

= Alma @-@ class ironclad =

The Alma @-@ class ironclads were a group of seven wooden @-@ hulled , armored corvettes built for the French Navy in the mid to late 1860s . Three of the ships attempted to blockade Prussian ports in the Baltic Sea in 1870 during the Franco @-@ Prussian War . Three others patrolled the North Sea and the Atlantic , while the last ship was en route to Japan when the war began and blockaded two small Prussian ships in a Japanese harbor . Afterwards they alternated periods of reserve and active commissions , many of them abroad . Three of the ships participated in the French occupation of Tunisia in 1881 while another helped to intimidate the Vietnamese Government into accepting status as a French protectorate and played a small role in the Sino @-@ French War of 1884 ? 85 .

= = Design and description = =

The Alma @-@ class ironclads were designed by Henri Dupuy de Lôme as improved versions of the armored corvette *Belliqueuse* suitable for foreign deployments . Unlike their predecessor the ships were true central battery ironclads as they were fitted with armored transverse bulkheads . The original plan for these ships was to have a two @-@ deck battery with four 194 @-@ millimeter (7 @-@ 6 in) guns on the battery deck and four 164 @-@ millimeter (6 @-@ 5 in) guns mounted above them on the upper deck , one gun at each corner of the battery . This design was changed to substitute four barbetstes for the upper battery , but the addition of armored bulkheads proved to be very heavy and the rear pair of barbetsstes had to be deleted to save weight . In partial compensation the 164 @-@ millimeter guns in the remaining forward barbetsstes were replaced by an additional pair of 194 @-@ millimeter guns . Like most ironclads of their era they were equipped with a metal @-@ reinforced ram .

The ships were built from the same general plan , but differed amongst themselves . They measured 68 @-@ 75 ? 69 @-@ 03 meters (225 @-@ 6 ? 226 @-@ 5 ft) between perpendiculars , with a beam of 13 @-@ 94 ? 14 @-@ 13 meters (45 @-@ 7 ? 46 @-@ 4 ft) . The ships had a mean draft of 6 @-@ 26 ? 6 @-@ 66 meters (20 @-@ 5 ? 21 @-@ 9 ft) and displaced 3 @-@ 569 ? 3 @-@ 889 metric tons (3 @-@ 513 ? 3 @-@ 828 long tons) . Their crew numbered 316 officers and men .

= = = Propulsion = = =

The Alma @-@ class ships had a single horizontal return connecting @-@ rod steam engine driving a single propeller . Their engine was powered by four oval boilers . On sea trials the engine produced between 1 @-@ 585 ? 1 @-@ 896 indicated horsepower (1 @-@ 182 ? 1 @-@ 414 kW) and the ships reached 10 @-@ 48 ? 11 @-@ 99 knots (19 @-@ 41 ? 22 @-@ 21 km / h ; 12 @-@ 06 ? 13 @-@ 80 mph) . Unlike the single funnels of the others , *Jeanne d 'Arc* and *Thétis* had two funnels , mounted side @-@ by @-@ side . The ships carried 250 metric tons (250 long tons) of coal which allowed the ship to steam for 1 @-@ 310 ? 1 @-@ 620 nautical miles (2 @-@ 430 ? 3 @-@ 000 km ; 1 @-@ 510 ? 1 @-@ 860 mi) at a speed of 10 knots (19 km / h ; 12 mph) . They were barque @-@ rigged with three masts and had a sail area between 1 @-@ 338 ? 1 @-@ 454 square meters (14 @-@ 400 ? 15 @-@ 650 sq ft) .

= = = Armament = = =

The ships mounted four of their 194 @-@ millimeter *Modèle 1864* breech @-@ loading guns in the central battery on the battery deck . The other two 194 @-@ millimeter guns were mounted in barbetsstes on the upper deck , sponsoned out over the sides of the ship . The four 120 @-@ millimeter (4 @-@ 7 in) guns were also mounted on the upper deck . Alma is the only ship positively known to have exchanged her 194 mm guns for newer *Modèle 1870* guns . The armor @-@ piercing shell of the 20 @-@ caliber *Mle 1870* gun weighed 165 @-@ 3 pounds (75 @-@ 0

kg) while the gun itself weighed 7 @. @ 83 long tons (7 @. @ 96 t) . The gun fired its shell at a muzzle velocity of 1 @, @ 739 ft / s (530 m / s) and was credited with the ability to penetrate a nominal 12 @. @ 5 inches (320 mm) of wrought iron armour at the muzzle . The guns could fire both solid shot and explosive shells .

= = = Armor = = =

The Alma @-@ class ships had a complete 150 @-@ millimeter (5 @. @ 9 in) wrought iron waterline belt , approximately 2 @. @ 4 meters (7 @. @ 9 ft) high . The sides of the battery itself were armored with 120 millimeters (4 @. @ 7 in) of wrought iron and the ends of the battery were closed by bulkheads of the same thickness . The barbette armor was 100 millimeters (3 @. @ 9 in) thick , backed by 240 millimeters (9 @. @ 4 in) of wood . The unarmored portions of their sides were protected by 15 @-@ millimeter (0 @. @ 6 in) iron plates .

= = Construction = =

= = Service = =

During the Franco @-@ Prussian War of 1870 ? 71 Thétis , Jeanne d 'Arc and Armide were assigned to the Northern Squadron that attempted to blockade Prussian ports on the Baltic until ordered to return to Cherbourg on 16 September 1870 . Montcalm , Atalante , and Reine Blanche cruised the North Sea and Montcalm later watched a Prussian corvette in Portuguese waters . Alma was en route to the Far East when the war began and she blockaded a pair of Prussian corvettes in Yokohama harbor once she arrived at Japan .

After the end of the war many of the ships were placed in reserve or sent to foreign stations , often as the flagship . During the Third Carlist War of 1872 ? 76 Thétis , Reine Blanche and Jeanne d 'Arc spent time in Spanish waters where they could protect French citizens and interests . In 1875 the latter ship rammed and sank the dispatch vessel Forfait . On 3 July 1877 Thétis rammed Reine Blanche who had to be run ashore to prevent her from sinking .

Further abroad Reine Blanche and Alma bombarded the Tunisian port of Sfax in July 1881 as part of the French occupation of Tunisia . Atalante participated in the Battle of Thuan An in August 1883 . This was an attack by the French on the forts defending the mouth of the Perfume River , leading to the Vietnamese capital of Hu? in an attempt to intimidate the Vietnamese government . During the Sino @-@ French War of 1884 ? 85 the ship was in Hu? in early September 1884 , but she carried Admiral Amédée Courbet to Keelung , Taiwan on 23 September .