= Ruggiero di Lauria @-@ class ironclad =

The Ruggiero di Lauria class was a class of ironclad battleships built for the Italian Regia Marina (Royal Navy) during the late 19th century . The three ships ? Ruggiero di Lauria , Francesco Morosini , and Andrea Doria ? were improved versions of the earlier Caio Duilio @-@ class battleships . The primary improvements were new breech @-@ loading guns , better armor protection , and more powerful machinery . The ships , designed by Giuseppe Micheli , marked a temporary diversion from the ideas of Benedetto Brin , who had designed the two preceding classes along with the following class .

Construction of the ships was very lengthy , and by the time they were completed , the first pre @-@ dreadnought battleships were being built . Rendered obsolescent by these new ships , the Ruggiero di Laurias had limited careers . The spent their time in service alternating between the Active and Reserve Squadrons , and they were primarily occupied with conducting training exercises . The ships were removed from service in 1909 ? 11 ; Francesco Morosini was expended as a target ship , while Ruggiero di Lauria became a floating oil tank and Andrea Doria was converted into a depot ship . During World War I , Andrea Doria returned to service as a guard ship before being repurposed for oil storage after the war , eventually being broken up in 1929 . Ruggiero di Lauria survived until 1943 , when she was sunk by bombers during World War II . Her wreck was salvaged in 1945 .

= = Design = =

Starting in the 1870s , following the Italian fleet 's defeat at the Battle of Lissa , the Italians began a large naval expansion program , initially aimed at countering the Austro @-@ Hungarian Navy . The program included the Caio Duilio and Italia classes , which were both designed by Benedetto Brin . The Ruggiero di Laurias were authorized in the naval program for 1880 , and the task of designing them was assigned to Engineering Inspector Giuseppe Micheli . Vice Admiral Ferdinando Acton opposed the very large ironclads designed by Brin , and so he charged Micheli with creating a ship that would not exceed 10 @,@ 000 metric tons (9 @,@ 800 long tons ; 11 @,@ 000 short tons) . Micheli chose to base his new design on a cut @-@ down version of Caio Duilio , though he incorporated several improvements , including more modern , breech @-@ loading guns , a more powerful propulsion system , and new , more effective compound armor . Micheli 's tenure as the designer for Italian capital ships was short @-@ lived , with Brin returning to create the follow @-@ on Re Umberto class , the final members of the second generation of Italian ironclads .

= = = General characteristics and machinery = = =

The ships of the Ruggiero di Lauria class were 100 meters (330 ft) long between perpendiculars and 105 @.@ 9 meters (347 ft) long overall . They had a beam of 19 @.@ 84 m (65 @.@ 1 ft) and a draft of 8 @.@ 29 to 8 @.@ 37 m (27 @.@ 2 to 27 @.@ 5 ft) . They displaced 9 @,@ 886 metric tons (9 @,@ 730 long tons) normally and up to 11 @,@ 145 t (10 @,@ 969 long tons) at full load . The ships were built with a high forecastle to improve sea @-@ keeping over the Caio Duilio class . A single military mast with fighting tops was located amidships ; a hurricane deck connected the forward and aft superstructure . Both sections of superstructure was used to store several smaller boats ; each section also had a large crane to handle the boats . The ships had a crew of 507 ? 509 officers and men .

Their propulsion system consisted of a pair of compound steam engines , each driving a single screw propeller , with steam supplied by eight coal @-@ fired , cylindrical fire @-@ tube boilers . The boilers were trunked into two funnels , one in the forward superstructure and the other in the aft superstructure . Ruggiero di Lauria was the fastest member of the class , reaching a top speed of 17 knots (31 km / h ; 20 mph) at 10 @,@ 591 indicated horsepower (7 @,@ 898 kW) . Francesco Morosini and Andrea Dorea had a top speed of around 16 kn (30 km / h ; 18 mph) . The ships could steam for 2 @,@ 800 nautical miles (5 @,@ 200 km ; 3 @,@ 200 mi) at a speed of 10 knots

(19 km / h ; 12 mph) .

= = = Armament and armor = = =

The Ruggiero di Laurias were armed with a main battery of four 17 in (432 mm) 27 @-@ caliber rifled breechloading guns , mounted in two pairs en echelon in a central barbette . These guns were the A 1882 model , and they fired a 2 @,@ 000 @-@ pound (910 kg) shell at a muzzle velocity of around 1 @,@ 837 feet per second (560 m / s) . Their rate of fire was very slow , taking eight minutes to reload after each shot . They carried a secondary battery of two 6 in (152 mm) 32 @-@ caliber guns , one at the bow and the other at the stern , and four 4 @.@ 7 in (119 mm) 32 @-@ caliber guns . The 6 in gun fired a variety of shells , including 102 lb (46 kg) armor @-@ piercing shells , while the 4 @.@ 7 in guns fired 36 lb (16 kg) shells . From 1900 , the ships had their secondary battery significantly expanded with two 75 mm (3 @.@ 0 in) guns , ten 57 mm (2 @.@ 2 in) 40 @-@ caliber guns , twelve 37 mm (1 @.@ 5 in) guns , five 37 mm revolver cannon , and two machine guns . As was customary for capital ships of the period , they carried five 14 in (356 mm) torpedo tubes submerged in the hull . The torpedoes carried a 125 kg (276 lb) warhead and had a range of 600 m (2 @,@ 000 ft) .

The ships ' protection scheme consisted of compound armor . The Ruggiero di Laurias had an armored belt that was 17 @.@ 75 in (451 mm) thick ; the citadel received the same thickness of steel . They had an armored deck that was 3 in (76 mm) thick , and their conning tower was armored with 9 @.@ 8 in (249 mm) of steel plate . The barbette had 14 @.@ 2 in (361 mm) of steel armor .

= = Construction = =

The ships ' construction times were very lengthy ; by the time they were completed , the United Kingdom had begun building the Royal Sovereign @-@ class battleships , the first pre @-@ dreadnought battleships , which rendered older ironclad battleships obsolescent . In addition , technological progress , particularly in armor production techniques ? first Harvey armor and then Krupp armor ? contributed to the ships ' rapid obsolescence .

= = Service history = =

The three Ruggiero di Laurias served in the Active Squadron for the first several years of their careers , into the mid @-@ 1890s . By 1895 , Ruggiero di Lauria had been transferred to the Reserve Squadron , though Andrea Doria and Francesco Morosini remained in the Active Squadron . That year , Ruggiero di Lauria and Andrea Doria joined the Active Squadron for a major cruise to Britain and Germany . All three ships were assigned to the Active Squadron in 1899 . That year , Ruggiero di Lauria and Andrea Doria took part in a naval review in Cagliari for the Italian King Umberto I , which included a French and British squadron as well .

All three ships had been transferred to the Reserve Squadron by 1905 , and they were quickly discarded . In 1908 , the Italian Navy decided to discard Ruggiero di Lauria and Francesco Morosini , while Andrea Doria remained in service until 1911 . Francesco Morosini was expended as a target ship for torpedo experiments in September 1909 . Ruggiero di Lauria was converted into a floating oil tank in 1909 and was renamed GM 45 ; she was sunk in an air raid in 1943 during World War II . Andrea Doria served as a depot ship until Italy entered World War I in May 1915 , when she was employed as a guard ship in Brindisi . After the war , she too was converted into an oil tank , before being broken up for scrap in 1929 .