

= Brazilian monitor Santa Catharina =

The Brazilian monitor Santa Catharina (in modern spelling , Santa Catarina) was the sixth , and last , ship of the Pará @-@ class river monitors built for the Brazilian Navy during the Paraguayan War in the late 1860s . By the time she was completed the war was winding down and she only had one significant engagement against Paraguayan forces in 1869 . The ship was assigned to the Mato Grosso Flotilla after the war . Santa Catharina sank at her moorings while under repair in 1882 .

= = Design and description = =

The Pará @-@ class monitors were designed to meet the need of the Brazilian Navy for small , shallow @-@ draft armored ships capable of withstanding heavy fire . The monitor configuration was chosen as a turreted design did not have the same problems engaging enemy ships and fortifications as did the central battery ironclads already in Brazilian service . The oblong gun turret sat on a circular platform that had a central pivot . It was rotated by four men via a system of gears ; 2 @. @ 25 minutes were required for a full 360 ° rotation . A bronze ram was fitted to these ships as well . The hull was sheathed with Muntz metal to reduce biofouling .

The ships measured 39 meters (127 ft 11 in) long overall , with a beam of 8 @. @ 54 meters (28 ft 0 in) . They had a draft between of 1 @. @ 51 ? 1 @. @ 54 meters (4 ft 11 in ? 5 ft 1 in) and displaced 500 metric tons (490 long tons) . With only 0 @. @ 3 meters (1 ft 0 in) of freeboard they had to be towed between Rio de Janeiro and their area of operations . Their crew numbered 43 officers and men .

= = = Propulsion = = =

The Pará @-@ class ships had two direct @-@ acting steam engines , each driving a single 1 @. @ 3 @-@ meter (4 ft 3 in) propeller . Their engines were powered by two tubular boilers at a working pressure of 59 psi (407 kPa ; 4 kgf / cm²) . The engines produced a total of 180 indicated horsepower (130 kW) which gave the monitors a maximum speed of 8 knots (15 km / h ; 9 @. @ 2 mph) in calm waters . The ships carried enough coal for one day 's steaming .

= = = Armament = = =

Santa Catharina had a single 120 @-@ pounder Whitworth rifled muzzle loader (RML) in her gun turret . The gun had a maximum range of about 5 @, @ 540 meters (6 @, @ 060 yd) . The 7 @-@ inch (178 mm) shell of the 120 @-@ pounder gun weighed 151 pounds (68 @. @ 5 kg) while the gun itself weighed 16 @, @ 660 pounds (7 @, @ 556 @. @ 8 kg) . Most unusually the guns ' Brazilian @-@ designed iron carriage was designed to pivot vertically at the muzzle ; this was done to minimize the size of the gunport through which splinters and shells could enter .

= = = Armor = = =

The hull of the Pará @-@ class ships was made from three layers of wood that alternated in orientation . It was 457 millimeters (18 @. @ 0 in) thick and was capped with a 102 @-@ millimeter (4 in) layer of peroba hardwood . The ships had a complete wrought iron waterline belt , 0 @. @ 91 meters (3 @. @ 0 ft) high . It had a maximum thickness of 102 millimeters amidships , decreasing to 76 millimeters (3 in) and 51 millimeters (2 in) at the ship 's ends . The curved deck was armored with 12 @. @ 7 millimeters (0 @. @ 5 in) of wrought iron .

The gun turret was shaped like a rectangle with rounded corners . It was built much like the hull , but the front of the turret was protected by 152 millimeters (6 in) of armor , the sides by 102 millimeters and the rear by 76 millimeters . Its roof and the exposed portions of the platform it rested upon were protected by 12 @. @ 7 millimeters of armor . The armored pilothouse was positioned ahead of the turret .

= = Service = =

Santa Catharina was laid down at the Arsenal de Marinha da Côrte in Rio de Janeiro on 8 December 1866 , during the Paraguayan War , which saw Argentina and Brazil allied against Paraguay . She was launched on 5 May 1868 and commissioned the next month . She reached Paraguay in mid @-@ 1868 , when the war was winding down . Santa Catharina , together with her sister ships Ceará and Piauí , broke through the Paraguayan defenses at Guaraio on 29 April 1869 and drove off the defenders . The monitor provided fire support to the army for the rest of the war . After the war she was assigned to the Mato Grosso Flotilla . While docked for repairs in 1882 , Santa Catharina sank at her moorings due to the poor condition of her hull . Her ultimate fate is unknown .