

= HMS Royal Oak (1862) =

HMS Royal Oak was a Prince Consort @-@ class armoured frigate built for the Royal Navy in the 1860s . The lead ship of her class , she is sometimes described as a half @-@ sister to the other three ships because of her different engine and boiler arrangements . Like her sisters , she was converted into an ironclad from a wooden ship of the line that was still under construction .

The ship spent most of her career with the Mediterranean Fleet , only briefly serving with the Channel Fleet . Royal Oak returned home in 1871 for a refit , but was instead placed in reserve to save money . Fourteen years later , still in reserve , she was sold for scrap in 1885 .

= = Design and description = =

HMS Royal Oak was 273 feet (83 @. @ 2 m) long between perpendiculars and had a beam of 58 feet 6 inches (17 @. @ 8 m) . The ship had a draught of 23 feet 11 inches (7 @. @ 3 m) forward and 25 feet 2 inches (7 @. @ 7 m) aft . She displaced 6 @, @ 366 long tons (6 @, @ 468 t) and had a tonnage of 4 @, @ 056 tons burthen .

Royal Oak had a low centre of gravity which meant that she rolled a lot and was an unsteady gun platform . She was , however , very handy and sailed well in all weathers under sail or steam . Her crew consisted of 585 officers and enlisted men .

= = = Propulsion = = =

Royal Oak had a simple horizontal 2 @-@ cylinder horizontal return connecting @-@ rod steam engine , built by Maudslay , that drove a single propeller shaft using steam that was provided by six rectangular boilers . The engine produced 3 @, @ 704 indicated horsepower (2 @, @ 762 kW) during the ship 's sea trials on 15 June 1863 which gave the ship a maximum speed of 12 @. @ 5 knots (23 @. @ 2 km / h ; 14 @. @ 4 mph) under steam . She carried a maximum of 550 long tons (560 t) of coal , enough to steam 2 @, @ 200 nautical miles (4 @, @ 100 km ; 2 @, @ 500 mi) at 5 knots (9 @. @ 3 km / h ; 5 @. @ 8 mph) .

The ship was initially barque @-@ rigged with three masts and had a sail area of 25 @, @ 000 square feet (2 @, @ 300 m²) . Yards were added to the ship 's mizzenmast in June 1866 and Royal Oak was given a full ship rig which she retained for the rest of her career . Her propeller was designed to be disconnected and hoisted up into the stern of the ship to reduce drag while under sail , but this was rarely done because there was no bulkhead surrounding the hoisting holes which could have flooded the ship if their covers had been removed in even a moderate sea . To further reduce drag , the funnel was telescopic and could be lowered . Her best speed with the propeller disconnected and under sail alone was 13 @. @ 5 knots (25 @. @ 0 km / h ; 15 @. @ 5 mph) , the fastest of any British ironclad , and she was the only ship to exceed her best speed using steam while under sail .

= = = Armament = = =

Royal Oak was initially armed with 24 smoothbore , muzzle @-@ loading 68 @-@ pounder guns on the main deck and 11 rifled breech @-@ loading (RBL) Armstrong seven @-@ inch , 110 @-@ pounder guns . Eight of these were also on the main deck and the other three served as chase guns on the upper deck , two at the bow and one aft .

The 7 @. @ 9 @-@ inch (201 mm) solid shot of the 68 @-@ pounder gun weighed approximately 68 pounds (30 @. @ 8 kg) while the gun itself weighed 10 @, @ 640 pounds (4 @, @ 826 @. @ 2 kg) . The gun had a muzzle velocity of 1 @, @ 579 ft / s (481 m / s) and had a range of 3 @, @ 200 yards (2 @, @ 900 m) at an elevation of 12 ° . The seven @-@ inch (178 mm) shell of the 110 @-@ pounder Armstrong breech @-@ loader weighed 107 ? 110 pounds (48 @. @ 5 ? 49 @. @ 9 kg) . It had a muzzle velocity of 1 @, @ 150 ft / s (350 m / s) and , at an elevation of 11 @. @ 25 ° , a maximum range of 4 @, @ 000 yards (3 @, @ 700 m) . All of the guns could fire both solid shot

and explosive shells .

The ship 's original armament was replaced during her 1867 refit with 20 seven @-@ inch and 8 eight @-@ inch (203 mm) rifled muzzle @-@ loading guns , four of the seven @-@ inch guns were chase guns . The shell of the 15 @-@ calibre eight @-@ inch gun weighed 175 pounds (79 @.@ 4 kg) while the gun itself weighed nine long tons (9 @.@ 1 t) . It had a muzzle velocity of 1 @,@ 410 ft / s (430 m / s) and was credited with the ability to penetrate a 9 @.@ 6 inches (244 mm) of wrought iron armour at the muzzle . The 16 @-@ calibre seven @-@ inch gun weighed 6 @.@ 5 long tons (6 @.@ 6 t) and fired a 112 @-@ pound (50 @.@ 8 kg) shell that was able penetrate 7 @.@ 7 @-@ inch (196 mm) of armour .

= = = Armour = = =

The entire side of the Prince Consort @-@ class ships , from the upper @-@ deck level downwards , was protected by wrought iron armour that tapered from 3 inches (76 mm) at the ends to 4 @.@ 5 inches (114 mm) amidships . The armour extended 5 feet 6 inches (1 @.@ 7 m) below the waterline and was backed by the sides of the hull which were 29 @.@ 5 inches (749 mm) thick .

= = Construction and service = =

Royal Oak , named for the English oak tree within which King Charles II hid to escape after his defeat at Battle of Worcester in 1651 , was laid down on 1 May 1860 at Chatham Dockyard as a 90 @-@ gun Bulwark @-@ class ship of the line . She was ordered to be converted to an ironclad on 14 May 1861 and was launched on 10 September 1862 . The ship was commissioned in April 1863 to run her trials and completed on 28 May , for the price of £ 245 @,@ 537 .

Royal Oak briefly served with the Channel Fleet before she was transferred to the Mediterranean Fleet . She was paid off for a refit and re @-@ arming in 1867 , and then rejoined the Channel Fleet for six months . She was accidentally rammed by HMS Warrior in heavy weather at night on 14 August 1868 ; the impact sheared off the main and mizzen chainplates as well as all the boats on the starboard side . Three months later the ship returned to the Mediterranean , and was present at the opening of the Suez Canal in November 1869 where she grounded on an uncharted sandbank outside Port Said , Egypt , without sustaining any damage . She paid off for an extensive refit at Portsmouth at the end of 1871 , but was instead laid up as an economy measure . Royal Oak remained in fourth @-@ class reserve for 14 years until she was no longer worth repairing and was sold for breaking up on 30 September 1885 .

= = Memorials = =

A block of housing within the new development at " Rochester Riverside " has been named after this ship .