

= Brazilian ironclad Rio de Janeiro =

The Brazilian ironclad Rio de Janeiro was an armored gunboat ( Portuguese : Canhoneira Couraçada Nr. 3 ) built for the Brazilian Navy during the Paraguayan War in the mid @-@ 1860s . Like the other two gunboats she was built in Brazil and was designed as a casemate ironclad . Commissioned in April 1866 , the ship did not enter combat until September , when she bombarded Paraguayan fortifications at Curuzu . Rio de Janeiro hit two mines on 2 September and rapidly sank , taking 53 of her crew with her .

= = Design and description = =

Rio de Janeiro was designed to meet the need of the Brazilian Navy for a small , simple , shallow @-@ draft armored gunboat capable of withstanding heavy fire . A casemate ironclad design was chosen for ease of construction and a bronze ram , 1 @.@ 8 meters ( 5 ft 11 in ) long , was fitted . The hull was sheathed with Muntz metal to reduce biofouling . For sea passages the ship 's freeboard could be increased to 1 @.@ 7 meters ( 5 ft 7 in ) by use of removable bulwarks 1 @.@ 1 meters ( 3 ft 7 in ) high . On riverine operations , the bulwarks and the ship 's masts , were usually removed .

The ship measured 56 @.@ 69 meters ( 186 ft 0 in ) long overall , with a beam of 9 @.@ 19 meters ( 30 ft 2 in ) and had a mean draft of 2 @.@ 62 meters ( 8 ft 7 in ) . Rio de Janeiro normally displaced 871 metric tons ( 857 long tons ) and 1 @,@ 001 metric tons ( 985 long tons ) at deep load . Her crew numbered 148 officers and men .

= = = Propulsion = = =

Rio de Janeiro had a single John Penn & Sons 2 @-@ cylinder steam engine driving a single 2 @-@ bladed propeller . Her engine was powered by two tubular boilers . The engine produced a total of 420 indicated horsepower ( 310 kW ) which gave the ship a maximum speed of 9 knots ( 17 km / h ; 10 mph ) . The ship 's funnel was mounted directly in front of her casemate . Rio de Janeiro carried enough coal for six days ' steaming .

= = = Armament = = =

Rio de Janeiro mounted two 70 @-@ pounder Whitworth rifled muzzle loaders and two 68 @-@ pounder smoothbore guns in her casemate . To minimize the possibility of shells or splinters entering the casemate through the gunports they were as small as possible , allowing only a 24 ° -arc of fire for each gun . The rectangular , 9 @.@ 8 @-@ meter ( 32 ft 2 in ) casemate had two gun ports on each side as well as the front and rear .

The 70 @-@ pounder gun weighed 8 @,@ 582 pounds ( 3 @,@ 892 @.@ 7 kg ) and fired a 5 @.@ 5 @-@ inch ( 140 mm ) shell that weighed 81 pounds ( 36 @.@ 7 kg ) . The gun had a maximum range of 5 @,@ 540 meters ( 6 @,@ 060 yd ) . 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 range of 3 @,@ 200 yards ( 2 @,@ 900 m ) at an elevation of 12 ° . All of the guns could fire both solid shot and explosive shells .

= = = Armor = = =

The hull of Rio de Janeiro was made from three layers of wood , each 203 millimeters ( 8 @.@ 0 in ) thick . The ship had a complete wrought iron waterline belt , 1 @.@ 52 meters ( 5 @.@ 0 ft ) high . It had a maximum thickness of 102 millimeters ( 4 in ) covering the machinery and magazines , 51 millimeters ( 2 in ) elsewhere . The curved deck , as well as the roof of the casemate , was armored with 12 @.@ 7 millimeters ( 0 @.@ 5 in ) of wrought iron . The casemate was protected by 102

millimeters of armor on all four sides , backed by 609 millimeters ( 24 @. @ 0 in ) of wood capped with a 102 mm layer of peroba hardwood .

= = Service = =

Rio de Janeiro was laid down at the Arsenal de Marinha da Côte in Rio de Janeiro on 28 June 1865 , during the Paraguayan War , which saw Argentina and Brazil allied against Paraguay . She was launched on 18 February 1866 and completed on 1 March 1866 . Commissioned in April she reached the combat zone on 4 May . The ship reached Corrientes , with the ironclad Lima Barros , in July 1866 . On 1 September Rio de Janeiro bombarded the Paraguayan fortifications at Curuzú in company with the other Brazilian ironclads . A 68 @-@ pounder shell entered one of her gunports during the bombardment , killing four men and wounding five . The next day , after her damage was repaired , the ship struck two mines in the Apa River while trying to rendezvous with the other Brazilian ironclads bombarding Curupaity . Rio de Janeiro sank instantly with the loss of 53 of her crew . She remains there , entombed under some 15 meters ( 49 ft 3 in ) of sand .