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New Vanguard

German Pocket Battleships 1939–45

Gordon Williamson • Illustrated by Ian Palmer

GORDON WILLIAMSON was born in 1951 and currently works for the Scottish Land Register. He spent seven years with the Military Police TA and has published a number of books and articles on the decorations of the Third Reich and their winners. He has written a number of World War II titles for Osprey.

IAN PALMER is a highly experienced digital artist. A graduate in 3D design, he has provided illustrations for many publications, from modelling James Bond's Aston Martin to recreating lunar landings. He lives and works in London with his wife and three cats.

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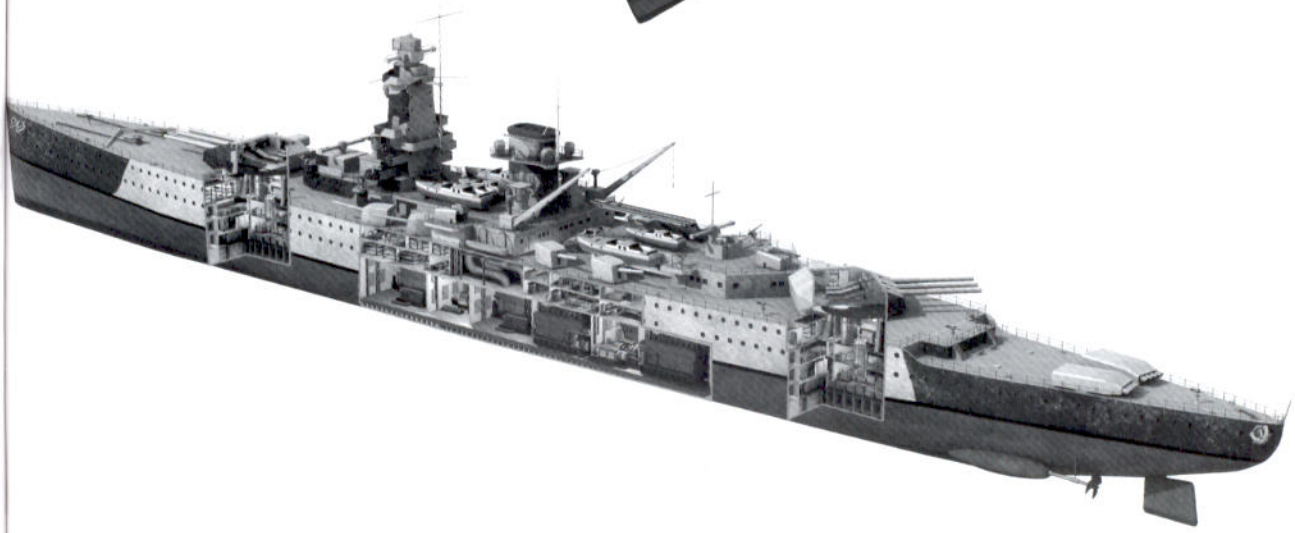

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Author's note

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Artist's note

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Ian Palmer, 15 Floriston Avenue, Hillingdon, Middlesex, UB10 9DZ, UK

The Publishers regret that they can enter into no correspondence upon this matter.

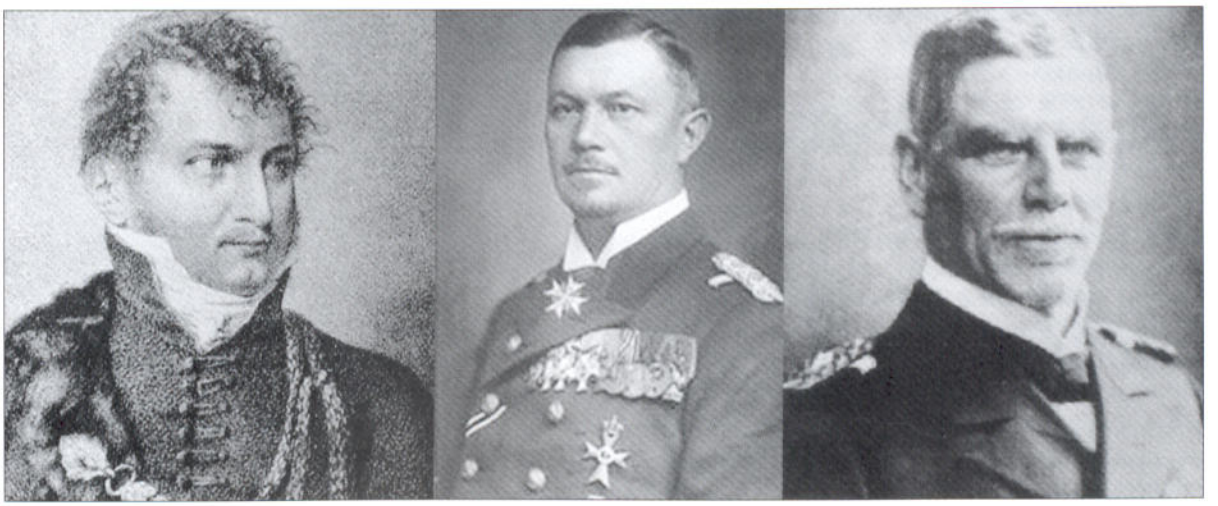
GERMAN POCKET BATTLESHIPS 1939–45

INTRODUCTION

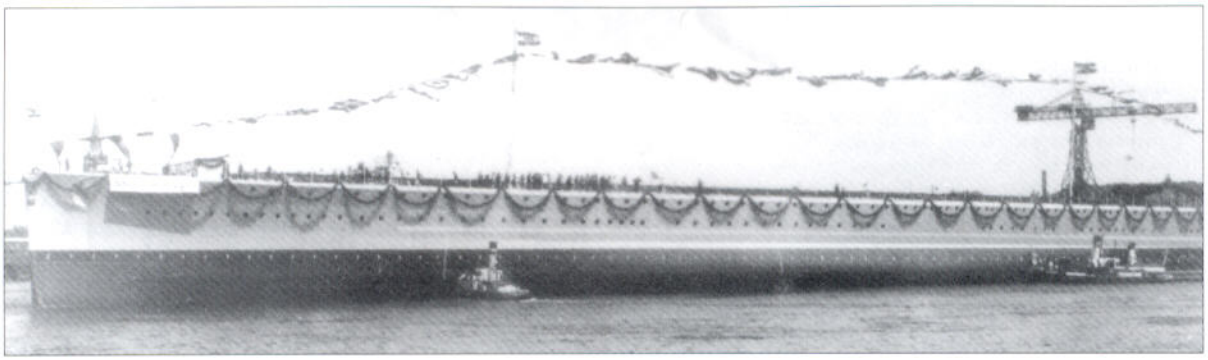
Following the end of World War One, and the abdication of the Kaiser, the government had passed a law, effective 16 April 1919, for the creation of a new, provisional navy, the Reichsmarine, to replace the former Kaiserliche Marine. After the scuttling of the High Seas Fleet at Scapa Flow, the Allies simply seized most of the remaining German ships in reprisal. The German navy went from being a powerful fleet, boasting some of the most modern and powerful warships in existence, to a motley collection of light cruisers and obsolete pre-dreadnoughts.

The terms of the Treaty of Versailles restricted Germany to six old pre-dreadnought battleships, six light cruisers, 12 destroyers and 12 torpedo boats. No submarines were permitted. Naval manpower was to be restricted to a total of 15,000, of which only 1,500 were to be of officer rank. The Armed Forces Law of 21 March 1921 stipulated that a further two pre-dreadnought battleships and light cruisers could be held in reserve. The Treaty of Versailles also specified that these ships could not be replaced (far less added to) until they were at least 20 years old. Germany, however, having lost her best, most modern warships, was at least in the position of being able to gradually rebuild her fleet with ultramodern new vessels, making use of the most up-to-date technology.

By 1925 the 'K' class of modern light cruisers (the *Königsberg, Köln* and *Karlsruhe*) had been added to the fleet, joined in 1927 by the *Leipzig*. Still, however, no new capital ships had been built. Though the replacement of some of Germany's surviving pre-dreadnought veterans



Those whose names were borne by the pocket battleships: left to right, Freiherr von Lützow, Admiral Reinhard Scheer and Admiral Graf von Spee.



The hull of *Admiral Graf Spee* immediately after her launch. As initially launched, the hulls of the three sisters were virtually identical, with their distinctive porthole arrangement, straight stem and low quarterdeck.

would by this point be allowed under the terms of the Treaty of Versailles, due to the age of these existing vessels, the Washington Agreement of February 1922 had laid restrictions on warship construction in an attempt to prevent an arms race. All the major powers had signed, and although Germany had not been invited to attend, it was clear that she would be held to the same terms.

The Agreement classified ships into two categories: capital ships with guns greater than 20cm calibre, and smaller ships with guns of a lesser calibre and with a maximum displacement of 11,900 metric tonnes (10,000 Imperial tons). German ingenuity was to create a hybrid formula from these restrictions – a vessel meeting the displacement limits set by the Agreement (effectively a large cruiser), but mounting guns of the calibre of a capital ship.

On 11 June 1927 the CinC, Admiral Zenker, announced that from a number of proposed specifications considered, the new class of ship would mount two triple turrets, each with three 28cm (11-inch) guns. The new ships were classified as armoured ships or *Panzerschiffe*. This name was carefully chosen. Although in French terms this effectively represented a battleship, in German terms a *Panzerschiffe* was classed below the old battleship classification of 'ship of the line' or *Linienschiffe*. The impression given by this classification, therefore, was that Germany was developing a more modest design of warship fully commensurate with the terms of the Treaty of Versailles.

In October 1928, the contract for construction of *Panzerschiffe A* was awarded to Deutsche Werke of Kiel. The day of the 'pocket battleship' had arrived.

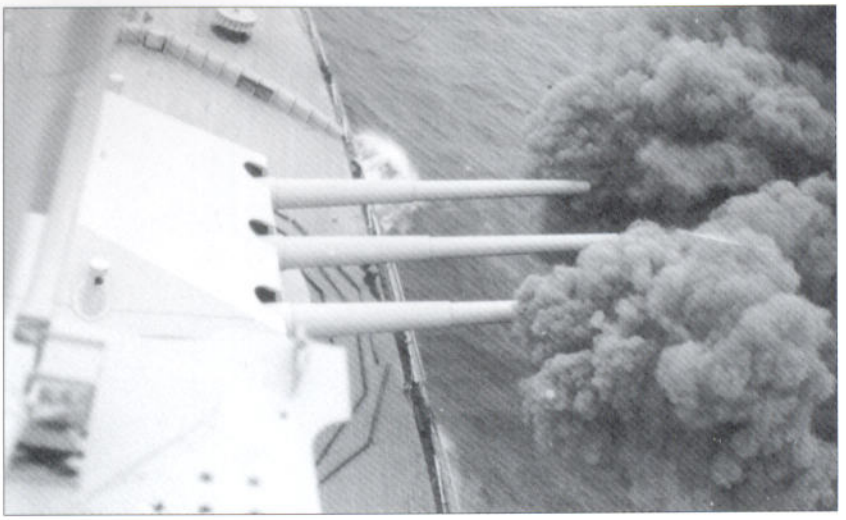
THE *PANZERSCHIFFE*

Firepower

With the exception of the 38cm (15-inch) guns carried by *Bismarck* and *Tirpitz*, the 28cm gun was the most widely used in major German warships. *Deutschland*, *Admiral Scheer*, *Admiral Graf Spee*, *Scharnhorst* and *Gneisenau* all used the same basic design of triple gun turrets equipped with this weapon.

The 28cm gun (actually 28.3cm or fractionally under 11 inches) had a muzzle velocity of 910 metres per second and fired a 300-kilo shell for a range of up to 35,000m. It was a quick-firing weapon, capable of two rounds per minute, a good rate of fire for such heavy projectiles. Each

An excellent view from the forward command centre area down onto the main 28cm turret 'Anton' as it fires a broadside during gunnery practice.



barrel was capable of being operated (i.e. raised or lowered) independently of the others. There were three different types of projectile for these weapons, an armour-piercing shot, containing 7.84 kilos of TNT (or a TNT/wax mixture known as hexogen), and two high explosive types, one with a 16.9-kilo TNT charge and the other with a larger 23.3-kilo charge.

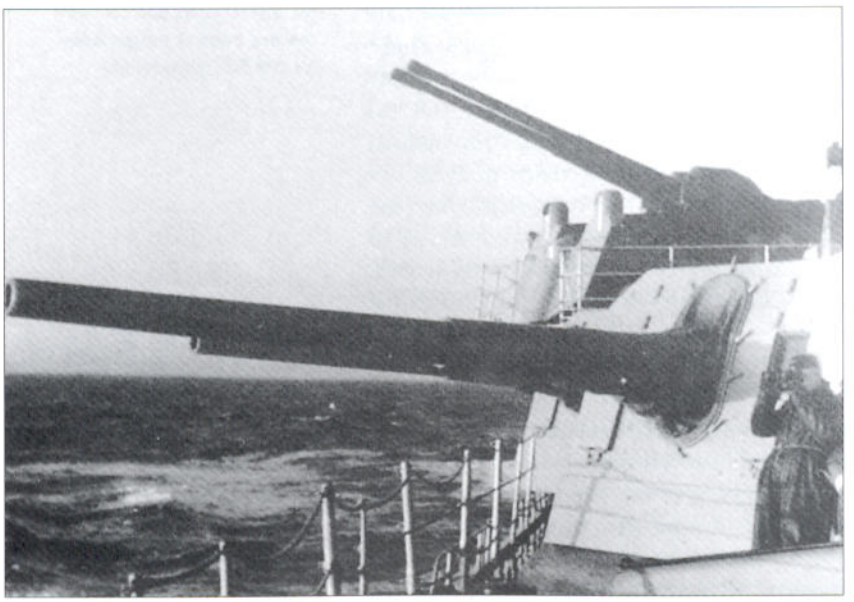
The 15cm gun

The 15cm secondary armament used on all three of the *Panzerschiffe* (roughly equivalent to the 6-inch gun carried by British light cruisers) were mounted in single-barrelled turrets, had a muzzle velocity of some 875m per second and were capable of firing a 45-kilo shell for ranges of up to 22,000m. A rate of fire of some 10 rounds per minute could be maintained by trained gun crews.

This shot shows the 15cm secondary armament, common to all three of the pocket battleships, mounted in single gun turrets, four each side with two facing forward and two aft.

The 8.8cm flak gun

As originally constructed, all three *Panzerschiffe* featured twin 8.8cm flak guns as their main anti-aircraft armament. Twelve barrels were carried on each ship, mounted in six twin-barrelled turrets, each of which was triaxially stabilised. These guns fired with a muzzle velocity of some 950m per second, discharging a 9-kilo projectile for ranges of up to 17,200m against surface targets and 12,000m against aerial targets. Barrel life for these weapons was around 3,200 rounds. An older version of this weapon was for some time fitted on the *Deutschland*.



The 10.5cm flak gun

Before the outbreak of war, all three sisters had their main flak batteries upgraded to 10.5cm calibre. These units retained the same triaxially stabilised carriages. They fired with a slightly lower muzzle velocity of 900m per second, discharging a 15.1-kilo projectile for a range of up to 17,700m against surface targets and 12,500m against aerial targets. Barrel life was around 2,950 rounds.

The 3.7cm flak gun

The secondary flak armament on the *Panzerschiffe*, as on most large German warships, was the 3.7cm twin flak gun. This weapon fired a 0.74-kilo projectile at a muzzle velocity of 1,000m per second and had a range of around 8,500m against surface targets and 6,800m against aerial targets. Barrel life was around 7,500 rounds. Practical rate of fire was around 80 rounds per minute though as much as double this was possible in theory.

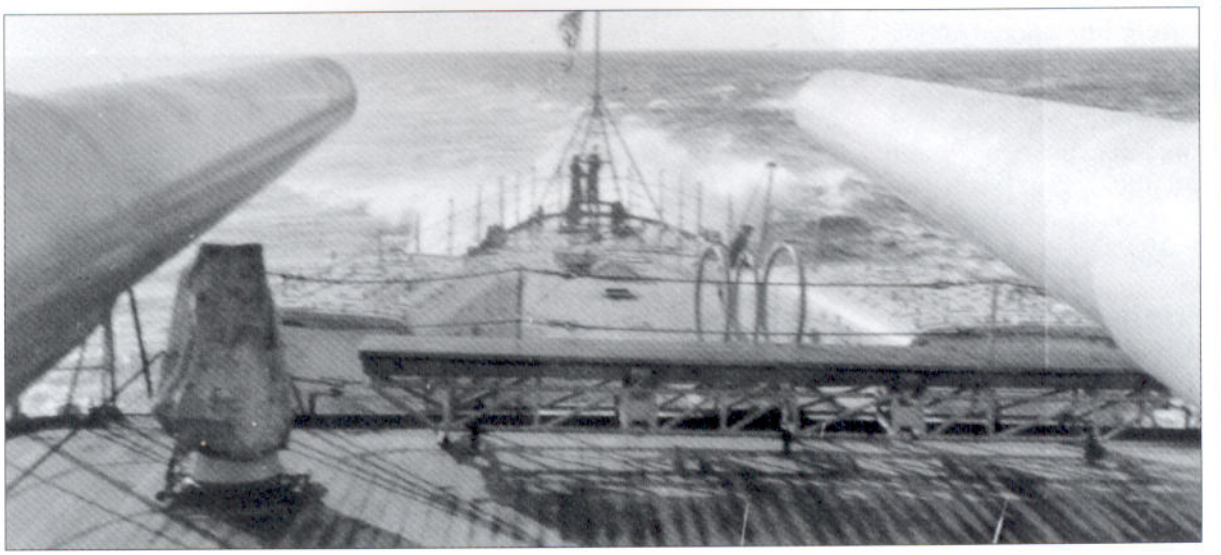
A fine midships view of *Admiral Scheer*. Clearly visible are the secondary armament turrets and heavy flak guns. Note the searchlights, covered in canvas here, on the funnel platform. Just below and to the left of the searchlight can be seen the fire control rangefinder for the flak armament.

The 2cm flak gun

This small-calibre weapon was one of the most prolifically produced and was installed on all types of vessel from those as small as U-boats and E-boats to the colossal battleships such as *Bismarck* and *Tirpitz*. These weapons were used in single, twin and quadruple configuration. They fired a 39.5gr projectile with a muzzle velocity of 835m per second with a range from 4,900m against surface targets to 3,700m against aerial targets. A maximum rate of fire of up to 280 rounds per minute per barrel was theoretically possible, but around 120 rounds per minute was usual. This meant that the four-barrelled *Flakvierling* would put up at least 480 rounds per minute and usually nearer to 800, and with several such weapons in place a substantial hail of fire could be put up against low-flying aircraft that came too close.

Radar

The German navy played a leading role in the development of military radar systems. The Nachrichten Versuchsabteilung (NSV) had begun work on the development of 'sonar' type systems capable of detecting underwater targets as early as 1929. Using similar principles for operating above the surface, a rather primitive system was developed in 1933 which could pick up echoes using 13.5cm short-wave transmissions.



A view towards the stern, showing the lowered quarterdeck, common to all three pocket battleships. This area was often awash in rough seas.

In 1934 a new organisation, the Gesellschaft für Elektroakustische und Mechanische Apparate (GEMA) was founded to continue development in this area. The two organisations now strove to outdo each other in the attempt to produce an effective radio detection apparatus. By September 1935, a 48cm wavelength (630 MHz) set was tested before the CinC Navy, Admiral Raeder, and produced positive results using the training ship *Bremse* as a target (admittedly a rather large one).

The set was then installed for a time on the *Welle*, this small and rather unimposing vessel becoming the first German navy ship to carry functioning radar equipment. The set was tweaked somewhat to improve efficiency, settling on a wavelength of 82cm (368 MHz), which became the standard for all naval radar sets. German naval radar sets produced during this period and through to 1945 were predominantly developed by GEMA along with well-known firms such as Telefunken, Siemens, Lorenz and AEG.

German naval radar used a bewildering range of designations. In some cases this was deliberate and intended to confuse enemy intelligence. Early sets, for example, were referred to as DeTe (Dezimeter-Telegraphie) in an effort to disguise the true intent of the equipment.

Early operational radar sets were referred to as FMG (Funkmess-Gerät), or radar equipment, with suffixes indicating the year of manufacture, manufacturing company, frequency code letter and location on board ship. Thus the set FMG 39G (gO), first installed on the *Admiral Graf Spee*, indicated: FMG – Funkmess-Gerät, 39 – 1939, G – GEMA, g – code for 335 to 430 MHz, and O indicating its position as being mounted on the foretop rangefinder.

To confuse matters further, as radar developed, even more classification terminology was introduced, including names as well as numbers. The FuSE 80 *Freya*, for instance, indicated: Fu – Funkmess or radar; S – Siemens, the manufacturer; E – Erkennung, search or reconnaissance radar; 80 – the development number; and *Freya* – the code name.

Fortunately, in 1943, a new, simplified designation system was introduced, in which the sets employed by the navy bore the designations FuMO (Funkmess-Ortung) active search radar, or FuMB (Funkmess-

Beobachtung) passive detecting radar. This was then followed by a specific numerical type code. The predominant types used on the pocket battleships were the FuMO 22, FuMO 27 and FuMB 7.

This view, taken during a courtesy call at a foreign port by *Admiral Scheer*, shows a number of civilian guests on the quarterdeck, and gives a good rear view of the protective shielding over the torpedo tubes.

Fire control

Turret 'Anton'

The forward main turret of each ship was controlled by a 10.5m optical rangefinder unit mounted in an electrically powered rotating housing on the ship's foretop. In turret 'Anton' itself was a supplementary 10.5m rangefinder, the lenses for which were contained within projecting armoured housings on either side of the turret rear.

Turret 'Bruno'

The aft main turret was controlled by a further 10.5m (the distance between the lenses) optical rangefinder unit. This was contained in an electrically powered rotating housing similar to that on the foretop. It was mounted on the roof of the aft command centre. As with turret 'Anton', 'Bruno' contained a backup 10.5m unit.

Secondary armament

The standard 10.5cm secondary armament in single-barrelled turrets, as carried on all three sisters, was controlled by a 7m rotating rangefinder unit mounted on the roof of the forward command centre.

Flak

Main fire control for the heavy 10.5cm twin flak guns was provided by differing arrangements on each ship and these are described along with the individual vessels.

PANZERSCHIFFE DEUTSCHLAND

The name

The original name of Germany's first pocket battleship speaks for itself and it is no surprise that the most powerful and modern warship in the new Reichsmarine would bear the nation's name. She was renamed in November 1939, taking the name of one of Germany's most distinguished military figures, Adolf Freiherr von Lützow (1782–1834). A boy soldier from the age of 13, Lützow served with distinction through the so called 'Freedom War' against Napoleon, raising a *Freikorps* of volunteers of mixed infantry and cavalry troops to operate behind the French lines. He reached the rank of Generalmajor in 1822 and Generalleutnant in 1830 when he finally retired. Before his death, Lützow famously challenged Blücher, another of Germany's

Wherever the pocket battleships moored, crowds would gather. Here, civilians flock to gaze in admiration at the *Admiral Graf Spee*.

great heroes, to a duel because of disparaging remarks made by Blücher about his troops.

Armorial crest

The ship's crest for the *Deutschland* was mounted either side of the bow, and featured a large black Prussian eagle. These had already been removed when the ship was renamed and no special crest was fitted for the newly named *Lützow*.

DEUTSCHLAND SPECIFICATIONS

Manufacturer	Deutsche Werke, Kiel
Length	186m
Beam	20.7m
Draught	5.8m
Maximum displacement	14,290 tonnes
Maximum speed	28 knots
Endurance	10,000 nautical miles at 20 knots
Crew	Average 30 officers and 1,040 men
Armament	6 x 28cm guns in two triple turrets 8 x 15cm guns in single turrets 6 x 10.5cm flak guns in three twin turrets 8 torpedo tubes in two quadruple mounts miscellaneous additional smaller calibre anti-aircraft guns 2 shipboard aircraft, initially Heinkel He 60, then Arado 196
Torpedoes	8 torpedo tubes, mounted in fours in rotating armoured housings on the quarterdeck, firing 53.3cm G7A torpedoes

Ship's commanders

Kapitän zur See Hermann von Fischel 1933–35
Kapitän zur See Paul Fanger 1935–37
Kapitän zur See Paul Wennecker 1937–39
Kapitän zur See August Thiele 1939–40
Fregattenkapitän Fritz Krauss 1940*
Kapitän zur See Leo Kreisch 1941
Kapitän zur See Rudolf Stange 1941–43
Fregattenkapitän Biesterfeld 1943*
Kapitän zur See Knoke 1944–45
Kapitän zur See Ernst Lange 1945

* Temporary Acting Commander

An excellent study of *Deutschland* circa 1935. Although her aircraft catapult has been fitted, she has had no other major modifications and still features the early straight stem and uncapped funnel. Note also the eagle and swastika national emblem on the side of her forward 28cm turret.

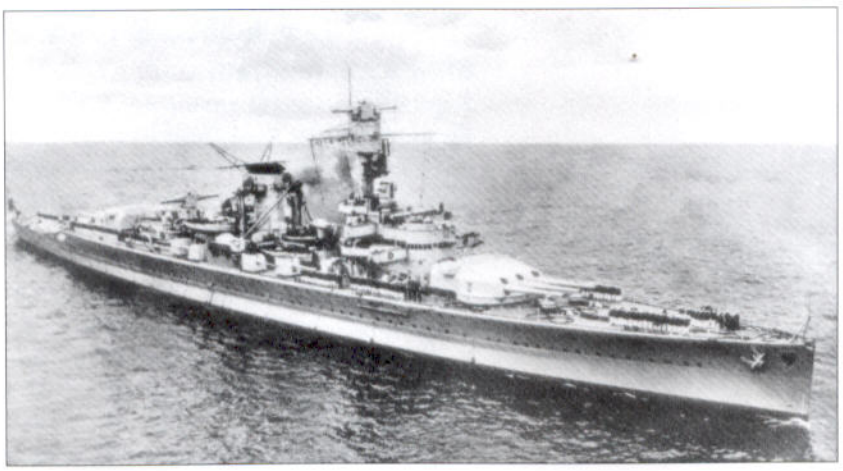
General construction data

The keel for the first of Germany's new class of warships was laid on 5 February 1929 and the ship launched on 19 May 1931. There was almost a disaster at the launching ceremony, performed by Reichspräsident von Hindenburg, when the hull started sliding down the slipway, ripping out the microphone cable before Hindenburg could deliver his naming ceremony. Fitting-out work progressed well, however, and the first trials began in November 1932. The ship was completed and commissioned into the Reichsmarine on 1 April 1933.

Her maiden sea voyage took place through the second half of May 1933 during which speed trials suggested a top speed of about 25 knots. Further speed trials during the following month saw *Deutschland* clock up a top speed of just over 28 knots. By December 1933 *Deutschland* had completed her trials and taken her place in the German Fleet.

Deutschland and her sisters benefited from the use of electric arc welding in their construction. The use of welding eliminated the need for rivets. Whilst each rivet might not be of significant weight, when multiplied many thousandfold they could add significantly to the overall weight of the ship. The use of welding could therefore reduce weight considerably, and in *Deutschland*'s case the weight of the hull is said to have been reduced by fully 15 per cent. The famous steel firm of Krupp had in fact developed a new form of weldable armour plate for just this purpose. There were differences in the layout of the armour on the *Panzerschiffe*, in *Deutschland*'s case the main armoured belt was 80cm thick. Part of this projected above the anti-torpedo bulge and part below. Lower down the hull, behind the bulge, the armour plate was 50cm thick. Immediately

This 1935 aerial view of *Deutschland* gives a good overall impression of her deck layout and the positioning of her secondary armament. On her foretop is the main rangefinder for her 28cm armament.



***Deutschland* during her involvement in non-intervention patrols during the Spanish Civil War. Note that a slightly raked funnel cap has been added and that her main turrets now carry a red/white/black tricolour aerial recognition band.**

inside the main outer hull were the fuel storage bunkers, which effectively formed an anti-torpedo bulkhead, the inner wall to this being some 45cm thick armour plate. The main armoured deck ranged from 30cm to 40cm thick.

Modifications

Germany's original pocket battleship was first modified in 1934, almost immediately after completion, when the quadruple torpedo tubes fitted on her quarterdeck were provided with armoured shielding. Shortly afterwards, her single-barrelled 8.8cm flak guns were replaced by twin mounts of the same calibre.

In 1935 she was provided with an aircraft catapult mounted between the forward superstructure and the funnel. Her complement of aircraft was two Heinkel He 60s, one fully assembled and one in component form. The Heinkel was later superseded by the more modern Arado Ar 196. Crews for these aircraft were provided by the Luftwaffe, Hermann Göring having insisted that 'everything that flew' belonged to him.

A further set of modifications was made in 1937, when improvements were made to bulkheads, the ship's cranes were replaced and searchlights installed on pillars to each side of the funnel.

In 1938 the funnel received a minor modification in the form of a very slightly raked funnel cap, and in the following year radar was installed in her foretop. A major refit in 1940 resulted in the original straight stem being replaced by a so-called 'clipper bow', though the rake to this bow was far less pronounced than on other similarly modified German warships. As originally constructed, *Deutschland* featured two bow anchors to port and one to starboard. The new design had only a single anchor each side. During this refit, the twin 8.8cm flak mounts were replaced by much heavier 10.5cm twin stabilised units.

Further refits in 1942, 1944 and 1945 were principally concerned with the upgrading of her radar equipment and the addition of extra flak armament, the final 1945 refit seeing her subsidiary flak armament increased to a total of 6 x 4cm, 8 x 3.7cm and 33 x 2cm guns.

Powerplant

The *Deutschland* was powered not by the traditional steam-driven engines of most warships of this era, but by diesels. This method of propulsion, however, was by no means problem free. Although coal would have been far more freely available as a source of power, the oil from which diesel fuel was produced had to be imported and was, therefore, more liable to be intercepted by the Allies on its way to Germany.

Deutschland was powered by MAN 9-cylinder diesels. Four such engines were coupled to each of the two propeller shafts. These engines developed some 6,560hp. Back-up was provided by auxiliary MAN 5-cylinder, two-stroke motors, each developing 3,450hp.

Each of these ships also featured four electro-motor rooms, each having two 604hp four-stroke diesel motors to power the generators. The diesel generator motors on *Deutschland* were manufactured by Linke-Hoffmann-Busch, and drove AEG generators developing 2,160kW.

Radar

Deutschland carried early experimental radar equipment known as Seetakt during the earliest part of her career, equipment that was put to good use in night movement off the Spanish coast during her Civil War non-intervention patrols. Prior to the outbreak of war, this equipment was replaced by a standard FuMO 22 set with a 6m x 2m 'mattress' antenna, fitted to the forward face of the foretop rangefinder. No radar antenna was carried on the aft rangefinder of *Deutschland/Lützow*.

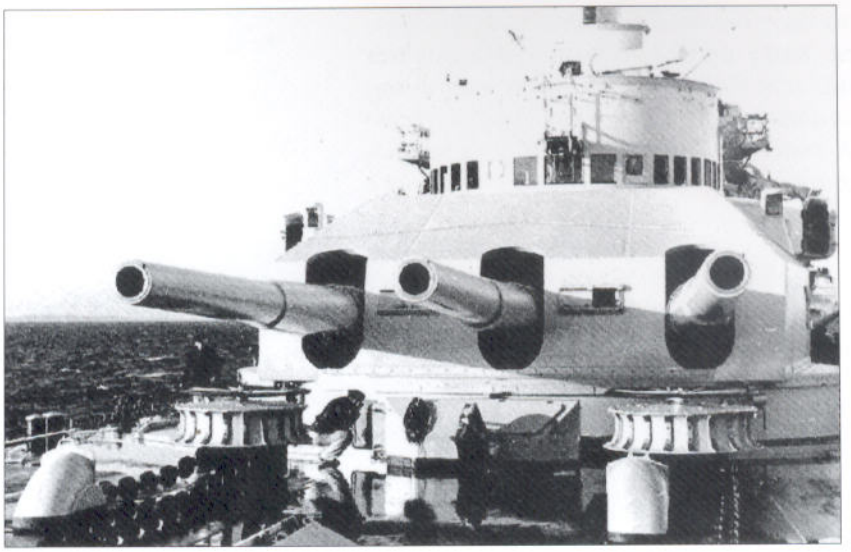
Flak fire control

In her final form, *Lützow* featured a 3cm rangefinder mounted in a rotating housing on the forward command centre just behind the secondary armament fire control. Two further SL2 self-stabilising flak controllers were mounted, one either side of the so-called 'battle-mast', and one further 3cm rangefinder was mounted just abaft the funnel.

Colour schemes and camouflage

As originally completed, *Deutschland* was finished in the pale grey colour typical of pre-war German warships. The main and quarterdecks were planked with teak whilst other horizontal surfaces were coated with a dark grey anti-slip surface. During the Spanish Civil War non-intervention patrols, a red/white/black tricolour band was painted from side to side

A stern view of *Deutschland*, taken in Barcelona. Again the recognition stripes on her aft 28cm turret are clearly visible as are the armoured quadruple torpedo mounts on the quarterdeck. Note how low the freeboard is in this area.



An excellent view of *Deutschland*'s fo'c'sle area looking back towards turret 'Anton'. The size of the massive anchor chains, capstans and, indeed, turret 'Anton' itself can be gauged by reference to the crouching figure of the crewman.

at the rear of each of her main turrets. This was to aid aerial identification of her as a neutral ship.

In 1941, the newly named *Lützow* was given a disruptive splinter camouflage paint scheme, similar to that used on larger ships such as *Prinz Eugen* and *Bismarck*. This consisted of adding a dark grey portion to the hull paintwork at the bow and stern, so that the remaining main pale grey scheme made the ship look much shorter. To enhance this effect, a false bow wave was painted just at the start of the main pale grey hull section. Additionally, a wide black/white chevron-shaped stripe (with the white band foremost), with the point of the chevron facing towards the bow, was painted on her hull and up across her superstructure and bridge. A similar chevron, facing the stern, was painted amidships and extend up across her funnel. A third black/white band, angled outwards, was painted in line with her stern 28cm turret.

Photographs taken during training in the Baltic in 1942 show *Lützow* sporting an overall dark grey colour scheme but by the time she moved into Norwegian waters later that same year, she was in pale grey with a dark grey disruptive splinter pattern across her hull and superstructure.

By 1944 photos once again show *Lützow* in a light grey overall colour scheme.

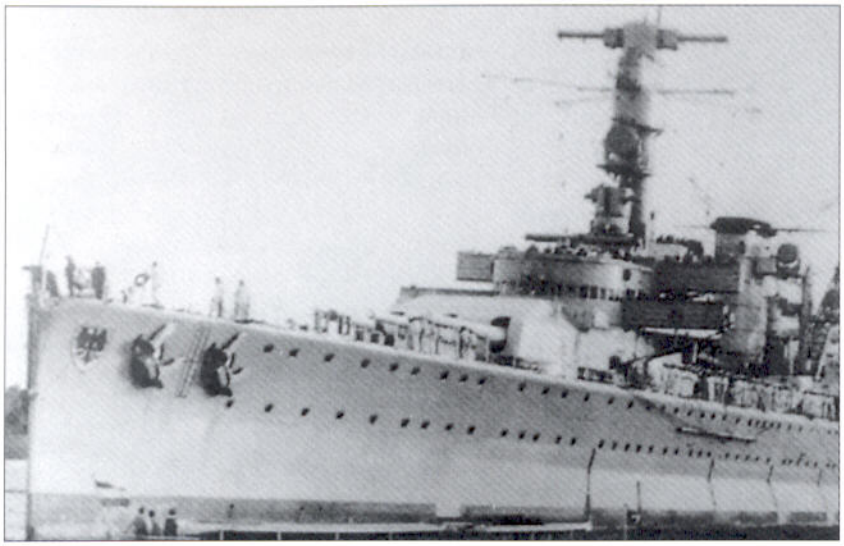
Pre-war service

During 1933 and 1934 the new warship spent most of her time on training exercises and courtesy calls at foreign ports including Gothenburg in Sweden and in mid-October made an official visit to Edinburgh in Scotland. The highlight of that year for the crew was almost certainly the visit made to the ship in April by Reichskanzler Adolf Hitler. Contrary to what might have been expected, Hitler is said to have conducted himself in a most modest manner, insisting that no special treatment be given to him, and wandered alone through the ship chatting to individual crew members at their posts.

The following year was spent on intensive training voyages out into the Atlantic, and in March she sailed as far afield as the Caribbean and South American waters. On her return she spent some time in dock undergoing routine maintenance and having a number of modifications carried out. An aircraft catapult was also installed between the bridge structure and the funnel and two Heinkel He 60 floatplanes taken onboard, one fully assembled and one stored disassembled.

The first part of 1936 saw the pocket battleship involved in routine exercises in home waters before venturing out into the mid-Atlantic with her new sister *Admiral Scheer*. During this cruise *Deutschland* paid a courtesy call to the port of Madeira.

1936 also saw the outbreak of the Spanish Civil War and both *Deutschland* and her sister *Admiral Scheer* were despatched on 23 July to the waters off Spain's eastern cost on non-intervention patrols. Here, *Deutschland* was involved in the rescue of many refugees fleeing from the increasingly bitter fighting with both nationalists and republicans being given refuge before being passed over to one of a number of merchant vessels that were involved in evacuations. Some of her other responsibilities included ensuring the protection of ships carrying supplies sent by Germany in support of Franco and his nationalists and also to gather intelligence for the nationalists. During this period, the turrets of German warships were painted with tricolour stripes in the national colours of red, white and black to indicate their neutral status and avoid attack from any of the combatants. By the end of the month, *Deutschland* had returned to Wilhelmshaven at the conclusion of her first operational sortie. It was to be the first of several patrols in Spanish waters during this conflict.



A pre-war shot of the *Deutschland* which shows to good advantage the bow crest with the black German eagle, and the twin port-side anchors.

During *Deutschland*'s patrol service in Spanish waters in May 1937, she had docked at Palma on the island of Majorca, and was present when the port came under attack by republican aircraft. A number of ships, including Italian and British warships, opened fire against the aircraft. The ship moved swiftly out of Palma, in consort with the Torpedo Boats *Seeadler* and *Albatross*.

Deutschland moved to the island of Ibiza where just 5 days later, on 29 May, she came under attack again and was struck by two bombs. One landed near the bridge and detonated between decks whilst the other struck near the third starboard 15cm gun. Serious fire ensued below decks, causing significant damage. Casualties were heavy, with 23 sailors killed and 73 wounded, the most seriously injured with burns.

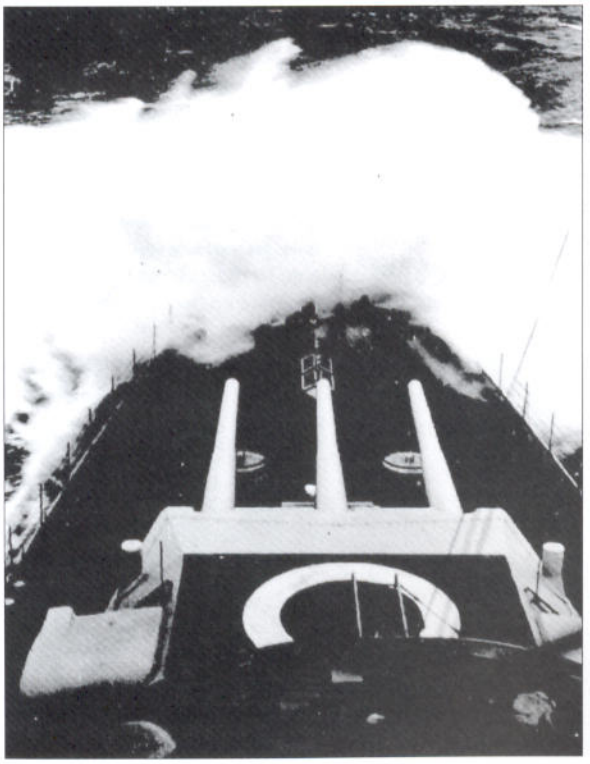
Deutschland weighed anchor and departed Palma and, after rendezvousing with *Admiral Scheer* to take on additional doctors, sailed for Gibraltar where her wounded were eventually evacuated and the dead given a funeral with full military honours by the British. However, the bodies were exhumed ten days later on Hitler's orders and returned to Germany, where they were interred with great ceremony. In retaliation for the attack on *Deutschland*, an enraged Hitler ordered the bombardment of the republican-held harbour at Almeria by her sister, the *Admiral Scheer*.

Deutschland spent the next two years on numerous training exercises and flag-flying trips to foreign ports, including one official visit to Spain after the end of the Civil War. Amongst the training exercises she undertook was a major fleet exercise in the Atlantic with her sister *Admiral Graf Spee* as well as the cruisers *Köln*, *Leipzig* and *Nürnberg* and a number of destroyers, U-boats and support ships.

Wartime service

Panzerschiffe Deutschland was at sea on the outbreak of war. She refuelled soon afterwards and carried out battle training until receiving orders at the end of the month to carry out commerce attacks in the North Atlantic. In fact, it was to be a very inauspicious start to her combat career. Due to political indecision, Hitler still hoping to come to an accommodation with the British and wishing to avoid outright confrontation, *Deutschland* was left idling in the waters off Greenland for some time along with her supply ship *Westerwald*. Only on 26 September were orders finally received giving her clearance to take action against the enemy. *Deutschland* immediately sailed south, but encountered no enemy ships until 5 October when, on the point of giving up and heading north again, she encountered and sank the British freighter *Stonegate*. Unfortunately for the Germans, their victim had been able to send a distress signal alerting the British to the presence of the pocket battleship. On 9 October, the US vessel *City of Flint* was taken as a prize on the grounds that she was carrying contraband. After a rather convoluted journey toward Germany via Murmansk, the freighter was eventually seized by the Norwegians when she anchored in Haugesund and handed back to her original crew.

A view from the bridge of *Deutschland* towards her bow as the ship crashes through heavy seas. The circular symbol painted on her forward 28cm turret roof is a tactical symbol used during training.



On 14 October a Norwegian vessel, the *Lorentz W Hansen*, bound for England with a full load of timber, was intercepted and sunk. Her crew was put aboard another ship halted by the German that day, but was found to be destined for a neutral port and thus permitted to proceed. This ship, the Danish *Kongsdal*, eventually called into the Orkneys on 21 October and was able not only to provide further confirmation that a raider was operating in the North Atlantic, but to identify her as the *Deutschland*.

Meanwhile *Deutschland*'s attempts at commerce raiding were being severely hampered by deplorable weather conditions though she did keep several Allied vessels busy in a fruitless search for her. A further refuelling at sea in October took a full two days because of the appalling conditions, the German ship sustaining considerable damage in what amounted to hurricane conditions. She was by now also beginning to suffer engine problems and although these were taken care of in situ, concern was now felt over her operating efficiency.

On 1 November, *Deutschland* was ordered to head for home in mid-November, giving her time for just one more sortie to look for potential victims. Due to

the deteriorating weather conditions, however, this was abandoned after a few days and the German ship made its dash for home, once again passing unharmed through the dangerous waters of the Denmark Straits. Suffering from severe icing, many of her turrets and fire control posts could be operated only partially and her torpedo tubes were rendered completely inoperable.

***Deutschland*, now renamed *Lützow*, is seen from the bridge of a U-boat during a training exercise in the Baltic. She now sports a much darker grey overall colour scheme and the high, raked funnel cap is clearly evident, as are her raked clipper-style bows.**

By 15 November, *Deutschland* had finally returned to the safety of Kiel harbour. Her tally was a rather disappointing 6,950 tonnes of enemy shipping sunk and 4,960 tonnes captured. Though not as impressive as the tonnage sunk by her sister *Admiral Graf Spee* operating in the South Atlantic, *Deutschland* had managed to remain undetected for two months despite British efforts to track her down, this itself being quite an achievement.

It was during this period that *Deutschland* was renamed. The orders came from the CinC Navy, Grossadmiral Raeder. The decision was made on a number of grounds. Firstly, changing the name of a ship was a useful exercise in confusing enemy intelligence; secondly, the Germans had intended to sell a new cruiser of the *Hipper* Class to the Soviet Union. This ship had been named *Lützow*, and the re-allocating of her name to the *Deutschland* would help maintain the secrecy surrounding this transaction. Finally, it was felt that if a ship bearing the name of the nation was sunk in action, it would cause great damage to national pride. Accordingly, on 15 November 1939, the ship's log recorded the renaming of this vessel from *Panzerschiffe Deutschland* to *Kreuzer Lützow*. She was also subsequently reclassified from an armoured ship (*Panzerschiffe*) to a heavy cruiser (*schwere Kreuzer*).

By the end of the year, *Lützow* had moved into the shipyards at Danzig for a refit in preparation for her next mission, a sortie into the South Atlantic against ships of the Allied whaling fleets.

After completing her refit, *Lützow* undertook further practice exercises and battle training, before putting into Wilhelmshaven in early April. Here, her mission was changed and the intended cruise into the Atlantic suspended. *Lützow* was to be required for something much more

***Lützow* is seen here at her Norwegian lair in 1944. Although she does not appear to be moving (there is no bow wave) her anchors are raised, so she may be preparing to depart. She now features a disruptive splinter camouflage scheme of dark grey over a light grey base coat, remarkably effective in breaking up her outline.**

momentous – Operation *Weserübung*, the invasion of Norway. Only after her task here was completed would she be permitted to return to her original task. Accordingly, she boarded over 400 Wehrmacht mountain troops destined for the invasion force and was allocated to the attack on Oslo, operating alongside the heavy cruiser *Blücher*. This force, *Gruppe 5*, also included the old light cruiser *Emden* and three torpedo boats.

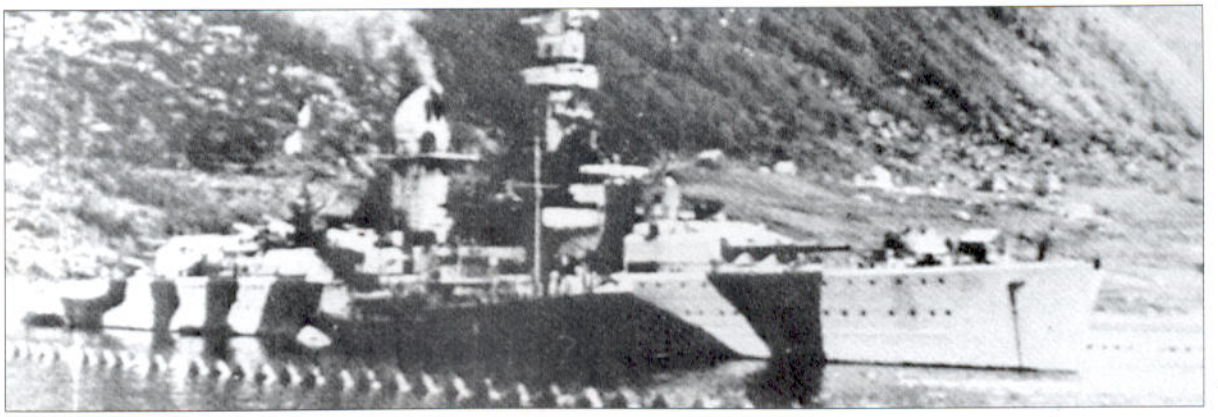
During the run through the Kattegat, the submarine HMS *Triton* fired a spread of torpedoes at *Lützow* but fortunately they passed harmlessly ahead of her bows. The escorting torpedo boats then attacked the submarine, preventing any further attack whilst the heavy ships sped north.

Unfortunately for the Germans, the coastal artillery batteries in Oslofjord were on the alert and as the German force attempted to proceed at speed through the narrows at Drobak, just minutes before midnight on 8 April 1940, the *Blücher* was suddenly illuminated by searchlights from the coastal artillery batteries at Raüoy and Bolarne and came under very heavy and accurate fire from both artillery and torpedoes. *Lützow* also sustained a number of hits from the 28cm artillery shells, coincidentally the same calibre as her own main armament.

One shell struck the forward main turret, disabling the centre barrel and damaging the cradle of the right barrel. One penetrated the decks on her port side and a third the superstructure by her port crane. *Blücher* had suffered even worse damage and was in imminent danger of sinking. *Lützow* was only able to bring her secondary armament to bear at this point and, given the hopelessness of the situation, threw her engines into reverse and withdrew as fast as possible, putting up as much fire as she could against the Norwegian shore defences.

Lützow eventually managed to land her troops in Verle Bay then manoeuvred into position to use her operational 28cm guns to provide cover fire for a captured Norwegian vessel to return to Drobak and ascertain the fate of the *Blücher*. The news of course was not good; *Blücher* had capsized and sunk at 0732hrs. Although many of her complement and most of the troops she was carrying managed to reach safety, over 300 were lost.

By afternoon on that day, however, ground troops had captured most of the Norwegian fortifications, leaving only the fort at Bolarne in Norwegian hands and the officer in charge of this fortification had made contact with an offer to discuss surrender.



***Lützow* at her anchorage in Norway. Note that her anchors have been dropped and she has been surrounded by a double barrier of torpedo nets. She is maintaining a head of steam, possibly simply to generate power in order to run onboard equipment, but probably also to make it easier for her to move at short notice. (Naval Historical Centre)**

A superb study of *Admiral Scheer* in her original guise. Note the straight stem, lack of funnel cap, the early He 60 floatplane and the lack of the FuMO radar array on the foretop rangefinder. The armorial crest on her bows is also clearly seen.

With the enemy pacified, *Lützow* was ordered to return to Germany. Dismissing her escorts, she made for Kiel at speed but the misery of her Norwegian experience was compounded when, on 11 April whilst passing through the Skagerrak, she was hit by a torpedo fired by the British submarine *Spearfish* and had her rudder blown off and her stern all but separated from the hull. As the *Lützow* drifted, vainly attempting to steer by her propellers, it was feared that a further submarine attack would finish her off. Fortunately, the submarine had expended the last of her torpedoes and the Germans were eventually able to take her under tow and the crippled heavy cruiser, battling through heavy seas, finally reached Kiel on 14 April.

Her sortie into Norwegian waters had cost her 19 dead with a further 15 killed in the torpedo attack. The ship had also sustained significant damage, serious enough to keep her out of commission for almost a year. Due to the expected length of time she would be out of service, *Lützow* was officially paid off from the Navy. After her repairs and refitting, which included completely reconstructing her stern, were completed, she was re-commissioned on 31 March 1941. It was decided by naval high command to send her out on the commerce-raiding mission intended for her before she was diverted to Operation *Weserübung*.

This new operation was to be undertaken alongside her surviving sister, the *Admiral Scheer*. On 12 June, *Lützow* put to sea with an escort force of destroyers, her destination once again Norway. Making good progress through the Kattegat and Skagerrack, misfortune dogged her again when, despite Luftwaffe air cover, she was attacked by a British torpedo bomber off Egersund. The enemy plane scored a single direct hit disabling her electrical plant. The cruiser began drifting out of control, and only the fact of heavy smoke issuing from the damaged smoke generators obscuring the scene prevented a second enemy torpedo bomber from finishing her off. Eventually, emergency repairs allowed her to limp back into Kiel for repairs that would take a further six months.

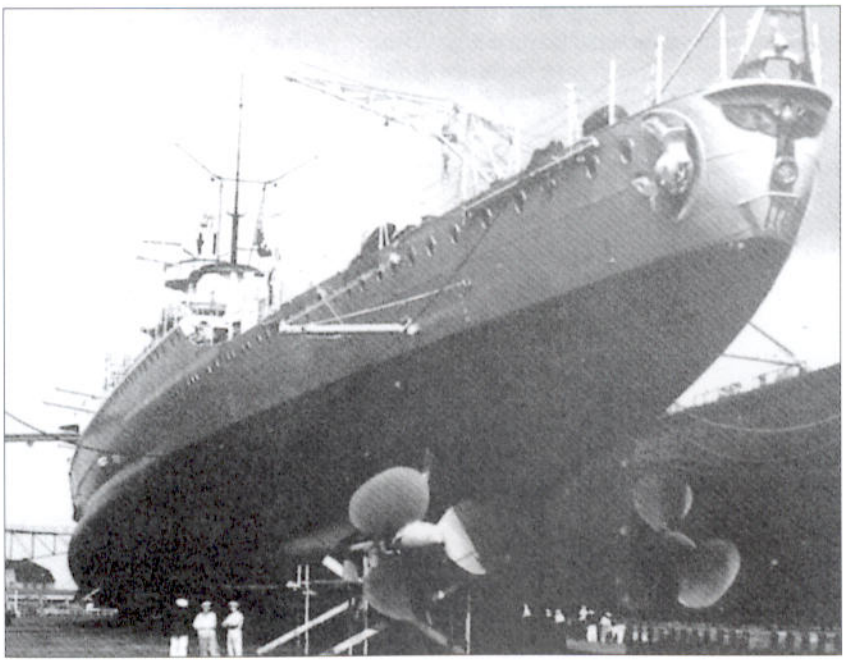
Fortunes subsequently changed somewhat for the better as despite several heavy bombing attacks on Kiel, *Lützow* sustained no further serious damage. However, in one attack on 7 September, one of the ship's boats in which most of the ships documentary files were stored was hit and burned out, causing the destruction of the historical documents. For the remainder of 1941, *Lützow* remained in Kiel, with only a skeleton crew in attendance.

After a slow start to the new year, in which she suffered damage from ice floes and had repairs delayed because of bad weather, she was

finally declared fit for action on 10 May 1942. On 15 May, she left German waters once again, reaching Kvarenes Fjord safely, and on 18 May, as she proceeded towards an intended rendezvous with her sister, fortune proved to be on her side for once when she escaped detection by a flight of RAF torpedo bombers searching for her. On 25 May, having stopped off at Grimstadfjord on the way, she joined *Admiral Scheer* in Bogen Bay. *Lützow* became the flagship of Vizeadmiral Kummetz, and with *Admiral Scheer* was designated as *Kampfgruppe 2*. The two began carrying out battle exercises, though these were restricted somewhat by severe fuel shortages.

In July, *Lützow* was selected to take part in an operation against Convoy PQ 17, designated as Operation *Rösselsprung*. Departing her moorings on 3 July, she ran aground in thick fog in the Tjelsund, on the way to rendezvous with other units, in particular the battleship *Tirpitz*, and sustained considerable damage. Suffering from significant flooding, once again she was forced to return to port. (*Lützow* was not the only ship to run aground – three destroyers suffered the same fate in that thick fog.) *Lützow* was ordered to return to Germany for repairs and docked in Swinemünde on 12 August. Repairs took the remainder of August, all of September and most of October, being dogged by a number of minor accidents. She finally left the repair yards on 30 October for a short period of trials in the Baltic before once again heading for Norwegian waters, arriving with her destroyer escort at Narvik on 12 November.

On 30 December, *Lützow*, together with *Admiral Hipper* and six destroyers, sortied out in an attempt to intercept Convoy JW 51. German intelligence had reported this as a weakly escorted convoy. After the attack on the convoy, *Lützow* was to sail alone into the Barents Sea to look for more targets. Unfortunately, the convoy, unbeknown to the Germans, had been split into two parts, JW 51B, spotted by the Germans, and JW 51A, not known to them. The latter had a powerful escort comprising a battleship, three cruisers and a large number of destroyers and smaller escort vessels. The operation turned into a complete shambles. *Lützow* was still some way off when the first German ships reported contact with the convoy. *Admiral Hipper* had intercepted the convoy to the north, causing it to turn south as *Lützow* sped north to meet it. The Germans were spread out over far too great an area, thus badly weakening their offensive capabilities. The German warships toiled through foul weather, with snowstorms badly hampering visibility and each arm of the German attack unsure of the exact position of the other. Considerable time was wasted trying to



***Admiral Scheer* in drydock. This gives an excellent view of her stern including the huge eagle emblem, which was removed on the outbreak of war. Note also the booms swung out from her hull just above the propellers. These are intended to prevent the possibility of the ship's stern swinging around against the dockside when in port and damaging the screws.**

manoeuvre *Lützow* into a favourable attack position as she skirted around the convoy, and the short hours of daylight in these far northern latitudes ebbed away. Finally, at 1142hrs, the convoy emerged from the cover of a squall and *Lützow* opened fire. Severe icing of the fire control equipment resulted in inaccurate fire and shooting stopped after a few salvos with no hits being seen. Fortunately, return fire from the escorts was equally ineffective. This skirmishing with the convoy continued until 1203 when *Lützow* was ordered to break off the action. *Admiral Hipper* had been engaged by the cruisers *Sheffield* and *Jamaica*, warships the Germans had not realised were anywhere near, and the CinC now feared losing his heavy cruisers against the superior British forces.

One of the most recognisable features of *Admiral Scheer* as first constructed was the massive pagoda-style bridge structure. Here, she is tied up in port, moored alongside the old dreadnought *Schlesien*, her bridge structure instantly recognisable. (Author's collection)

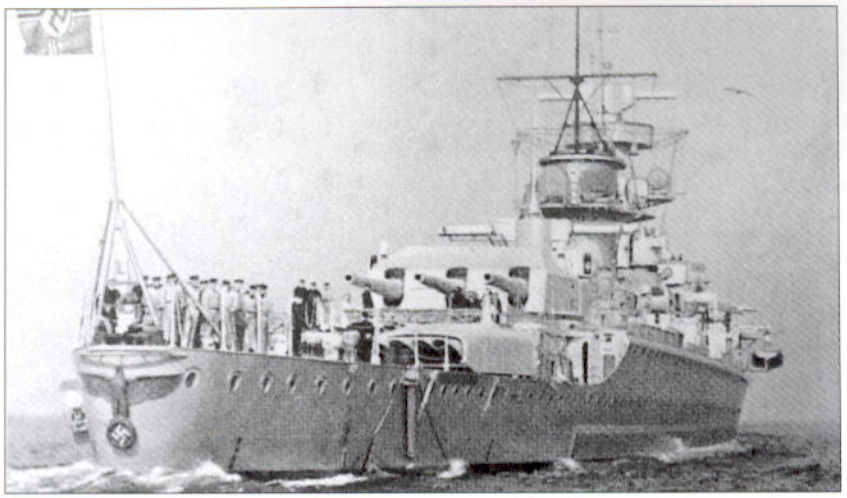
Admiral Hipper, in fact, received several hits and the destroyer *Friedrich Eckholdt*, approaching the enemy too closely in the belief that they were German vessels, was sunk. On the plus side, *Admiral Hipper* had sunk one destroyer and one minesweeper and had damaged three other destroyers. *Lützow* had achieved nothing. Not one single merchantman, the target of the sortie, was lost.

This fiasco enraged Hitler who, on 6 January, insisted that all the navy's remaining heavy ships be scrapped and their weapons assigned for use on land. Grossadmiral Raeder resigned in protest and Karl Dönitz, the CinC submarines was appointed CinC Navy. His star in the ascendancy, Dönitz used his good standing with Hitler to persuade him to moderate his decision.

By March, *Lützow* had moved to Altafjord, being forced to remain there for some months due to technical problems being experienced with her diesels, a problem which once again forced her return to Germany for shipyard repairs. She returned to Norway again briefly in the autumn but by the end of September was back in Kiel for a major overhaul that lasted until January of 1944. Thereafter she spent several months on training exercises in the Baltic before being assigned to escort and support duties as the Germans began retreating on the Eastern Front. *Lützow*'s 28cm guns were now used for shore bombardment rather than against enemy ships.

By the beginning of 1945 most of Germany's remaining heavy units were active in the Baltic, now defending German soil. *Lützow* survived several bombing raids but on 16 April a near miss from a 'Tallboy' bomb dropped by an RAF Lancaster bomber caused a breach in the hull side as she lay in Swinemünde and caused significant flooding. The ship developed a list, but was eventual restored to an even keel and flooded areas pumped out. The ship was not fit for sea, however, and was used as a stationary

***Admiral Scheer*, fully decked out in bunting, during a review of the fleet. At this stage in her career she was to all intents and purposes an identical twin to *Admiral Graf Spee*.**



gun platform, her 28cm guns firing at Soviet forces approaching the German port. She remained in this role until her ammunition was completely expended after which scuttling charges were set. A fire onboard caused the premature detonation of the charges, however. She was still lying in Swinemünde harbour after the capitulation, but her eventual, final fate is unknown.

A stern view of *Admiral Scheer*, giving a clear view of her stern 28cm turret, torpedo tubes, and the fire control rangefinder, visible just above and to the rear of the turret.

PANZERSCHIFFE ADMIRAL SCHEER

The name

Germany's second new *Panzerschiffe* was named for Reinhard Scheer (1863–1928). Scheer had commanded the German fleet at the Battle of Jutland in 1916. As well as performing skilfully during this battle, he was a keen exponent of all-out submarine warfare. By 1918 he had risen to the position of Chief of the Naval Staff.

Armorial crest

The ship's crest for the *Admiral Scheer* was fitted either side of the bow and consisted of a shield with a diagonal blue stripe running from top left to bottom right (this was later reversed to top right to bottom left) on which was emblazoned the word 'Skagerrak' in silver Gothic characters. The standard large national emblem fitted to large warships of this era was also mounted on her stern.

ADMIRAL SCHEER SPECIFICATIONS

Manufacturer	Marinewerft, Wilhelmshaven
Length	186m
Beam	21.3m
Draught	5.8m
Maximum displacement	15,180 tonnes
Maximum speed	28.3 knots
Endurance	10,000 nautical miles at 20 knots
Crew	Average 30 officers and 1,040 men
Armament	6 x 28cm guns in two triple turrets 8 x 15cm guns in single turrets 6 x 10.5cm flak guns in three twin turrets 8 torpedo tubes in two quadruple mounts miscellaneous additional smaller calibre anti-aircraft guns 2 shipboard aircraft, initially Heinkel He 60, then Arado 196
Torpedoes	8 torpedo tubes, mounted in fours in rotating armoured housings on the quarterdeck, firing 53.3cm G7A torpedoes

Ship's commanders

Kapitän zur See Otto Ciliax 1936–38
Kapitän zur See Hans-Heinrich Wurmbach 1938–39
Kapitän zur See Theodor Krancke 1939–41
Kapitän zur See Wilhelm Meendsen-Bohlken 1941–42
Fregattenkapitän Gruber 1942–43 *
Kapitän zur See Richard Rothe-Roth 1943
Kapitän zur See Thienemann 1944–45

* Temporary acting commander

General construction data

Admiral Scheer benefited from the same use of electric arc welding in her construction as did *Deutschland* and the last sister, *Admiral Graf Spee*. *Scheer*'s upper armour belt was just 50cm thick, significantly thinner than that of *Deutschland* and *Admiral Graf Spee*. Her lower belt, however, was thicker at 80cm compared to *Deutschland*'s 60cm. Immediately inside the main outer hull were the fuel storage bunkers that effectively formed an anti-torpedo bulkhead, the inner wall to this being some 40cm thick compared to *Deutschland*'s 45cm. The main armoured deck ranged from 40cm to 45cm, thicker than the 30cm to 45cm carried by the first in the class.

Modifications

The first modification to *Admiral Scheer* came in 1935 when an aircraft catapult was installed to the rear of the funnel, a distinct difference from the situation on *Deutschland* where it was fitted forward of the funnel.

In 1936, modifications were made to her internal bulkheads either side of each of her 15cm secondary armament turrets and in 1938 some minor modifications were made to her bridge, predominantly in the fitting of additional platforms and a gaff for her ensign to the rear of the foretop.

Her last modification prior to the outbreak of war was the replacement of her port crane, the provision of more modern Ar 196 floatplanes to replace to old He 60, and the installation of a FuMO 22 radar set. At this stage, the *Admiral Scheer* was still a virtual clone of her younger sister, the *Admiral Graf Spee*.

In 1940, however, she received a major rebuild. Her original straight stem was replaced by a clipper bow, extending her overall length. Her original enclosed bridge was also replaced, this time by one built around an exposed tubular pole mast. A new tripod-style mainmast was installed to the rear of the funnel, which also received a lightly raked funnel cap. Further improvements to the radar equipment were also made. Scheer now bore a closer resemblance to *Deutschland* than to the *Admiral Graf Spee* though all three sisters had enough significant differences to make them identifiable at a glance.

A proud crewman in his white work uniform (the dress uniform had contrasting blue cuffs) poses on the fo'c'sle of *Admiral Scheer*. This was a popular place for such souvenir snapshots, showing as it did her powerful 28cm main armament and the instantly recognisable bridge structure. (Author's collection)

The *Panzerschiffe* made many courtesy 'flag-waving' visits to foreign ports in the years prior to the outbreak of war. Here, visitors are entertained on her foredeck, under the shadow of her 28cm guns. (Author's collection)

Further modifications to her radar equipment were made in 1941, 1942 and 1943 but the most obvious physical modification was the installation of a much higher, sharply raked funnel cap in 1943.

Final modifications in 1945 predominantly concerned the installation of additional flak armament bringing her total complement to 6 x 4cm, 8 x 3.7cm and 33 x 2cm guns.

Powerplant

Basic powerplant was as for *Deutschland.*

Radar

Admiral Scheer was initially provided with a FuMO 22 set on the forward face of her foretop rangefinder in 1939. During her major refit in 1940, however, this was replaced by a FuMO 27 with the smaller 2m x 4m antenna. A further antenna for the Timor FuMB 7 was also added to the rear of the rangefinder in 1942. Additionally, four individual antennae (forward, aft and at each side) were fitted for the Sumatra equipment. On the aft rangefinder was affixed a further 2m x 4m antenna for FuMO 27 equipment. This equipment was added in 1941.

Flak fire control

In her final form, *Admiral Scheer* featured a 3cm rangefinder mounted in a rotating housing on the forward command centre just behind the secondary armament fire control. Two further SL4 self-stabilising flak controllers (an improved version of the SL2 fitted on *Deutschland/Lützow*) were mounted one either side of the funnel.

Colour schemes and camouflage

Like her sisters, *Admiral Scheer* began her career in the typical pale grey livery of most other German warships of the day. It was only after her major refit of 1940 that she is seen in photographs bearing a disruptive camouflage scheme of broad dark grey bands over her pale grey hullside and superstructure.

Photographs of *Admiral Scheer* taken in the final months of the war when she was operating in the Baltic seem to show her in a much darker over grey than previously worn.

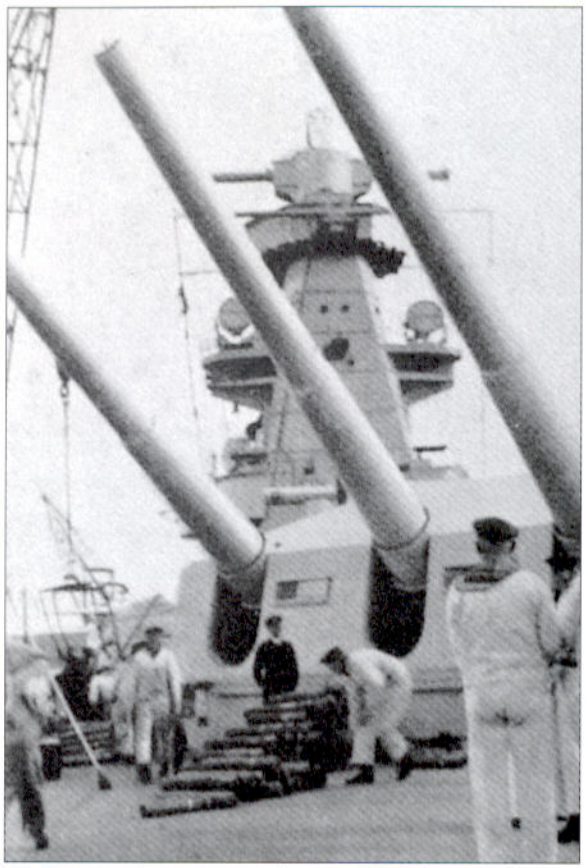
Pre-war service

The second of the pocket battleships was laid down on 25 June 1931. Construction took almost two years with the new warship being launched on 1 April 1933. The economic situation in which Germany found herself, with mass unemployment and raging inflation,

played no small part in the delays. *Panzerschiffe B* took to the water at the Marinewerft in Wilhelmshaven after a naming ceremony attended by the CinC Navy, in which the ship was named after her father Admiral Reinhard Scheer, by the late Admiral's daughter Marianne.

Fitting out took just over a year, and the *Admiral Scheer* was commissioned into the Reichsmarine on 12 November 1934. Most of the following year was taken up with sea trials, and various training exercises, including a voyage out into the Atlantic during which she called in at Madeira. On the return trip, *Admiral Scheer* suffered damage to her bows during a ferocious storm.

For the first half of 1936, the ship was busy on training cruises along with her sister, *Deutschland*, before receiving an urgent recall message. Returning to Wilhelmshaven, on 24 July she was given instructions to sail for Spanish waters where her task was to assist German citizens to safety from the war zone. Meeting up with *Deutschland* on 8 August at Valencia, she served on patrol off the coast of Spain until relieved by *Admiral Graf Spee*, and returned briefly to Germany at the end of August before setting off again for a second tour of duty from September through to December.



Seamen in their working dress go about their daily chores under the watchful eye of a senior rank and the shadow of the big guns, on the fo'c'sle of the *Admiral Scheer*.

A third tour in Spanish waters followed in early 1937, through March and April, and a fourth began in early May. By this time the situation had deteriorated dramatically, and the ship was, within two weeks, operating at action stations, in anticipation of the danger of attack from republican warships. Following the bombing attack on *Deutschland* on 29 May, she escorted her damaged sister to Malaga before turning away and steaming off to pick up four escorting torpedo boats and refuel in preparation for further action.

On 31 May, significantly, the day that Germany celebrated the Battle of Jutland, the *Admiral Scheer* exacted her revenge on the republicans for the attack on her sister. Arriving off Almeria at 0729hrs, she opened fire on the republican shore batteries, naval establishments and ships within the harbour, before steaming off, the old Imperial German War Flag flying at her mast, to meet up with her sister once again.

The *Admiral Scheer* was finally relieved by her newest sister *Admiral Graf Spee* on 26 June, and returned to Wilhelmshaven, reaching port on 1 July. It was to be only a brief rest, however, and *Admiral Scheer* was back in Spanish waters between August and October before returning to Wilhelmshaven again for an overhaul. What remained of 1938 was then spent on training exercises in the Baltic.

The new year saw *Admiral Scheer* return to Spain once again for her sixth and seventh tours, departing Spanish waters for the last time on 29 June.

A: *Deutschland*

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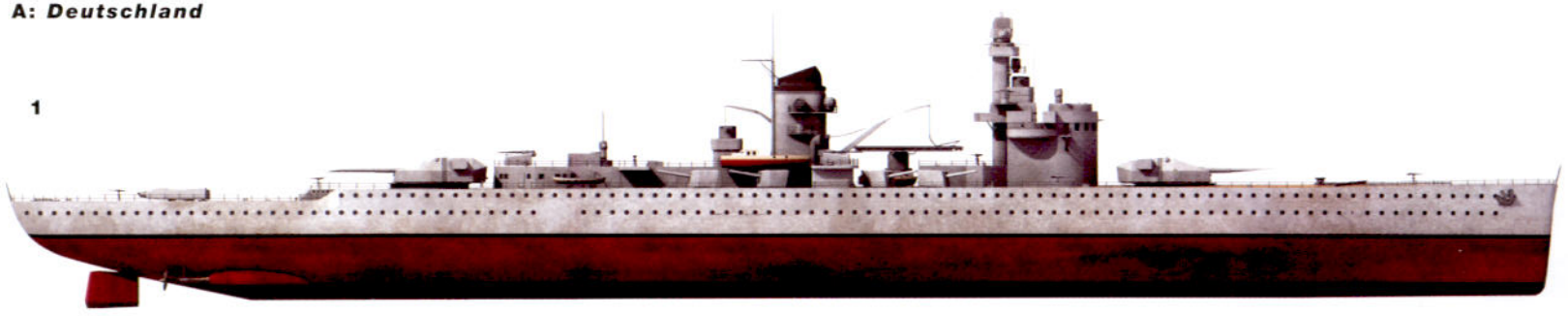

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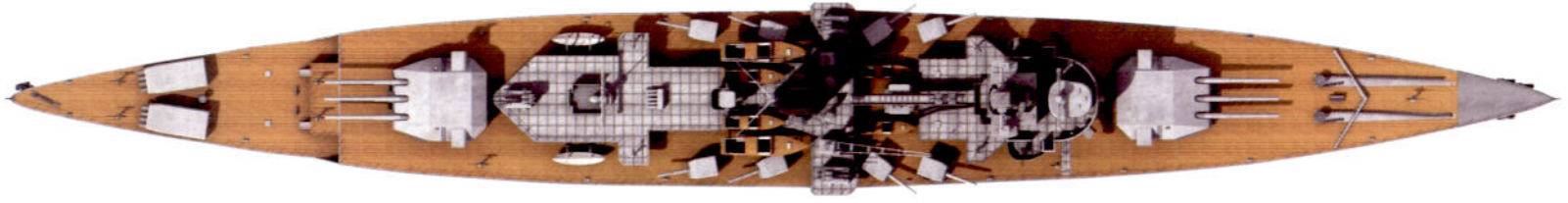

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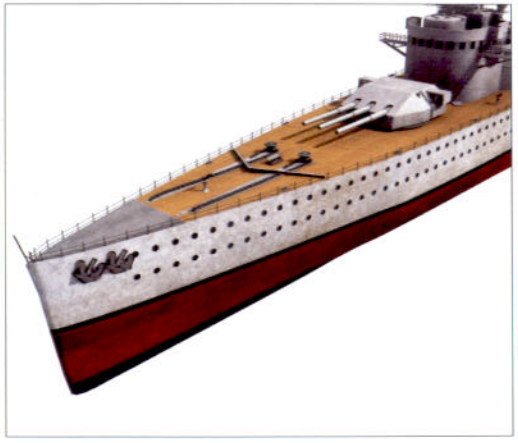

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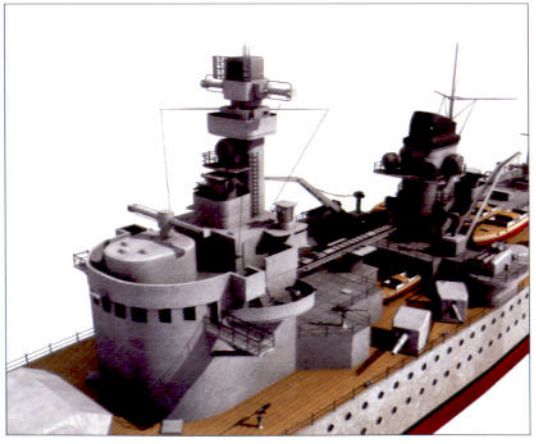

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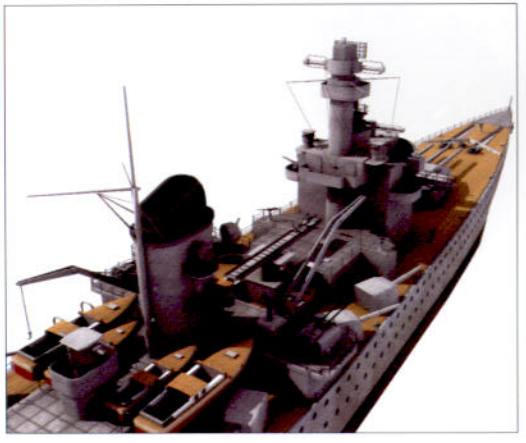

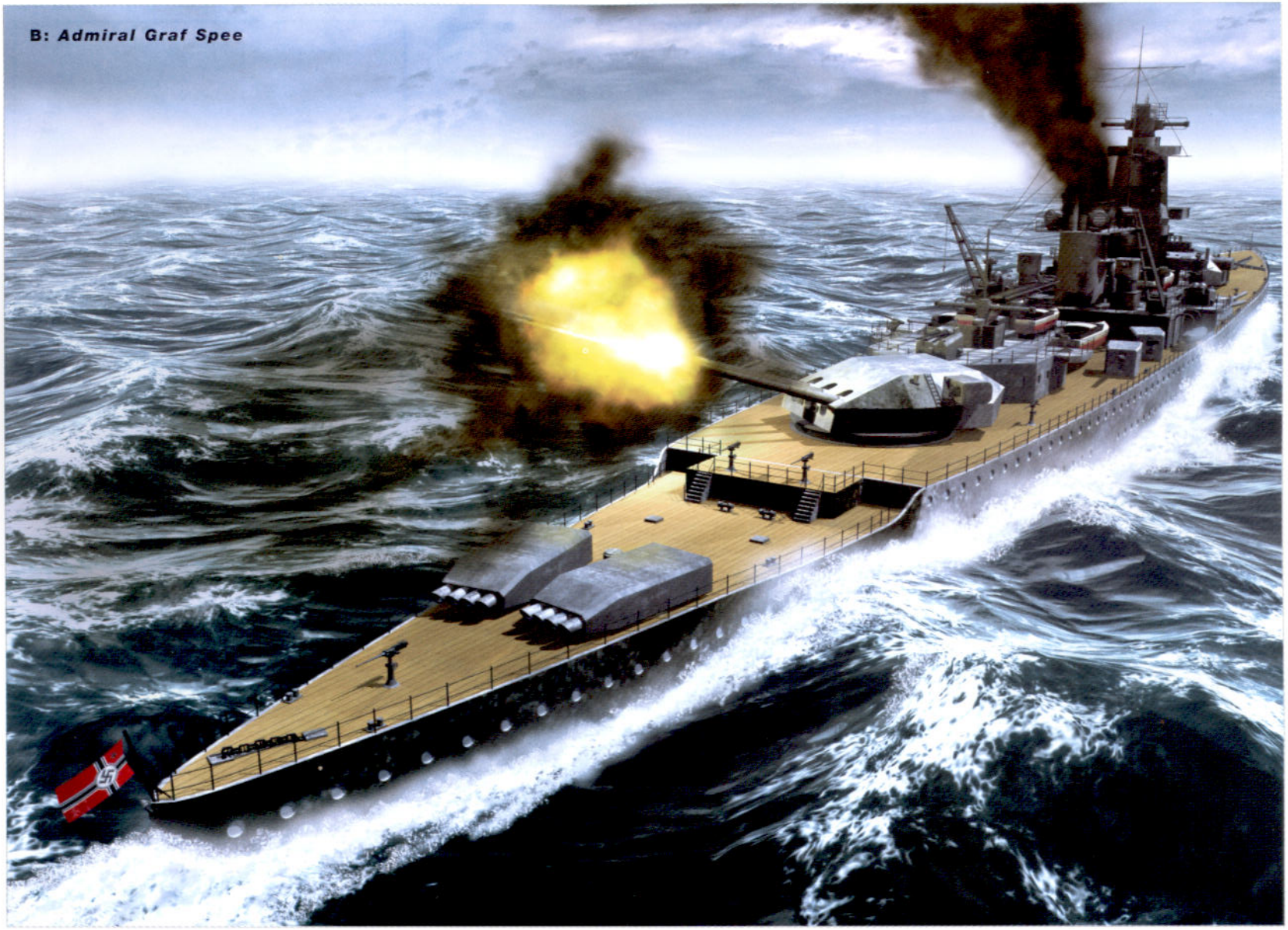
B: Admiral Graf Spee

C: *Admiral Scheer*

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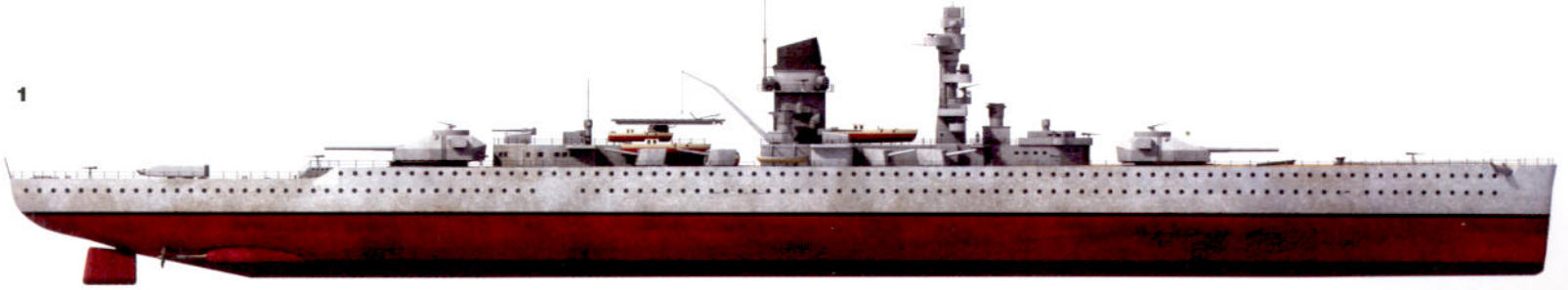

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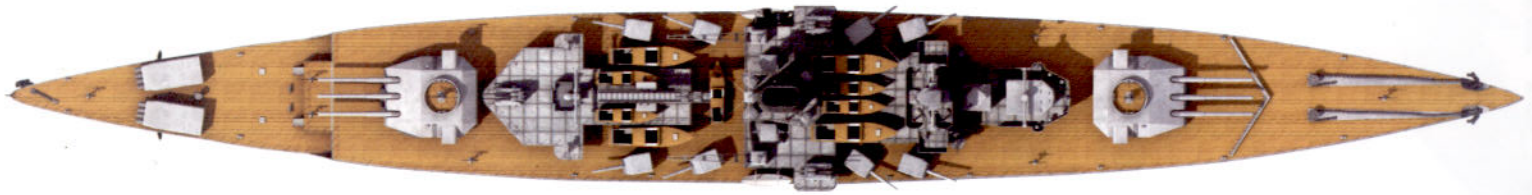

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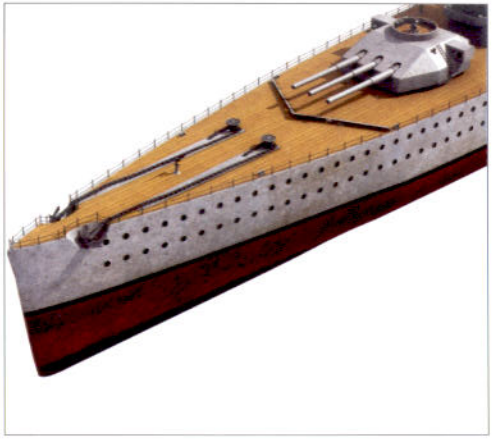

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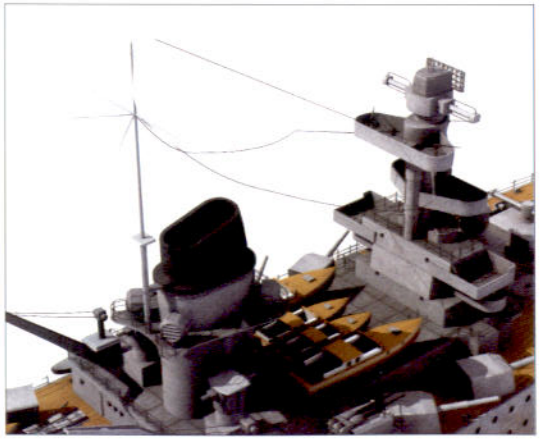

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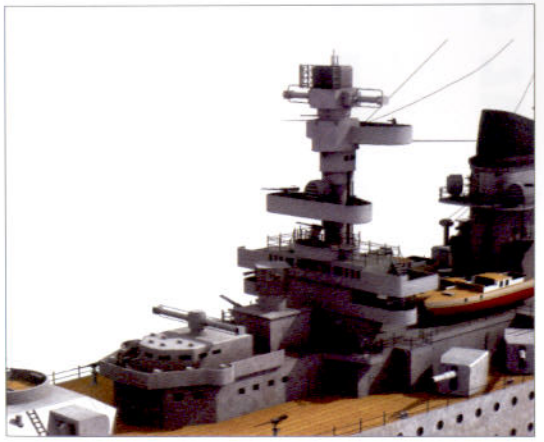
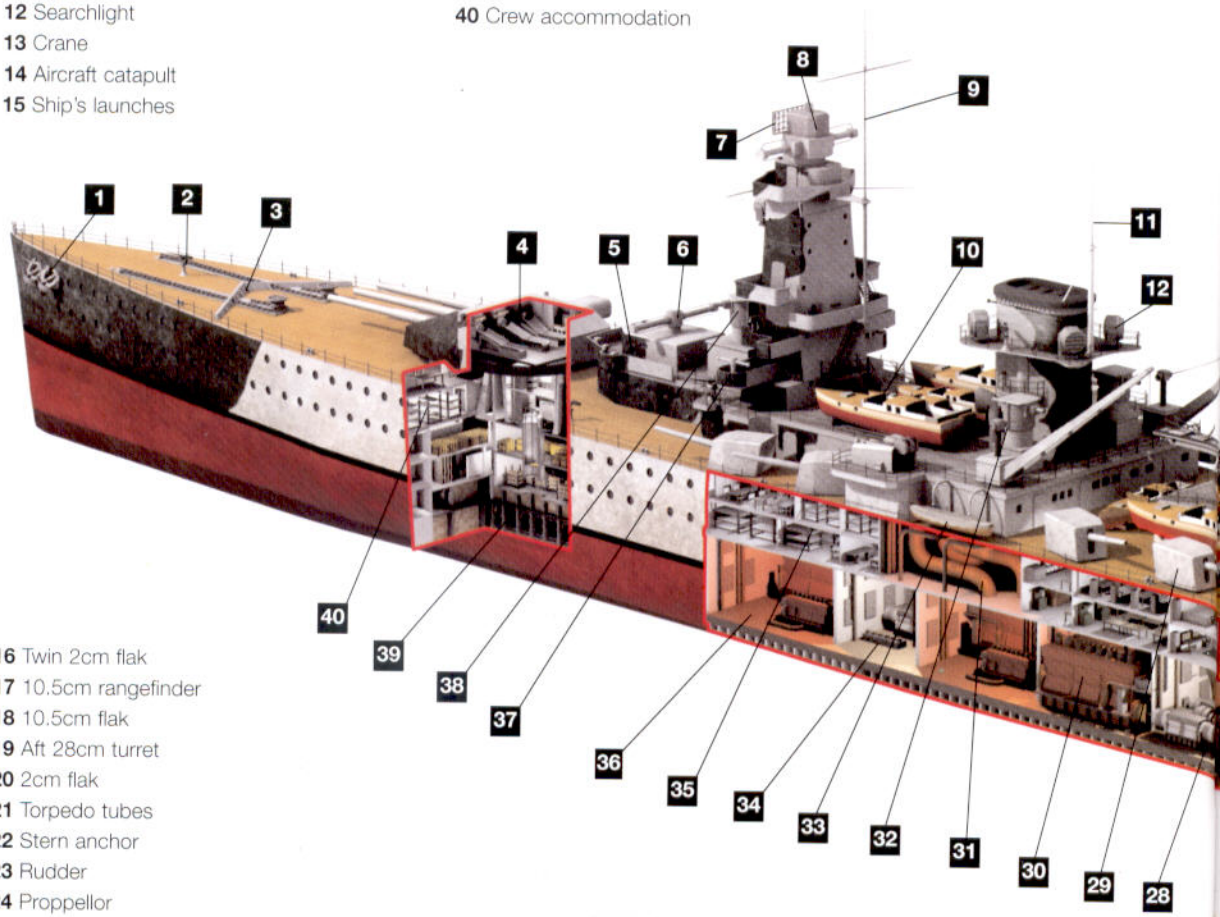


D: *ADMIRAL GRAF SPEE*

KEY

1 Port bow anchors
2 Anchor chains
3 Breakwater
4 Forward 28cm turret
5 Forward command centre
6 7cm rangefinder
7 Fund 22 radar antenna
8 10.5cm main rangefinder
9 Foremast
10 Ship's launches
11 Mainmast
12 Searchlight
13 Crane
14 Aircraft catapult
15 Ship's launches

29 10.5cm turret
30 Diesel engine
31 Trunking to funnel
32 SL4 flak controller
33 Cutter
34 Drive room
35 Crew accommodation
36 Electrical plant
37 Flak rangefinder
38 Flak fire control centre
39 Fuel bunkerage
40 Crew accommodation



16 Twin 2cm flak
17 10.5cm rangefinder
18 10.5cm flak
19 Aft 28cm turret
20 2cm flak
21 Torpedo tubes
22 Stern anchor
23 Rudder
24 Proppellor
25 Fuel bunkerage
26 Munitions storage
27 Crew accommodation
28 Drive motor

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E: *Admiral Graf Spee* variants

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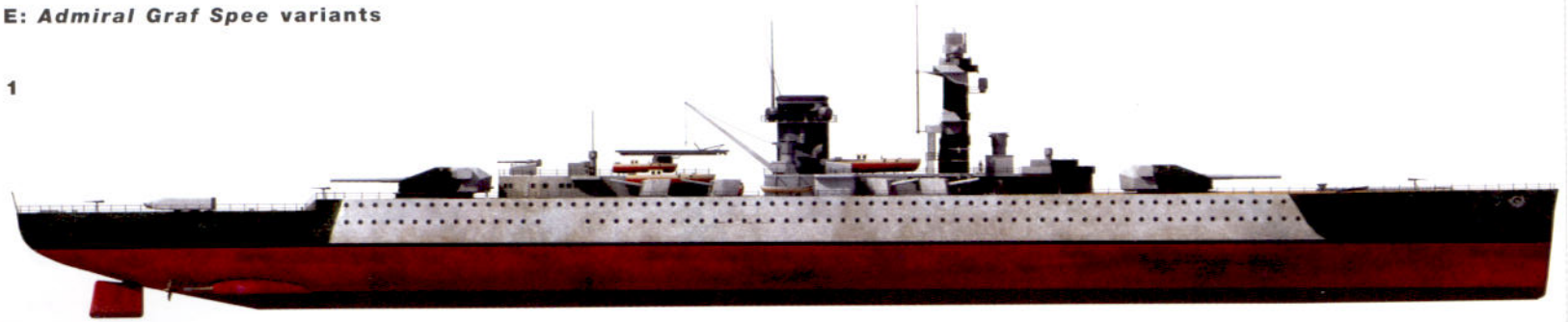

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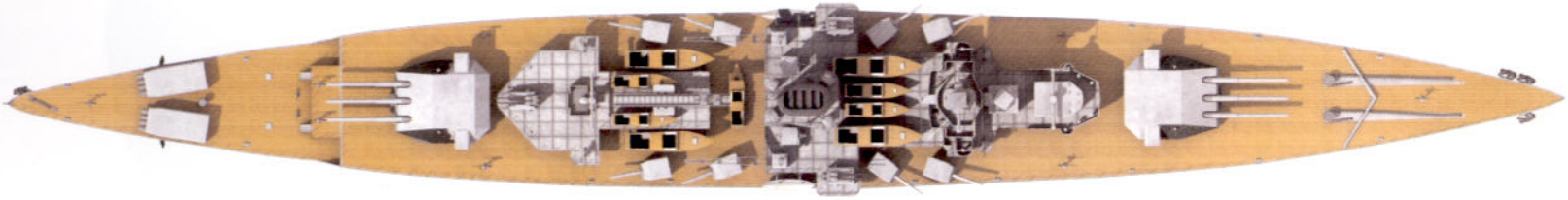

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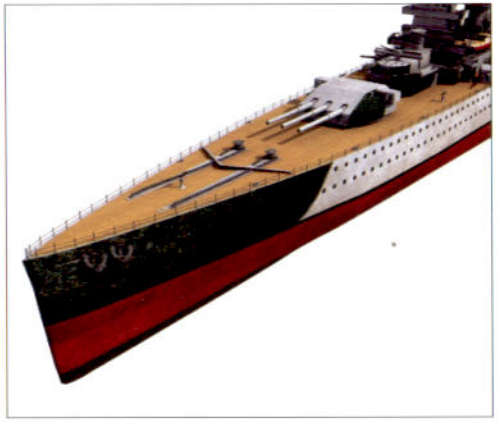

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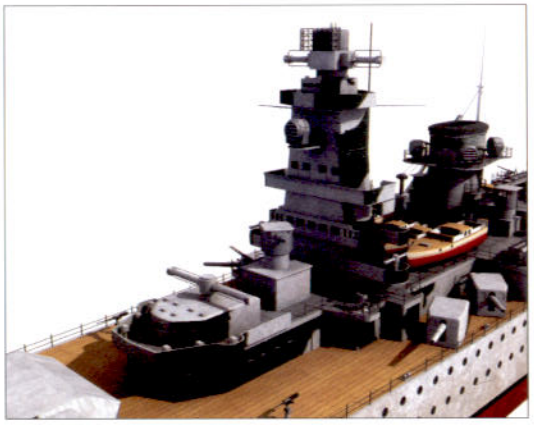

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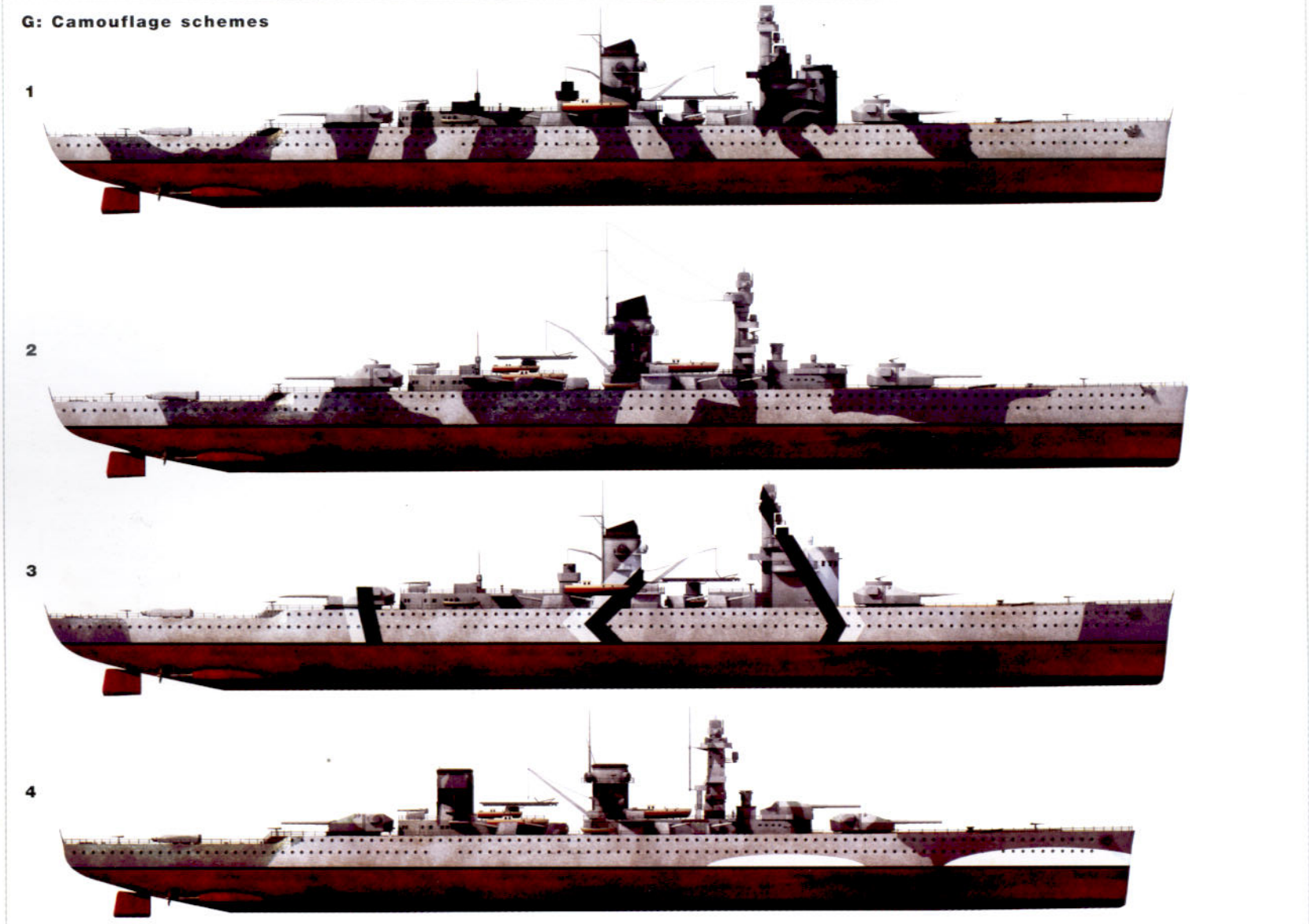
F: *Admiral Scheer* in action

G: Camouflage schemes



Wartime service

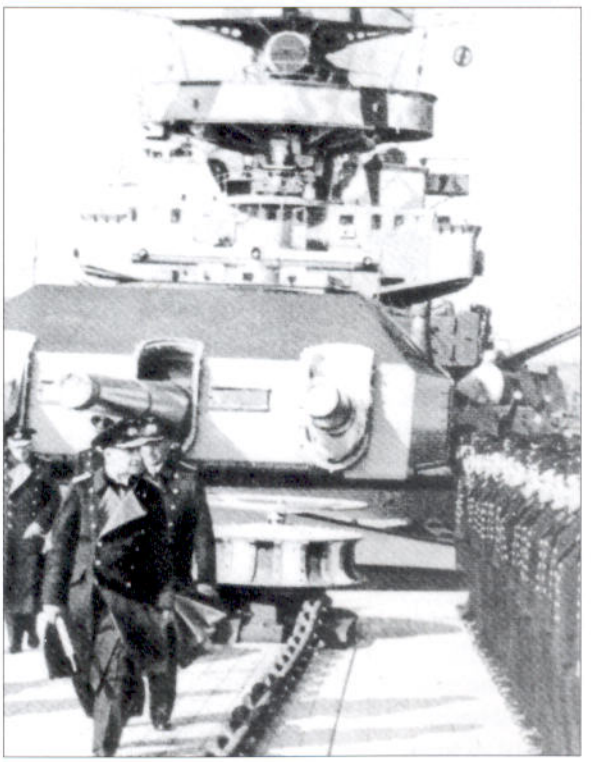
The last few remaining months of peace in Europe saw *Admiral Scheer* spend much of her time in training. Her first taste of war came on 4 September 1939 when she was bombed by RAF Blenheim light bombers whilst sitting in the harbour at Wilhelmshaven. Three bombs struck the ship but fortunately for the Germans all of them failed to explode and were safely jettisoned overboard.

The fortunate ship then moved into the safer waters of the Baltic for further training exercises which took up the remainder of 1939.

In February 1940, the *Admiral Scheer* went into dock for a major overhaul and rebuild, a procedure that lasted until the end of July and saw her appearance drastically altered. Like *Deutschland* before her, she was now classified as a *schwere Kreuzer*, or heavy cruiser. She then moved back into the Baltic to carry out extensive trials, which carried her through until October. Then, fully worked up, and with her crew fully trained, *Admiral Scheer* set off on her first major combat mission of World War Two.

The purpose of *Admiral Scheer*'s mission was to carry out a long-range raiding sortie against enemy merchant shipping through the South Atlantic and into the Indian Ocean. *Scheer* would be acting alone, her only contact with other German ships being the supply ships which would refuel her at pre-determined locations and a few German auxiliary cruisers she passed en route.

Admiral Scheer departed Brunsbüttel undetected on 27 October and anchored at Dusavik Bay, Tavanger, in Norway on the following day, the British still unaware of her presence. Atrocious weather conditions shielded her breakout out into the Atlantic via the Denmark Straits on the night of 31 October 1940 and in a war cruise covering a total of over 46,000 nautical miles, she succeeded in sinking 17 enemy merchant vessels totalling over 113,000 tons. As well as the merchantmen, *Admiral Scheer* encountered and sank the armed merchant cruiser *Jervis Bay*. Her first success came on 5 November 1940 when she intercepted Convoy HX 4 in mid-Atlantic and sank the 5,000 ton banana boat *Mopan* which blundered into her path as she stalked a British convoy. The boat was despatched with a single shot from one of *Admiral Scheer*'s 10.5cm guns. The German now turned her attention to the convoy, HX 84, consisting of 37 ships escorted by the *Jervis Bay*. Immediately the raider was spotted, *Jervis Bay* turned towards her. The armed merchantman's eight six-inch guns, however, were no match for the German's powerful armament. *Admiral Scheer*'s main armament was directed against the *Jervis Bay* whilst her secondary armament targeted the merchantmen in the convoy. *Jervis Bay* was swiftly reduced to a burning wreck and two merchantmen severely damaged by *Admiral Scheer*'s 15cm guns. The sacrifice had not been



The CinC, Grossadmiral Raeder (note the Admiral's Baton carried in his right hand) visits the *Admiral Scheer*. The angle of this shot gives a good comparative view of the new, redesigned forward superstructure and bridge area.

in vain, however, as the remainder of the convoy scattered and many escaped whilst the German's attention was occupied. *Admiral Scheer* did, however, succeed in running down and sinking five merchantmen, the *Maidan, Trewellard, Beaverford, Kabane Head* and *Fresno City.*

In her late-war guise, *Admiral Scheer* featured a raked clipper bow and, as seen here, often sported a disruptive 'splinter' camouflage scheme of dark grey bands over a light grey base coat. Note also the high, raked funnel cap.

After this success, *Admiral Scheer* proceeded into the South Atlantic for a refuelling rendezvous, after which she attacked and sank two further merchantmen, the *Port Hobart* and the *Tribesman.* On 8 December, the refrigerated transport ship *Duquesa* was captured and a prize crew put aboard. Loaded with foodstuffs, this vessel was to provide a virtual floating larder for German vessels operating in the South Atlantic and Indian Oceans. When she had served her purpose, she was sent to the bottom. *Admiral Scheer* moved further south and, on 18 January 1941, a large tanker, the *Sandefjord,* was also captured and another prize crew put aboard. One day later the Dutch freighter *Barneveld* was also captured, but was scuttled rather than taken as a prize.

Moving southwards again, *Admiral Scheer* sank the merchantman *Stanpark* before a refuelling rendezvous with the German auxiliary Nordmark and the captured *Sandefjord.* From here, *Admiral Scheer* rounded Cape Horn and entered the Indian Ocean. In the waters to the north of Madagascar, the tanker *British Advocate* was captured and sent back to France under a prize crew. In the same waters the Greek *Gregorios* was sunk along with the Canadian *Canadian Cruiser* and the Dutch *Rantau Pandjang. Admiral Scheer* then set course for home, retracing her original course and passing through the Denmark Straits once again, to anchor at Wilhelmshaven on 1 April 1941. It had been a highly successful cruise, with the *Admiral Scheer* proving that in the right circumstances she was ideally suited for her intended purpose. She had carried out a long, wide-ranging sortie, sank a considerable number of enemy ships, and escaped unscathed despite frantic attempts by the British to track her down.

On returning to Germany, *Admiral Scheer* went into Kiel for overhaul and was being prepared for a further raiding mission, but in view of the fate of the *Bismarck* and Hitler's reluctance to risk any of his major ships meeting the same fate, the sortie was cancelled.

Very little more was achieved in 1941, with *Admiral Scheer* being passed back and forward between Norway and the Baltic. In September, the accidental detonation of some depth charges carried on board forced her return to port once again for essential repairs at the Blohm & Voss yards in Hamburg. These repairs, and the trials and training which followed, kept her out of action for the remainder of the year.

In February 1942, it was intended that *Admiral Scheer* be sent to Norway once again, this time as part of a powerful flotilla with the heavy cruiser *Prinz Eugen* and battlecruisers *Scharnhorst* and *Gneisenau.*

The capsized hulk of the *Admiral Scheer* at Wilhelmshaven after the fateful bombing raid of April 1945. The wreck was partially scrapped and any useable material removed before the remains were simply buried when the basin was in-filled, now serving as a car park.

However, mine damage suffered by the latter during the so-called 'Channel Dash' forced their return to Germany for repair.

On 20 February, *Prinz Eugen* and *Admiral Scheer* departed for Norway with an escort of destroyers and torpedo boats. En route, the British submarine *Trident* scored a single direct hit on *Prinz Eugen*, badly damaging her stern and putting her out of action for some time. The intended battle group was therefore reduced to a single heavy cruiser and some destroyers. *Admiral Scheer* eventually moored at Bogen Bay, Narvik, on 10 May, being joined fifteen days later by her sister ship *Lützow*. The two former pocket battleships were designated as *Kampfgruppe 2*, the battleship *Tirpitz* and heavy cruiser *Admiral Hipper*, anchored at Kaafjord, being Kampfgruppe 1.

On 2 July, the two battle groups merged to form a powerful strike force which was to be tasked with the destruction of the huge British convoy, PQ 17, which was en route to Murmansk. As we have already seen when discussing *Lützow*, the mission was a shambles, but fortunately one from which *Admiral Scheer* emerged without any damage or impairment to her fighting capabilities. She remained at her moorings until July when she was tasked with leading an attack on shipping in the Kara Sea in consort with an escort of three destroyers and two U-boats. Conditions were appalling, and with heavy fog and drifting ice threatening the safety of the ships, the attack force unexpectedly encountered a Soviet ice-breaker, *Alexander Sibiriakoff*. She was quickly sunk and her crew taken prisoner, but any element of surprise had been lost now that the enemy was aware of the presence of the German ships in the area. Accordingly, *Admiral Scheer* elected to follow an alternative course of action and attack shore installations at and around Port Dickson before returning to Norway. During the attack, as well as destroying shore installations, *Admiral Scheer* claimed a number of Soviet ships sunk though in fact only two were hit and damaged.

Despite the lack of significant damage to the enemy, the sortie into 'new' waters in difficult conditions was considered a success by naval command. In December 1942, *Admiral Scheer* returned once again to Wilhelmshaven for a further major overhaul. Whilst in port, she suffered minor damage when RAF bombers pounded the dock area. Fortunately, only one crewman was killed, but it was clear that her exposed position was extremely risky and she was shortly thereafter moved to Swinemünde, still only partly refurbished.

The *Admiral Graf Spee* in pre-war guise. This view shows her shortly after completion. Note that her ship's crest is on the side of the hull at the bow, rather than on the stem itself as when launched. She bears a remarkable resemblance to the *Admiral Scheer* at this stage.

The inadequate facilities at Swinemünde notwithstanding, the outstanding repair and refurbishment work was successfully completed. On reaching readiness once again, she joined the Fleet Training Group, busying herself with the training of new cadets. This was a task she continued throughout most of 1943 and 1944. In the late autumn of 1944, *Admiral Scheer* was tasked with shore bombardment missions against advancing Soviet troops as the German forces were pushed back on the Eastern Front. Many lives were saved by the gunfire from the *Admiral Scheer* holding back the enemy.

The enemy made concerted efforts to sink the cruiser however, with bombing and torpedo attacks by Soviet aircraft and *Admiral Scheer*'s Ar 196 floatplane was shot down. The ship herself narrowly escaped damage and returned safely to Gotenhafen to refuel.

As the new year opened, Soviet forces pushed forward once again, and all available units of the Kriegsmarine were put into service in bombarding Soviet movements on shore. The successes of warships like *Admiral Scheer* on such duties were no doubt greatly appreciated by the hard-pressed German troops on shore, but the overwhelming power of the Red Army ensured that any such successes were but fleeting. So much ammunition did she expend in these sorties that the bores of her main armament were desperately in need of re-lining. Accordingly, *Admiral Scheer* sailed for Kiel on 8 March to have this essential work carried out. As well as her own crew, she carried over 800 civilian refugees and 200 wounded German soldiers.

In the event, she never reached Kiel, her way being barred by an uncleared minefield. Her passengers were disembarked at Swinemünde and once again *Admiral Scheer*, worn out bores to her gun barrels or not, was pressed back into service, bombarding Soviet positions around Kolberg until her ammunition supplies ran out.

Once again, *Admiral Scheer* was loaded up with refugees and set sail again for Kiel, this time successfully negotiating the hazardous waters in between and arriving safely on 18 March. Work to replace her gun barrels began at the Deutsche Werke yard with work on her stern 28cm turret 'Bruno' being completed in early April. During this period most of her crew had been disembarked, only essential personnel remaining on board.

On the evening of 9 April, a further heavy bombing raid by the RAF saw direct hits and a number of near misses cause fatal damage to the heavy cruiser and a serious list developed. Within one hour of the commencement of the bombing raid it was clear that she was in

imminent danger of capsizing and the order to abandon ship was given. The near misses had caused a significant rent in her hull on the starboard side through which water was rapidly filling the ship. *Admiral Scheer* was riding high in the water due to having had her fuel stocks removed and having expended all her heavy 28cm ammunition, thus reducing her weight considerably. Slowly, in just 15m of water, she rolled over and capsized. Thankfully, with most of her crew disembarked, the loss of life was not too severe.

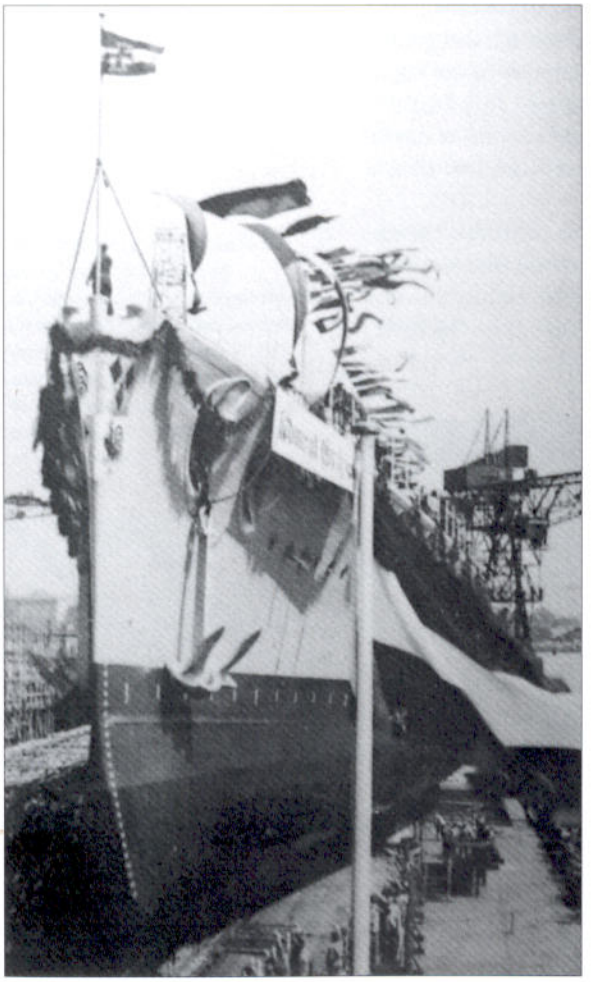
Admiral Scheer's capsized hull lay in situ at the Deutsche Werke yards until the summer of 1945 when all weaponry, turrets and valuable metalwork were salvaged. The remains of the hulk were left until work on redeveloping the site began, at which point they were simply buried under tons of rubble, and the area became a car park.

PANZERSCHIFFE ADMIRAL GRAF SPEE

The name

The third and final member of this small but unique class of ships was named for Maximilian Johannes Maria Hubertus, Reichsgraf von Spee (1861–1914). Graf von Spee was actually born in Copenhagen, Denmark. He entered the Imperial Navy in 1878 and by 1910 has risen to the rank of Konteradmiral. He reached Vizeadmiral in 1913 and by the outbreak of the First World War was commander of the East Asia Cruiser Squadron based at Tsingtau in China.

The squadron was ordered back to Germany on the outbreak of war and accordingly, a group of warships under von Spee's command, consisting of *Scharnhorst, Gneisenau, Nürnberg, Dresden* and *Leipzig*, set off for home. Good progress was made, but on 1 November 1914, off Coronel, the force ran into one of many British squadrons that were actively hunting the Germans. In the battle that ensued, two British cruisers were sunk and the remainder of the squadron fled. The German force suffered no losses. After putting in to Valpariso in Chile to refuel, the German cruiser force set off on a new mission – to capture the Falkland Islands and establish a German base. The Germans were sighted to the south of the Falklands by a vastly superior British force comprising three cruisers and two battle-cruisers, all of which immediately gave chase. The German force was eventually caught and, though it put up a tenacious defence, was completely overwhelmed. *Scharnhorst, Gneisenau, Leipzig* and *Nürnberg* were all sunk with huge losses. In the finest naval tradition, von Spee went down with his flagship, the *Scharnhorst*. His two sons were also lost, on the *Gneisenau* and *Nürnberg*.



***Admiral Graf Spee* is launched, Wilhelmshaven 1934. Note the placard over her side with the ship's name and the Spee family crest mounted right on the stem.**

***Admiral Graf Spee* leads a line-up of pocket battleships during a fleet review. Note the extreme similarity between her and her sister, *Admiral Scheer*, just astern. The polished wooden plaque half way up her bridge structure, with the battle honour 'Coronel' and the crest (barely visible) on her bow are the only obvious identifiers.**

Armorial crest

As completed, the ship featured a single shield, bearing the family crest of the von Spee family, mounted on the stem. This was quartered, gold and white, with the white quarters at top left and bottom right. On each white quarter was a red cockerel, whilst on each gold quarter were three red diamonds. This was later changed to a single shield on each side of the hull at the bow. As with all of the sisters, and indeed all the major warships at this time, a large national emblem in the shape of an eagle clutching a wreathed swastika was mounted on the stern. In addition, mounted on the face of her pagoda-style bridge structure, was a battle honour plaque bearing the name 'Coronel', in commemoration of the battle in which Graf von Spee lost his life.

In the case of most warships, these adornments were removed on the outbreak of war, but in the case of *Admiral Graf Spee* wartime photos show the shields still fitted but simply overpainted with grey paint. Photos taken as she pulled into Montevideo, however, show that the 'Coronel' battle honour had been removed.

ADMIRAL GRAF SPEE SPECIFICATIONS

Manufacturer	Marinewerft, Wilhelmshaven
Length	186m
Beam	21.65m
Draught	5.8m
Maximum displacement	16,320 tonnes
Maximum speed	28.5 knots
Endurance	10,000 nautical miles at 20 knots
Crew	Average 30 officers and 1,040 men
Armament	6 x 28cm guns in two triple turrets 8 x 15cm guns in single turrets 6 x 10.5cm flak guns in three twin turrets 8 torpedo tubes in two quadruple mounts miscellaneous additional smaller calibre anti-aircraft guns 2 shipboard aircraft, initially Heinkel He 60, then Arado 196
Torpedoes	8 torpedo tubes, mounted in fours in rotating armoured housings on the quarterdeck, firing 53.3cm G7A torpedoes

Ship's commanders

Kapitän zur See Conrad Patzig 1936–37
Kapitän zur See Walter Warzecha 1937–38
Kapitän zur See Hans Langsdorff 1938–39

General construction data

The third of the three pocket battleships was laid down at the Marinewerft in Wilhelmshaven in October 1932. Construction took almost two years, the ship being launched in June 1934. The naming ceremony was carried out by the daughter of Admiral Spee in the presence of the CinC Navy, Admiral Raeder. Fitting out continued until January 1936 when the ship was officially commissioned into the Kriegsmarine. Three months of intensive trials followed, after which the *Admiral Graf Spee* formally became part of the fleet.

Modifications

Admiral Graf Spee did not undergo any significant major modifications during her short life. In 1938, her twin 8.8cm flak guns were replaced by more modern and powerful 10.5cm twin units, on stabilised mounts. At the same time, a 'mattress' antenna was fitted to the experimental radar on her foretop. As initially constructed, *Admiral Graf Spee* featured a searchlight on a platform at either side of her bridge structure. These platforms and their searchlights were removed and replaced by a single platform and searchlight on the face of the bridge structure. Although a major rebuild was scheduled for *Admiral Graf Spee* around 1942, no significant changes were made before the ship met her fate.

Powerplant

Basic powerplant as for *Deutschland*.

Radar

Admiral Graf Spee was initially equipped with an experimental form of the FuMO 22, which was at that time designated as the FMG 39 (gO). The 'mattress' antenna at this point was smaller than the later production set, at 0.8m x 1.8m.

A perennial job for sailors in every navy in the world - sprucing up the ship's paintwork. Of interest here is the central gun barrel of the stern 28cm turret, illustrating the fact that the barrels could be elevated and depressed independently of each other.

Flak fire control

Admiral Graf Spee featured three SL4 self-stabilising flak controllers (an improved version of the SL2 fitted on *Deutschland/Lützow*), one mounted in front of her bridge and just behind the forward command centre, and one either side of her funnel.

Colour schemes and camouflage

As originally completed,

Admiral Graf Spee was finished in the pale grey colour typical of pre-war German warships. The main and quarterdecks were planked with teak whilst other horizontal surfaces were coated with a dark grey anti-slip surface. During the Spanish Civil War non-intervention patrols, a red/white/black tricolour band was painted from side to side at the rear of each of her main turrets. This was to aid aerial identification of her as a neutral ship.

When on her one and only war cruise, *Admiral Graf Spee* made use of a disruptive mottle dark grey pattern over her basic pale grey. This was carried over her hull and entire superstructure and is clearly visible on photographs taken after her run in to Montevideo.

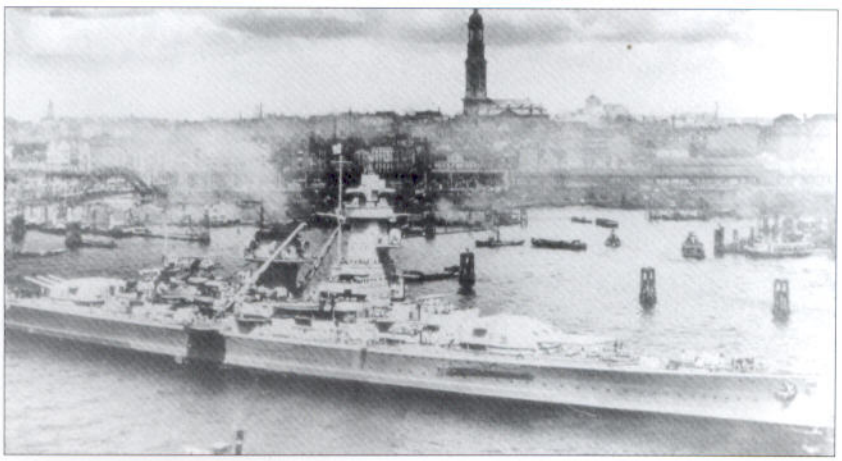
Admiral Graf Spee also sported at times a false second funnel, behind the real one and also a false second forward turret built on her forward command area, all intended to add to the confusion over her identity. At one point, in fact, she carried nameplates identifying her as *Deutschland* on her hullside near the stern.

Pre-war service

The ship spent the summer months on training exercises in the mid-Atlantic before undertaking the first of three non-intervention patrols in Spanish waters, lasting from August 1936 through to May 1937.

Admiral Graf Spee was one of many foreign ships which took part in the Coronation Naval Review at Spithead to celebrate the coronation of King George VI in May 1937 immediately following her return from Spain. After the review, she carried out a fourth patrol in Spanish waters before returning once again to Germany to take part in naval manoeuvres as the fleet flagship. A brief flag-waving trip to Sweden and Norway followed before she returned again to Spain for the final time in February 1938.

With her involvement in the non-intervention patrols ended, *Admiral Graf Spee* took part in a round of courtesy visits to foreign ports interspersed with training exercises. The final year of peace saw the youngest of the three sisters involved in more intensive training exercises as war clouds began to form and was a part of the naval force involved in the homecoming of the Baltic port of Memel back into Germany.



***Admiral Graf Spee*, on a visit to the port of Hamburg. Note that the searchlight platforms either side of the bridge have been removed and replaced by a single searchlight mounted on the face of the tower.**

Wartime service

Her first victim was the *Clement* on 30 September 1939, off the coast of Brazil. *Clement* was sent to the bottom with gunfire from the German's secondary armament. *Admiral Graf Spee* then sailed eastwards before meeting and capturing the *Newton Beech* on 5 October. Two days later, further east,

A fine study of the youngest of the three sisters. Despite her unmodified form, with its straight stem and uncapped funnel, she was a fine-looking ship, only the massive 28cm gun turrets, their size more appropriate to a battleship, look strangely out of proportion. (Naval Historical Centre)

the *Ashlea* was added to her tally before she first swung north, then turned westwards once again, at which point she sank the captured *Newton Beech* on 8 October.

Turning south-west, *Admiral Graf Spee* captured the *Huntsman* on 9 October, but sent her to the bottom nine days later. Moving eastwards again, the *Trevanion* was sunk on 22 October. The German warship then moved south, swinging around into the Indian Ocean where she sank the *Africa Shell* off the east coast of South Africa before returning to the South Atlantic. Here she sank the *Doric Star* on 2 December and *Tairoa* on 5 December. Steaming westwards again, her final victim was the *Streonshalh* off the coast of Brazil on 7 December.

The net was closing in on *Admiral Graf Spee*, however. A number of British battlegroups (differing sources quote either eight or ten) were committed to the search for her, the approximate area in which the German raider was operating being known from fragmented signals transmitted by the *Doric Star*. The cruisers HMS *Exeter* and HMS *Cumberland* were steaming northwards along the coast of Argentina whilst at the same time the cruisers HMS *Ajax* and HMNZS *Achilles* were proceeding southward on a reciprocal course along the coast of Uruguay. The *Ajax*, *Achilles* and *Exeter*, having joined forces, were sweeping north again when they intercepted the *Admiral Graf Spee* on 13 December 1939.

As the enemy ships headed straight for each other, *Exeter* swung to port to bring her full main armament of eight 8 inch guns to bear on the *Admiral Graf Spee*. The British force divided, thus forcing the German warship to divide its fire between the two groups. Battle was joined at 0618hrs when the *Admiral Graf Spee* opened fire with both main turrets. Both sides put up accurate fire, the lighter 6-inch shells of *Ajax* and *Achilles* coming dangerously close to the German. The *Admiral Graf Spee* then turned both her main turrets on her more powerful adversary and within minutes was straddling the Exeter with fire from her main 28cm guns. A hail of deadly shrapnel scythed through *Exeter*, wrecking her bridge and killing or wounding everyone present. A direct hit from a 28cm shell destroyed *Exeter*'s 'B' turret and two more German shells struck the forward part of the ship. With *Exeter* seriously damaged, the *Admiral Graf Spee* turned her fire on the rapidly approaching *Ajax* and *Achilles*. A few minutes later, *Achilles* also received a direct hit near her bridge, but *Admiral Graf Spee* then turned away, making smoke. As *Admiral Graf Spee* attempted to close with the *Exeter* and finish off the wounded enemy, accurate fire from the lighter cruisers found their target and *Admiral Graf Spee* was hit amidships.

Just fifteen minutes later, fire from the raider knocked out both of *Ajax*'s after turrets. Five minutes later, with *Exeter*'s sole

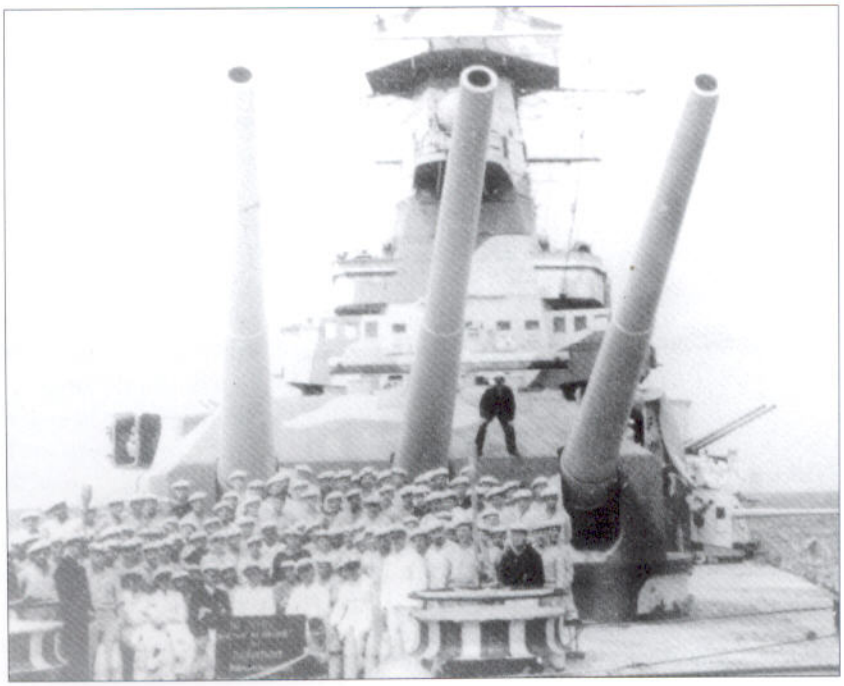
remaining turret having failed due to flooding, she withdrew from the battle. *Admiral Graf Spee* was faced now by just two light cruisers, one of which had only three functional 6-inch barrels remaining and had suffered significant damage. In the circumstances, the British decided to stand off some distance and shadow the German until dark when they would try to close and attack her with torpedoes.

As the British ships turned away however, *Ajax* was hit once again and her mainmast destroyed. After a few ineffectual salvoes were exchanged between the two sides, *Admiral Graf Spee* made for the River Plate and the neutral Uruguayan port of Montevideo for repairs, still shadowed by the British cruisers.

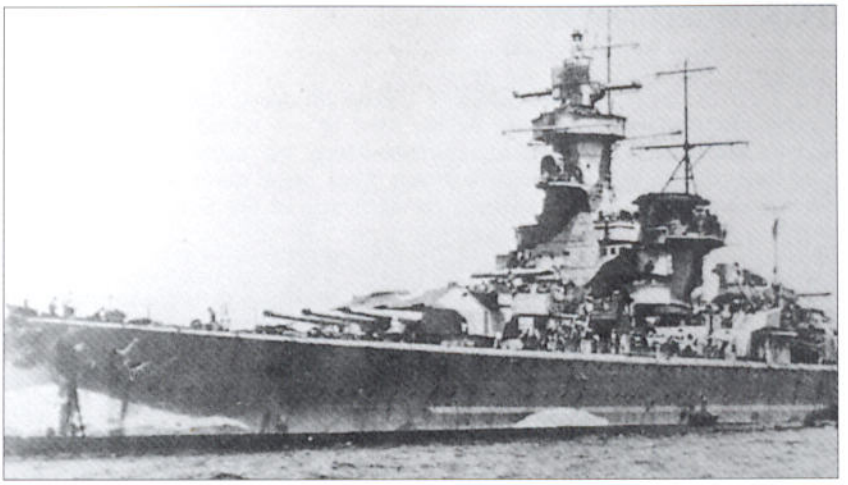
Admiral Graf Spee had suffered 17 hits from the 6-inch batteries of *Ajax* and *Achilles* and two 8-inch hits from *Exeter*. All of these had only caused minor structural damage, certainly not enough in themselves to endanger the ship. However, her water desalination plants and kitchens had been destroyed, her oil purification plant wrecked and ammunition supplies seriously depleted. Additionally, she had suffered a gash to her bow, which though in itself once again not desperately serious, could cause her problems on the return journey through the winter seas of the North Atlantic. The crew had also suffered almost a hundred dead and wounded.

To repair the damage required would certainly have taken more than the 72 hours allowed under international law for repairs in a neutral country, so the *Admiral Graf Spee*'s commander, Kapitän zur See Hans Langsdorff, was faced with a stark choice – remain in port and face internment, or make a dash for the open sea where the two waiting cruisers would be able to shadow the damaged pocket battleship, keeping tabs on her whilst reinforcements were vectored in on her. Effectively, the *Admiral Graf Spee* was trapped.

Hans Langsdorff was a traditional naval officer of the old school, a man of honour but also a realist. Many of his officers and men were ready and willing to make a fight of it, but Langsdorff knew that his chances were slim and he was unwilling to risk the lives of his remaining 1,200 crew on the slimmest of chances of success. Accordingly he elected to scuttle his ship to prevent it falling into enemy hands. Although Uruguay was technically neutral, she was on very good terms with the British and Langsdorff was certain



Part of the crew of *Admiral Graf Spee* gather on her fo'c'sle. Of particular interest is her two-tone grey camouflage scheme, indicating that this photograph dates from after the outbreak of war.



***Admiral Graf Spee* at war. Gone is her attractive pale grey pre-war livery and immaculate appearance. As well as the two-tone grey disruptive camouflage scheme, note that a false bow wave has been painted on in white. (Naval Historical Centre)**

that should his ship be interned, British intelligence would have no problems gaining access to her.

Admiral Graf Spee's dead were taken ashore and buried will full military ceremony and honours and her wounded taken to hospital. At 1830hrs on 17 December, *Admiral Graf Spee* raised her anchors for the last time and pulled out of Montivideo and into the River Plate. Instead of turning east and sailing out into the South Atlantic, as the gathering crowds had no doubt expected, the ship turned towards the west, facing upriver, then stopped her engines. An Argentinian tug then came alongside and evacuated the crew. At 2055hrs scuttling charges which had been carefully placed throughout the ship for maximum effect were detonated, blowing several large holes in the hull, allowing the pocket battleship to settle rapidly into the shallow waters of the estuary where the wreckage can still be seen from the air. Three days later, Kapitän zur See Hans Langsdorff committed suicide.

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COLOUR PLATE COMMENTARY

A: *DEUTSCHLAND*

1 *Deutschland* is shown here in early guise, just after her 1938 refit. Her aircraft catapult has been fitted, but no other major modifications have made, other than the addition of a modest, slightly raked funnel cap. Later in the war, a much taller, steeply raked, funnel cap was fitted.

2 A plan view of *Deutschland* shows the traditional wooden planked main and quarterdeck, with other upper horizontal surfaces finished in a grey non-slip finish, and shows the common layouts of main and secondary armament on this class of ship.

3 *Deutshland*'s modified bow received much less of a rake than the clipper bows added to the other major German warships during refit, and retained the old anchor layout with anchors sitting against hawse holes at the side of the bow.

4 The bridge / forward superstructure area of *Deutschland* was quite different from that of her sisters, with a distinct rounded face to the superstructure. The platform 'wings' either side of the bridge could be folded back when not in use.

5 The midships area of *Deutschland* was also somewhat different to that of her sisters, with a different shape to the searchlight platform, and the catapult carried forward rather than aft of the funnel.

B: *ADMIRAL GRAF SPEE*

This plate shows *Admiral Graf Spee* during gunnery training in the Atlantic in 1938. Her massive 28cm triple turrets, more appropriate to a battleship than to what was effectively only a large cruiser, have just fired a salvo. The 300-kilo projectile will have been hurled with a muzzle velocity of 910m per second, allowing it hit a target up to 35,000m away. Of course, firing at practice targets in peacetime was a different proposition from firing at enemy ships in combat, ships that were also returning fire. *Admiral Graf Spee*'s guns, however, did achieve considerable success during the Battle of the River Plate in December 1939, inflicting severe damage, especially to the Exeter. Conversely, the secondary 15cm armament failed to score a single hit during this engagement. Note fastened to the front of her bridge, the battle honour 'Coronel', commemorating the battle in 1914 in which Admiral Graf von Spee went down with his flagship, *Scharnhorst*. On each side of her bow is the von Spee family crest.

The *Admiral Graf Spee* after her scuttling. She has settled into the shallows, her funnel toppling over to starboard. Incredibly, her FuMO radar has not been destroyed or dismantled, and before long, British intelligence would take full advantage of this error.

This view of *Admiral Graf Spee* shows clearly the layout of the after part of the ship. Just behind the funnel is the catapult, and just astern of that the aft command centre with the fire control/rangefinder apparatus on its roof.

***Admiral Graf Spee* departs Wilhelmshaven destined for a non-intervention patrol in Spanish waters during that country's Civil War.**

C: *ADMIRAL SCHEER*

1 The *Admiral Scheer* is seen here in her post-refit configuration. Note the the pagoda-style bridge structure has been removed and a tall raked funnel cap fitted. Anti-aircraft mounts have also been fitted to the roof of each of her main armaments.

2 Plan view of the *Admiral Scheer*. Although all three sisters differed somewhat in overall appearance, more so after their individual refits/alterations, there were still many common design features, especially in the layout of principal components, particularly the armament which differed little, if at all, from ship to ship.

3 Bow detail showing the conversion from two port and one starboard anchor, to one each side, and these being set in a cluse on the forecastle rather than emerging from a hawse hole on the hull side.

4 The tall funnel cap carried by *Admiral Scheer* is particularly evident in this illustration, as is the layout of the searchlight platform and of the boat deck.

5 The greatest change to *Admiral Scheer*'s appearance was the redesign of her bridge structure. The pagoda-style bridge was removed and a massive pole type 'battle' mast installed. This and the previous view give a good indication of the layout of the various platforms fitted to the mast.

D: *ADMIRAL GRAF SPEE*

The best known of all the pocket battleships is undoubtedly the *Admiral Graf Spee*. Although the youngest and most short-lived of the three sisters, her exploits in the South Atlantic captured the imagination of the world, and the chivalrous conduct of her commander, Kapitän zur See Hans Langsdorff, was to earn him the respect of his foes.

The *Admiral Graf Spee* was 186 metres in length, with a beam of 21.7m. With a full load of fuel and munitions, she displaced some 16,200 tons. Power was provided by eight, two-stroke diesel engines manufactured by MAN, each developing 7,100bhp, and four of which were coupled to each of her two propeller shafts. These gave her an endurance of some 18,605 nautical miles at an optimum 15 knots.

Admiral Graf Spee was of welded construction. The weight saving provided by this method as compared to the more traditional riveted construction helped allow this class of ship to mount a main armament turret of the same size and weight as that carried in battleships such as the *Scharnhorst* and *Gneisenau*, yet remain at the same approximate displacement as a heavy cruiser. *Graf Spee* was also able to reach, in test, a creditable maximum speed of 28.5 knots.

It was typical of most diesel-powered warships that the spaces between the ship's double bottom, and in the bilges, were used for fuel bunkerage, the *Admiral Graf Spee* being capable of carrying a full load of up to 3,347 cubic metres of diesel oil.

The engine compartment was particularly large in proportion to the ship's size, covering around 35 per cent of her overall length, and stretching back from just under the pagoda-style bridge, to the rear control centre.

From the main deck down to the inner face of the double bottom were four deck levels, the rear superstructure was single storey and the forward superstructure on which the bridge structure was mounted was two storey.

***Graf Spee* shown behind *Gneisenau* gives a good indication of the comparative sizes of these large warships.**

Staring at the bows and moving back, the top level between the forward turret and breakwater was given over to crew accommodation, with the ship's heads forward of this. On the second level, forward of the turret barbette was the POs mess, followed by further crew accommodation, and right at the bow, a storage area. On the third level, forward of the turret was a 28cm munitions magazine, with forward of this an additional POs mess area. On the fourth level, forward of the turret base, was a refrigerated storage room and machinery room.

On the first two levels to the rear of the turret were located further crew accommodation spaces including the crew's reading room. On the third and fourth levels were additional 28cm magazines. Just aft of these magazines, deep within the bowels of the ship, was the gunnery command and fire control centre, interpreting data fed down from the rangefinder equipment on the foretop.

Immediately astern of this area were the dressing station and switch room. On the first and second levels from here to just under the aft edge of the rear superstructure were further crew accommodation spaces, offices, radio room, workshops and the ship's laundry. Under this area, the third and fourth levels were taken up by the engine room. On the starboard side, the four diesels and the gearing by which they drove the shaft on that side were mounted in the forward part of the engine room. On the forward port side were located the two auxiliary diesels and four 270kW diesel dynamos.

To the rear of the engine compartment, the layout was reversed, with the main diesels driving the port shaft on that side of the engine room, and the two auxiliaries and four diesel dynamos on the starboard side. Midships, above the engine room was the ship's boiler room and trunking leading up into the funnel.

Astern of the engine room on level 3 was munitions storage for the 10.5cm flak ammunition. Just astern of this was the aft turret with its 28cm magazines.

Beyond the aft turret lay the quarterdeck, one level lower than the main deck. On the first level under the quarterdeck (in line with the second level though the remainder of the ship) lay the CPOs quarters, the level below this being given over to storage space.

Below this area lay the steering controls attached to the ship's rudder, including the rooms containing the steering motors and the emergency hand steering controls.

Within the distinctive bridge structure, the upper level contained the rangefinding apparatus, below which was the wireless office. The next level down contained cabin space with private washroom facilities, this being situated over the admiral's bridge, with the admiral's cabin to its rear. The level below contained the main bridge with chart room, etc., and the signals locker on the platform at the rear.

E: *ADMIRAL GRAF SPEE* VARIANTS

1 This plate shows *Admiral Graf Spee* in wartime guise. Note the unmodified straight stem and the single searchlight on the face of the tower replacing the previous arrangement of one to each side. Note also that this, the youngest of the three sisters, was the only one to retain the pagoda-style bridge structure.

2 Plan view of *Admiral Graf Spee*. There was little to differentiate between her and *Admiral Scheer* before the latter was refitted.

3 Bow detail, showing the anchor arrangement with two anchors to port and one to starboard. This arrangement was modified in *Lützow* and *Admiral Scheer* but never in the case of *Graf Spee*.

4 The massive pagoda-style bridge was wide, but not of particular depth. It is topped by a rangefinder with mounted FuMO radar array. It is likely that had *Graf Spee* survived her Atlantic foray, her bridge would have received similar modification to that on *Admiral Scheer*.

5 *Graf Spee* never received the tall angled funnel cap that was fitted to her two sisters. The shape of the searchlight platform also varied between the sisters. Note the four searchlights carried by *Graf Spee*, and the mainmast fitted to the rear of the funnel.

F: *ADMIRAL SCHEER* IN ACTION

Admiral Scheer in action during an attack on Soviet ground forces in support of a German counterattack near Königsberg. She has been manoeuvred so as to be able bring her broadside on to the shore and is firing with both her 28cm main armament and her port 15cm secondary armament. During such shore bombardment actions, *Admiral Scheer* is known to have fired off anything up to 200 rounds of 28cm and in excess of 540 rounds of 15cm. Such massive bombardments by heavy-calibre ship's artillery would have been of inestimable value to the hard-pressed German infantry on shore as they vainly tried to resist the Soviet advance, but even the firepower of warships such as *Admiral Scheer* and *Lützow* would prove to be too little too late. Of equal value was *Admiral Scheer*'s efforts to evacuate civilians and wounded soldiers from the path of the advancing Russians.

G: CAMOUFLAGE SCHEMES

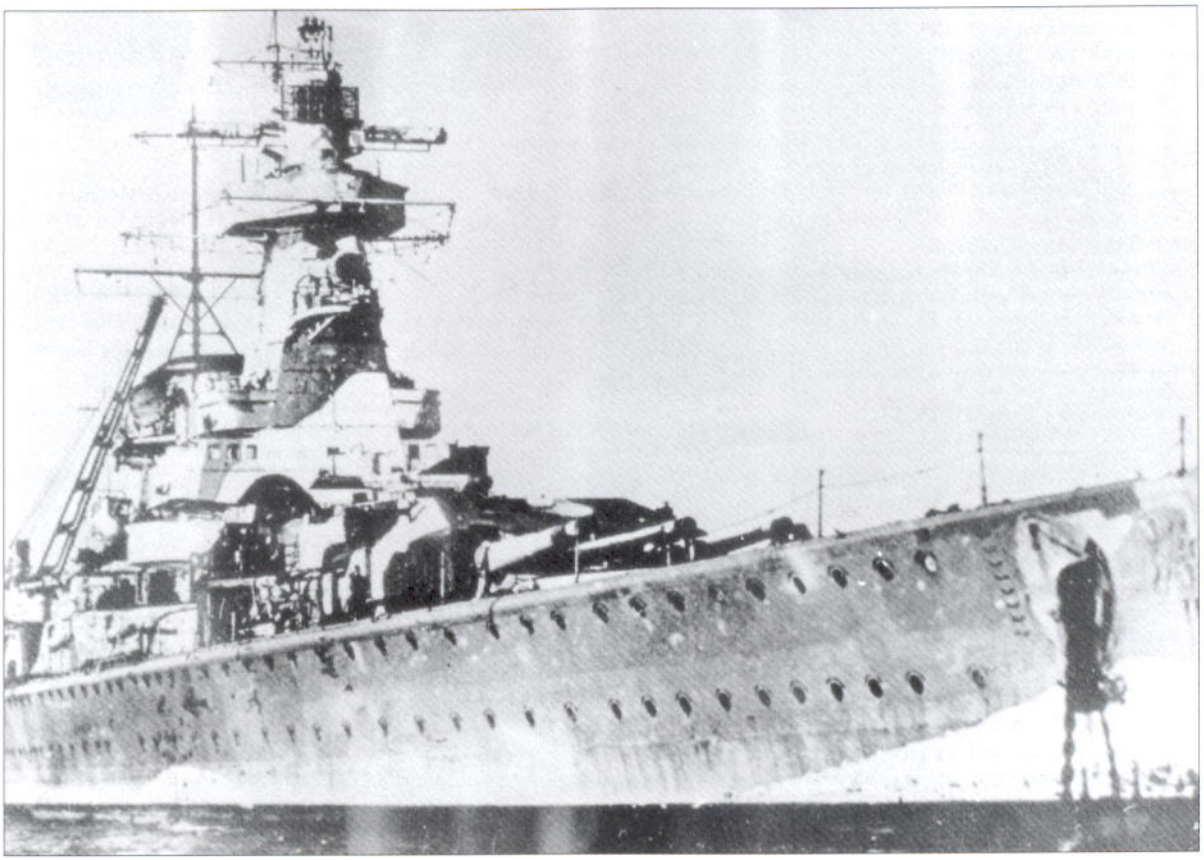
1 This view shows *Lützow* in the scheme she sported during her service in Norway during 1942. A pale grey base coat has wide curved swathes of dark grey over her hull and superstructure. Note the added quadruple 2cm flak gun on the roof of turret 'Anton' and the single-barrelled 2cm flak guns added to the fo'c'sle and quarterdeck.

2 *Admiral Scheer* in 1942, wearing a camouflage scheme very similar to that shown for her sister, but with subtle differences to the patterning. Such schemes were remarkably effective in disrupting the appearance of the vessel.

3 *Lützow* in 1941, wearing a camouflage scheme almost identical to that worn by *Bismarck*, *Prinz Eugen* and other major warships at that time, during exercises in the Baltic. Note the dark grey bands at the bow and stern, intended to make the ship look shorter than her true length. The broad black/white bands across the hull and superstructure were also standard features of this particular pattern.

4 *Admiral Graf Spee* in full disguise as she appeared during her raid into the South Atlantic. She sports a dark grey-green camouflage scheme over her pale grey base coat. She has also added a false turret over her forward superstructure and a false second funnel just aft of her aircraft catapult in an effort to disguise her appearance.

***Admiral Graf Spee* as she appeared during her raiding sortie into the South Atlantic. Note the camouflage scheme and the painted-over bow crest.**



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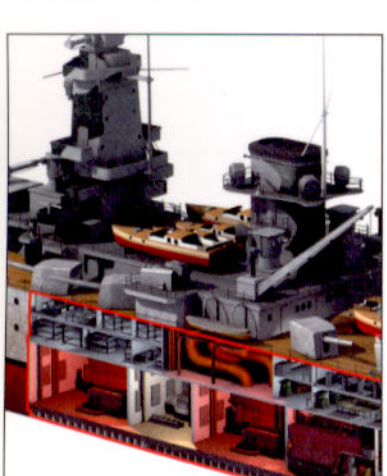

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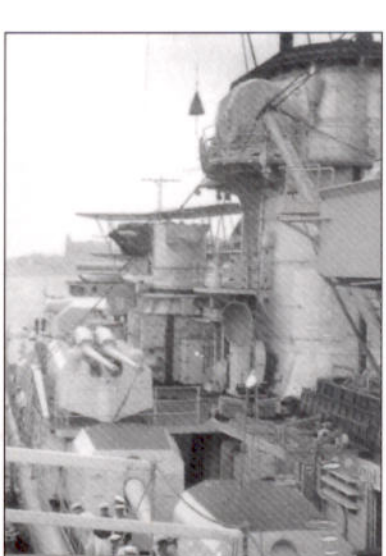

Photographs

German Pocket Battleships 1939–45

After the end of World War I, the German Navy came up with the concept of the *Panzerschiffe*, or Pocket Battleship, as a method of circumventing treaty limitations on the size and types of ship Germany was permitted to build. New, more modern production methods, where welded construction prevailed over the older riveting process, were combined with the development of modern engines capable of fast speeds and a very powerful armament, far superior to that on any enemy Cruisers. This book covers these three sister ships, the *Deutschland*, the *Admiral Graf Spee* and the *Admiral Scheer*, which formed the core of the Kriegsmarine's fighting power at the start of World War II.

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