completed and was ready for the 'working up' exercise, a formal luncheon party for the new crew was held. A normal ship's company was about 44. There were four commissioned officers and the commander, with the 1st and 2nd Officers and the Chief Engineer and 10 Petty Officers responsible for the engine rooms, the watches, radio and control rooms, with a quartermaster, a coxswain, and 30 technicians and seamen, including electricians, engine room men, telegraphists, control room hands, a cook and torpedo men. The crew also had to find room for newly trained officers, war correspondents and official observers.

Out in the Baltic, the new crew was left to negotiate the proving waters on their own. They made a number of practice dives to test and prove the strength of the pressure on the hull at depth, the operation of the hydroplanes, and of the trim and ballast tanks. For hours, the U-Boat was put through its paces with the crew making a series of dummy torpedo launches and torpedoing practices. The diesel and electric motors were tested, along with the radio equipment and sonar. The crew also familiarized themselves with all the gauges, instruments, handles, wheels and buttons that littered the vessel.

Despite the camaraderie that grew between the crew, there was always a clear division, not just between the crew and their officers, but between those working on the deck and the engine room, between the sailors on sea-watch and the greasers and stokers down below. But above all those that sailed onboard the U-boats, there was one man that every crewman respected and looked up to, the commander - '*Herr Kaleu*' or the 'Old Man'. Everyman was aware that his decisions meant success or failure. To many U-Boat crewmen the commander was regarded like a mystical warrior of the deep. Although most commanders themselves tried their best to avoid such stereotypical images, nearly all of them were good leaders, prepared to enjoy the camaraderie of those they commanded.



Here a trainee crewman practises with the 'Drager lung' escape apparatus in the diving tank. The rubber bag contained an oxygen cylinder and filter for removing carbon dioxide and could be used for nearly one hour. On the surface the bag could be inflated and used as a life jacket.

A trainee crewman practising in the diving tank. During submarine training the young recruits were compelled to deal with every combat situation, and this included trying to escape from a sunken U-boat. Although the chances of actually escaping from a U-boat that had been sunk was rare, candidates still had to train in underwater escape techniques using the 'Drager lung' escape apparatus.

Candidates training in a diving tank learning the grim techniques of how to survive and escape from a sunken submarine. When the interior of the vessel was fully flooded with sea water, the hatches of the vessel could seldom be opened due to the pressure of the boat. Many of the crews would perish like this. Sometimes, however, there were successful stories of escape where crewmembers managed to escape using the 'Drager lung' escape apparatus, but this was often very rare.

Two photographs showing crew members training in a diving tank clearly wearing their 'Drager lung' escape apparatus. The special breathing equipment consisted of a tube attached to a face mask, an oxygen canister, a canister filled with carbon dioxide absorbent material, and a control valve. The entire apparatus was fitted inside a special vest, so it could be worn like a life jacket. The wearer would open the oxygen valve and inhale and then exhale through a small vent in the face mask. The air was recycled so that the wearer could continuously breath. A special valve which was manually operated was opened to eject used air when carbon dioxide was detected at high levels.

Candidates on board a U-boat during a training exercise. Following the reorganisation of the German navy after World War One, initial training came under the jurisdiction of the two divisions known as Baltic and North Sea. The function of these two divisions were to accept new recruits, take them through a selection process, and then give them up to six months of initial training.

A U-boatman sits near the hydroplane controls, forward and to starboard in the control room. For the new recruits onboard a submarine there was a lot to learn. All new recruits, including officer candidates, had to undergo a basic training process, and all of them were segregated according to their chosen career.

New recruits are gathered together learning about the technical capability of the vessel they will be sailing in. Although the emphasis of the training varied slightly, the basic aim for all candidates was to master their skills, making them self-sufficient, reliable and capable of handling the machinery around them.

On a training exercise somewhere off the coast of northern Germany. For final operational training everything was repeated under simulated war conditions. A number of instructors usually came aboard to designate various pieces of machinery that had broken down, and then analysed how well the crew coped with the situation. Courtesy of Jim Payne

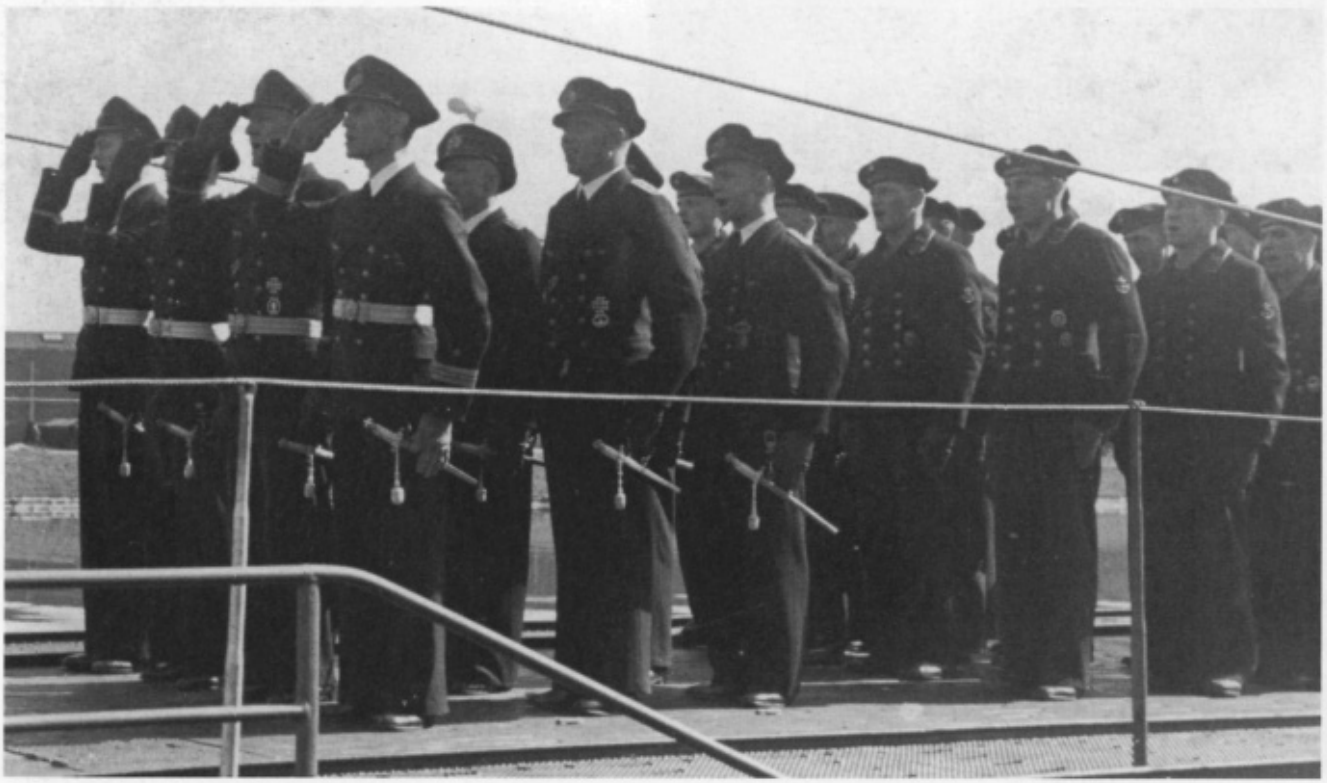
During training a crewman signals to another U-boat using a signal lamp. This method of contact was used extensively by U-boat crews. Signal lamps were used mainly on the bridge, transmitting, receiving and relaying messages to and from the U-boats and other vessels at sea.

Four crew members pose for the camera in front of the conning tower. All the men are wearing the collarless, single breasted leathers, which identifies them as the crews engineer division. Under the jackets they wear the issue dark blue sweater with a three button front and a fall collar.

Smiling for the camera. The men are wearing the battle dress style U-boat overalls, which were worn by all ranks. Note their black sidecaps, which were known as 'little ship' sidecaps.

Signal flags by day and coloured lights at night were used extensively by U-boat crews to communicate changes of course and speed, zigzagging, and to promptly react to any possible emergency.

Standing proudly on the deck of a U-boat, commissioned and warrant officers are seen here in their walking-out dress with ceremonial dagger slung from attachments under the jacket. The four officers at the front are wearing the silver and white brocade belt which was worn only for official functions.



The crew manhandle one of the vessel's lifeboats onto the upper deck. In the warm midday sun the men have discarded much of their special protective clothing and bask in the summer sun, before once more returning to their duties inside the U-boat.

Here new recruits train with the standard U-boats anti-aircraft gun at a naval training base. The flak gun was mounted on the vessels main deck and the gun had to be removed and stowed before diving, which increased the amount of time needed to dive. Eventually the boats main armament was fitted to a special platform just aft of the bridge.

Standing on the main deck officers greet a passing vessel whilst training in the Baltic Sea. Before passing out the crew had to undergo final operational training where they went to sea under simulated war conditions. Eventually, when the boat returned, the crew were classified as 'Frontreif' ready to face the enemy.

Seven U-boats can be seen moored together. Four of the vessels can be identified as U-18, 19, 20 and 17. All of these vessels, which were commissioned before World War Two, are of the IIB operational type and were built by Germaniawerft in Kiel.

WITH DEPOT SHIP SAAR

At a port spectators, including children, watch with interest as a U-boat crew undergo preparations to set sail. The majority of the crew are wearing the familiar dark navy blue jacket, cap and trousers. The preparation process of getting a U-boat to the front was one of the most important periods in any submarines crew`s service.

When all the training was over, came the commissioning of the new boat. Here in these two photographs a U-boat is being formally handed over to the Navy.

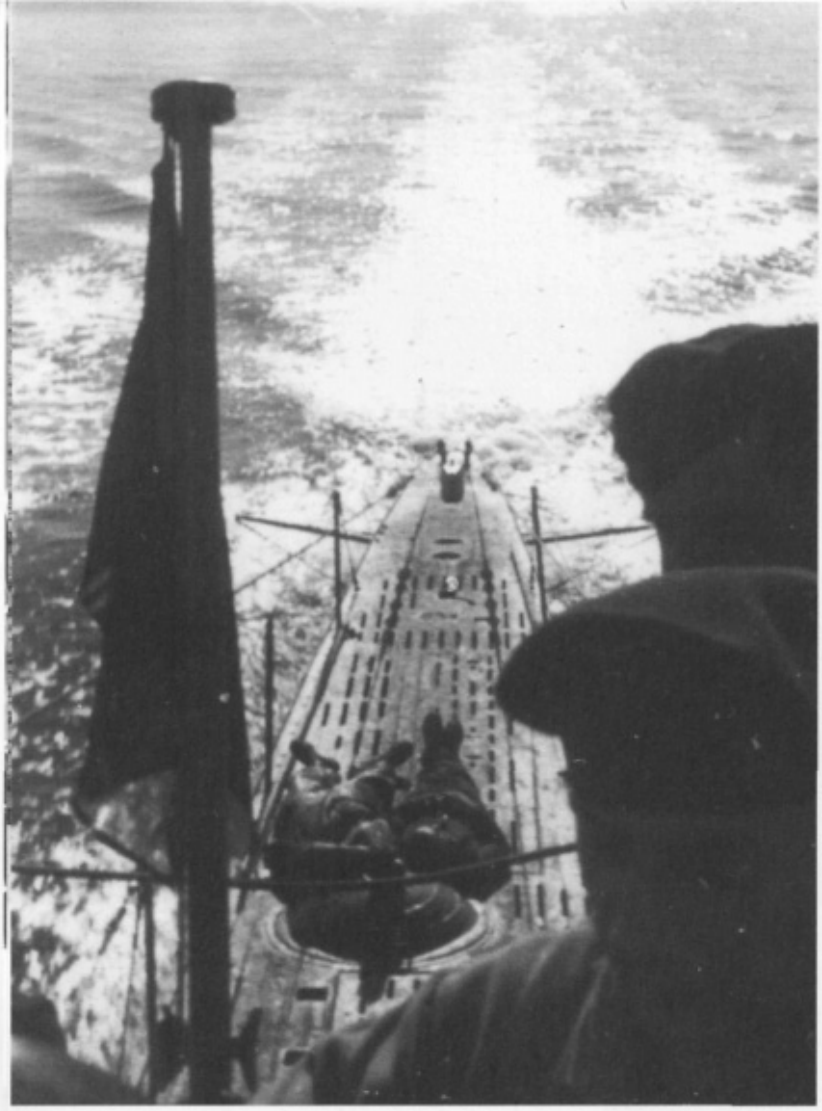
The crew preparing their boat for action. Here the men are loading a torpedo through the forward deck hatch. U-boat torpedoes were a highly sophisticated piece of weaponry and great care and attention was made to ensure they were not damaged whilst being loaded through the hatch. From mid-August 1939 onwards some 40 or so U-boats were made available for operational duties and prepared for war. By the end of the month the U-boat arm took up waiting positions around the British Isles. Courtesy of Jim Payne

Members of the crew pose for the camera before beginning operations. The majority of U-boatmen starting a new mission always felt some kind of apprehension. Some were better prepared than others, but many believed that willpower alone and an ardent determination to do their best would ensure a safe and successful mission. Great emphasis on good training had attributed directly to excellent pre-war training. However, once the war finally broke out training schedules became shorter and shorter. This undoubtedly led to many crew members not having the experience necessary to tackle the vastness of the Atlantic Sea.

U-8 a type IIB U-boat can be seen operating somewhere off the Norwegian coast in 1940. By June of that year the vessel reverted to training duties. It was decommissioned in March 1945 and in early May was scuttled in Wilhelmshaven..

A crewman poses for the camera onboard the deck of U-9. This IIB type U-boat was commissioned in August 1935 and saw extensive patrols until May 1944 when it was finally destroyed during a raid in the Black Sea by aircraft of the Soviet Navy and moved to Nikolaev for repairs.

Here are two photographs taken in sequence showing U-64, a type IXB U-boat, which has left port in Wilhelmshaven for operations off the Norwegian coast in 1940. In April 1940 the vessel was attacked by a Swordfish of 700 Squadron from HMS *Warspite* in Herjangsfjord/Narvik and lost with 2 hands. The crew were rescued by German mountain troopers and adopted the Edelweiss badge when they took over command of their new U-boat U-124, which eventually became the fourth most successful boat of the war.



There were occasions when U-boats sailed through areas that were deemed relatively safe and the men could allow themselves the luxury to relax onboard deck, and even sleep. In the photograph two men can be seen sleeping on the deck, and without safety harnesses this kind of behaviour was potentially dangerous, even in the calmest of seas.

A commissioning ceremony is taking place and U-13 is being formally handed over to the Navy. The boat was commissioned on 30 November 1935 and saw active service until it was sunk off the coast of Lowestoft in May 1940. The boat was abandoned and scuttled with all 26 hands rescued and taken prisoner.

An interesting photograph showing all the crew of U-14 gathered together on the bridge and on the deck, prior to a patrol from its home base of Kiel in early September 1939. The U-boat saw action in the North Sea, Moray Firth and off the Dutch and Norwegian coast until May 1940, when it was finally relegated to training duties in the Baltic.

On watch on the bridge during operations in the North Atlantic in 1940. By the appearance of their clothing the sea is relatively calm. Although clothing styles varied considerably, normally during foul weather on the bridge the crew took to wearing thick black rubberised trousers and grey leather coat.

A U-boat crew pose for an official group photograph prior to their first patrol together. The majority of the men are wearing their collarless, single breasted leathers and black 'little ship' sidecaps.

Another photograph of the same crew as (above) prior to a patrol. This time the crew pose for the camera onboard the deck wearing the standard U-boat overalls.

Three crew members pose for the camera wearing the walking-out dress. The man in the middle wears on his left breast the U-Boat War Badge and the National Sports Badge. The U-Boat War Badge was unique to the U-Boat arm and had been originally created by order of Kaiser Wilhelm II during World War One.

An officer takes the salute during a commissioning ceremony of an unidentified U-boat in 1939. It had been general practice for boats built at the naval ship yards to be commissioned before going on trials, but those constructed by private firms went on trials before being commissioned. However, during the war this procedure was not maintained because yards did not have the specialised personnel for testing U-boats.

A commissioning ceremony of a new U-boat takes place. Prior to being commissioned all U-boats had to go on a series of gruelling trials. Boats launched from yards in the Baltic coast had only a short distance into the open sea for their trials. Those built in Hamburg or Bremen had much further to travel, and would have to navigate through rivers and dangerous coastal waters.

Chapter Two

Active Service

Life at sea for the majority of *Ubootwaffe* normally consisted of boring, routine jobs, confined in cramped and uncomfortable surroundings. Accommodation inside the steel boat was very basic. Only the commander, and later the cook, had their own bunks. The rest of the higher ranks operated a 'hot bunk' system where each crew member coming off duty would clamber into the bunk vacated by another man going on duty. The lower ranks of the boat slept in hammocks, and some even had to make do with sleeping on thin mats covering the metal floor plates. In the bow torpedo room, for instance, where most of the junior ranks were accommodated, comforts were few and privacy among other shipmates was non-existent.

In this busy, noisy, sweaty room, servicing equipment took priority over men wishing to relax and sleep. Consequently, the men were only able to grab a couple of hours of sleep at one time. This had a great impact upon their morale. Because washing was virtually impossible they had to content themselves with a rag soaked with lemon fragrance. Although there were washing tanks fitted on board, and some buckets for men to wash, water was regarded as an important asset, and could determine how long a U-boat could remain at sea. Commanders were therefore very careful to conserve the water supply, especially the drinking water. Nothing was worse than the thirst for water, especially when the interior of the boat reached temperatures of well over 50 degrees centigrade. This made life almost unbearable for many crew members.

Going to the toilet, too, was another problem each crew man faced daily. Although larger U-boats in the main had two of them, many were only fitted with one. This meant that almost the entire crew had to share a single toilet. At the beginning of the war, the problems were even worse as the boats did not possess high pressure lavatories. This meant that they could only be used when the boat surfaced or dived at shallow depths. Consequently, the long periods of waiting compelled many to use empty tins or any other container among the growing pile of rotting rubbish.

Smoking was another restriction on their lives, being prevented even when the boat was in port. So 'going up for a smoke' while the boat was running on the surface was one way the men could escape the dark confines of the hull. Smoking,

however, at night up in the conning tower was normally forbidden because of the unmistakable glow of the cigarette, which could usually be seen for miles out at sea.

Despite the smoking restrictions in the conning tower, the crew, especially those on lookout, generally got the most fresh air. However, after spending their four-hour watch on top of the conning tower, it turned into an ordeal than a pleasure. Apart from the biting cold and slicing wind and the stinging saltwater, in some boats, where the commanders were disciplinarians, lookouts were forbidden to eat, drink, speak, or even smoke during the daylight hours.

However restricted life was onboard the U-boats, there was one consolation – the quality of the rations they received was of a very high standard. Each crew member generally enjoyed food which civilians, or even other branches of the armed services, never saw. Special passes were attached to their travel warrants allowing them privileges like two or three eggs each week. But however good their rations were, accommodating some 20-tons of food inside an already cramped U-boat was by no means an easy task. Large crates, sacks and kegs were crammed through a small hatch located in the boats ceiling, and because there were no special facilities for storing food, it had to be stowed wherever there was room. This meant that a large amount of provisions were hung from the deckhead, which in stormy weather, proved to be very dangerous for the crew.

Out at sea on active service the U-boat crews were totally aware of the perils of fighting in the deep waters of the North Atlantic and Mediterranean. Although they had sunk millions of tons of shipping by 1943, the *Ubootwaffe* were under even more pressure to achieve what many regarded as the impossible. Constantly, the crew was under threat of being bombed by circling aircraft, or attacked by ships. For this reason, survival depended on quick reactions. In an instant, everybody could be spurred into action by the orders of 'Alarm!' or 'Action Stations!'.

Battle began with a radar blip or a sonar contact from an Allied ship, and a hydrophone or Naxos warning on a U-boat. As the enemy picked up a 'blip', the U-boat captain's command was drowned in the shriek of a bell. Almost immediately, the diesel engine of the vessel was stopped, the intakes and exhausts closed, and the boat`s battery power supply took over.

In the control room, the main vent levers were pulled, the ballast tanks opened and the air rushed out. From the engine room, the stokers rushed through the bulkhead doors and hatches, as the chief engineer shouted 'All hands forward'. As the boat descended, it was rigged for the quiet running in ordeal to conceal its position. All non-essential electrics were switched off. 'Propeller zero-six-five degrees', whispered the sound man, and the captain nodded in response. He then turned to the helmsman to steer on a heading of 'three-forty' and go sixty metres slow ahead both'. The crew then prepared for what was almost certainly a depth

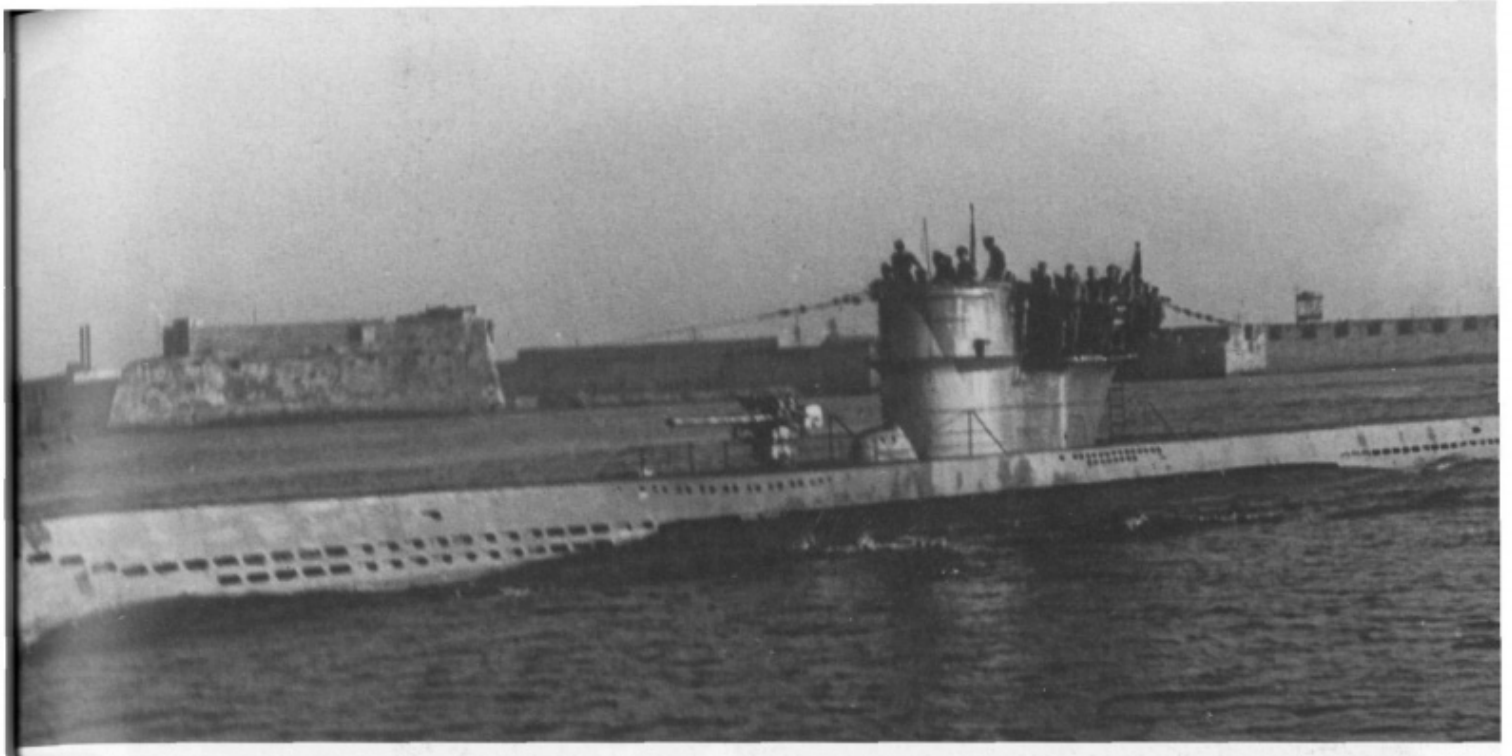
charge attack. Sixty metres above them, they could hear an enemy ship approaching, the U-boat swaying as she went by. Tension onboard the ship was intoxicating for the crew. They were totally aware that just one single detonation could crack the hull and that all of them could drown. Then, like a gunshot, the first depth charge exploded up above them, shaking the U-boat. 'One-hundred metres' ordered the captain and down the U-boat ran again. Despite his attempt to run his vessel from five minutes at an angle to the enemy's ships bearing and double back again, more depth charges could follow. Lights were put out glass covering instruments cracked; pipes burst jetting water across the control room. In the confusion, torch lights beamed through the darkness until the auxiliary lighting was switched on. Those that had been through this ordeal before knew very well the panic and fear it caused and nicknamed it 'Blechkollar' or 'tin can frenzy'.

During this period of tension, the captain might order the U-boat even lower to a depth of 130-metres, despite the fact that this is deeper than she is supposed to go. As the boat descended she still remained on 'quiet running', for any little sound might be picked up by the enemy's ships sonar. Only the electric motor could be heard by the crew. This was a vital piece of equipment for the survival of the U-boat. Every commander was well aware that being hunted could go on for hours, and even days. In time, without the electric motor, the oxygen would fail and batteries would run dry.

Whilst every effort was made to try to keep the U-boat from being detected, the helmsman continued to outguess the man on the bridge of the enemy ship. Any evasive manoeuvring at this vital stage could mean the life and death of the crew. But after many uneasy hours, the sound man could pull a headphone off one ear, look at the captain and tell him 'propeller noises receding. Bearing zero-five-zero'. The captain would then wait to make sure the ship was not 'playing games', and after some minutes he would order: 'Take her up, periscope depth'. The crew went to their stations and the ballast tanks were 'blown'. Before it broke the surface, the captain climbed into the conning tower and moved the periscope just above the waterline, turning slowly through 360-degrees.

An interesting photograph showing the conning tower of U-93 whilst in port at St Nazaire. Note the unofficial boat insignia painted on the conning tower showing a sun with a smiling face. During the war it was common practice by U-boat crews to decorate the U-boats with an unofficial boat badge. Whilst this sort of practice was tolerated by the U-boat command for morale, there were strict instructions not to carry identification marks at sea. Later in the war, however, these orders appear to have been largely ignored by the crews.

A U-boat enters port after enduring a long patrol in the North Atlantic. Living conditions at sea for the crew were often hard and for the majority it was a case of carrying out often boring routine jobs whilst being confined to cramped and uncomfortable surroundings.



A U-boat returning from a mission enters port. Many of the crew members can clearly be seen on the boats bridge. Running along the surface was usually the only way men could escape the long periods inside the claustrophobic confines of the hull.

Here U-93 can be seen running along the surface enduring the choppy seas of the North Atlantic. This VIIC type U-boat was commissioned in July 1940 and patrolled mainly the North Atlantic between October 1940 and December 1941.

A nice photograph of the conning tower of U-93 returning from patrol in 1941. The U-boat was relatively successful against allied shipping and managed to sink during its service some 43,392 tons.

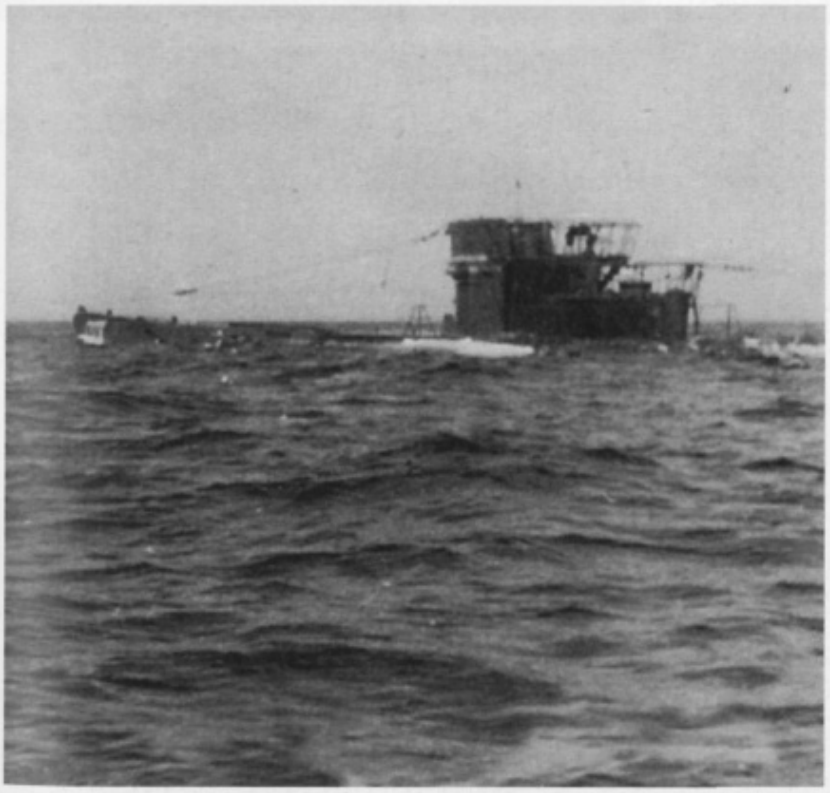
On the bridge and the crew of an unidentified U-boat scour the sea using binoculars. Crews often had access to several different types of binoculars. The types seen here appear to have thick rubber protection. Note the clothing the men are wearing which includes fur-lined leather caps and a sheep skin coat. This type of clothing was commonly worn in polar regions.

Another shot of U-93 running along the surface during one of its patrols in the North Atlantic in 1941. The boat was finally sunk whilst operating off the west coast of Spain. It was depth charged to the surface by RN Destroyer Hesperus, which was escorting Convoy SL 97. In a sinking condition the captain ordered the U-boat to be abandoned 300 miles west of Cape St Vincent. Forty of the crew were rescued and taken prisoner, but 6 were lost.

A crew are loading supplies for a patrol. Accommodating more than 20-tons of food inside a U-boat was often a very difficult task for the men. Loading the vessel for sea everything had to pass through a circular hatch no greater than 50cm (20in) in diameter. Although the quality of rations were often very high with crews enjoying foods far superior to other branches of the armed services, the men found it difficult moving about in the cramped conditions and as a result the many crew members suffered from chronic indigestion.

An unidentified U-boat making its way out into the open sea. For voyages lasting some three-months accommodation inside the boat was extremely basic and very cramped. There were few comforts and privacy among the men was almost non-existent, especially when there were often scenes of great activity.

An interesting photograph showing a U-boat conning tower garnished with flowers. It was common practice for returning crews to be decorated with flowers. Many boats too departing for patrols were also decorated in this way. It was believed that the fragrance of flowers was a refreshing odour to the men after they had spent many weeks cramped inside a stuffy, smelly hull.

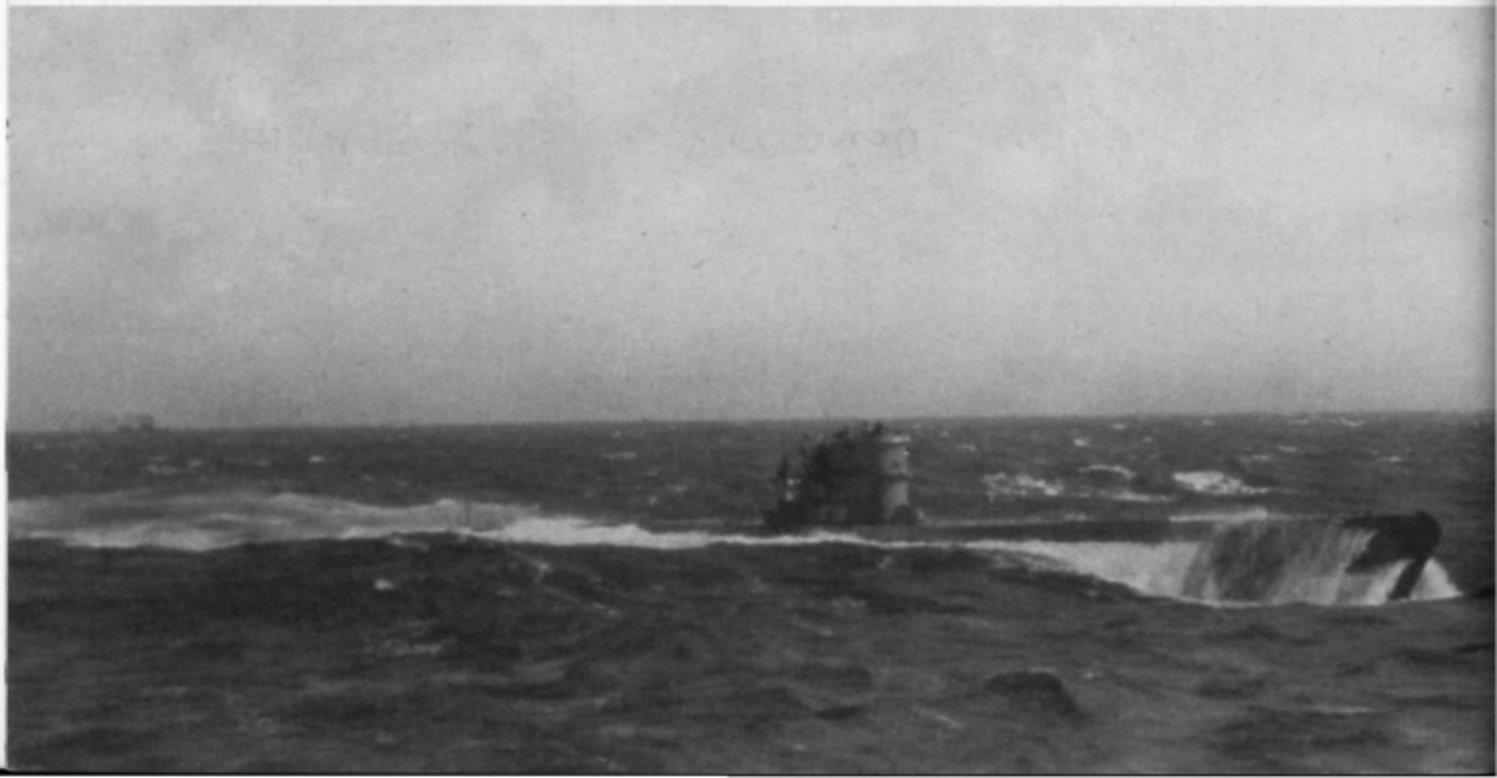


Photographed from the deck of a U-boat, U-13 can be seen patrolling the North Sea probably in 1940. This type IIB boat operated out of Wilhelmshaven and Kiel and hunted the cold waters off the east coast of Scotland, Shetlands and Orkney Islands.

A photograph taken on board another U-boat shows U-333 the moment it has surfaced. Note the boats missing armament on the deck. This was removed by the crew moments before diving because the gun was not waterproof. Once running on the surface the main flak gun was passed through the forward deck hatch and reconnected and rearmed. During the early part of the war allied airpower was almost non-existent and the single 2cm flak gun was more than capable to ward off most air attacks.

The crew of U-333 arrive in La Pallice after a long patrol in the North Atlantic in 1942. When the 50 long-unwashed and sweating bodies arrived in port it was a welcome break to leave the stench of their hull and breathe fresh air once more.

U-333 seen here on patrol in the North Atlantic in 1942. This VIIC type boat operated in the North Atlantic, West Africa and even off the US coast. In January 1942 the boat was attacked by enemy aircraft but was not seriously damaged. In October it fought a battle against HMS Crocus. As a result of the fierce fighting the commander, Peter-Erich Cremer, was wounded including several men. The heavily damaged U-333 managed to limp back to base.



On its successful return to base a U-boat commander salutes a member of the female auxiliary personnel, who has just handed him a bunch of flowers. Although still in their seagoing gear members of the crew still look remarkably clean for submariners that have been at sea for some appreciable length of time.

A photograph taken from the bridge of U-333 as it runs along the calm waters of the North Atlantic during a patrol in 1942. Whilst running on the surface U-boats constantly faced dangers from air attack and travelled in a ready-to-dive condition. Extra lookouts manned the bridge, and ammunition containers were kept open with the boats guns loaded and ready to fire.

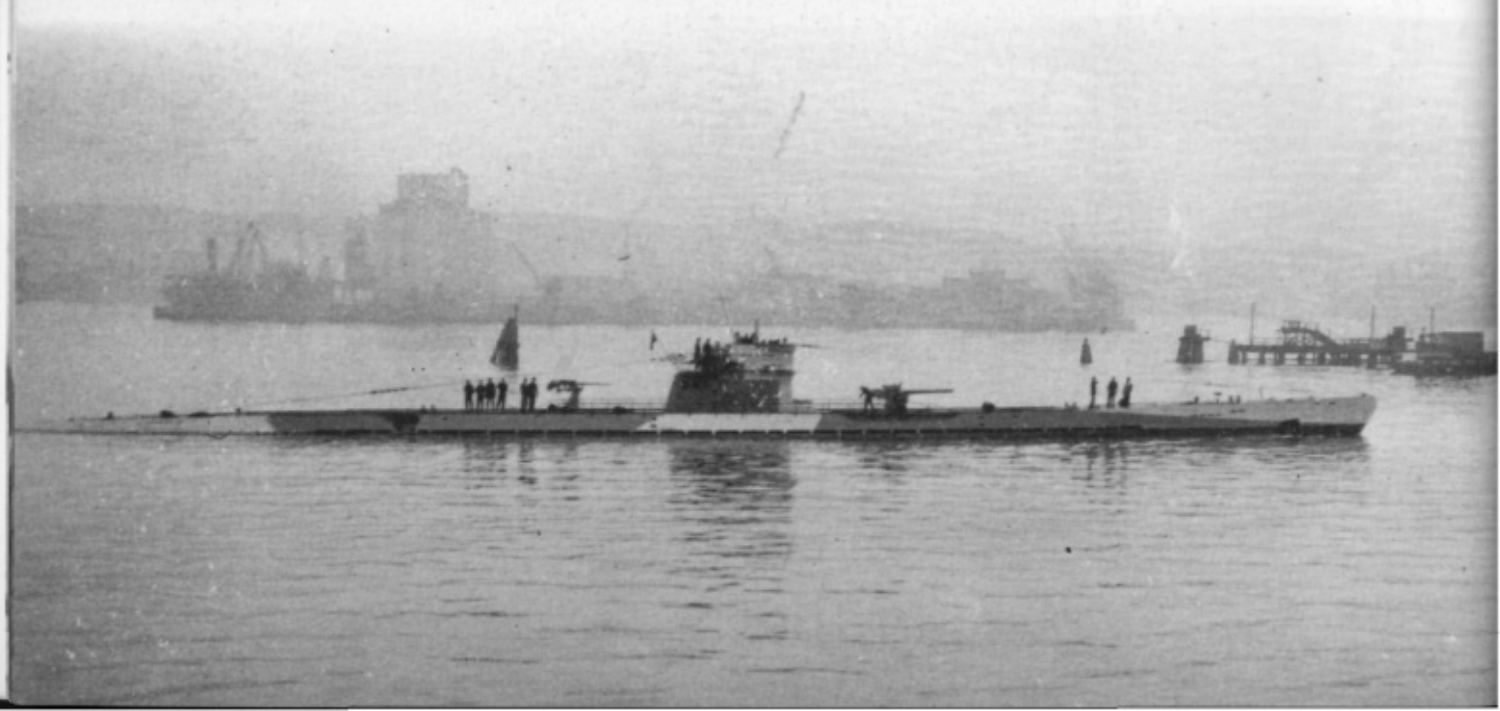
Onboard an unidentified U-boat this shows a crew member working on what was known as the 'Christmas tree' or trimming controls. Each wheel had a different design so that it could be distinguished by touch, as the operators had to be able to carry out these tasks blindfolded.

A U-boat making its way out to sea on a patrol. Life onboard the boat for the crew was often very mundane and cramped. Although the boat was cramped the men were not allowed just to freely stretch their legs. They needed permission to walk from one part of the boat to another and the majority of the time they were confined to their dark and noisy quarters or workplace.

Crew members are seen having a smoke while running on the surface. Smoking offered a U-boatman probably the only real chance of an occasional breath outside. At night, however, smoking on top of the conning tower was often banned because of the glow of the cigarette, which could sometimes be seen many miles away.

A U-boat running along the surface riding the waves. Travelling along the surface was sometimes very rough for the crew and made the journey particularly unpleasant. During the early part of the war the toilet could only be used when the boat was on the surface or dived at shallow depths. High pressure lavatories were only installed later, when prolonged dives at deep depths became more frequent.

A U-boat entering a harbour. Initially during the early part of the war boats entering the ports, particularly those on the French Atlantic coast, were often supplied very quickly and many of them were back at sea within a week or so.



A posed photograph showing almost half the crew having a smoke up on deck whilst the boat is running along the surface. Smoking was considered not only the best chance to get some fresh air, but also helped break the daily monotony of U-boat life in the dark, smelly and cramped confines of the hull.

A photograph taken showing the complete boat's company prior to a patrol in 1941. The men all look relatively fresh and clean, but life onboard the vessel soon took its toll on the men's appearance. Washing onboard was virtually impossible and usually the men were compelled to use rags soaked in cologne.

Here female auxiliary personnel decorate the conning tower with flowers. The U-boat is Erich Topp's U-552, the famous 'Red Devil' boat. Topp sank a staggering 34 ships totalling some 185,434 tons, making him the fifth most successful U-boat commander of the war.

U-22 moving along the Kiel Canal probably in September or October 1939. Many rivers and canals were often very problematic to navigate, especially through the Kiel Canal where the journey sometimes required taking onboard three pilots for different stages of the waterway. U-22 served only for a short period of time and went missing after leaving the port of Wilhelmshaven on 20 March 1940 with all 27 hands.

U-552 riding along the surface during operations in the North Atlantic. This Type VIIC first sailed from Kiel on 13 February 1941. On its second patrol five days later it left Helgoland for operations in the North West approaches. During its three week patrol the U-boat managed to hit two ships, HMS *Cadillac* and the Icelandic 686 ton Reykjaborg.

The captain, on the right, and a crewmember smile for the camera inside the conning tower of an unidentified U-boat during operations in the North Atlantic in the spring or summer of 1941. These men are on general lookout duty. The number of lookouts varied considerably on the U-boats and from area to area. During their four-hour watch, three lookouts normally scoured the sea, whilst a further one or two concentrated on the sky.

Three U-boats can be seen moored in front of a ship in 1939. Two crewmembers are standing at the key wearing the familiar blue naval uniform. In 1935 there were eight different official versions of the blue uniform, although the majority of them were not used by the U-boat arm. The standard uniform worn was the flat seaman's cap; dark blue jumper with detachable 'Nelson' collar and black scarf; and dark blue trousers.

Four fresh-faced crewmembers smoking on the deck probably whilst the boat is leaving its home base for a patrol. Preparing for a patrol was a very hectic time for the crew, and all of them were responsible for storing food, weapons, ammunition, and ensuring the boat was in a sea worthy condition. A quick smoke before resuming duties was a common practice among the crew.

An unidentified U-boat has left its moorings for operations in the North Atlantic and is running along the surface. A number of the crew have been given the chance to smoke and take in the sea air before resuming their duties down below.

A U-boat appears to be undertaking a patrol off the coast of Norway. One of the crew member's is on watch duty and survey the sea using a pair of binoculars. Sometimes on lookout duty the crew were forbidden to talk, eat or even smoke during hours of daylight.

Out on the bridge crew members pose for the camera whilst one of the crew scours the sea for enemy activity. Note the man on the right wearing an Iron Cross pinned to his left breast. During the war a number of U-boat commanders and their crews were decorated with this prestigious award often for their bravery at sea.

Two members of the watch on lookout duty whilst operating off the coast of Norway probably in 1940. Note the mounted anti-aircraft gun ready to be used at a moment's notice. As the war progressed more powerful flak guns were installed in order to defend the boat from growing enemy air attacks.

A U-boat out in the Baltic sea during operations. Some of the crew can be seen standing on the bridge. Many commanders found that discipline and efficiency improved if the men were allowed to chat with one another whilst scouring the horizon with binoculars.

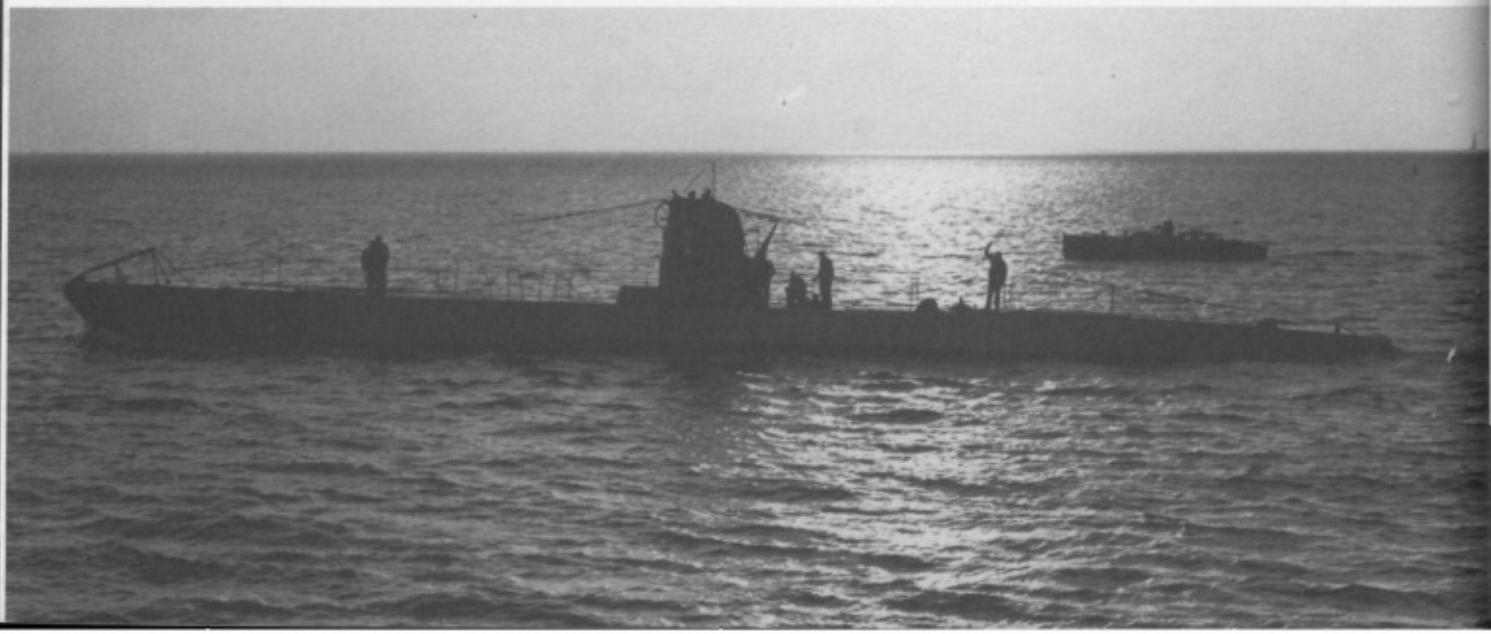
Two crew chat with one another. The man on the left is wearing what appears to be a rubberised waterproof coat whilst his comrade is wearing the standard blue submariner's uniform. Both men can be seen wearing the black peaked cap which was often retained only as a visible mark of warrant or commissioned rank.

An interesting photograph taken aft on board a ship showing a U-boat in choppy waters as it leaves its base destined for a patrol in the Atlantic. It can only be imagined how rough conditions are for the crew onboard. The tightly packed provisions on the U-boat were held in place by heavy nets to prevent them from crashing to the floor. Courtesy of Jim Payne

The stern of a U-boats deck can be seen moving along the surface of the sea. In the distance are two German ships. Until 1943 most U-boats spent as much time as possible on the surface and ran the diesel engines to recharge the batteries. Courtesy of Jim Payne

Here U-703 can be seen patrolling the cold waters off the Norwegian coast in early 1943. This VIIC type U-boat spent its entire service operating in the North Sea, along the shores of Norway and Iceland between April 1942 and September 1944.

U-7 during operations in the North Sea in 1940. This IIB type vessel was commissioned in July 1935 and during the war it patrolled the Polish, Dutch, Norwegian and Dutch waters until May 1940, when the vessel was reverted to training duties in the Baltic. In February 1944 the boat was lost in a training accident west of Pillau in the Baltic with all 28 hands.



Chapter Three

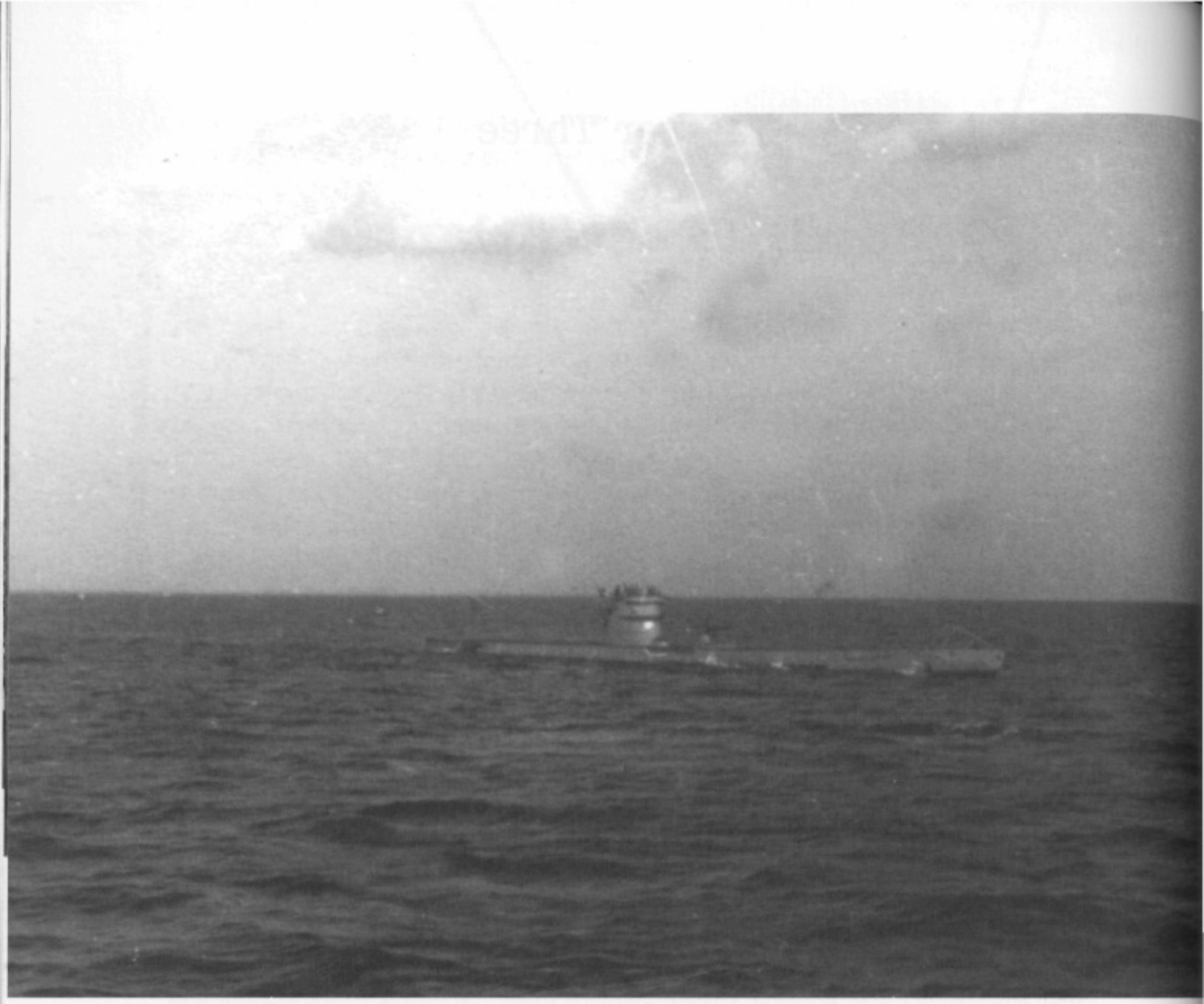
Battle of the Atlantic

Twelve patrols were required of each crewman before he was assigned to non-combatant duties. Although at first this did not seem many, the number was totally unrealistic. Each patrol could last up to three gruelling months of hell, and the chance of surviving in the enemy waters was very low. But despite the hardships at sea the *Ubootwaffe* remained a relentless threat to enemy shipping. Nowhere was this felt more during the early part of the war than in the North Atlantic. In 1939 Britain needed to import some 55 million tons of goods by sea to support its economy. In order to achieve this it needed its merchant fleet consisting of more than 3,000 ships to carry vital supplies across the Atlantic without fear of being attacked and sunk. To protect this fleet the Royal Navy deployed vessels with special echo-sounding equipment in order to detect enemy submarines. But the Germans were determined to strangle Britain economically and expand its U-boat programme with many ocean going types.

In September 1939, the Germans had fifty-seven U-boats under command, of which only twenty-seven were ocean going. The remaining were short-range coastal types. Karl Donitz, the German U-boat admiral, planned for a fleet of 300 U-boats, which he boasted would be capable of sending millions of tons of shipping to the ocean bed, and ultimately bring Britain to her knees.

Throughout 1941 thousands of tons of British shipping was sunk, and thanks to their increasing hunting tactics U-boat captains began operating in the central and western Atlantic as well. In June 1941, as German troops bulldozed their way into the heartlands of the Soviet Union, U-boats, regularly supported by German warships, extended their operations in the Arctic latitudes as well.

By September 1941, as the U-boat war intensified to newer and deadly heights, seventy-three U-boats were assigned to several groups that became known as 'Wolf Packs'. These lethal packs were used to operate along the Great Circle convoy routes. In order to try and reduce further losses and damage, the U-boats were equipped with a special radar detector made by Metox. Although the radar proved relatively successful it was unable to detect centimetric-wavelength radar, which some of the British ships and aircraft carried in the North Atlantic. This meant that quite frequently U-boat crews were taken by surprise and attacked. Yet in spite of the increasing U-boat losses, the British suffered far greater fatalities. Already by the end



U-93 can be seen operating in the North Atlantic in the spring or summer of 1941. The vessel is running along the surface but could at a moment's notice be spurred into instant activity by orders 'Alarm' or 'Action Stations'. Fast alarm dives became increasingly important from 1941 onwards especially when allied aircraft activity increased its role in attacking U-boats in the battle of the Atlantic.

of 1941, 91 operational U-boats had sent 432 ships with a tonnage of more than two million to the bottom of the sea. Atlantic operations in 1941 had proved extremely successful to the German navy. Winston Churchill was to later write that, 'the U-boat attack in 1942 was our worst evil'. During this period, U-boats spread across thousands of square-miles of sea. From the western shores of Ireland to New York harbour, to the Straits of Florida and the Caribbean Sea, the 'Wolves' made their kills, sinking hundreds of Allied vessels totaling some 6,226,215 tons. 'I am

fearful', wrote a US Army general, 'that another month or two of this will so cripple our means of transport that we will be unable to exercise a determining influence on the war'. Between January and March 1942 the *Ubootwaffe* continued sinking Allied shipping at an alarming rate. A further 1.25 million tons of shipping was sunk. If this was not enough, a few months later Donitz at last achieved his target figure of 300 U-boats. Most of these vessels were deployed in the central Atlantic where deadly 'Wolf' packs were concentrated against enemy convoys. Allied ships sailing individually in these cold and turbulent waters were often greatly susceptible to U-boat interception. These independent sailings presented U-boat captains with sometimes a host of targets. If an opportunity to sink one of these ships was ever missed, due to the U-boat being wrongly positioned for an attack, the captain could always rely upon waiting for the appearance of another vessel to pass by on one of the busy trade routes, even though he may have to wait days for his prey.

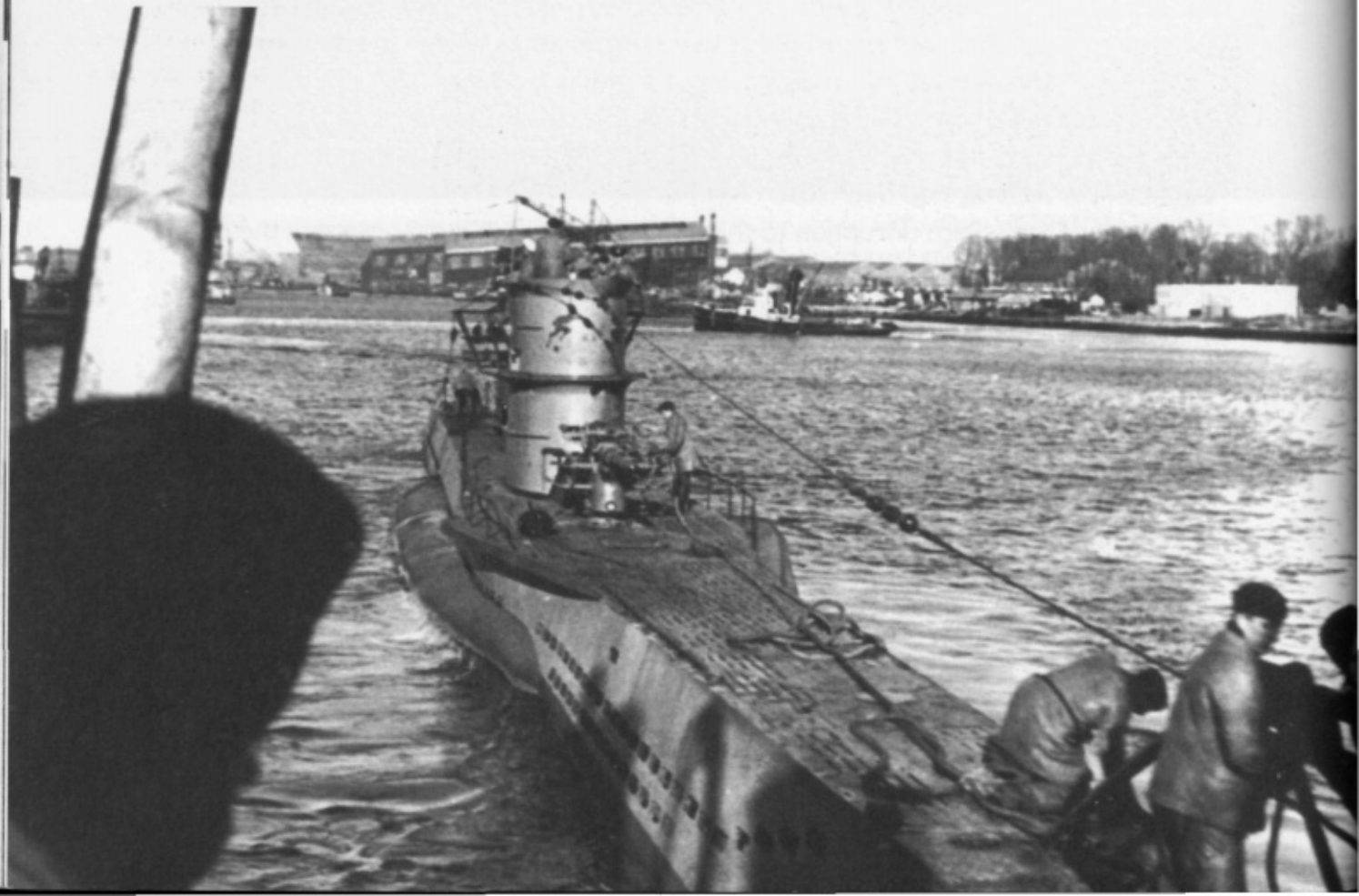
By November 1942 a total of 509,000 tons of shipping had been sunk. Harsh weather conditions seriously curtailed sinking's in the Atlantic, but by February 1943, despite the continuing bad weather, 120 U-boats had sunk nearly 300,000 tons of shipping. As further news of military setbacks continued to manifest itself on the battlefields of the Soviet Union, on the high seas of the Atlantic U-boat crews were still enjoying great success, despite the massive losses. Wolf pack tactics, supported by decrypting and position-finding techniques played a major part in the U-boat success. But by mid-1943 it became apparent that the U-boat losses were beginning to equal the amount of those being launched. To make matters worse the replacement rate of Allied shipping was beginning to far outweigh those being sunk. Long range allied aircraft too brought about a gradual strategic shift in the Atlantic and reduced the amount of shipping being sunk. Eventually Donitz much prized Wolf pack tactics were severely disrupted and the admiral reluctantly conceded that the battle of the Atlantic had been lost.

In spite of the severe disruption to the hunting grounds, this did not mark the end of the U-boat in the Atlantic. U-boat crews were still to prove of crucial significance in hindering enemy shipping that were destined for the shores of Britain and their Allies. But as Germany's war economy eventually dwindled after a string of military setbacks, Hitler`s investment in his once vaunted U-boat fleet could no longer justify the cost.

The battle of the Atlantic had been a huge sacrifice to both the men of the *Ubootwaffe* and those that gallantly and courageously sailed the high seas. Some 30,000 men of the British Merchant Navy had fallen victim to the U-boats, the majority of which had drowned or died of exposure in the cold and hostile North Atlantic Sea. But for all the cruelty the U-boat men inflicted, they won the admiration, as they did, for their courage and skill against adversity.

Two crewmembers onboard the deck posing for the camera. Both men are wearing their collarless, single breasted leathers and side cap. This brown 'dirty working' suit also had straight trousers. The garment was used at sea but not extensively.

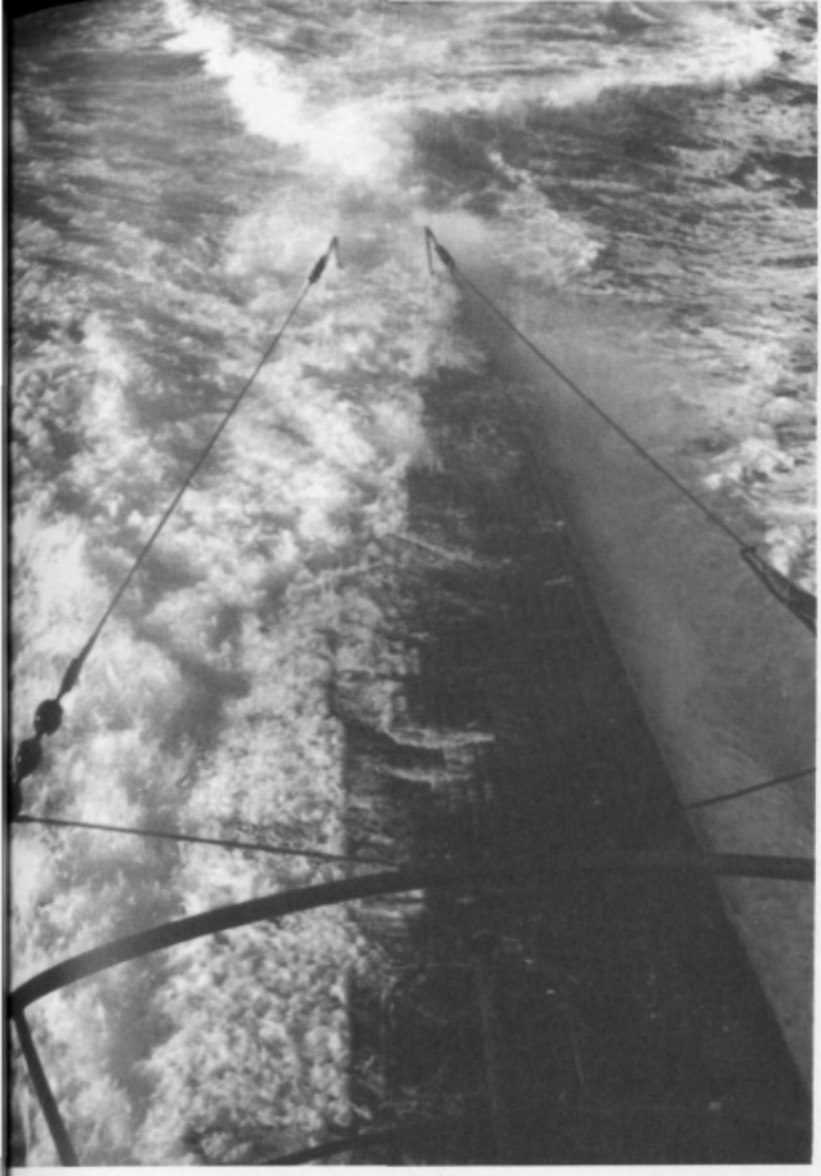
The crew of U-93 are in the process of mooring their boat following patrol operations in the North Atlantic. Returning back to base was always a welcome relief for the crew and a time to relax and prepare for their next mission at sea.



Two photographs taken moments apart showing the commander of U-93 with his officers on the bridge and on the deck moored alongside the harbour during the winter of 1941. The crew can just be seen lined up on the upper deck. No doubt all the men are expecting a rousing welcome complete with bands, flowers, champagne, and female admirers.

The captain and officer pose for the camera on the bridge after returning to their French base following operations in the North Atlantic in the winter of 1941. Both men are wearing the deep collared, double breasted grey leather coat issued for seaman trades. These leather coats were heavily lined with thick material, and were treated to make them more or less waterproof.

A photograph of U-93 on its return journey to Saint Nazaire after a long patrol in the North Atlantic in the winter of 1941. Stationed at Saint Nazaire was two U-boat flotillas: the 7.U-Flotilla, the 'Wegner' Flotilla named after Admiral Wolfgang Wegener, and the 6. U-Flotilla, the 'Hundius' Flotilla, after the famous First World War U-boat commander Paul Hundius.



Another photograph of U-93 this time taken from the bridge as the boat navigates the rough North Atlantic Sea during its return journey to Saint Nazaire. U-93 had been relatively successful during its short operating life, and upon its return trips to base the crew and its commander Claus Korth often received a stirring welcome.

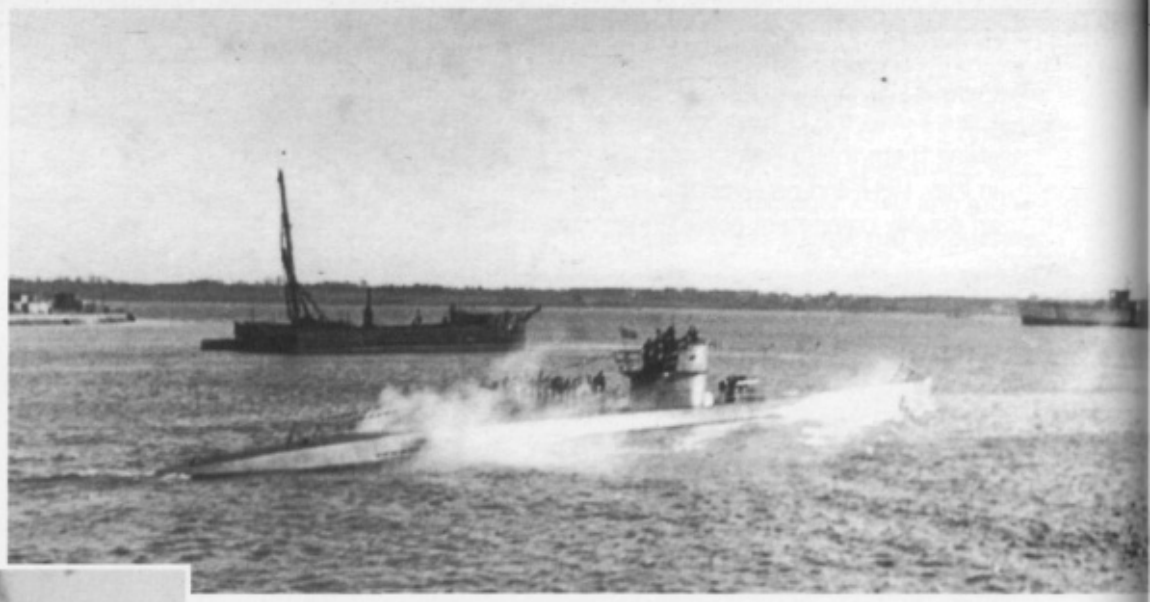
The crew of U-93 are resupplying their boat after spending probably more than a week recuperating at the base. The boat supplies are being passed through the small forward deck hatch by the working party. Crews often found manoeuvring the large cans, crates and kegs awkward and time consuming. Nevertheless the rations were plentiful and the men were well fed.

Three photographs taken during the commissioning ceremony of U-93 on 30 July 1940. This VIIIC type U-boat was first based in Kiel in October 1940 and a month later it was transferred to operate out of Saint Nazaire. For the next year the boat was seen based at both Saint Nazaire and Lorient and undertook six patrols from the French Atlantic Coast.

Four crewmembers of U-93 after their return to port following a number of weeks at sea. All the men are wearing a variety of boat issue clothing. All clothing and equipment were issued to boat stores rather than to the individuals, and they were handed out as necessary. As a result, over time, there were various types of dress worn by both U-boat officers and their crew whilst on operational service.

Claus Korth, the U-boat commander of U-93, gathers his officers and crew onboard the deck before giving them their orders to set sail. On five patrols Korth sank eight ships for a total of 43,392 tons in May 1941 and received the Knights Cross. In October 1941 he left U-93 which was taken over by an equally competent commander, named Horst Elfe.

U-93 is seen here with the majority of its crew on the deck and on the bridge moored alongside a harbour. At least three of the men can be seen having a well earned cigarette after enduring weeks at sea in the North Atlantic. Getting back to base and relaxing in one of the submariner's shore accommodation was a welcome relief from the time cramped onboard the U-boat.

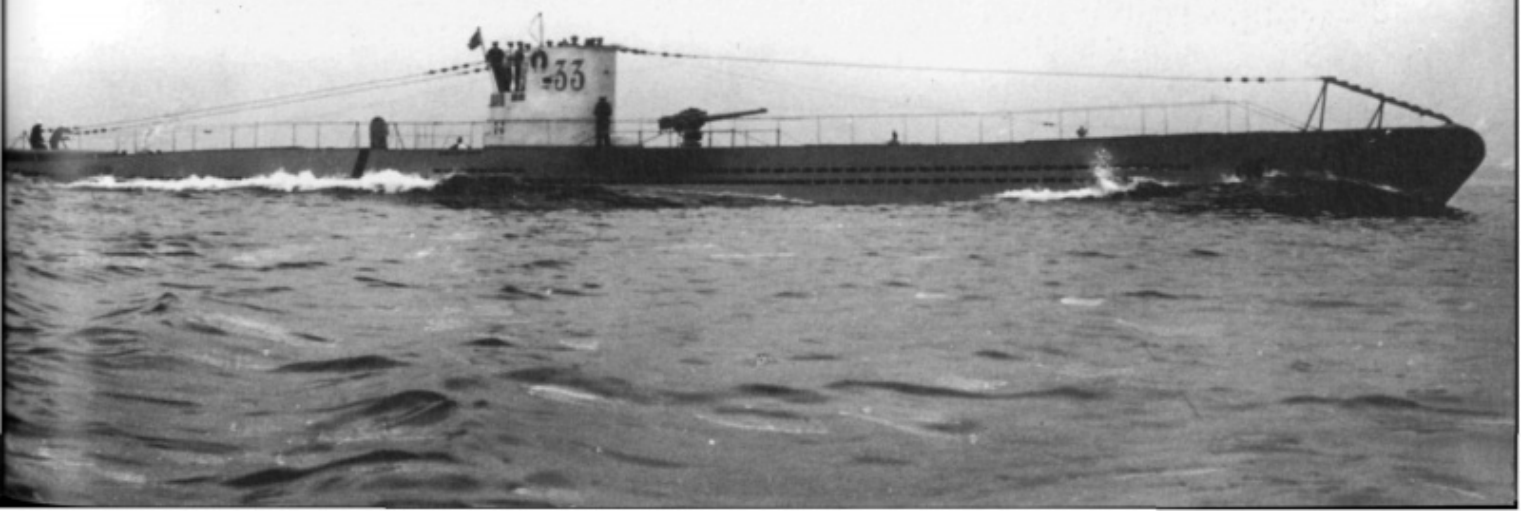


An unidentified U-boat returning to one of the U-boat bases on the French Atlantic coast. All the U-boat bases were not just a staging post, which the allies initially thought; they were a lifeline to the submarine crews. The base was able to offer the men peace and quiet, after the stinking metal hull that they had to live in for weeks at a time. In fact nobody even objected to sharing a double room in the number of submariner's accommodation that were specifically built for the crews.

A close-up view of U-93 commander captain Claus Korth who appears to be standing on the bridge moored alongside a harbour. In December 1938 Korth commissioned U-57, which scored on her fourth patrol when it sank two ships. In June 1940 Korth left the U-boat and commissioned U-93 in July of the same year where he spent over 15-months in service with the boat. In June 1942 he became a training officer in the 27. Flotilla.

An unidentified U-boat returns to base after a patrol. U-boats that ran into French ports were normally supplied and back at sea within a week or so. By mid-1941 the period spent in port dramatically increased between patrols to an average of 37 days.

U-33 returning to base after a patrol in the North Atlantic in late 1939. This VIIA type U-boat was commissioned on 25 July 1936 and during its short service it sunk 11 ships. On 12 February 1940, however, the boat was attacked by a Royal Navy minesweeper and depth charged in the Firth of Clyde. Due to severe damage the crew scuttled the vessel. Twenty-five of the crew were killed and seventeen taken prisoner.



Here U-33 can be seen moored off the coast of Wilhelmshaven prior to an operational exercise in August 1939. When the U-boat was finally sunk in February 1940 very important documents were recovered from the survivors and the wreck of U-33, which provided valuable information for intelligence.

Officers pose for the camera from inside the conning tower of an unidentified U-boat.

U-37 moored probably in Wilhelmshaven during the early part of the war. This IXA type U-boat was commissioned on 4 August 1938 and operated from both Wilhelmshaven and then later in the war from the U-boat base of Lorient and then Kiel. During its remarkable service from August 1939 until March 1941 the boat sank a staggering fifty-six ships.

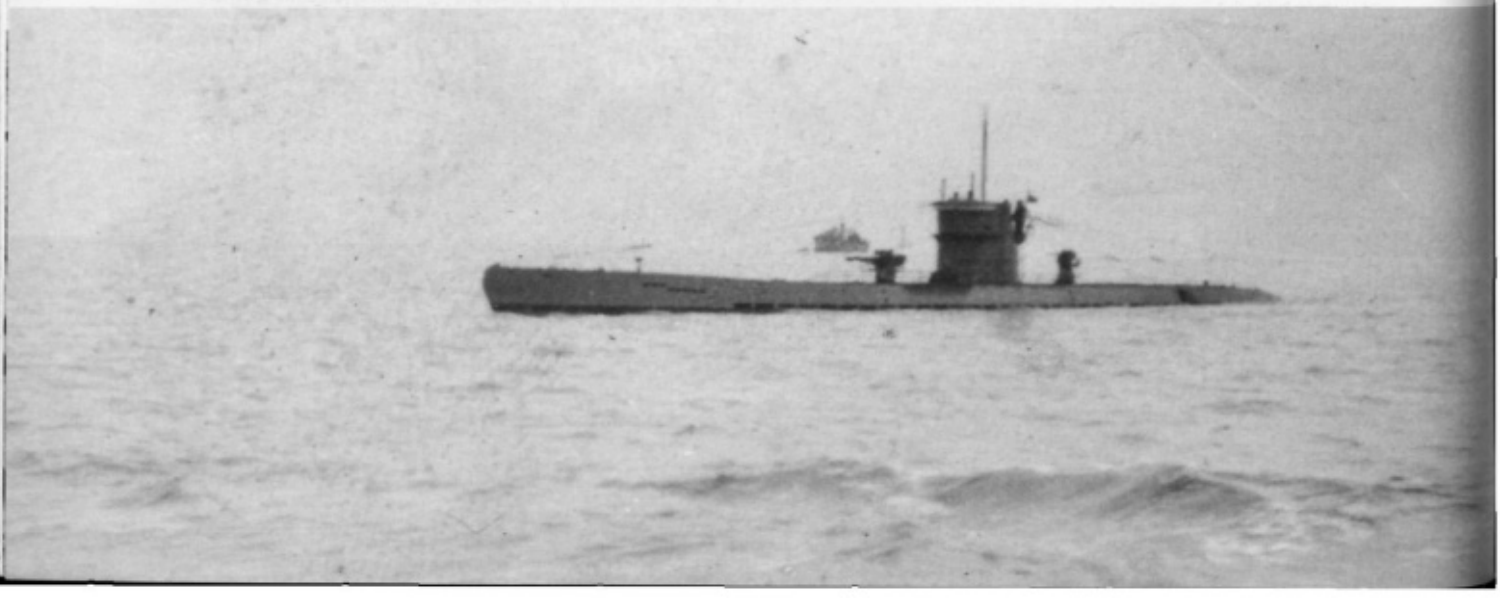
Two photographs showing what appears to be U-47 of the 7. U-Flotilla conning tower as it makes its way into harbour following operations at sea. Note the white Snorting Bull of Scapa Flow painted on the side of the conning tower. The success of the battle of Scapa Flow resulted in the sinking of the Royal Oak.

Three photographs of the same U-boat showing crewmembers on lookout whilst patrolling the North Atlantic in 1941. If an enemy aircraft was suddenly spotted `Action Stations` would immediately be called, and the alarm button would be pressed. It was then up to the efficiency of the lookout crew to quickly vacate the bridge with the utmost speed. Vents and hatches were then quickly shut as the boat began to dive.

The crew were trained to react very rapidly to avoid the boat becoming engulfed in water as it dived. It will never be known how many U-boats were sunk in this way, but there were occasions when tired crew did not react quickly enough to close the vents and hatches and as a result the boat subsequently took on significant amounts of water.

A U-boat running along the surface returning to base. When a U-boat arrived at its destination after sometimes spending many weeks at sea, only a skeletal crew remained in the port usually accommodated in a variety of surrounding hotels or hostels. The rest would get travel warrants for home leave.

A U-boat operating in the North Atlantic. Although this scene may look relatively calm, at a moment's notice the boat could suddenly dive with full action stations. Quick diving was achieved by increasing the boat to fast speed. Because diesel engines had to be cut off before vents were closed, the surge of power was generated by electrical motors.



A U-boat returning from operations at sea. Note the so-called 'success pennants' which are being flown from the periscope. The pennants indicate the number of ships sunk, and the numbers on them show the Gross Register Tonnage of their victims.

Moored in the harbour members of a U-boat crew can be seen standing next to the boats gun. This weapon was mounted on a low pedestal forward of the conning tower and could traverse through 360 degrees. When submerged the barrel bore was protected by waterproof Tompion inserted into the muzzle. The gun action, however, could only aim successfully in calm seas. In rough weather the crew could strap themselves into position, but there was always the danger of actually being washed overboard.

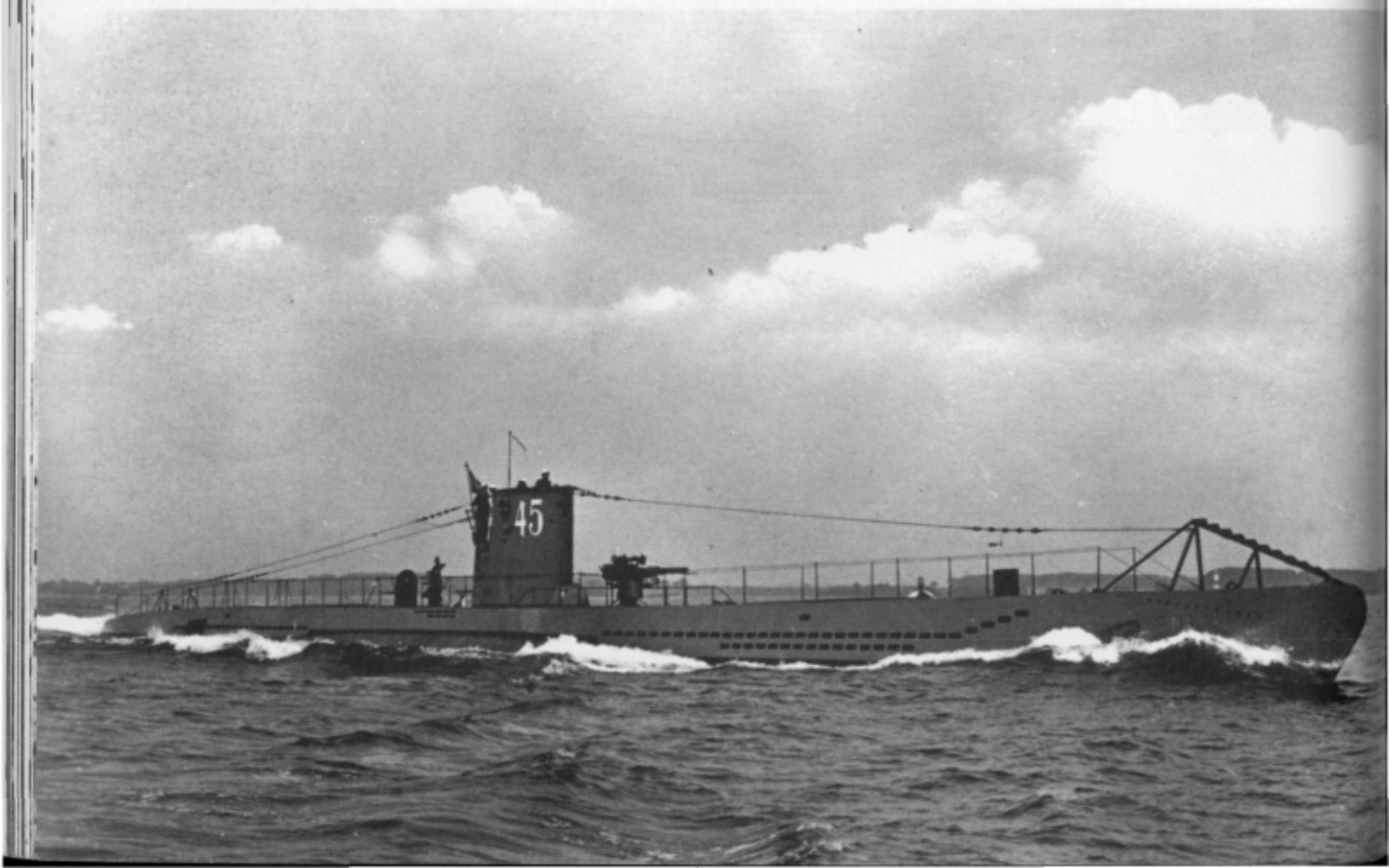
A lifeboat pulls alongside a U-boat in the North Atlantic. One of the boats crew who appears to be communicating with the survivors can be seen on deck holding a megaphone. During the war it was forbidden for U-boat crews to accommodate prisoners because of the already cramped conditions. But seeing seamen in their lifeboats was normally a sufficient guess that they were safe. However, there were examples of very decent behaviour where U-boat commanders actually took onboard prisoners or fired off distress flares to attract the attention of other passing neutral ships.

One of the deadly Wolf Packs out in the North Atlantic running along the surface after scoring a hit. It is quite evident that the visible sight of smoke billowing across the photograph indicates that at least one ship has been hit and badly damaged. By September 1941, as the U-boat war intensified to newer and deadly heights, seventy-three U-boats were assigned to several groups that became known as 'Wolf Packs'. These lethal packs were used to operate along the Great Circle convoy routes.

A classic image of a U-boat commander searching the horizon through the navigation periscope in the central control room. The handle above the captain's hands was used to alter the magnification, and there was another for moving the reflecting surface inside the periscope head

A U-boat riding the rough seas of the deep North Atlantic. During the course of the battle of the Atlantic, Britain and her Allies lost more than fifty thousand seaman and fifteen million tons of shipping protecting this lifeline. Britain's power to fight depended above all, on the outcome of the war fought in the waters of the Atlantic against the deadly U-boats.

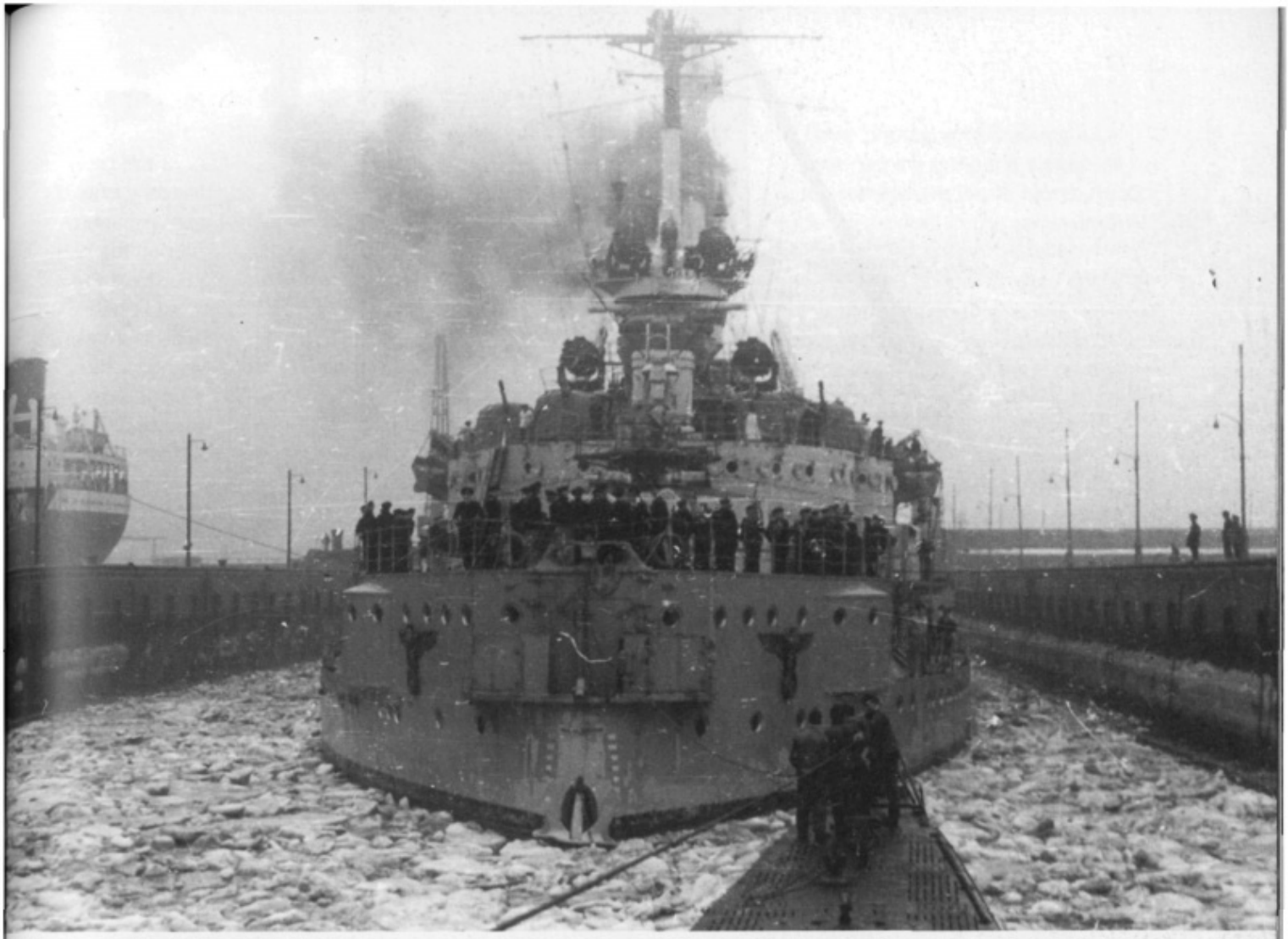
A nice photograph showing U-45 leaving its base of Kiel in September 1939. This VIIB type vessel was commissioned in June 1938. It saw three patrols in its short career and it last operated in mid-September 1939 in the North Atlantic. The boat was eventually depth charged a month later by Royal Navy destroyer *Icarus, Inglefield, Ivanhoe* and *Intrepid*, off the coast of the Bay of Biscay with all 38 hands lost.



U-boat officers pose for the camera after returning from a patrol of the North Atlantic. By the appearance of the men they were probably at sea for a significant amount of time as they have all grown beards. Note that they are also wearing white shirts and a bow tie, indicating that they are attending a welcoming dinner.

In the North Atlantic the crew on the bridge acknowledge another passing vessel or U-boat by waving. Allied ships sailing individually in the North Atlantic were often greatly susceptible to U-boat interception. These independent sailings presented U-boat captains with sometimes a host of targets.

Three photographs, two of which are taken in sequence show Karl Dönitz, Commander-in-Chief for U-boats. Itwas Dönitz that campaigned vigorously for a U-boat building campaign, believing that 300 using 'pack' tactics could block Britain's trade routes and force her eventual collapse both economically and militarily. Though at the outbreak of the war his U-boat arm was smaller than he envisaged, Dönitz still ardently believed in its success in the North Atlantic. To be near his men whilst they operated out in the North Atlantic in 1940 he moved his command to Lorient on the French coast. However, by 1942 he was forced to return to Paris to avoid the growing air attacks on the U-boat bunkers. In January 1943, after Hitler abandoned Germany`s ship building programme and concentrated on U-boats, Dönitz was promoted to full Admiral and Commander-in-Chief of the navy, after Admiral Raeder resigned.



Two photographs showing an unidentified U-boat with a German ship off the coast of Norway. In March 1940 there was a lull in the Battle of the Atlantic as U-boats were withdrawn for the Norwegian campaign. It was on the 3 April 1940 when the first German troop transports sailed for Norway.
Courtesy of Jim Payne

Two members of the crew can be seen handling one of the two flak guns mounted on the boat. During the early period of the Battle of the North Atlantic a U-boat normally had only a standard anti-aircraft weapon which consisted of a single 2cm gun. Later there were two flak guns, one mounted on the forward deck and the other in the bridge. Note the crewman on a wet watch wearing what appears to be the so called `small seal` version of foul weather gear consisting of a rubberized coat, trousers and sou`wester. Another version of the caped hood was the large caped hood covering the shoulders and upper arms and was called the 'big seal' outfit.
Courtesy of Jim Payne

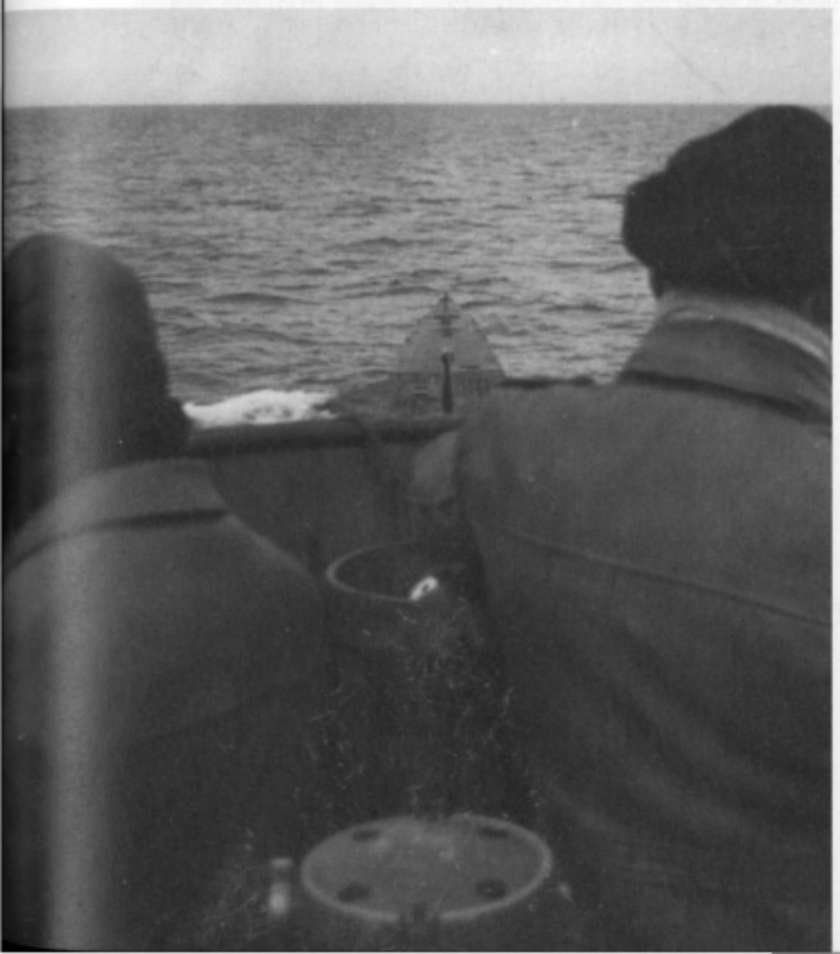
A shot taken by a photographer inside the bridge with the captain and one of his officers. One characteristic common with all U-boat commanders was their quick reactions and their ability to make up their mind rapidly without faltering. In 1941 there was not an acute shortage of good commanders that operated in the North Atlantic and their speedy level-headed decisions often saved their crews lives.
Courtesy of Jim Payne

Three photographs showing a U-boat running along the surface of the sea somewhere in the North Atlantic during a patrol in the early winter of 1942. Often crews had to work on deck in sea conditions very similar to this. Working on the deck in anything but the calmest sea was potentially very dangerous and the men were ordered to wear harnesses.

Courtesy of Jim Payne

An interesting photograph showing the bridge of an unidentified U-boat. The bridge is heavily defended by three MG34 machine guns. The MG34 could be utilised in both a light and heavy role and had an effective range of 2000m (2188yds) and an impressive rate of fire of 800-900 rounds per minute. This weapon could undoubtedly deliver a formidable volume of fire and was particularly effective at combating low level aircraft attacks against U-boats.

U-38 appears to be surfacing as it approaches the port of Wilhelmshaven after a patrol in the North Atlantic. The boats 10.5cm gun on the forward deck can just be seen emerging from the water. At the beginning of the war it was quite common for U-boats to stop merchant shipping by putting shots across their bows. However, actually sinking the ship with the deck gun was almost impossible and often required a torpedo.



Two crew members on lookout on the bridge whilst patrolling the North Atlantic. The lookouts on the bridge had to be quite vigilant whilst travelling in an air danger zone. On hearing the word 'Aircraft!' the guns were manned by the gun crew, and at the same time the engine settings were sometimes ordered to be put onto a faster speed in order to enable evasive action.

From another vessel a U-boat can be seen riding the rough waters of the North Atlantic. During the course of the Battle of the Atlantic it involved thousands of ships that covered many hundreds of square miles of the vast ocean in a series of over 100 convoy battles and some 1,000 single ship encounters.

A nice photograph showing officers and the captain on lookout in the bridge off the French Atlantic coast. All the men appear to be wearing the deep collared, double-breasted grey leather coat. Note the man on the right wearing a white covered cap. It was quite common during the war for the captain to wear a cap that was covered white in order for him to distinguish himself from the rest of the crew.

Chapter Four

U-Boat Bunkers & Returning from Patrol

When the U-boat crews returned from patrol to their moorings in Kiel, Hamburg, Bremen, Heligoland or Wilheshaven they were hailed heroes of the sea, where family and loved ones greeted the men with flowers. The U-boats were either temporarily moored in the harbor or sailed directly into the heavily protected bunker pens where the vessel could be rearmed, refueled, resupplied and serviced to fight another day. These U-boat pens were not just a staging post, which the allies had initially thought; they were in fact a lifeline to the submarine crews. Massively protected they contained all the necessary facilities – main service, fuel stores, dry docks, workshops and accommodation.

By 1941 a number of U-boat pens had been constructed in northern Germany, Norway, and along the Atlantic and Mediterranean coast in France. The pens enabled the Germans to use U-boats to patrol the wide open expanses of the Baltic, North Sea, Atlantic and the Mediterranean using the new ports as base. In order to protect the U-boat bases from aerial attack a massive construction programme had been undertaken at incredible cost in labour and material. Along the western coast of France alone there had been five ports designated for the use of U-Boats, all with their own massively protected concrete pens. These were Brest, St Nazaire, La Pallice and Bordeaux. The facilities of these five U-boat bases were placed into three categories: non-tidal, tidal and onshore. The non-tidal were built on ordinary harbour basins, with a lock leading to the open sea, as at Brest and two pens at Lorient.

The average size and thickness of the U-bunker walls were between 8 and 11 feet thick, and the walls between the pens varied considerably in thickness from 3 to 5 feet within the same building. The roof too was heavily reinforced and provided ample protection for the exterior walls and the entrances to the pens against direct hits or misses.

To protect the U-boats and the personnel working on them inside the pens from attack, the entrances to the pens above the quay level were protected by armoured plates mounted on pontoons and towed in and out of position by tugs. This, however, gradually proved to be far too slow and dangerous, so counter-weighted half metre thick steel shutters were slid down from behind the lintel to close off the

entrances. In the dry dock pens two shutters were installed, one behind the other, whereas the others had generally one shutter.

For the U-boat crews that returned from patrol, hailed heroes of the sea, they sailed into these heavily protected bunker pens for a much needed respite, whilst their U-boat was rearmed, refueled, resupplied and serviced to fight another day. As these weary crewmen stepped ashore beneath the towering ceiling, which continuously dripped condensation, they were met by the familiar sounds and smells of organized activity. Passing busy teams of workers, welding, grinding, operating cranes and carrying various supplies and other important equipment, the U-boat commander was greeted with salutes.

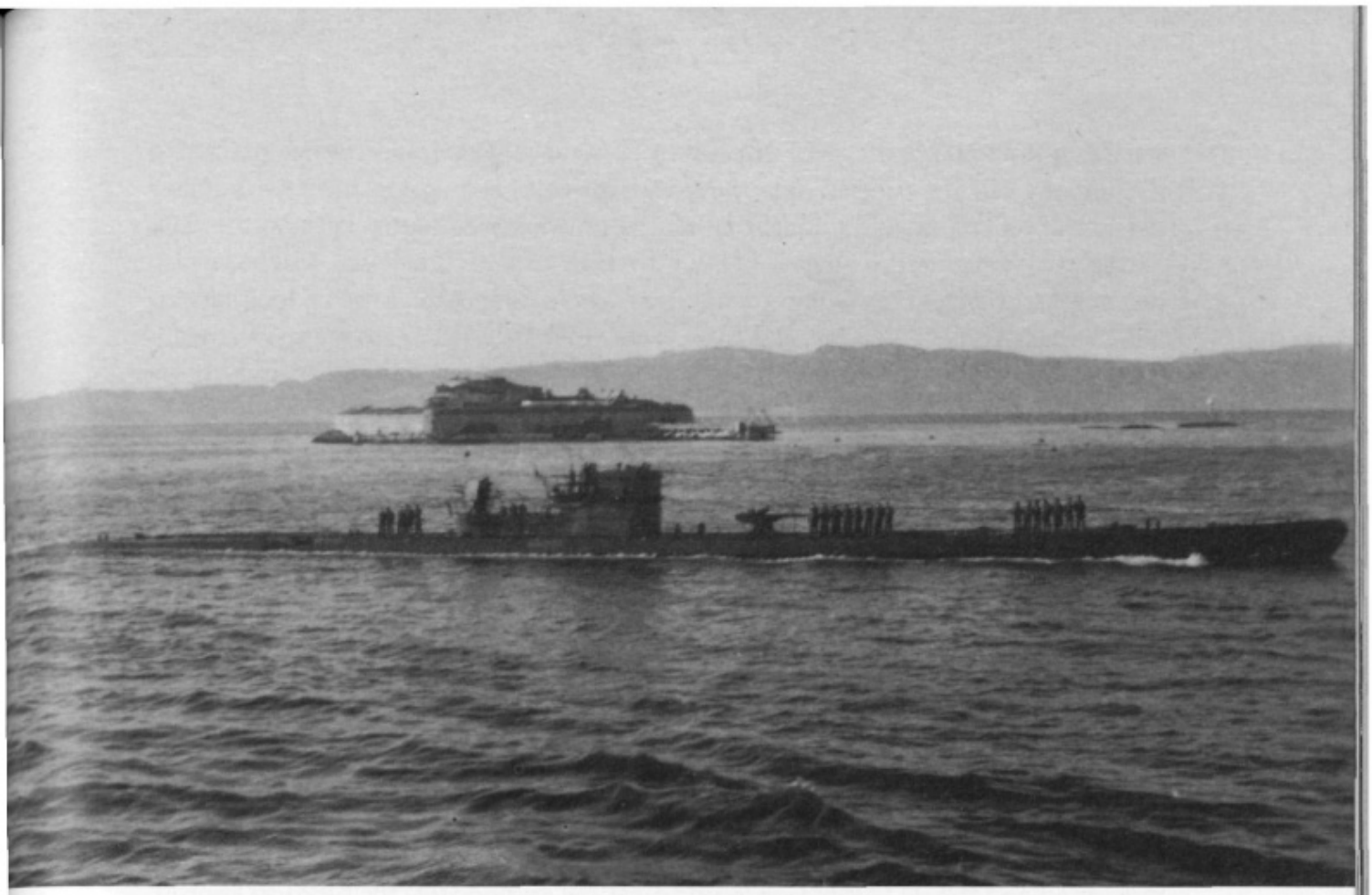
Here in port the captain and his crew would remain for more than a week whilst the men recuperated and the U-boat was resupplied. By the summer of 1941 the length of periods spent in port gradually increased and this meant that the men received travel warrants for home leave. Some of the crew, however, remained in the port and were often accommodated in a variety of local hostels. It was very rare that any of the men slept onboard their U-boat whilst it was in port.

Life for the U-boatman in port was often good and this included the standard of hotels and hostels in which they were accommodated. Food and alcohol was usually abundant, and a number of men frequently visited the local brothels.

Although the men looked upon the ports as a place of recuperation and a safe-haven, by 1942 the RAF and the USAAF began making a number of attacks on the ports and this included the U-boat bunkers. Fortunately for the Germans the bombs seldom hit the bunkers. When they did hit, they barely scratched their surface. It seemed the bunker roofs were quite impervious to any bomb. Even the largest 12,000lb high capacity blast bomb, and the heavy 2,000 pounder armour piercing bomb, made it useless against the reinforced concrete of the U-bunker. The flying Fortress and Liberators of the US Eighth Army Air Force bombed with more precision, but even their bombs simply bounced off the bunkers.

With the realization now looming that the Allied bombs could not penetrate the massive thickness of the U-bunkers roofs and walls, the Allies decided to heavily bomb the ports and coastal towns. Between 14 January and 17 February 1943, the RAF and the US Army Air Force attacked Lorient and bombed most of the town. When U-boat crews returned to their home port, very little was left standing. Admiral Donitz remarked of the complete destruction of Saint-Nazaire and Lorient, *'not a dog is left in these towns. Nothing remains – but the U-boat bunkers'.*

Although the Allied bombers had a left a wasteland of destruction attempting to smash the U-boat shelters, in the course of the attacks more than a hundred bombers were shot down by Luftwaffe fighters and the dozens of 8.8cm flak guns defending the bases. Many now believed that the submarine pens were too hard, or



A very heavily armed U-boat returning to base probably after operations in the Mediterranean. With increased air activity by 1942 U-boats were beginning to mount quadruple flak guns on the bridge which were manned continuously in air danger zones. Quite frequently though it took the gun crews sometime to assemble on the deck or in the bridge, since they were down below in the hull. At least eight men were required to man the guns with additional help to feed the ammunition. Defending the U-boat was paramount for the men and often a life or death situation.

even impossible to destroy. As further attacks continued in vain, back in London Barnes Wallis, who had already achieved noticeable success with breaching of the Ruhr Dams with his bouncing bombs, designed and produced a scaled down version of a massive bomb weighing 12,030 lb, nicknamed the 'Tallboy'. This bomb designed for demolishing massive structures was now the only answer of destroying the U-bunkers.

On 5 August 1944, the first of three waves of RAF attacks using Wallis's new 12,000 lb 'Tallboy' bombs was used against the U-bunker base at Brest. Five direct hits were achieved. A week later another raid scored three direct hits, and in the last raid on 13 August the bomber crews achieved one direct hit and two near misses. Though the Allies failed in their mission to destroy the U-boat bunkers from the air, after the Allied breakout in Normandy, the US VIII Corps had the task of capturing

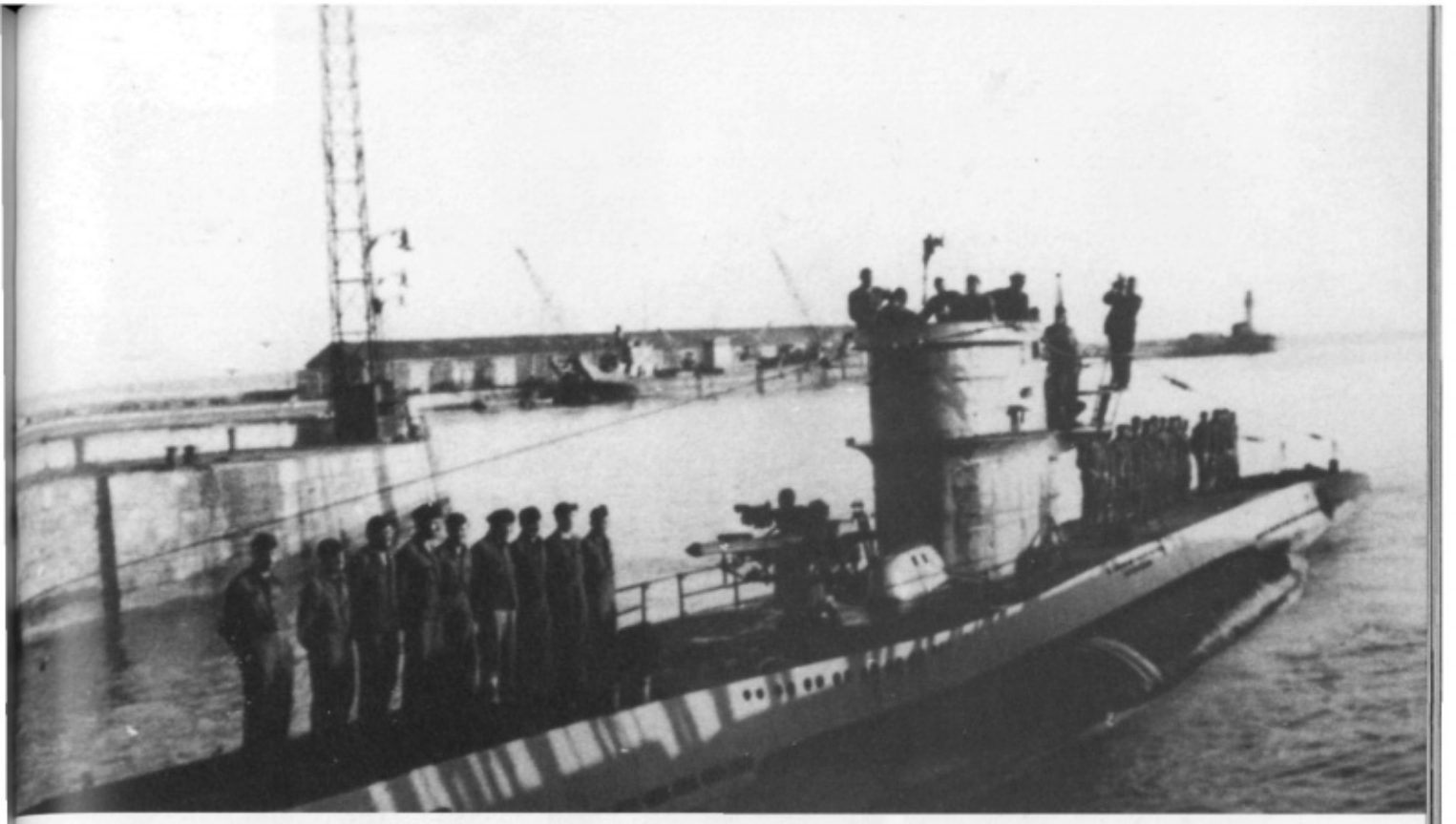
the Brest port and its huge naval base by systematic ground and aerial attack. On 21 August 1944, the Americans launched a massive assault against the town's strong defences. The remaining U-boats that had been sheltering hastily left and the 9.U-Flotilla was disbanded. The last U-boat to limp out of Brest was U-256, which departed for Bergen on 3 September. Two weeks later, after a fierce long bloody battle of attrition, Brest was finally taken. With the town and harbour in ruins the U-bunker was the only structure standing almost intact.

Whilst the U-boat base at Brest had been under similar attack, other U-boat ports too were under heavy attack. At Lorient the RAF launched a number of heavy bombardments against the U-boat pens and dropped almost 146 tons of bombs on its impregnable structure. Most of the dock workers had already been evacuated back to Germany or transferred by sea to Saint-Nazaire. By this period almost all the U-boats had evaded capture by leaving in early August. The last U-boat to set sail was *Oberleutnant zur See* Ludwig-Ferdinand von Friedeburg's U-155 on 5 September. A month later all U-boat activity at Lorient ceased. But despite the overwhelming superiority of American troops the port held out sustaining terrible losses until 8 May 1945.

Further south at Saint-Nazaire the port and its U-bunkers also had to endure air attacks and a siege. Once again German defence proved virtually impregnable. In August 1944, during some of Saint-Nazaires heaviest attacks the 6.U-Flotille was disbanded and the 7.U-Flotilla ordered to set sail immediately for Norway. Four U-boats departed at the end of August, and the last two left a couple of weeks later following major repairs. When the U-bunkers were finally captured American troops found U-510 in pen 4, docked for repair, having sailed all the way back from the Far East loaded with raw materials.

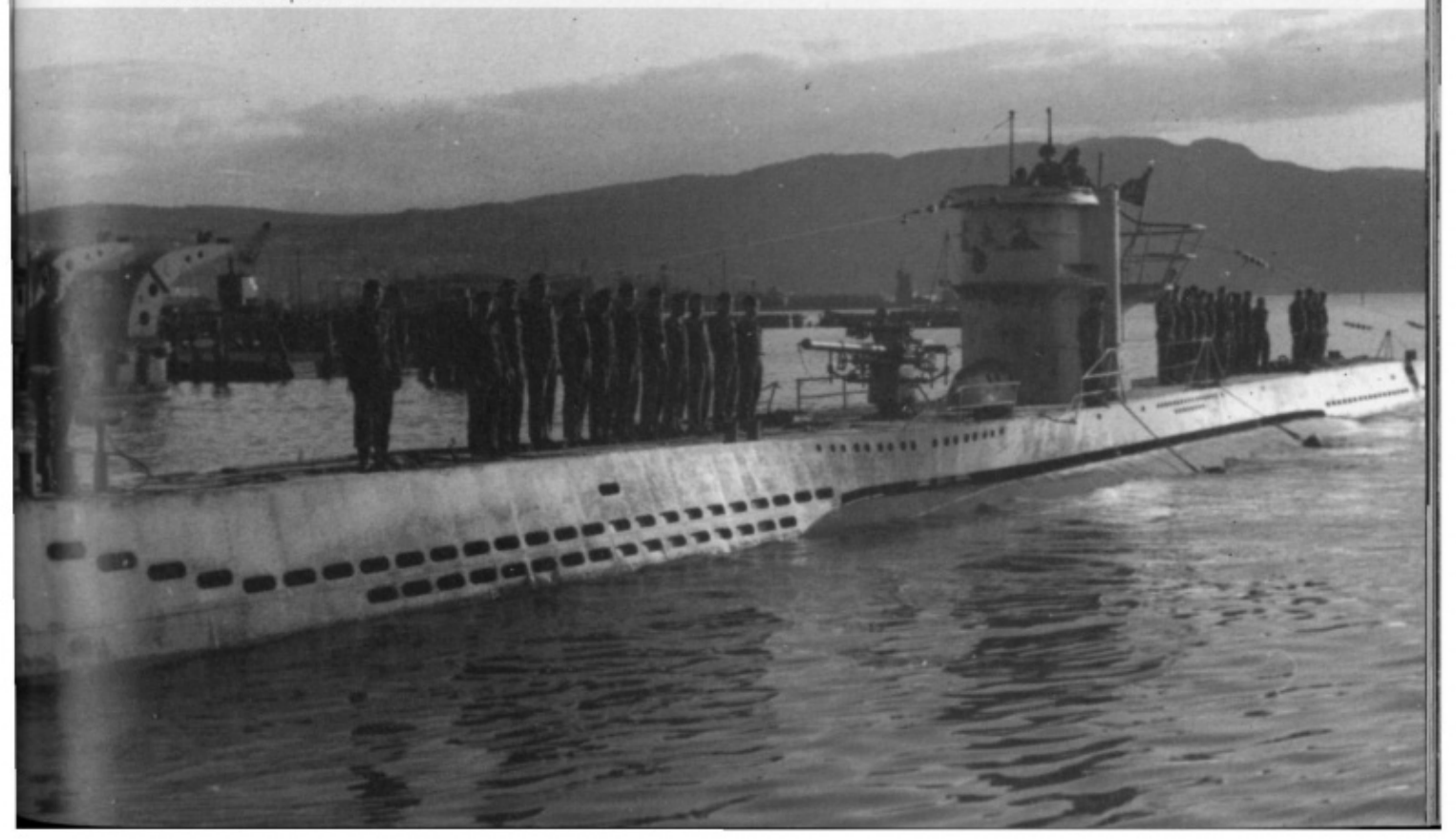
At La Pallice the U-boat complex there also put up stiff resistance against air and ground assault. With its string of anti-aircraft guns and well prepared defences 'Fortress La Rochelle' battled mercilessly to keep the town and its U-bunkers from being captured. As further attacks intensified 3. U-Flotilla hurriedly departed for Norway, finally ending the short chapter for U-boats at La Pallice.

In the south of France the last of the U-bunkers at Bordeaux came under attack by the RAF. In August 1944 at least 400 tons of bombs alone were dropped on the U-base including attacks on oil storage. Despite the complex being heavily defended the 12. U-Flotilla was finally disbanded. In the dying days before it fell 500 German soldiers held the base to enable engineers to destroy the installation.

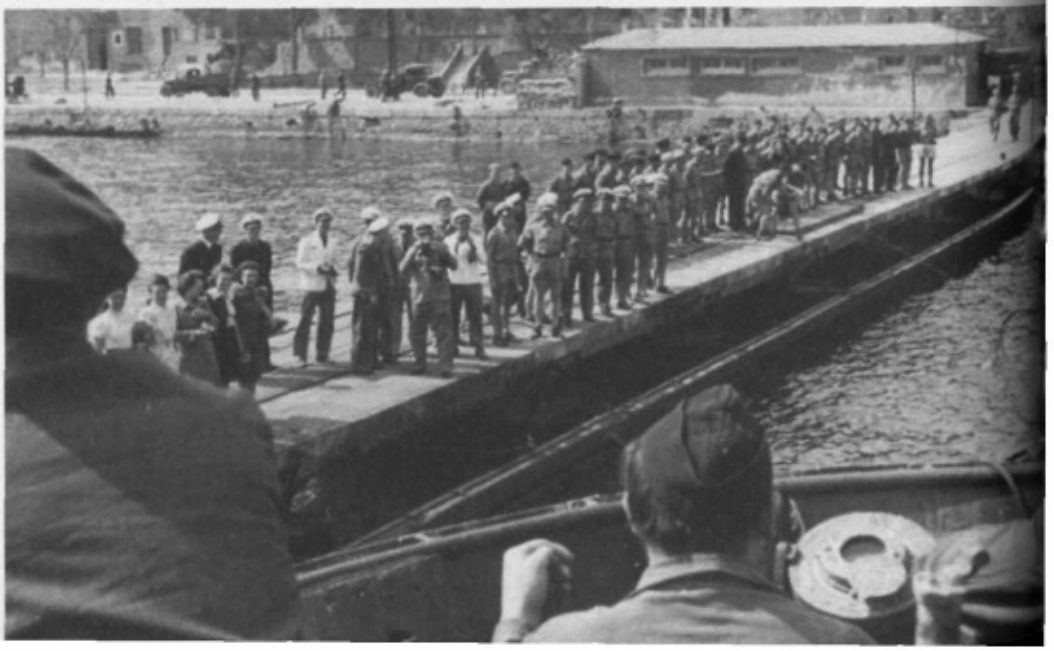


An unidentified U-boat upon its return to base. Many of the ports, in particular those along the Atlantic coast benefitted from the U-boat crews. When the men were unable to get travel warrants they would generally take residence in one of the local hostels or hotels.

Returning to base the crew line the deck under the watchful eye of the commander and his officers in the bridge. Ceremonially lining the decks was a common spectacle for all U-boat crews returning home from patrol.



Three photographs taken from the bridge and one from the quay showing a returning ceremony of a U-boat. Many U-boats that returned to base were often greeted by cheering spectators, a band, and officers of the U-boat command. Here in these photographs five females, flanked by a playing band and U-boat officers, can be seen waiting eagerly for the boat to be moored clutching flowers for the crew.

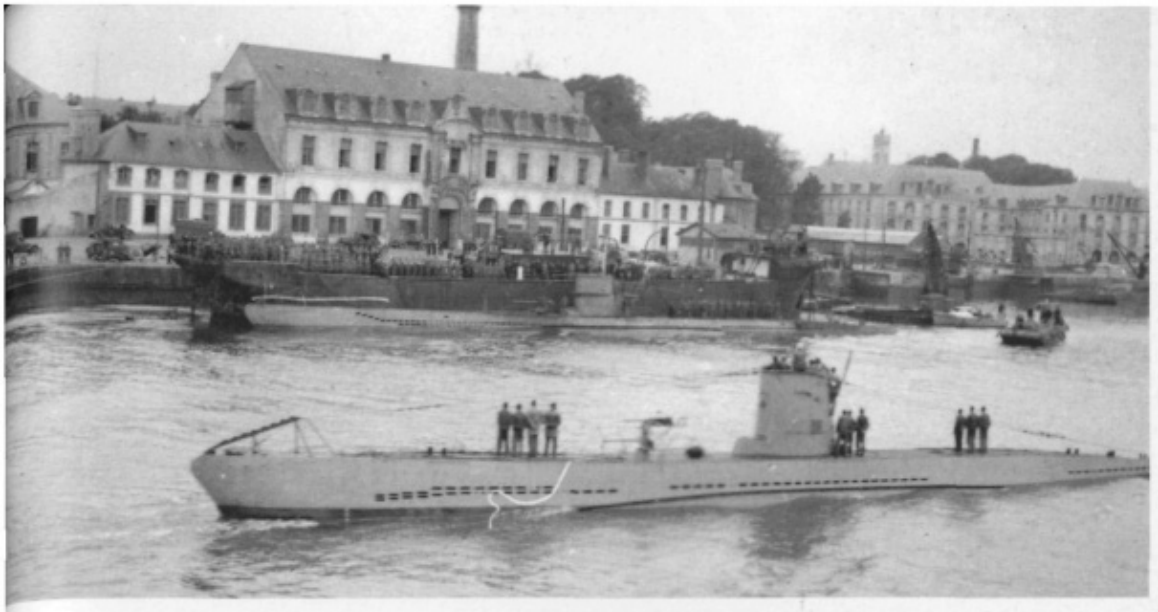


Another photograph of the same returning U-boat showing two U-boat men watching the boat pulling alongside the harbour. Behind them two men can be seen greeting the vessel by waving their hats. These men appear to be wearing a tropical uniform, which probably indicates that this photograph was taken either in south of France or on the French Atlantic coast or in the Mediterranean.

Under the supervision of their commander the U-boat crew line the deck as the boat slowly pulls into the harbour. It was a welcome relief for all the crew to be back at base, however, many of them were still hundreds of miles away from home.

U-47 is moored in Kiel harbour whilst the boat undergoes some repairs before it begins another patrol. This VIIB type U-boat saw relatively limited service during the war but was very successful. On 18 October 1939 Hitler held a large reception for U-47's crew in Berlin and toasted their achievements of entering Scapa flow and sinking the Royal Oak.

Under the watchful eye of the captain, who can be seen from the bridge, the crew on the deck prepare the mooring ropes as the boat approaches the harbour. Note the crewmember at the end of the deck that can just be seen attached to a safety harness.

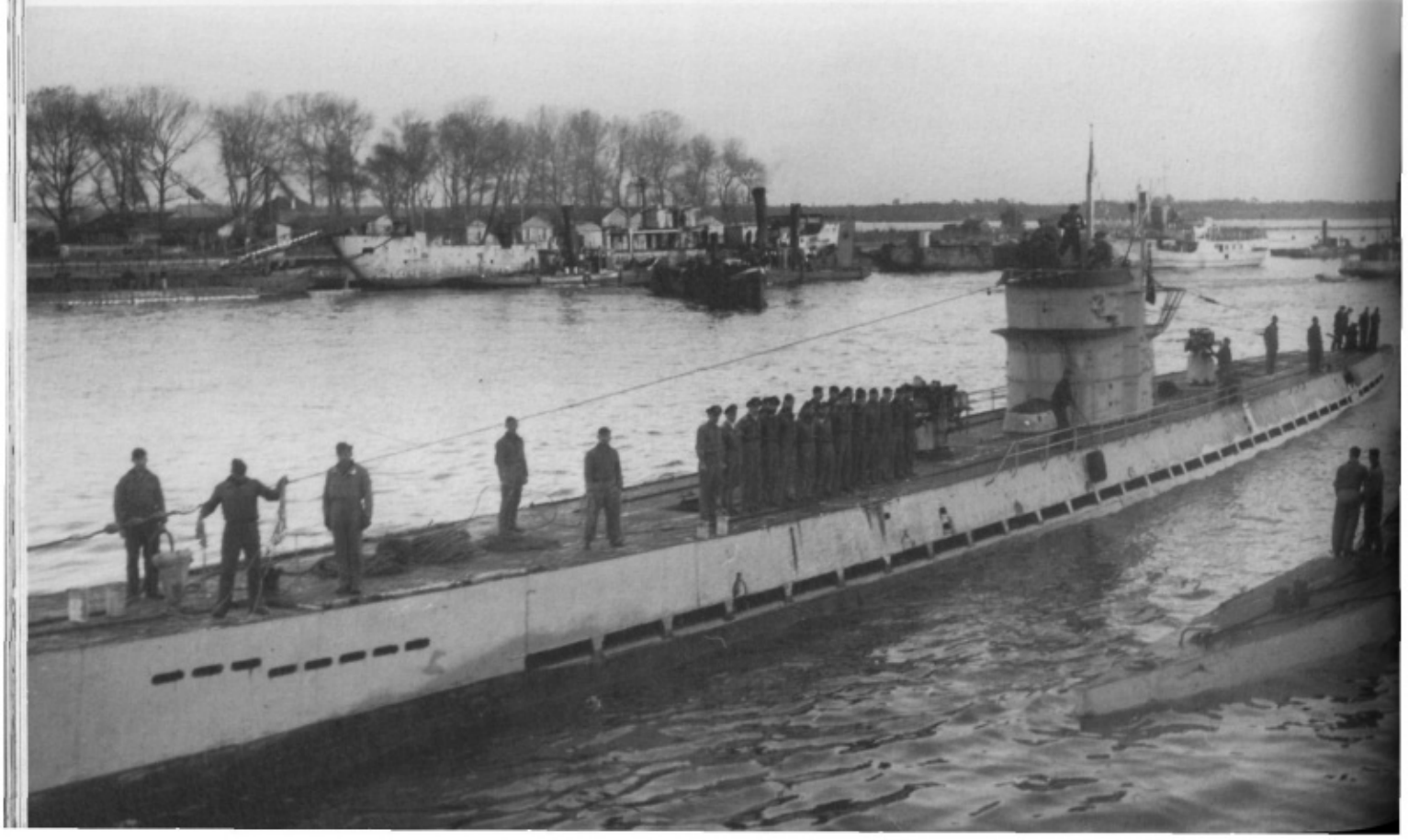


An interesting photograph showing a U-boat that has just returned from patrol moored at the quay, and another U-boat, which has also probably been on patrol, passing by. Note the amount of people lined along the dock. A playing band can be seen to the left of the podium.

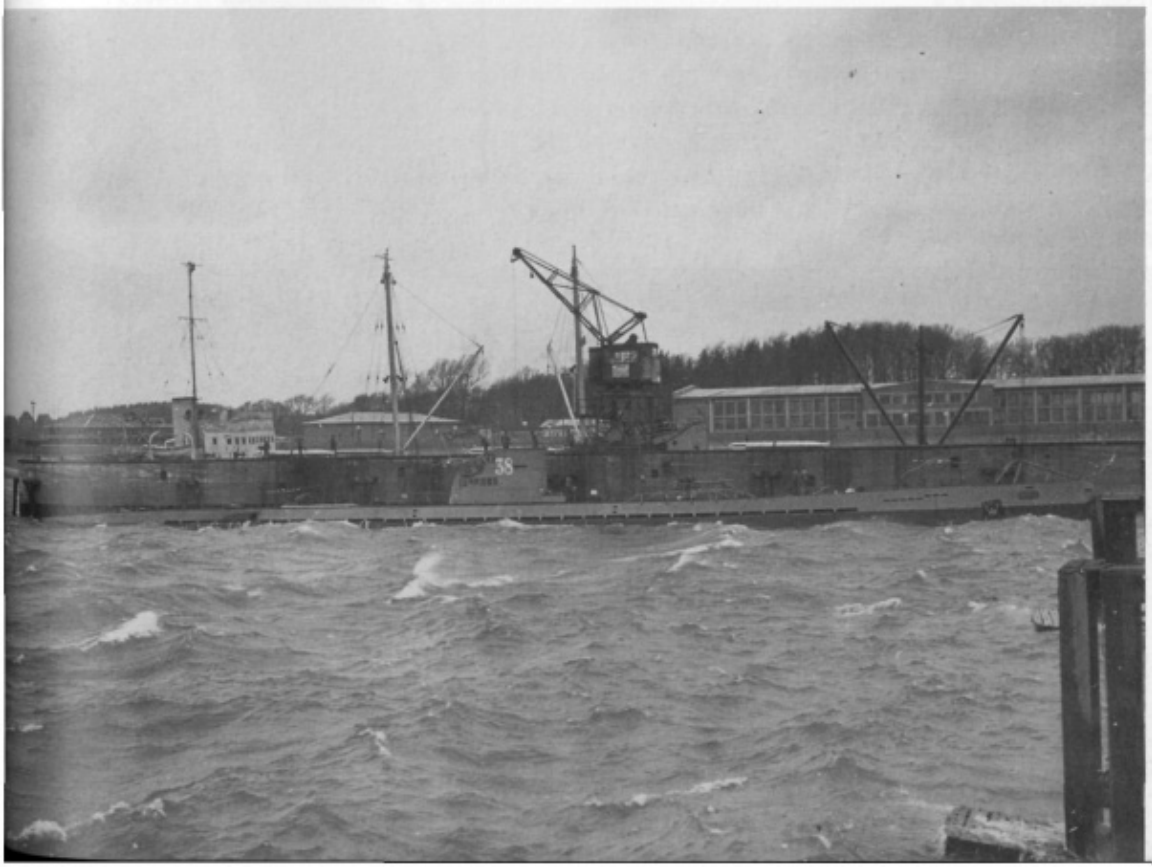
A photograph taken from the bridge of a U-boat showing the crew lined-up along the deck during an arrival ceremony. A number of other U-boats are also moored together and alongside the dock. A ramp allows access for the crew to pass on foot from one boat to another.

A U-boat departs for the open seas of the North Atlantic for what probably will be a long patrol for the men. Along the quay a large gathering of U-boat personnel and crewmembers from other boats wave the vessel off.

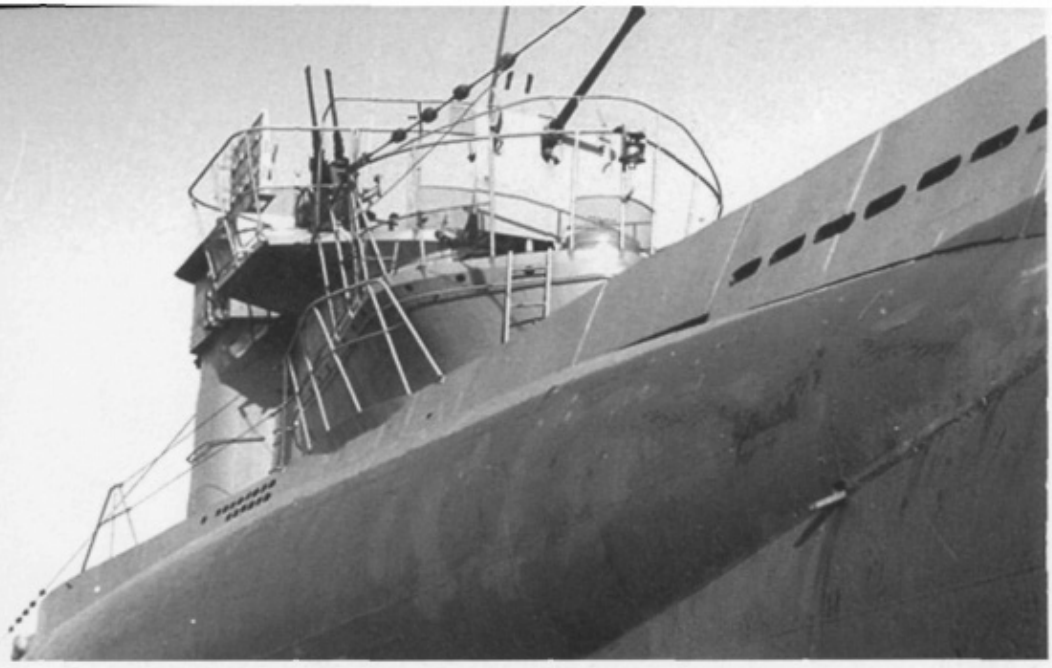
Two superb photographs taken in sequence from the dock showing a U-boat being moored. From the extended periscope on the bridge the 'success pennants' are being flown indicating the number of ships which have been sunk.



A U-boat is moored alongside a ship during an arrival ceremony. For almost three years of the war the homecoming celebrations were always a big event. However, by 1943 with huge U-boat losses these rousing welcomes became less frequent in many of the bases.



U-38 moored alongside the quay in Wilhelmshaven. This type IXA U-boat operated from Wilhelmshaven until August 1940. Its first operation under the command of Captain Heinrich Liebe left the base on 19 August 1939 to patrol the waters off Lisbon. When the boat returned on 18 September 1939 it had hit two British ships, the 7,242 ton Manaar and the 9,456 ton Inverliffey.



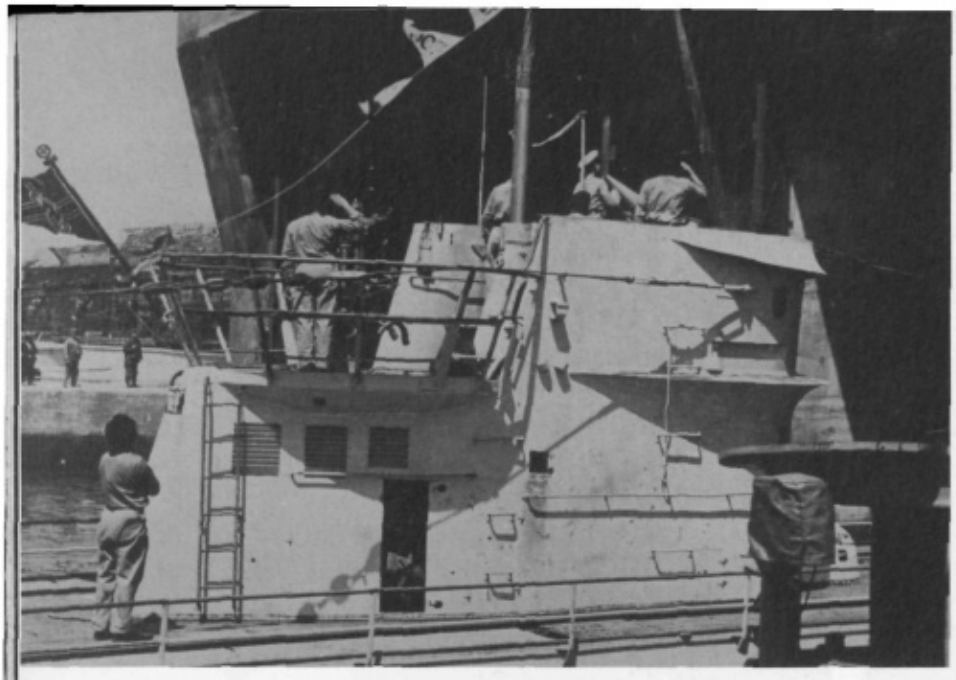
A photograph showing a U-boat in dry dock. Note the twin flak gun and 3.7cm flak gun with shield mounted on the bridge. By late 1943 the more powerful 3.7cm flak gun was installed on many of the U-boats. Although very effective against low level aircraft attacks the gun was actually sensitive to sea water and encountered many problems. Eventually U-boat commanders decided that the only form of defence was not to engage attacking aircraft, but to crash dive to safety instead.

A winch carefully lowers a torpedo through the hatch under the guidance of an engineer. During the early part of the war the torpedo suffered from early technical problems with its firing pistol and depth-keeping equipment. By mid-1942 an improved version was manufactured, which also increased the range by fifty per cent.

Courtesy of Jim Payne

Four photographs showing Captain Rudolf Bahr of U-305 returning to base in Brest in 1943.

Captain Bahr was a distinguished U-boat commander and during his service he was awarded the Iron Cross 2nd Class and 1st Class, the U-boat war badge and the German Cross in Gold. From 17 September 1942 until 16 January 1944 he commanded four patrols in the North Atlantic. During this period the boat operated with the Stürmer, Seewolf and Leuthen Wolf Packs. On two occasions the boat returned damaged until finally on 17 December 1944 it was depth charged by Royal Navy Wanderer and the Frigate Glenarm 420 miles off Cape Clear with the loss of all 51 hands including Captain Bahr.



Following a patrol a U-boat enters one of the impregnable U-bunkers on the French Atlantic coast. After returning from patrol, hailed heroes of the sea, the U-boats entered the heavily protected bunker pens to be rearmed, refuelled, resupplied and serviced to fight another day. The U-bunkers were built side by side at the water's edge and there was a services area to the rear containing building for repair shops, power plant, first aid posts, living quarters, and offices. Between the backs of the pens railway lines were laid running along it, where they were directed through huge openings at either side sealed by large armoured doors.

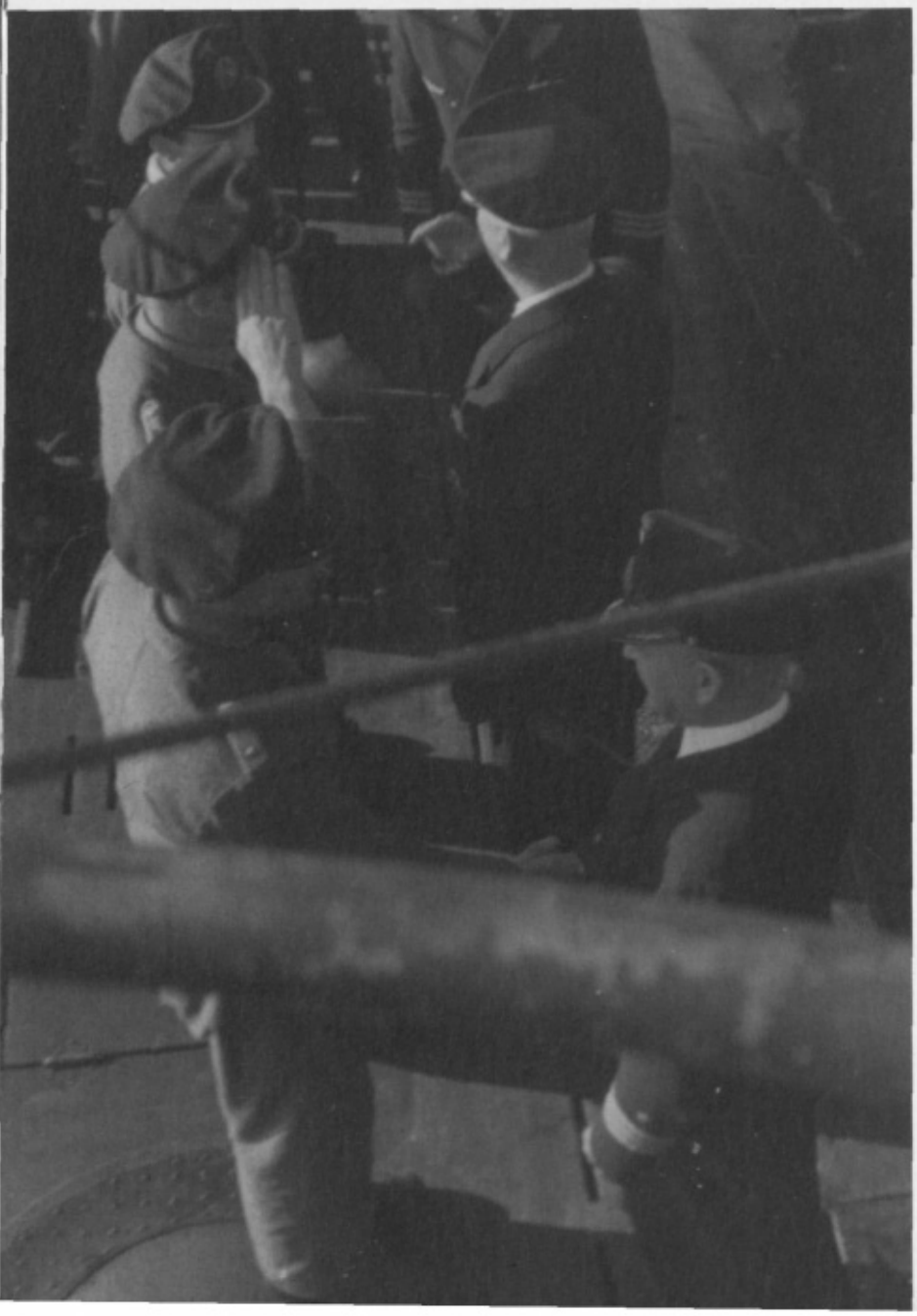
Two photographs taken showing the commissioning ceremony of U-703 moored alongside the quay on 16 October 1941. This type VIIC U-boat was based from 26 April 1942 until 21 August 1944 in Bergen, Narvik, Trondheim and Hammerfest. Between October 1941 and 1 March 1942 it was used for training purposes. During her initial service the boat was commanded by Captain Heinz Bielfeld. He took to working-up the vessel in which it was tested and the crew trained in the Baltic Sea and around the German coastline, before being sent to Narvik for her first war patrol in April 1942.

A photograph taken of the crew of U-703, at a Christmas dinner in 1942. Onboard the boat these men would forge a very close bond of comradeship and brave the dangers of the open seas together.

U-703 in dry dock. On 1 March 1944 the boat was attacked by an Allied aircraft killing three crew members and wounding three. The damaged vessel managed to reach Narvik, two days later.

Five photographs showing the bridge and deck of U-703. The boat is moored probably in her home port of Narvik just before Christmas 1942. Note the Christmas tree mounted inside the bridge. During the festivities it was quite common for crews to mount Christmas trees on the bridge, especially during a boats lay-over when they were not on patrol. Although it was forbidden by the captain to have Christmas trees onboard whilst on operations, some boats were seen leaving port with them on board the bridge. Out in the open sea they were soon discarded.

As U-703 moves alongside a moored boat the crew prepare to moor the vessel with ropes. U-703 first two patrols in January and April 1943 were short and barren. However, three months later in July under the new command of Joachim Brünner she sailed into Soviet waters in the Barents Sea and further east, captured a small Russian armed trawler and a large Soviet merchant ship. On 2 August she sunk SS Sergi Kirov near Istvestij Island.



Three photographs taken in sequence showing the crew of U-703 during a returning home ceremony. Between the 1 June 1943 and 16 September 1944 U-703 operated as a front boat in the 13.Flottilla. She continued operating in the Spring of 1944, but as a result of the damage inflicted on her off the coast of Narvik she was regarded less efficient and given duties deploying weather balloons in the Arctic Sea to test weather conditions to other shipping.

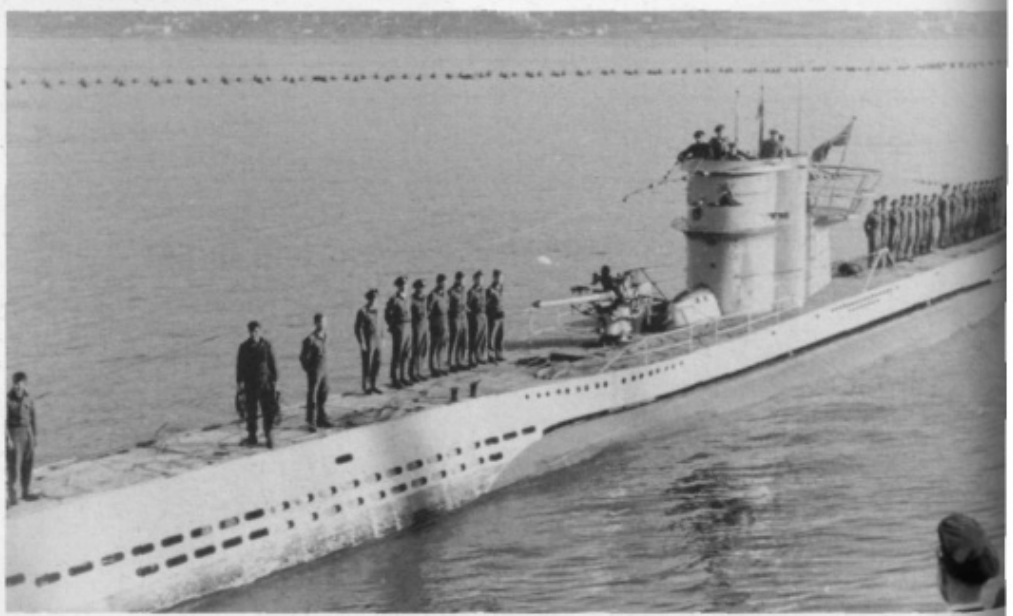
From the bridge Captain Horst Höltring of U-604 salutes captain Lehmann-Willenbrock, Commander of the 9th U-boat Flotilla. This VIIC type U-boat was commissioned on 8 January 1942 and operated by Kiel and then later in 1942 from French Atlantic coast of Brest.

On the right of the photograph U-604 can be seen with its distinctive sword fish badge painted on the side of the conning tower. The boat has pulled alongside U-659, which also patrolled the North Atlantic with U-604. In the distance approaching is U-409. On 3 May 1943 U-659 collided with U-439 180 miles off the coast of Cape Finisterre and was lost with 44 hands. As for U-409 she also operated in the North Atlantic, but was depth charged by Royal Navy Inconstant 50 miles north-east of Algiers and lost with 12 hands. The rest of the crew of 37 were taken prisoner.

U-136 slowly navigates its way through into U-bunker Pen 11 at Lorient. Inside these huge U-bunkers U-boats were moored to be resupplied and made ready for sea or dry dock into which it could go to be serviced or repaired. To protect the U-boats and personnel working on them inside the pens from attack, the entrances to the pens above the quay level were protected by armoured plates mounted on pontoons and towed in and out of position by tugs.

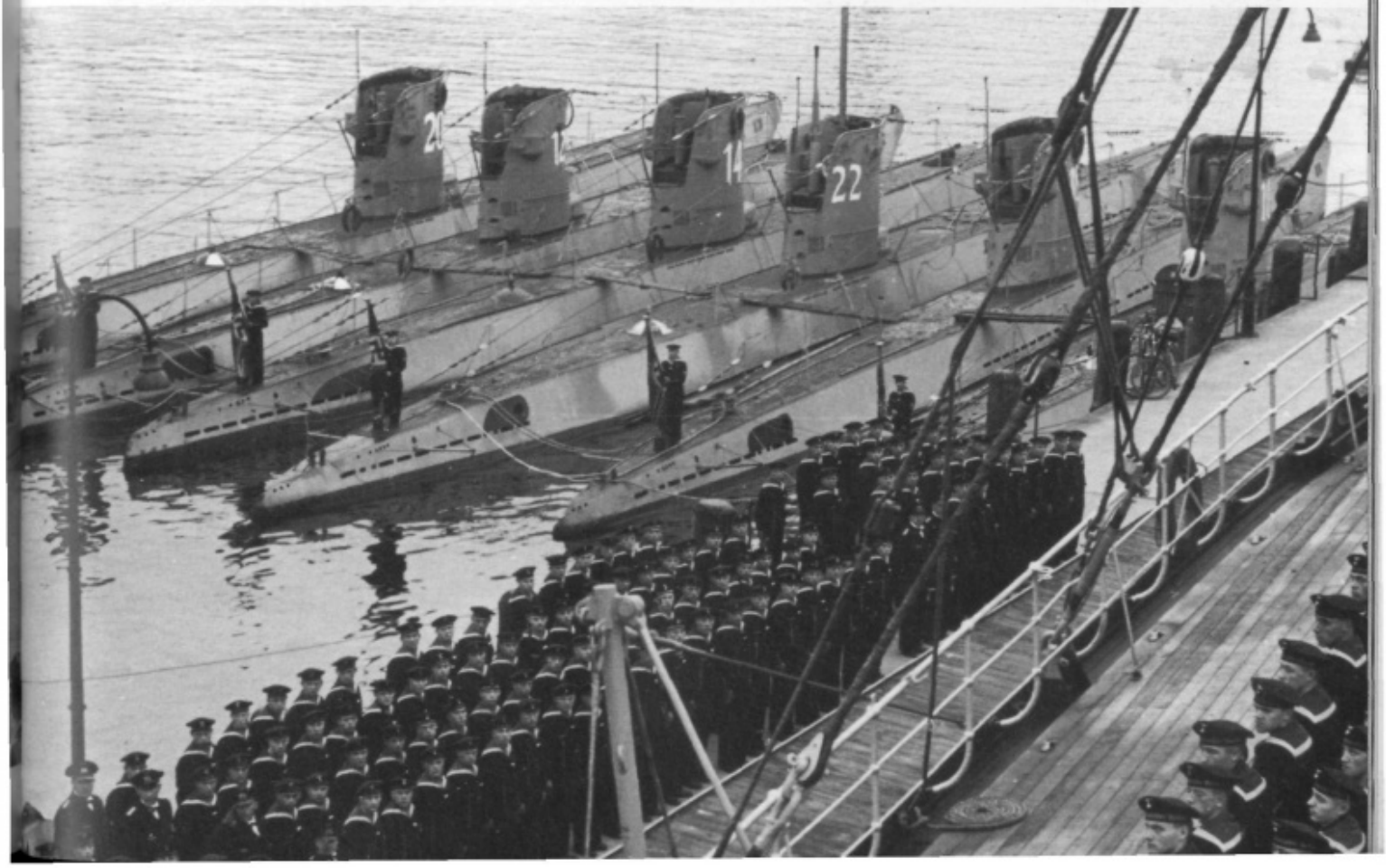
From the quay Captain Lehmann-Willenbrock commander of the 9.Flotilla, waits with other crew and personnel as U-604 approaches the dock. Later in the year on 11 August 1943 U-604 was crippled in an attack by liberators in association with the US Destroyer Moffett 400 miles north west of the Ascension Islands. Due to the severity of her damage the commander ordered the boat to be scuttled. After the crew were taken off by U-172 and U-185.

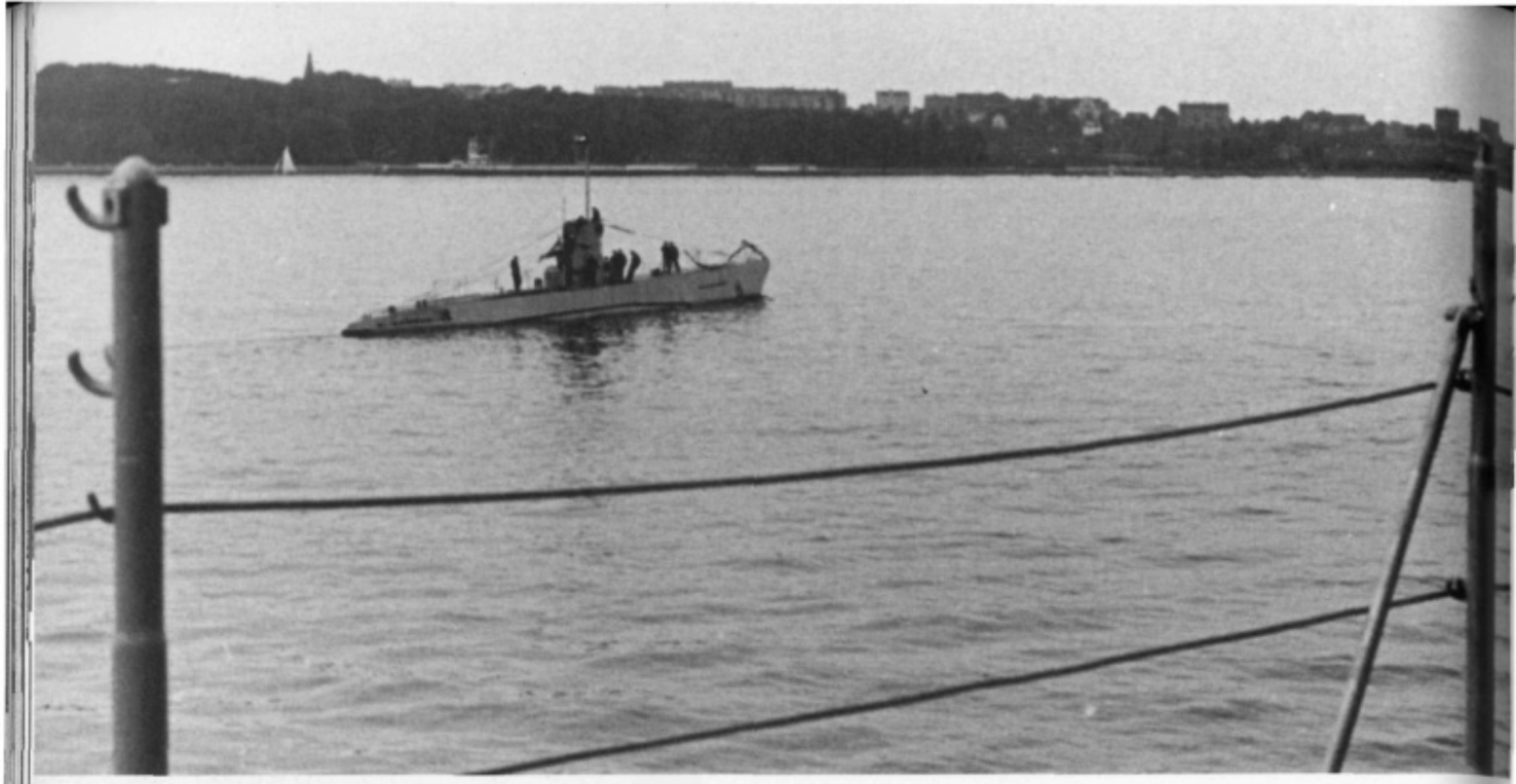
U-251 can be seen returning to Narvik after patrolling the dangerous waters of the Atlantic in the summer of 1942. A year later the boat was finally relegated to training duties after a long refit. Near the end of the war the boat bound for Horten in Norway was attacked by a Mosquito and destroyed by rocket and cannon fire with the loss of 39 hands. The losses also included Joachim Sauerbier who had taken passage on U-251 in order to take command of U-324 in Norway.



U-boat crew and personnel can be seen waiting along a quay in France to welcome a U-boats return from patrol in the Atlantic. In spite of strict order and discipline on board the U-boat when some crews arrived in the harbour they sometimes took the wildest of liberties whilst on leave in the French ports.

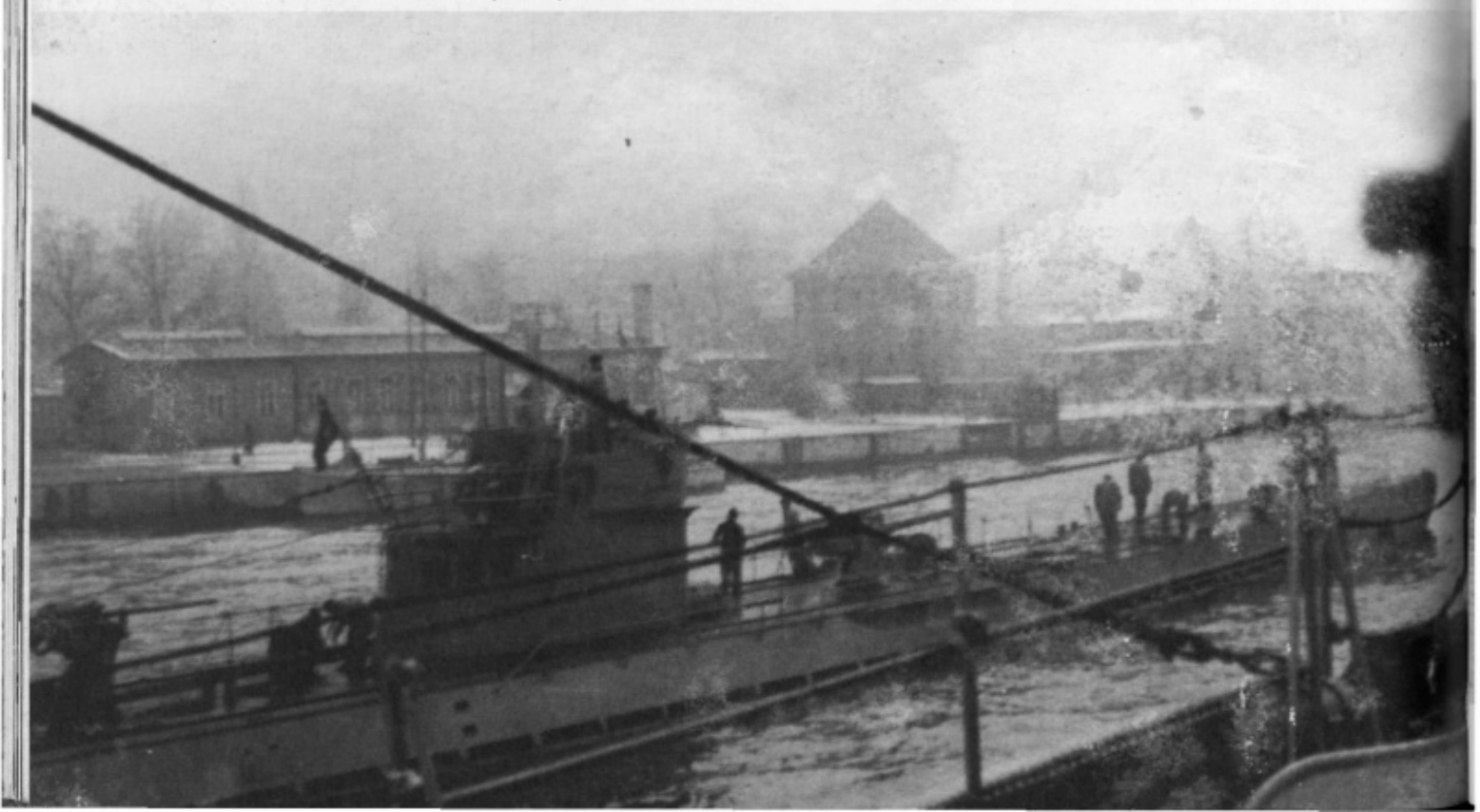
Newly recruited U-boat crews can be seen lined-up along the quay with sailors onboard a ship during a naval ceremony. The U-boats in the harbour that can be indentified is U-20, U-12, U-14, U-22, U-18, and U-16. All these vessels are the IIB type and were all commissioned between 1935 and 1936.

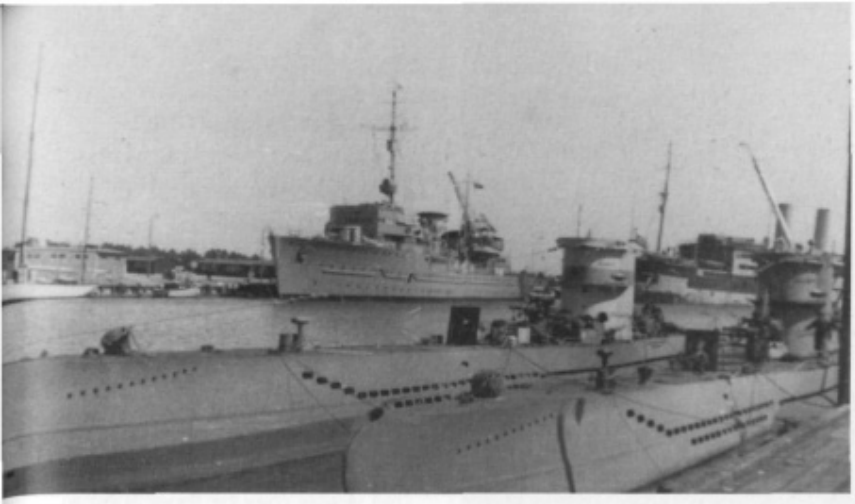




A U-boat leaves port for another patrol, probably in 1940. During these long patrols often many hundreds of miles from their bases, the German Navy began building purpose-designed U-tankers or `Milk Cows` as they were nicknamed. These boats were put into service to refuel and resupply the smaller type VII and type IX U-boats at sea.

Sailing into harbour the crew is in the process of preparing to moor their U-boat and can be seen on the deck with mooring ropes. Once in port the men finally had the opportunity to relax and enjoying the submariners shore accommodation. However, after the RAF began regular heavy air raids on the U-boat bases, special heavily protected underground quarters were provided for a number of the crews, especially for the officers.





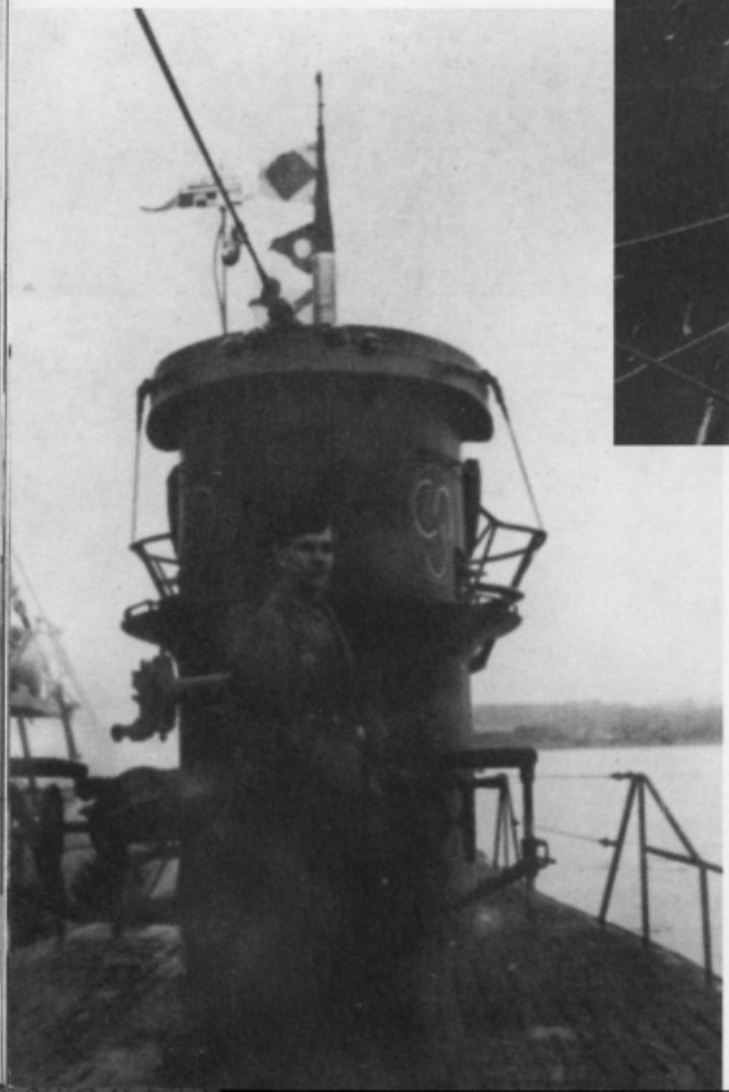
Two U-boats are moored together alongside a quay being resupplied for another patrol. The time taken over all these preparations to get a U-boat back to war varied from a week to over a month, depending on how much work was needed to be done. Once the boat was fully supplied and refuelled and all the machinery was functioning satisfactorily the boat was regarded fit for operational duties.

A number of U-boats can be seen moored in the harbour during the early part of the war. By 1941 with increased air activity more U-boats were not moored in the open and spent the duration of their time being resupplied and serviced in one of the heavily protected concrete U-bunkers.

An officer can be seen precariously climbing down a step ladder that has been placed from the quay edge to the bridge. Members of the crew standing on the deck watch with interest. Working on the deck was often very tricky, especially on late type U-boats when the wooden planking became permanently slippery due to prolonged soaking.

A U-boat arrives in the harbour and the crew can be seen lining the deck for its traditional welcoming ceremony. On the quay two dock workers prepare to lift a wooden step ladder in order for the crew to come ashore safely. Note that the crew are wearing tropical uniforms, which probably indicates that this vessel may be operating in the Mediterranean.

An interesting photograph showing a U-boat moored between ships, probably before the outbreak of the war. Note the step ladder from the U-boat`s deck attached to the ship. It was not uncommon for U-boat crews in harbour, especially before the war, to board ships for rest and recuperation.



In harbour a crewman poses for the camera next to the ship's deck gun in front of the conning tower. Note the Olympic rings painted on the side of the conning tower, which indicates that this boat is U-345. This VIIC boat was commissioned on 4 May 1943 but was lost before becoming operational.

Chapter Five

War in the Mediterranean

From September 1941 until May 1944 Germany sent 62 U-boats to operate in the often hazardous seas of the Mediterranean. Despite the fact that many of the crews were formidable opponents on the high-seas they all dreaded navigating through the British-controlled Straits of Gibraltar. U-boat crews tried their best to creep through undetected. However, 9 U-boats were sunk whilst attempting to pass through and another 10 were damaged. No U-boats were ever to make it back into the Atlantic and all were either sunk whilst operating against enemy shipping, or scuttled by their own crews.

By 1943 U-boat patrols in the Mediterranean were more dangerous than ever before. With the Allied war in North Africa drawing to a close the Axis armies had managed to forge a line of airfields along the northern coast of Africa, reaching from Oran to Alexandria. A number of the airfields were used by aircraft to protect the convoys in the Mediterranean. Heavily protected by aircraft the Allies soon established special destroyer hunter killer groups that wrought havoc on the U-boat war in the Mediterranean.

Yet, despite the fact that the tide of war was beginning to turn against the U-boat peril in 1943, the Allies were still totally aware of the dangers in the Mediterranean. On 1 December 1943, U-593 of 29 *U-Flot* was one of a number of U-boats given missions to destroy enemy shipping. After leaving her moorings at Toulon on 1 December, the vessel headed out with its crew of 44 into the Mediterranean. It was commanded by Captain Gerd Kelbling. This energetic 34 year old commander had fought with distinction. Since May 1942, Kelbling's U-593 type VIIC had attacked and sunk 12 Allied ships, and in August he was awarded the Knight's Cross for his success and bravery at sea. Now, his mission, which was one of half-a-dozen raiders, was to search for a convoy reported to be moving between Malta and North Africa. He was first to sight the convoy and signal its position, and then to shadow it, acting as a contact boat, until the rest could take up their ambush positions. Although they knew the convoy was somewhere in the map square off the coast of North Africa, finding it was another matter.

During its turbulent journey south, U-593 had been travelling on the surface, pitching and tossing in heavy seas. The wind was rough and the sea 'looked like mountains'. For days Kelbling had no proper navigational fix, nor could he even

navigate from the stars, for there was a succession of deep low-pressure zones creeping across the Mediterranean. Only the daily trim dive brought relief to the crew from terrible rocking and spray. Down in the quiet depth, it gave everyone time to recuperate, to eat without the fear of their food being thrown all over the floor, to sleep without the need to hold on tight to something. Men on the bridge, strapped to the rails for safety, half blinded by the spray, focused their binoculars as the U-boat was lifted high on a wave-top.

For a number of days, Kelbling and his men had to endure this terrible weather. In nearly two weeks, they had covered more than 500-miles since leaving their base in Toulon, and were now heading towards Malta. Early on 12 December, while U-593 was running on the surface, Kelbling spotted two hunt class destroyers cruising off the coast of Algeria, HMS *Tynedale* and further in the distance its sister ship HMS *Holcombe*. After 12-days at sea, the hunt was over. 'Midships', he ordered, 'full ahead both'. Over a number of hours, they shadowed the ships at a distance, only submerging occasionally for the sound man to keep an accurate check on his bearing. Every commander was well aware of the success or failure of such a mission, and for this reason Kelbling kept his crew ready for a crash dive, if one of the boats should suddenly turn and approach. Fortunately for the crew of U-593, the moderate, gently rolling sea was not too difficult for the chief to trim the boat, and prepare for battle stations. All eyes were trained on the first ship, HMS *Tynedale*. The first officer took control of the bridge to maintain the boat in the best position relative to the enemy vessel.

On top of the conning tower, special binoculars were attached to the top of the torpedo aimer. By rotating these sights, information was automatically transmitted to the calculator in the commander's room and onto the indicators by the torpedo room. Kelbling again looked through the master sight; he was now within striking distance of the destroyer. On his command, the torpedo tubes were flooded, and the 25-feet long, 3,000 pound well-greased torpedoes, were prepared for firing. The VIIC U-boat was heavily armed and equipped with four torpedo tubes in the bows and one in the stern, and carried between 11 and 14 torpedoes, or 'eels' as they were nicknamed.

Tension now mounted as U-593 went in for the kill. The aiming officer, who set the masters sight's cross hairs on the target, waited in anticipation while the calculator's warning lights showed that it was doing its sums. After a few moments, the red lights went out, and the white 'ready' light came on giving an all clear to fire. Up in the conning tower, Kelbling gave the final order, and down went the firing levers. With a little jolt, the torpedoes left the tube. 'Torpedoes running', said the sound man, listening on the hydrophone. While the bow was flooded to maintain the boat's trim, in the torpedo rooms the 'mixers' stood ready with chains to reload

the tubes if the aim failed. Everyone fell silent, waiting to hear the thump of the detonation, followed by the explosions and the terrible sounds of the metal grinding as the destroyer went down. Within a couple of minutes, they heard the unmistakable crump as the torpedoes successfully scored a direct hit, blowing a huge hole in the side of HMS *Tynedale*.

As the British hunter destroyer began to sink Kelbling did not want to waste any time and was determined to torpedo its sister ship, HMS *Holcombe*, which was now detected off the coast Bougie in Algeria. Once again the U-boat shadowed the destroyer at a distance, only submerging sporadically in order to maintain a check on the U-boats bearing. Later that day at 14.45 hours HMS *Holcombe* commanded by Lieutenant F.M. Graves, was hit by a Gnat torpedo from U-593 north-east of Bougie, on a grid position 37°20'N, 05°30'E. On board the British hunter destroyer, Fred Ransom, a 2nd Class Stoker, had been feeling unwell that day and was given upper deck duties. 'Our destroyer had picked up a blip that afternoon', he recalled. 'Before we knew it, there was a big bang. It was such a surprise attack, we never even had time to go to battle stations. While the ship slewed round, we were suddenly hit'. The damage was so extensive to the destroyer that the crew did not even have time to man its life boats. Fred Ransom and other crew members jumped into the harsh Mediterranean for their lives. In no more than a matter of minutes, 1087-tons of HMS *Holcombe* were sent to the bottom of the sea with 83-members of the ships company, including many of Fred Ransom's comrades.

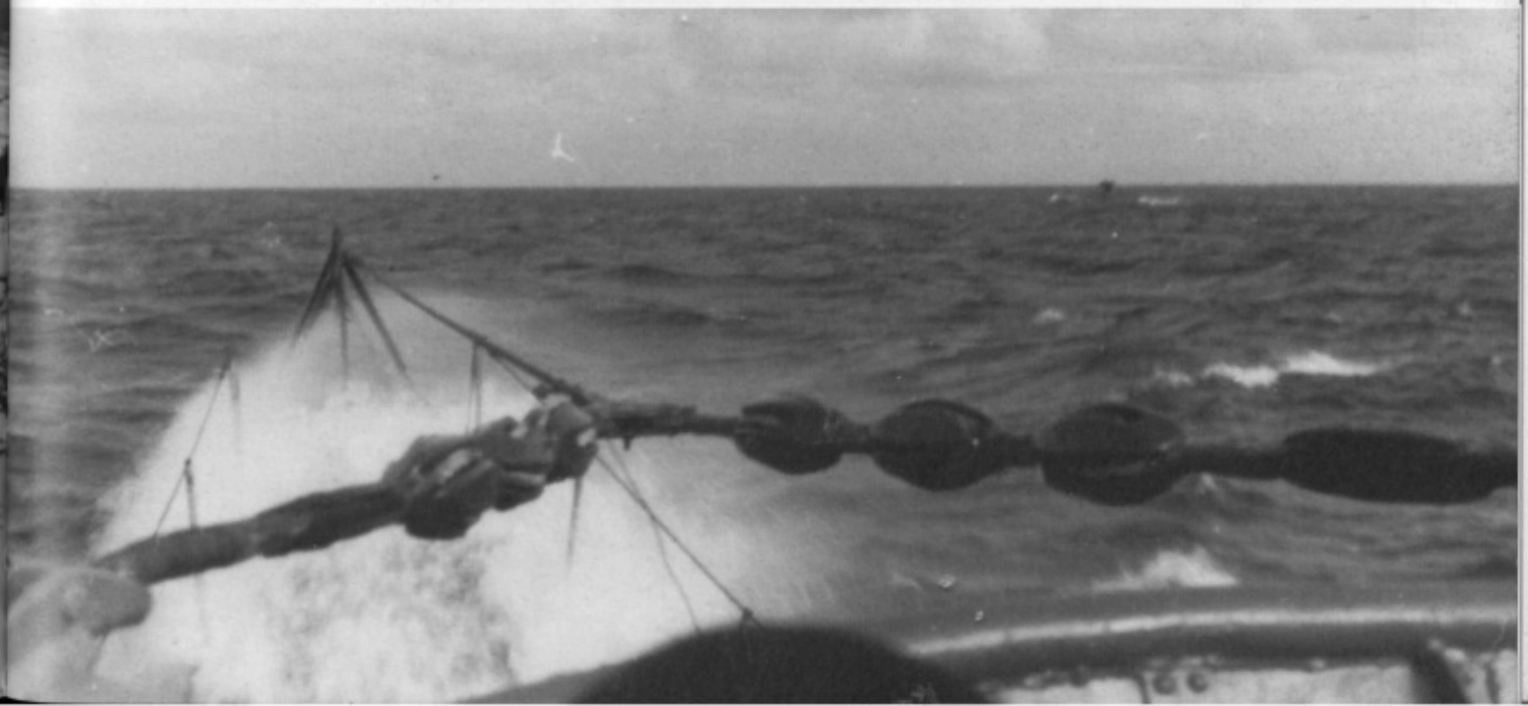
Although Fred Ransom survived this terrible ordeal, he was severely injured and left floating for six hours. Later that evening, those that had managed to cling to survival were picked-up by an American destroyer USS *Niblack* and taken to a hospital in Cap Bon on the coast of North Africa.

However great Captain Kelbling considered his success at sinking 2,087-tons in one day, it was for him a short-lived victory. The hunter now became the hunted. For 32-hours, U-593 became engaged in a bitter battle for survival as it was chased off the coast of North Africa by a US destroyer, USS *Wainwright*, and the British escort destroyer HMS *Calpe*. During the chase the U-boat was attacked from the air by a Wellington bomber of 36 Squadron. Despite the fact the boat was adequately protected for defence against low-flying aircraft, with a standard 8.8cm gun forward of the conning tower, complete with a 3.7cm and two 2,cm anti-aircraft guns mounted on a platform on the bridge, the vessel was still damaged by return of fire. What followed north-east of Djidelli was a depth charge attack by USS *Wainwright* and HMS *Calpe*. Badly damaged, Kelbling was forced to surface and abandon U-593, but only scuttling charges were set. All of the crew were rescued and taken prisoner.

A U-boat crew on lookout duties during operations in the Mediterranean. During the war in the Mediterranean the Germans managed to send 62 U-boats to the area. All these vessels had to navigate the very dangerous and dreaded British controlled Straits of Gibraltar. Allied attacks in the Mediterranean, especially after 1942, had become so intense that commanders required at least five men on lookout in the bridge at any one time.

A U-boat has been sunk in harbour following a heavy allied air attack. The Mediterranean was a very hazardous place for the U-boat. All around the Mediterranean the allies had airbases from which many hundreds of radar-equipped aircraft hunted them.

Two photographs showing the bow and stern of a U-boat riding along the surface of the Mediterranean Sea in 1943. Although this mass of sea was regarded as particularly hazardous for U-boat crews, there were many times U-boats could surface without the threat of being attacked from allied aircraft.



A photograph of Fred Ransom`s boat, HMS *Holcombe* an Escort Destroyer Hunt Type III, L56. On 12 December 1943, HMS *Holcombe*, commanded by Captain Graves was sailing north-east of Bougie, Algeria, when Captain GerdKebling's U-593, type VIIC U-boat fired a Gnat torpedo and sank the boat with the loss of 83 members of her crew. The survivors were later picked up by the US destroyer USS *Niblack*. [Courtesy of the National Maritime Museum Greenwich]

A photograph of Fred Ransom who was a 2nd Class Stoker on board the 1087 ton British hunter destroyer HMS *Holcombe* when it was sunk by U-593 on 12 December 1943 north-east of Bougie, on a grid position 37°20'N, 05°30'E. Fred had been feeling unwell that day and was given upper deck duties, which consequently saved his life. 'Our destroyer', he recalled, 'had picked up a blip that afternoon. Before we knew it, there was a big bang. It was such a surprise attack; we never even had time to go to battle stations'.

Members of a U-boat crew can be seen working on the deck wearing life jackets. Working on the deck was always dangerous, especially in rough seas. The crew often did not wear lifejackets and as a result there were fatalities where men accidently fell overboard and drowned.

Some of the crew can be seen on the bridge conversing during a patrol somewhere in the Mediterranean. Running along the surface of the water was always potentially perilous for a U-boat, especially in the Mediterranean.

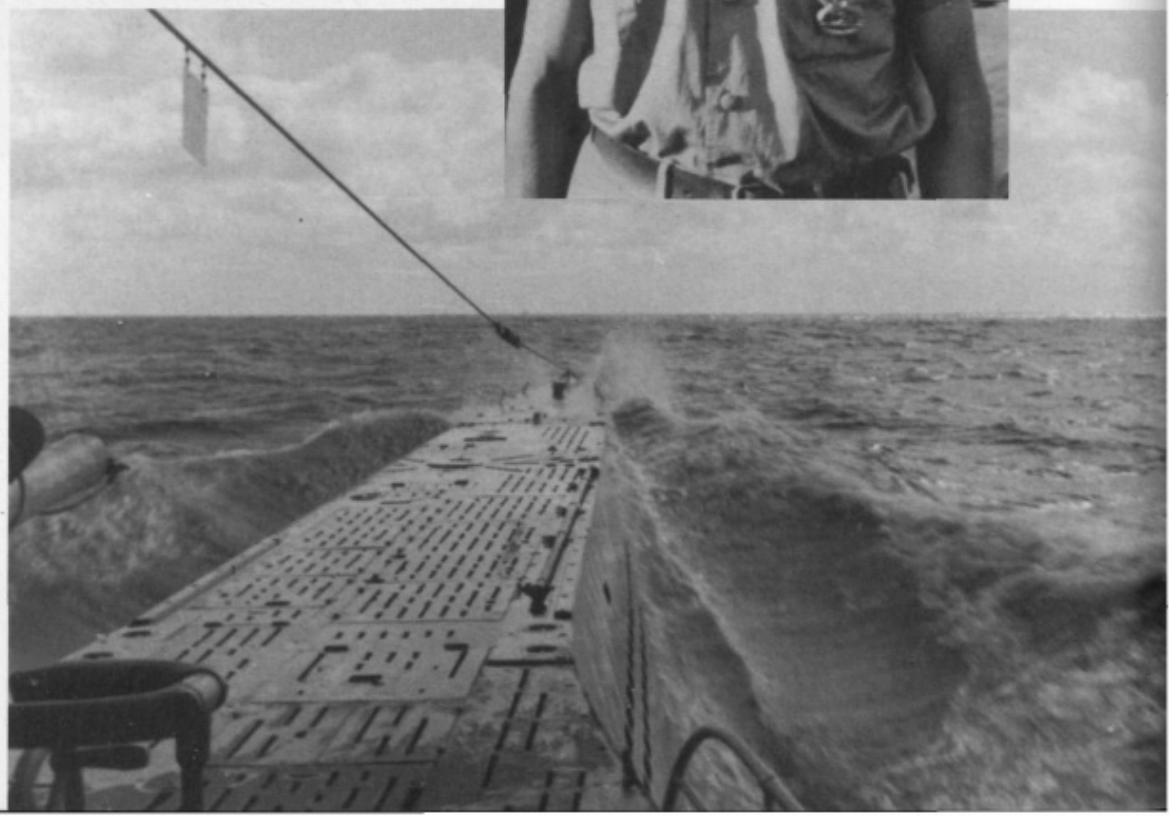
An interesting photograph showing some of the crew in a rather unsafe and risky position on the front section of a U-boat in rough seas. The men are clutching to the boats 'jumping wire', and all appear to be wearing the safety harness and life jacket.

Photographed from the bridge looking aft as the U-boat crashes and rolls as it rides the high waves of the Mediterranean. Lookout in these conditions was often difficult to say the least, especially if one of the crew members identified enemy shipping or attacking aircraft.

A U-boat leaves the harbour bound for operations in the Mediterranean. Although very dangerous U-boats often patrolled the hazardous waters of the Gibraltar Straits because allied vessels were constantly patrolling this very narrow area in order to protect it and sustain the war effort in North Africa.

A U-boat commander has been awarded the Iron Cross First Class. He is wearing a short-sleeved khaki tropical shirt. This uniform was completed by khaki shorts, short socks and lace-up brown canvas and black rubber deck shoes. Pinned to his left breast he proudly wears the U-Boat War Badge. On his right breast is the pin-on version of the national eagle and swastika badge.

A U-boat is sailing along the surface of the water in the Mediterranean. Later in the war, when air attacks became a constant threat, the upper decks of some U-boats were modified for faster diving by making the front part narrower.



On lookout from the bridge of an unidentified U-boat. Constant vigilance was often unceasing, especially in the Mediterranean off the coast of North Africa. The Allies heavily patrolled these waters in order to safeguard supplies that were being transported by sea and air during the North African campaign.

Looking to the stern of the boat from the bridge a U-boat rides the rough seas of the Mediterranean. The first boats to enter the Mediterranean were U-97 and U-559 on 26 September 1941.

A diver undertaking repairs to a U-boat whilst it's moored in a harbour. Often U-boats sustained various degrees of damage to the hull and some were repairable whilst the vessel was still in water. However, more extensive damage meant that the boat had to be repaired in dry dock.

An interesting photograph showing a Neger human torpedo here being lowered into water for trials against Allied shipping. Note the lower part of the live torpedo. The pilot released this once he had selected his target. As Hitler realized he was losing the battle for naval supremacy to the British Royal Navy, he turned to German Special Forces to deliver him success. These varied considerably from midget submarines, exploding boats and frogmen raiders.

Chapter Six

End of the U-Boat War

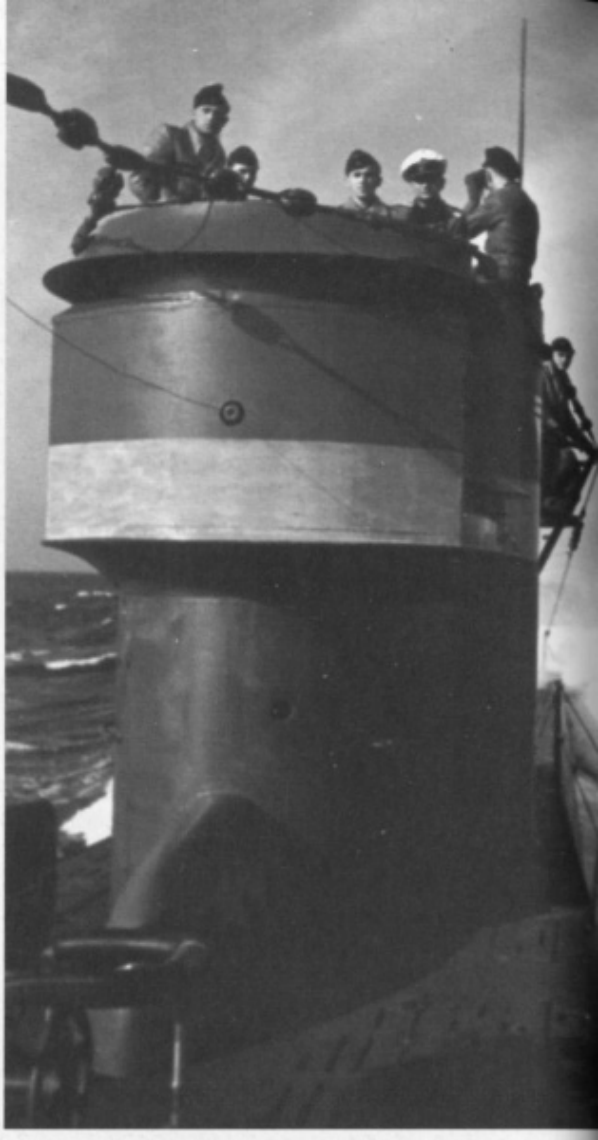
Despite the fact that U-boat commanders adapted and changed their tactics to the mounting threat by staying down longer in the daylight hours and surfacing in darkness to launch their attacks, by the beginning of 1944 the Allies were finally winning the war against the U-boats. Much was owed to 'Ultra', the Allied code-name for the signals branch that was responsible for unscrambling hour after hour of coded German naval radio traffic from a machine known as Schlussel-M or 'Enigma'. But of all the oceans open to traffic, without which Britain would not have survived, the chief credit goes to the courage and endurance of the sailors and the crews of the maritime air commands who worked closely with their seaborne comrades.

From a multiple of destinations covering mainly North Africa and South Atlantic, U-boat hunters were flying from bases in Canada and the eastern seaboard of America, West Africa, Gibraltar, south-west England, Northern Ireland, Scotland and Iceland. During these dangerous missions, crews of the RAFs Coastal Command flew more than 800,000 hours above the oceans and mad around 1,300 attacks against U-boats, sending many of them down on the long slant of destruction. But like the ships, hundreds of aircraft were lost.

Just before the Normandy landings in June 1944, Doenitz's ever shrinking Ubootwaffe were ordered that, when the attack finally came along the shores of northern France, every enemy vessel taking part in the landings was to be sent to the bottom of the sea. The U-boat, once Hitler's greatest weapon of attack, was committed, like the rest of the armed services, to defence. On the day 'Overlord' was finally unleashed, the impact made by the U-boats against the vast armada of 800 warships and 4,000 landing craft was insignificant. Captain Herbert Werner of U-415 wrote: 'We were ordered to attack and sink the invasion fleet with the final objective of destroying enemy ships by ramming'. His mission to carry out these suicidal missions off the coast of southern England failed miserably, and two days later his U-boat limped back to Brest, badly damaged. 'By 30 June', scribbled Werner, 'U-boat operations since the [Allied] invasion began was a terrible disaster. We had sunk five Allied cargo ships and two destroyers, and we had lost 22 U-boats'.

When American troops finally rolled into Brittany, and the RAF intensified their bombing campaign against the U-boat bunkers along the Atlantic coast, the remaining U-boats, with their tired and weary crews, set off on a long six-week voyage to anchor in the relative safety of Bergenfiord on the south-west coast of Norway.

U-305 pulls into harbour. It is apparent from the photograph that there has been an Allied attack on the port as a ship mast indicates where a boat has been sunk. By 1943 increased air activity on U-boat ports made life very difficult and precarious for returning crews.



Captain Bahr can be seen on the bridge of U-305 wearing a white covered cap during a patrol of the North Atlantic in 1943. On two occasions Bahr's boat had to return to Brest due to damage. In December of that year his boat and all the crew were lost in the North Atlantic.

A photograph of U-305 commander Captain Rudolf Bahr on the bridge. Bahr commanded a crew of 35 and between 27 February 1943 and 8 December 1943; his boat sunk two ships with a gross tonnage of 13,045 and two warships for a total of 2,560 tons.

On the bridge of U-703 during arctic operations are Captain Heinz Bielfeld and one of the lookouts, who is up for a smoke. U-703 operated from April 1942 until 14 September 1944 when it was finally sunk off the coast of Iceland.

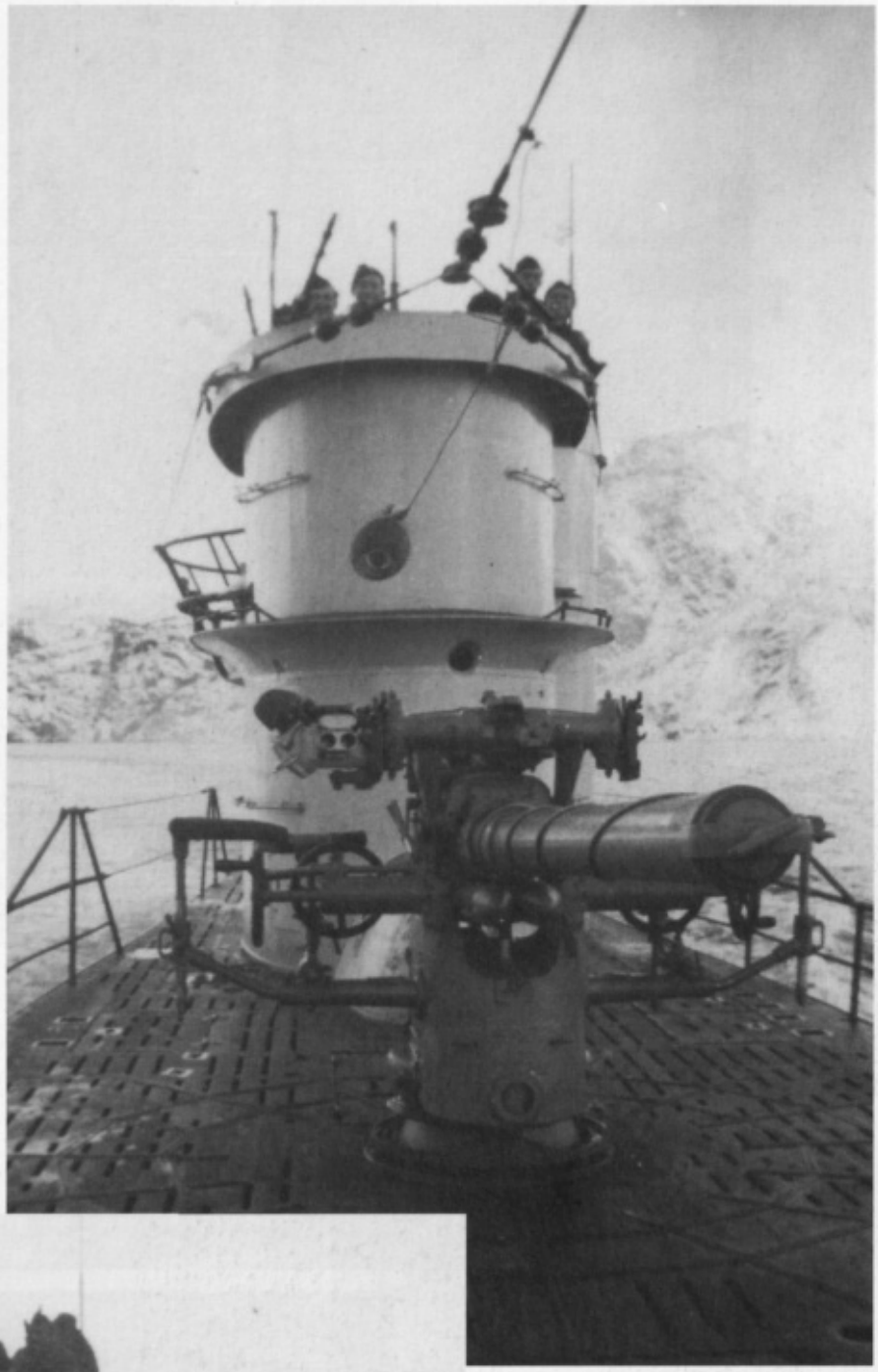
On lookout on the bridge probably around Christmas 1942 is an armed U-boatman. The vessel has almost certainly docked in harbour, but due to increased Allied air activity this man has been placed on lookout.

Two photographs taken in sequence showing some of the crew on the bridge of U-703 off the coast of Norway probably in 1943. Although by late 1943 the U-boat commanders had adapted and changed their tactics to the mounting threat by staying down longer in the daylight hours and surfacing in darkness to launch their attacks, growing U-boat losses were seriously beginning to impede the U-boats efforts of winning the war at sea.

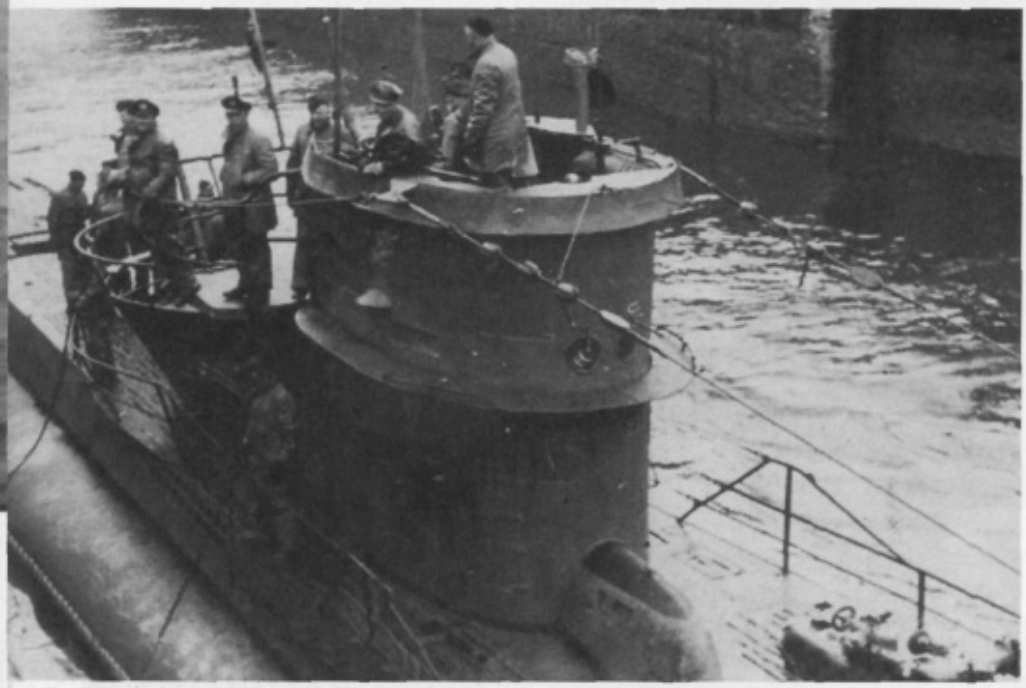
A nice photograph of U-703 in one of the Norwegian ports she used to patrol the arctic. Note some of the crew on the deck with the mooring ropes.

Two crew on lookout on the bridge of U-703 in the winter of 1943. The boat went missing on 25 September 1944 after probably setting out a weather buoy in heavy seas off the coast of Iceland.

Two photographs taken in sequence showing the crew of U-703 smiling for the camera from inside the bridge during arctic patrols off the coast of Norway in 1943. Note the well armed bridge with mounted MG34 machine guns for local defence against low flying enemy aircraft.

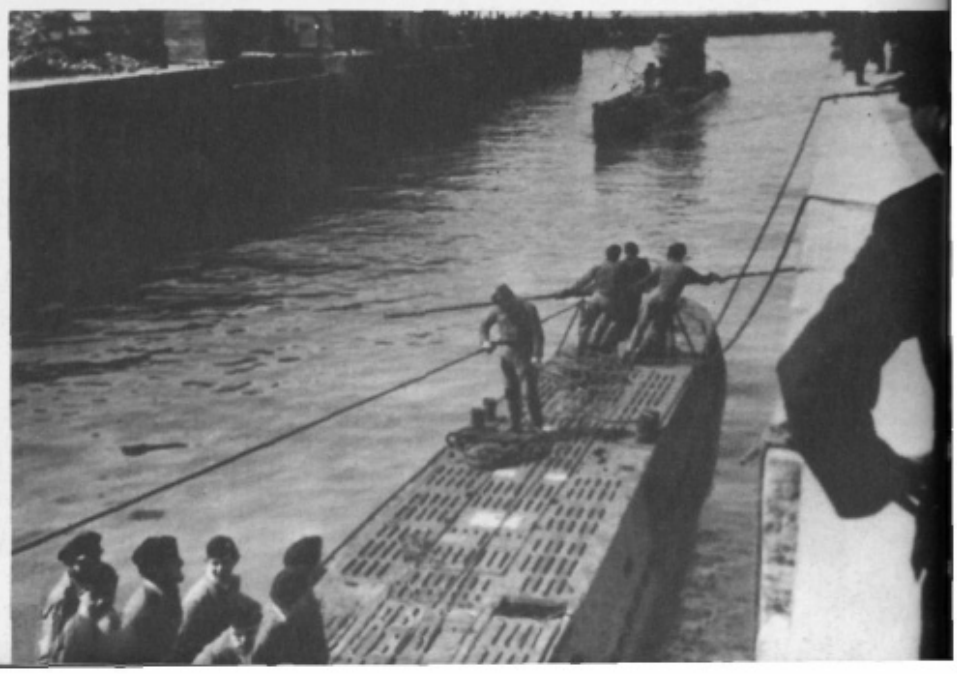


Three photographs showing U-333 arriving in the U-boat base of La Pallice in late 1943.



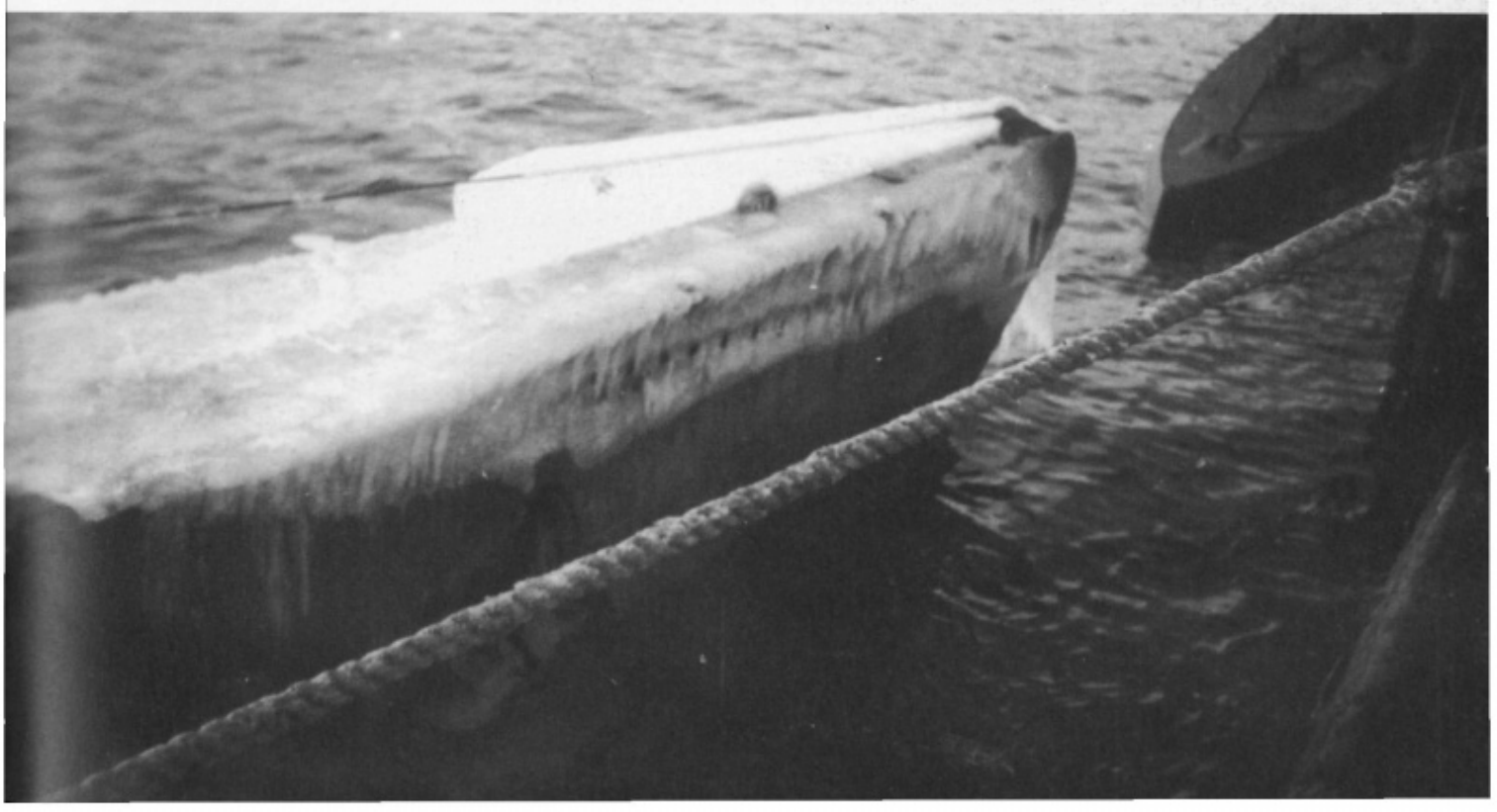
The boats emblem, three little fishes, was chosen to go along with the boats number. By this period of the war as more U-boats were being lost at sea, it became less common for crews to receive formal welcoming ceremonies. Stationed at La Pallice was 3.U.Flottilla, nicknamed the 'Lohs' Flotilla, which officially moved from Kiel to the base in October 1941.

Among some of the many U-boats hunting from the base was the great U-333, commanded by the 'ace of aces', Captain Peter-Erich Cremer. Other U-boats to score sizable successes from La Pallice were U-626, U-402, and U-432.



The crew of U-333 being greeted by other U-boat crews and personnel after returning from patrol in the North Atlantic in 1943. Captain Cremer, nicknamed by his men as 'Ali Wrack' (Ali Wreck), was a very successful commander in spite of starting out with no combat experience. However, he still sunk three ships on his first patrol. By his third patrol he had sunk 10 ships but during the operation he was seriously wounded by gunfire from HMS *Crocus*. U-333 was also badly damaged and limped back to port. After three months of recuperating Cremer was given a new post serving on the staff of Donitz. As for U-333 she continued operating in the Atlantic until on 31 July 1944 she was attacked by Royal Navy Sloop Starling and Frigate Loch Killin 50 miles off the coast of the Scillies and was sunk with the loss of all 45 hands. In 1944 Cremer commissioned the new Type XXI Electro boat U-2519, and was one of the most highly decorated U-boat commanders to take command of the new Electro U-boats in a drastic attempt to stem the huge U-boat losses in the Atlantic.

Thick ice can clearly be seen on the front section of U-703 whilst moored in the arctic in 1943. Before resuming operations the crew often used pick axes or other tools to remove the ice from the deck. This was in order to reduce weight and allow the vessel to dive more efficiently.



U-703 retuning to one of the Norwegian ports probably in the summer of 1943. The crew is lining the decks in preparation for a welcoming ceremony.

A photograph taken from the bridge showing a U-boat riding the waves in rough weather. If an enemy aircraft was spotted the boat would immediately dive. The general rule was that the boat could only evade attack if it could allow at least 25 feet of water over the conning tower before the first depth charge was dropped. However, if the captain thought that the boat would not have time then it would have to use its guns.

Two photographs taken in sequence showing the U-boat commander Captain Heinz Bielfeldof U-703 greeting someone from U-boat command.

Photographed from the bridge of U-703 during operations off the coast of Norway in 1944. During this period of the war the boat was relegated to deploying weather balloons in the Arctic sea to test weather conditions for shipping.

A photograph of U-703 emblem attached to the side of the conning tower showing a painted picture of a boat sailing on the sea.

Some of the crew of U-703 have disembarked from their boat and can be seen on a hillside in a Norwegian port in 1944. Within weeks of this photograph all the men would be lost at sea. Although 1943 had been terrible with the loss of some 242 U-boats, by the end of 1944, 250 had been sunk. During the last year of the war the Allies eventually inflicted such catastrophic damage on the U-boats that its losses were too great to continue. Of the 38,000 men that went to sea onboard these deadly vessels, only 8,000 were to survive to tell the tale.

The U-Boat Crew

Kommandant	Commander
Leitender Ingenieur (LI)	Chief engineer
Wachoffizier	Watch officer, Exec Officer
Obersteuermann	Chief Quartermaster
Obermaschinist	Warrant machinist
Bootsmann	Chief boatswain mate
Seemännisches Personal	Nautical personnel
Technisches Personal	Technical personnel
Zentrale-Personal	Control room personnel
Funk-Personal	Radio personnel
Torpedo-Personal	Torpedo personnel
Artilleriemechaniker-Personal	Gunnery mechanical personnel
Koch, 'Smutje'	Cook

Additional crew

Bordarzt, Sanitätsmaat	Doctor
Flak Personal	Anti aircraft personnel
PK-Leute	War correspondent
Meteorologe	Meteorologist
B-Dienst	Intelligence personnel

Engineers

Oblt.(Ing) Suhren, Gerd	U-37
Oblt.(Ing) Zürn, Erich	U-48
Kptlt.(Ing) Bielig, Gerhard	U-177
Lt.(Ing) Krey, Heinz	U-752
Kptlt.(Ing) Panknin, Herbert	U-106
Oblt.(Ing) Lechtenbörger,Willi	U-847
Oblt.(Ing) Landfermann, Carl A.	U-181
Kptlt.(Ing) Rohweder, Helmut	U-514
Kptlt.(Ing) Wessels, Johann-F.	U-198
Oblt.(Ing) Olschewski, Georg	U-66
Kptlt.(Ing) Wiebe, Karl-Heinz	U-178
Oblt.(Ing) König, Reinhardt	U-123
Kptlt.(Ing) Lichtenberg, Philipp	U-516
Oblt.(Ing) Johannsen, Hans	U-802

Mates

StOstrm. Petersen, Heinrich	U-99
Ostrm. Kaeding, Walter	U-123
Ostrm. Hofmann, Horst	U-672
StOstrm. Dammeier, Heinrich	U-270
OBtsMt. Mühlbauer, Rudolf	U-123
OMasch. Prassdorf, Heinrich	U-1203
OStrm. Jäckel, Karl	U-907

Operation Boat Types

The following is a brief outline of the various U-boat types that were used during World War Two. Each type was identified by a Roman numeral, and the modifications of each type distinguished by a letter after the number.

Type I
Complement: 4 / 39
Displacement: 862/1200t
Length: 72.4m
Beam: 6.2m
Depth: 4.3m
Maximum speed: 18 / 8kts
Radius of action:
High Speed: 17kt/3300sm
Cruising Speed: 12kt/6700sm
Submerged: 4kt/90sm
Torpedo tubes:
Bows: 4
Stern: 2
Total torpedoes carried: 14
Weaponry: 1 x 2cm Flak Gun (2000 rounds), 1 x 10.5cm gun (150 rounds)

Type II
Complement: 3 / 22
Displacement: 254/380t
Length: 42m
Beam: 4.1m
Depth: 3.9m
Maximum speed: 12 / 7kts
Radius of action:
High Speed: 12kt/1800sm
Cruising Speed: 8kt/3500sm
Submerged: 4kt/43sm
Torpedo tubes:
Bows: 3
Stern: 0
Total torpedoes carried: 5
Weaponry: 4 x 2cm Flak Gun (850 rounds)

Type VII
Complement: 4 / 40 - 56
Displacement: 770/1040t
Length: 66.5m
Beam: 6.2m
Depth: 4.7m
Maximum speed: 17 / 7.5kts
Radius of action:
High Speed: 17kt/3300sm
Cruising Speed: 10kt/8500sm
Submerged: 4kt/80sm
Torpedo tubes:
Bows: 4
Stern: 1
Total torpedoes carried: 14 later 12
Weaponry: 1 x 8,8cm (250 rounds) 4 x 2cm Flak Gun (4400 rounds)

Type IX
Complement: 4 / 44 - 51
Displacement: 1120/1430t
Length: 76.5m
Beam: 6.8m
Depth: 4.7m
Maximum speed: 18 / 7kts
Radius of action:
High Speed: 18kt/5000sm
Cruising Speed: 110kt/13500sm
Submerged: 4kt/65sm
Torpedo tubes:
Bows: 4
Stern: 2
Total torpedoes carried: 22
Weaponry: 1 x 10.5cm Gun (200 rounds); 1 x 3.7cm Flak Gun (575 rounds); 1 x 2cm Flak Gun (8000 rounds)

Type XB
Complement: 5 / 47
Displacement: 1763/2710t
Length: 89.8m
Beam: 9.2m
Depth: 4.7m
Maximum speed: 17 / 7kts
Radius of action:
High Speed: 17kt/6500sm
Cruising Speed: 10kt/18500sm
Submerged: 4kt/80sm
Torpedo tubes:
Bows: 0
Stern: 2
Weaponry: 1 x 10.5cm Gun (200 rounds); 1 x 3.7cm Flak Gun (2500 rounds); 1 x 2cm Flak Gun (2000 rounds)

3.7cm Flak Gun (2500 rounds); 1 x 2cm Flak Gun (2000 rounds)

Type XIV
Complement: 6 / 47
Displacement: 1688/2300t
Length: 67.1m
Beam: 9.4m
Depth: 6.5m
Maximum speed: 15 / 7kts
Radius of action:
High Speed: 14kt/5500sm
Cruising Speed: 10kt/12000sm
Submerged: 4kt/80sm
Torpedo tubes: None
Weaponry: 1 – 2 x 3.7cm Flak Gun (2500 rounds); 2 - 4 x 2cm Flak Gun (4000 rounds)

Type XXI
Complement: 5 / 52
Displacement: 1621/2100t
Length: 76.7m
Beam: 8m
Depth: 6.3m
Maximum speed: 15.6 / 16.8kts
Radius of action:
High Speed: 15kt/5100sm
Cruising Speed: 10kt/15500sm
Submerged: 10kt/110sm
Torpedo tubes: 6
Stern: 0
Weaponry: 1 x 2cm Flak Gun (1600 rounds)

Type XXIII
Complement: 2 / 12
Displacement: 243/275t
Length: 34.5m
Beam: 3m
Depth: 3.7m
Maximum speed: 10 / 12.5kts
Radius of action:
High Speed: 8kt/2600sm
Cruising Speed: 6kt/4450sm
Submerged: 10kt/35sm
Torpedo tubes:
Bows: 2
Stern: 0
Total Torpedoes carried: 2
Weaponry: None

The U-Boat War 1939 - 1945 is a unique visual record of Hitler's infamous submarine fleet and a lively account of those that risked their lives stalking enemy shipping in the depths of the Atlantic and Mediterranean. Using some 250 rare and largely unpublished photographs together with detailed captions and accompanying text, the book provides an outstanding insight into operations and the cramped and claustrophobic existence of the crews. It depicts how this potent force became one of the most dominant German fighting units during World War Two. Allied shipping losses became so serious that Winston Churchill is on record as saying that the U-boat threat was what concerned him most during the war.

As the tide turned in the Allies' favour with the introduction of sonar, radio intercept and increasing use of airpower, even the courageous and determined German submariners could not prevent the Allies inflicting catastrophic havoc on the U-boat fleet. Of a total of 38,000 crewmen, only 8,000 survived the war. The book also covers the development of the U-boat and the recruitment and training of the crews.

The latest in the popular *Images of War series*, ***The U-Boat War*** will delight Second World War naval enthusiasts.

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