

= Bayern @-@ class battleship =

The Bayern class was a class of four super @-@ dreadnought battleships built by the German Kaiserliche Marine (Imperial Navy) . The class comprised Bayern , Baden , Sachsen , and Württemberg . Construction started on the ships shortly before World War I ; Baden was laid down in 1913 , Bayern and Sachsen followed in 1914 , and Württemberg , the final ship , was laid down in 1915 . Only Baden and Bayern were completed , due to shipbuilding priorities changing as the war dragged on . It was determined that U @-@ boats were more valuable to the war effort , and so work on new battleships was slowed and ultimately stopped altogether . As a result , Bayern and Baden were the last German battleships completed by the Kaiserliche Marine .

Bayern and Baden were commissioned into the fleet in July 1916 and March 1917 , respectively . This was too late for either ship to take part in the Battle of Jutland on 31 May and 1 June 1916 . Bayern was assigned to the naval force that drove the Imperial Russian Navy from the Gulf of Riga during Operation Albion in October 1917 , though the ship was severely damaged from a mine and had to be withdrawn to Kiel for repairs . Baden replaced Friedrich der Grosse as the flagship of the High Seas Fleet , but saw no combat .

Both Bayern and Baden were interned in Scapa Flow following the Armistice in November 1918 . Rear Admiral Ludwig von Reuter , the commander of the interned German fleet , ordered his ships be sunk on 21 June 1919 ; Bayern was successfully scuttled , though British guards managed to beach Baden to prevent her from sinking . The ship was eventually expended as a gunnery target in 1921 . Sachsen and Württemberg , both at various stages of completion when the war ended , were broken up for scrap metal . Bayern was raised in 1934 and broken up the following year .

= = Design = =

The Bayern @-@ class ships were a result of the fourth Naval Law , which was passed in 1912 . Admiral Alfred von Tirpitz used public outcry over the British involvement in the Agadir Crisis of 1911 to pressure the Reichstag into appropriating additional funds for the Navy . The Fourth Naval Law secured funding for three new dreadnoughts , two light cruisers , and an increase of an additional 15 @, @ 000 officers and men in the ranks of the Navy for 1912 . The capital ships laid down in 1912 were the Derfflinger @-@ class battlecruisers ; funding for Bayern and Baden was allocated the following year . Funding for Sachsen was allocated in the 1914 budget , while Württemberg was funded in the War Estimates . The last remaining Brandenburg @-@ class pre @-@ dreadnought , Wörth , was to be replaced , as well as two elderly Kaiser Friedrich III @-@ class pre @-@ dreadnoughts , Kaiser Wilhelm II and Kaiser Friedrich III . Baden was ordered as Ersatz Wörth , Württemberg as Ersatz Kaiser Wilhelm II , and Sachsen as Ersatz Kaiser Friedrich III ; Bayern was regarded as an addition to the fleet , and was ordered under the provisional name " T " .

The design for the ships was drawn up between 1910 and 1912 . Consideration was given to equipping the new ships with triple turrets mounting the 30 @. @ 5 cm (12 in) guns of the preceding König @-@ class battleships , but after examining the gun turrets of the Austro @-@ Hungarian dreadnoughts of the Tegetthoff class , it was determined that the triple gun turrets still had too many problems . Among these deficiencies were increased weight , reduced ammunition supply and rate of fire , and loss of fighting capability if one of the turrets was disabled . It was therefore decided to arm the new vessels with eight 38 cm guns instead of twelve 30 @. @ 5 cm guns .

= = = General characteristics = = =

Bayern and Baden were 179 @. @ 4 meters (588 ft 7 in) long at the waterline , and an even 180 m (590 ft 7 in) long overall . Sachsen and Württemberg were slightly longer : 181 @. @ 8 m (596 ft 5 in) m at the waterline and 182 @. @ 4 m (598 ft 5 in) overall . All four ships had a beam of 30 m (98 ft 5 in) , and had a draft of between 9 @. @ 3 and 9 @. @ 4 m (30 ft 6 in and 30 ft 10 in) . Bayern and Baden were designed to displace 28 @, @ 530 t (28 @, @ 080 long tons) at a normal displacement ; at full combat load , the ships displaced up to 32 @, @ 200 t (31 @, @ 700 long tons

) . Württemberg and Sachsen were slightly heavier , at 28 @, @ 800 t normal and 32 @, @ 500 t fully laden . The ships were constructed with transverse and longitudinal steel frames , over which the outer hull plates were riveted . The hull was divided into 17 watertight compartments , and included a double bottom that ran for 88 percent of the length of the hull .

Bayern and Baden were regarded as exceptional sea boats by the German navy . Bayern and her sisters were stable and very maneuverable . The ships suffered slight speed loss in heavy seas ; with the rudders hard over , the ships lost up to 62 % speed and heeled over 7 degrees . With a metacentric height of 2 @. @ 53 m (8 ft 4 in) , larger than that of their British equivalents , the vessels were stable gun platforms for the confined waters of the North Sea .

The ships of the Bayern class had a standard crew of 42 officers and 1 @, @ 129 enlisted men ; when serving as a squadron flagship , an additional 14 officers and 86 men were required . The vessels carried several smaller craft , including one picket boat , three barges , two launches , two yawls , and two dinghies .

= = = Machinery = = =

Bayern and Baden were equipped with 11 coal @-@ fired Schulz @-@ Thornycroft boilers and three oil @-@ fired Schulz @-@ Thornycroft boilers in nine boiler rooms . Three sets of Parsons turbines drove three @-@ bladed screws that were 3 @. @ 87 metres (12 @. @ 7 ft) in diameter . Bayern 's and Baden 's power plant was designed to run at 34 @, @ 521 shaft horsepower (25 @, @ 742 kW) at 265 revolutions per minute ; on trials the ships achieved 55 @, @ 201 shp (41 @, @ 163 kW) and 55 @, @ 505 shp (41 @, @ 390 kW) , respectively . Both ships were capable of a maximum speed of 22 knots (41 km / h ; 25 mph) . The first two ships were initially designed to carry 900 t (890 long tons) of coal and 200 t (200 long tons) of oil , though fuel bunkering was subsequently increased to 3 @, @ 400 t (3 @, @ 300 long tons) of coal and 620 t (610 long tons) of oil . This enabled a range of 5 @, @ 000 nautical miles (9 @, @ 300 km ; 5 @, @ 800 mi) at a speed of 12 knots (22 km / h ; 14 mph) . At 15 knots (28 km / h ; 17 mph) , the range decreased to 4 @, @ 485 nmi (8 @, @ 306 km ; 5 @, @ 161 mi) , at 17 knots (31 km / h ; 20 mph) the range fell to 3 @, @ 740 nmi (6 @, @ 930 km ; 4 @, @ 300 mi) , and at 21 @. @ 5 knots (39 @. @ 8 km / h ; 24 @. @ 7 mph) the ships could steam for only 2 @, @ 390 nmi (4 @, @ 430 km ; 2 @, @ 750 mi) . The ships carried eight diesel generators ; these supplied each ship with a total of 2 @, @ 400 kilowatts of electrical power at 220 volts .

Sachsen and Württemberg were intended to be one knot faster than the earlier pair of ships . Württemberg received more powerful machinery that would have produced 47 @, @ 343 shp (35 @, @ 304 kW) for a designed speed of 22 knots . On Sachsen , a MAN diesel engine producing 11 @, @ 836 bhp (8 @, @ 826 kW) was installed on the center shaft , while steam turbines powered the outboard shafts . The combined power plant would have produced 53 @, @ 261 shp (39 @, @ 717 kW) for a designed speed of 22 @. @ 5 knots .

= = = Armament = = =

The Bayern @-@ class battleships were armed with a main battery of eight 38 cm (15 in) SK L / 45 guns in four Drh LC / 1913 twin gun turrets . These turrets could train 150 degrees to either side of the centerline , and their guns could depress to ? 8 degrees . As the Germans thought that conditions in the North Sea would dictate short @-@ range actions , the guns initially could elevate only to 16 degrees , which allowed a maximum range of 20 @, @ 400 m . The gun mountings were modified to allow elevation up to 20 degrees , increasing the range to 23 @, @ 200 m .

The main battery was supplied with a total of 720 shells or 90 rounds per gun . The guns had a rate of fire of around 2 @. @ 5 shells per minute . Post @-@ war tests conducted by the British Royal Navy showed that the guns on Baden could be ready to fire again 23 seconds after firing ; this was significantly faster than their British contemporaries , the Queen Elizabeth class , which took 36 seconds between salvos . The German weapons were , however , less accurate than earlier German weapons , and fired a lighter shell than the equivalent British guns . The German armor

@-@ piercing shell weighed 750 kg (1 @, @ 653 lb) and was driven by a 277 kg (610 @. @ 7 lb) RPC / 12 propellant charge in a brass cartridge . The shells were fired at a muzzle velocity of 800 mps (2 @, @ 625 fps) . Each gun was expected to fire 300 shells before replacement of the barrel was required . The guns that had been constructed for the battleships Sachsen and Württemberg were eventually used as long @-@ range , heavy siege guns on the Western Front , as coastal guns in occupied France and Belgium , and a few as railway guns ; these guns were referred to as Langer Max .

The ships were also armed with a secondary battery of sixteen 15 cm (5 @. @ 9 in) SK L / 45 quick @-@ firing guns , each mounted in MPL C / 13 casemates in the side of the top deck . These guns were intended for defense against torpedo boats , and were supplied with a total of 2 @, @ 240 shells . The guns could engage targets out to 13 @, @ 500 m , and after improvements in 1915 , their range was extended to 16 @, @ 800 m . The guns had a sustained rate of fire of 5 to 7 rounds per minute . The shells were 45 @. @ 3 kg (99 @. @ 8 lb) , and were loaded with a 13 @. @ 7 kg (31 @. @ 2 lb) RPC / 12 propellant charge in a brass cartridge . The guns fired at a muzzle velocity of 835 meters per second (2 @, @ 740 ft / s) . The guns were expected to fire around 1 @, @ 400 shells before they needed to be replaced .

Bayern and Baden were also equipped with a pair of 8 @. @ 8 cm (3 @. @ 45 in) L / 45 flak guns , which were supplied with 800 rounds . The guns were emplaced in MPL C / 13 mountings , which allowed depression to ? 10 degrees and elevation to 70 degrees . These guns fired 9 kg (19 @. @ 8 lb) shells , and had an effective ceiling of 9 @, @ 150 m at 70 degrees .

As was customary on capital ships of the period , the Bayern @-@ class ships were armed with five 60 cm (24 in) submerged torpedo tubes . One tube was mounted in the bow and two on each broadside . A total of 20 torpedoes were carried per ship . However , both Bayern and Baden struck mines in 1917 ; the damage incurred revealed structural weaknesses caused by the torpedo tubes ; both ships had their lateral tubes removed . The torpedoes were the H8 type , which were 8 meters (26 ft 3 in) long and carried a 210 kg (463 lb) Hexanite warhead . The torpedoes had a range of 6 @, @ 000 m (6 @, @ 550 yd) when set at a speed of 36 knots ; at a reduced speed of 30 knots , the range increased significantly to 14 @, @ 000 m (15 @, @ 310 yd) .

= = = Armor = = =

The Bayern @-@ class ships were protected with Krupp cemented steel armor , as was the standard for German warships of the period . They had an armor belt that was 350 mm (14 in) thick in the central citadel of the ship , where the most important parts of the ship were located . This included the ammunition magazines and the machinery spaces . The belt was reduced in less critical areas , to 200 mm (7 @. @ 9 in) forward and 170 mm (6 @. @ 7 in) aft . The bow and stern were not protected by armor at all . A 50 mm (2 @. @ 0 in) -thick torpedo bulkhead ran the length of the hull , several meters behind the main belt . The main armored deck was 60 mm (2 @. @ 4 in) thick in most places , though the thickness of the sections that covered the more important areas of the ship was increased to 100 mm (3 @. @ 9 in) .

The forward conning tower was protected with heavy armor : the sides were 400 mm (16 in) thick and the roof was 170 mm thick . The rear conning tower was less well armored ; its sides were only 170 mm thick and the roof was covered with 80 mm (3 @. @ 1 in) of armor plate . The main battery gun turrets were also heavily armored : the turret sides were 350 mm thick and the roofs were 200 mm thick . The 15 cm guns had 170 mm thick armor plating on the casemates ; the guns themselves had 80 mm thick shields to protect their crews from shell splinters .

= = Construction = =

The class was planned to include four ships . Bayern was built by Howaldtswerke in Kiel under construction number 590 ; she was laid down in 1913 , launched on 18 February 1915 , and completed on 15 July 1916 . Baden was built by the Schichau shipyard in Danzig , under construction number 913 . The ship was launched on 30 October 1915 and commissioned into the

fleet on 14 March 1917 . Sachsen was laid down at the Germaniawerft dockyard in Kiel , under construction number 210 . She was launched on 21 November 1916 , but not completed . Sachsen was by then 9 months from completion . Württemberg was built by the AG Vulcan shipyard in Hamburg , under construction number 19 . She was launched on 20 June 1917 , but she too was not completed . At the time of cancellation , the ship was approximately 12 months from completion .

== Ships ==

== Service history ==

== Fleet sortie of 18 ? 19 August 1916 ==

During the fleet sortie on 18 ? 19 August 1916 , the I Scouting Group , which was the battlecruiser reconnaissance force of the High Seas Fleet and commanded by Admiral Franz von Hipper , was to bombard the coastal town of Sunderland in an attempt to draw out and destroy Beatty 's battlecruisers . As Moltke and Von der Tann were the only two remaining German battlecruisers still in fighting condition after the Battle of Jutland , three dreadnoughts were assigned to the unit for the operation : Bayern , and the two König @-@ class ships Markgraf and Grosser Kurfürst . Admiral Scheer and the rest of the High Seas Fleet , with 15 dreadnoughts of its own , would trail behind and provide cover . The British were aware of the German plans and sortied the Grand Fleet to meet them . By 14 : 35 , Scheer had been warned of the Grand Fleet 's approach and , unwilling to engage the whole of the Grand Fleet just 11 weeks after the decidedly close call at Jutland , turned his forces around and retreated to German ports .

== Operation Albion ==

In early September 1917 , following the German conquest of the Russian port of Riga , the German navy decided to evict the Russian naval forces that still held the Gulf of Riga . To this end , the Admiralstab (the Navy High Command) planned an operation to seize the Baltic islands of Ösel , particularly the Russian gun batteries on the Sworbe peninsula . On 18 September , the order was issued for a joint Army @-@ Navy operation to capture Ösel and Moon islands ; the primary naval component was to comprise the flagship , the battlecruiser Moltke , along with the III Battle Squadron of the High Seas Fleet . The V Division included the four König @-@ class battleships , and was by this time augmented with Bayern . The VI Division consisted of the five Kaiser @-@ class battleships . Along with nine light cruisers , 3 torpedo boat flotillas , and dozens of mine warfare ships , the entire force numbered some 300 ships , and were supported by over 100 aircraft and 6 zeppelins . The invasion force amounted to approximately 24 @, @ 600 officers and enlisted men . Opposing the Germans were the old Russian pre @-@ dreadnoughts Slava and Tsesarevich , the armored cruisers Bayan , Admiral Makarov , and Diana , 26 destroyers , and several torpedo boats and gunboats . The garrison on Ösel numbered some 14 @, @ 000 men .

The operation began on 12 October , when Moltke , Bayern , and the Königs began firing on the Russian shore batteries at Tagga Bay . Simultaneously , the Kaisers engaged the batteries on the Sworbe peninsula ; the objective was to secure the channel between Moon and Dagö islands , which would block the only escape route of the Russian ships in the gulf . Both Grosser Kurfürst and Bayern struck mines while maneuvering into their bombardment positions ; damage to the former was minimal , and the ship remained in action . However , Bayern was severely damaged , and temporary repairs proved ineffective . The ship had to be withdrawn to Kiel for repairs ; the return trip took 19 days .

== Fleet sortie of 23 ? 24 April 1918 ==

In late 1917 , the High Seas Fleet began to conduct anti @-@ convoy raids with light craft in the North Sea between Britain and Norway . On 17 October , the German light cruisers Brummer and Bremse intercepted a convoy of twelve ships escorted by a pair of destroyers and destroyed it ; only three transports managed to escape . On 12 December , four German destroyers intercepted and annihilated another convoy of five ships and two escorting destroyers . This prompted Admiral David Beatty , the Commander in Chief of the Grand Fleet , to detach several battleships and battlecruisers to protect the convoys in the North Sea . This presented to Admiral Scheer the opportunity for which he had been waiting the entire war : the chance to isolate and eliminate a portion of the Grand Fleet .

At 05 : 00 on 23 April 1918 , the entire High Seas Fleet , including Bayern and Baden , left harbor with the intention of intercepting one of the heavily escorted convoys . Wireless radio traffic was kept to a minimum to prevent the British from learning of the operation . However , at 05 : 10 on 24 April , the battlecruiser Moltke suffered severe mechanical problems and had to be towed back to Wilhelmshaven . By 14 : 10 , the convoy had still not yet been located , and so Scheer turned the High Seas Fleet back towards German waters . In fact , there was no convoy sailing on 24 April ; German naval intelligence had miscalculated the sailing date by one day .

= = = Wilhelmshaven mutiny = = =

In October 1918 , Admiral Hipper , now the commander of the entire High Seas Fleet , planned for a final battle with the Grand Fleet . Admiral Reinhard Scheer , the Chief of the Naval Staff , approved the plan on 27 October ; the operation was set for the 30th . However , when the fleet was ordered to assemble in Wilhelmshaven on 29 October , war @-@ weary crews began to desert or openly disobey their orders . Crews aboard König , Kronprinz , and Markgraf demonstrated for peace . The crew aboard Thüringen was the first to openly mutiny ; Helgoland and Kaiserin joined as well . By the evening of the 29th , red flags of revolution flew from the masts of dozens of warships in the harbor . In spite of this , Hipper decided to hold a last meeting aboard Baden ? his flagship ? to discuss the operation with the senior officers of the fleet . The following morning , it was clear the mutiny was too far gone to permit a fleet action . In an attempt to suppress the revolt , he ordered one of the battle squadrons to depart for Kiel . By 5 November , red flags had been raised on every battleship in the harbor except König , though it too was commandeered by a sailors ' council on 6 November .

= = = Fate = = =

Following the armistice with Germany in November 1918 , the majority of the High Seas Fleet was to be interned in the British naval base in Scapa Flow . Bayern was listed as one of the ships to be handed over , though Baden initially was not . The battlecruiser Mackensen , which the British believed to be completed , was requested instead . When it became apparent to the Allies that Mackensen was still under construction , Baden was ordered to replace it . On 21 November 1918 , the ships to be interned , under the command of Rear Admiral Ludwig von Reuter , sailed from their base in Germany for the last time . The fleet rendezvoused with the light cruiser HMS Cardiff , before meeting a massive flotilla of some 370 British , American , and French warships for the voyage to Scapa Flow . Baden arrived at Scapa Flow separately on 14 December 1918 .

When the ships were interned , they had their guns disabled through the removal of their breech blocks . The fleet remained in captivity during the negotiations that ultimately produced the Versailles Treaty . It became apparent to Reuter that the British intended to seize the German ships on 21 June , which was the deadline for Germany to have signed the peace treaty . To prevent this , he decided to scuttle his ships at the first opportunity . On the morning of 21 June , the British fleet left Scapa Flow to conduct training maneuvers ; at 11 : 20 Reuter transmitted the order to his ships . Bayern sank at 14 : 30 , but Baden was run aground by British guards ; she was the only capital ship that was not sunk . After being refloated and thoroughly examined , Baden was expended as a

gunnery target , finally being sunk on 16 August 1921 to the southwest of Portsmouth . Bayern was eventually raised for scrapping on 1 September 1934 and broken up over the following year in Rosyth .

Both Sachsen and Württemberg were stricken from the German Navy under the terms of Article 186 of the Versailles Treaty . Sachsen was sold for scrapping in 1920 to ship breakers at the Kiel Arsenal . Württemberg was sold the following year in 1921 , and broken up in Hamburg .