

= Virginia @-@ class battleship =

The Virginia @-@ class of pre @-@ dreadnought battleships were built for the United States Navy in the early 1900s . The class comprised five ships : Virginia , Nebraska , Georgia , New Jersey , and Rhode Island . The ships carried a mixed @-@ caliber offensive battery of four 12 @-@ inch ( 300 mm ) and eight 8 @-@ inch ( 200 mm ) guns ; these were mounted in an uncommon arrangement , with four of the 8 @-@ inch guns placed atop the 12 @-@ inch turrets . The arrangement proved to be a failure , as the 8 @-@ inch guns could not be fired independently of the 12 @-@ inch guns without interfering with them . Additionally , by the time the Virginias entered service , the first " all @-@ big @-@ gun " battleships ? including the British HMS Dreadnought ? were nearing completion , which would render mixed battery ships like the Virginia class obsolescent .

Nevertheless , the ships had active careers . All five ships took part in the cruise of the Great White Fleet in 1907 ? 1909 . From 1909 onward , they served as the workhorses of the US Atlantic Fleet , conducting training exercises and showing the flag in Europe and Central America . As unrest broke out in several Central American countries in the 1910s , the ships became involved in police actions in the region . The most significant was the American intervention in the Mexican Revolution during the occupation of Veracruz in April 1914 .

During the American participation in World War I , the Virginia @-@ class ships were used to train sailors for an expanding wartime fleet . In September 1918 , they began to escort convoys to Europe , though Germany surrendered two months later , ending the conflict . After the war , they were used to bring American soldiers back from France and later as training ships . The 1922 Washington Naval Treaty , which mandated major reductions in naval weapons , cut the ships ' careers short . Virginia and New Jersey were sunk in bombing tests in 1923 , and the other three ships were broken up for scrap later that year .

= = Design = =

The United States ' victory in the Spanish ? American War in 1898 had a dramatic impact on battleship design , as the question of the role of the fleet ? namely , whether it should be focused on coastal defense or high seas operations ? had been solved . The fleet 's ability to conduct offensive operations overseas showed the necessity of a powerful fleet of battleships . As a result , the US Congress was willing to authorize much larger ships ; the Virginias , three of which were authorized on 3 March 1899 , were the first of these new ships . Two more were authorized on 7 June 1900 , with the displacement for all five ships proposed at 13 @,@ 500 long tons ( 13 @,@ 700 t ) , a significant increase over previous designs . Initial design work , which began with a memorandum issued on 12 July 1898 , called for a battleship based on the Maine class , to be armed with four 12 @-@ inch ( 300 mm ) guns , sixteen 6 in ( 150 mm ) guns , and ten 3 in ( 76 mm ) guns , protected with a 12 in belt of Krupp armor , and capable of steaming at 18 @.@ 5 knots ( 34 @.@ 3 km / h ; 21 @.@ 3 mph ) .

Arguments over the projected displacement and armament prevented further work until October 1899 . Captain Charles O 'Neill argued for a mixed battery of 12 in and 8 in ( 200 mm ) guns with superposed turrets , while Phillip Hichborn , the chief constructor at the Bureau of Construction and Repair , preferred a 13 @,@ 000 @-@ long @-@ ton ( 13 @,@ 000 t ) design armed uniformly with 10 in ( 250 mm ) guns instead of the mixed battery . The decision was made to adopt the mixed battery , since the 8 in gun could penetrate the medium armor on foreign battleships that protected their secondary batteries . Captain Royal Bradford , the chief of the Bureau of Equipment , suggested that 18 @.@ 5 knots would be sufficient , though O 'Neill demanded 20 knots ( 37 km / h ; 23 mph ) ; a compromise was found by requiring a minimum of 19 knots ( 35 km / h ; 22 mph ) . These compromises produced two variants : " A " , which arranged the 8 in guns in four twin turrets amidships as with the Indiana class , and " B " , which placed two of the four turrets atop the 12 in turrets , as on the Kearsarge class . The " A " design included sixteen 6 in guns in casemates , while " B " had only twelve .

The Board on Construction initially favored " A " , though one officer on the board rejected the design so strongly that the Secretary of the Navy ordered a second , larger board to be formed to examine the two designs . Eight line officers were added to the board ; this group favored the superposed turrets of " B " . One of the members , Rear Admiral Albert Baker , suggested to build the first three ships to " A " and the last two to " B " . The board initially approved the idea , but the chief of the Bureau of Ordnance rejected it in favor of uniformity of design . The Secretary of the Navy convened a third board to settle the matter , and ten of the twelve members voted for " B " . The finalized design was approved on 5 February 1901 .

The superposed turrets ultimately proved to be very problematic ; the arrangement had been conceived initially to save weight and allow the much faster firing 8 in guns to shoot during the long reload time necessary for large caliber guns . By the time the Virginias entered service , smokeless propellant and rapid firing , large caliber guns had reduced the time between shots from 180 seconds to 20 . The 8 in guns could no longer fire at their maximum rate without interfering with the 12 in guns , since the concussion and hot gasses would disrupt the crew below . In addition , the British HMS Dreadnought ? the first " all @-@ big @-@ gun " battleship to enter service ? commissioned in late 1906 shortly after the Virginias and rendered them obsolescent at a single stroke .

#### = = = General characteristics and machinery = = =

The ships of the Virginia class were 435 feet ( 133 m ) long at the waterline and 441 feet 3 inches ( 134 @. @ 49 m ) long overall . They had a beam of 76 ft 3 in ( 23 @. @ 24 m ) and a draft of 23 ft 9 in ( 7 @. @ 24 m ) . They displaced 14 @, @ 948 long tons ( 15 @, @ 188 t ) as designed and up to 16 @, @ 094 long tons ( 16 @, @ 352 t ) at full load . The ships had a high metacentric height , which made them unstable even in moderate seas . Steering was controlled with a single rudder . As built , the ships were fitted with a pair of heavy military masts with fighting tops , but they were replaced by cage masts in 1909 . They had a crew of 40 officers and 772 enlisted men .

The ship was powered by two @-@ shaft triple @-@ expansion steam engines rated at 19 @, @ 000 indicated horsepower ( 14 @, @ 000 kW ) . Steam was provided by coal @-@ fired water @-@ tube boilers ; in Virginia and Georgia , they were equipped with twenty @-@ four Niclausse boilers , while the other three ships received twelve Babcock & Wilcox boilers . These were trunked into three funnels amidships . The engines generated a top speed of 19 knots ( 35 km / h ; 22 mph ) . By 1919 , Virginia and Georgia had their Niclausse boilers replaced with twelve Babcock & Wilcox boilers . The ships carried 1 @, @ 955 long tons ( 1 @, @ 986 t ) of coal , which allowed them to steam for a designed cruising radius of 3 @, @ 825 nautical miles ( 7 @, @ 084 km ; 4 @, @ 402 mi ) at a speed of 10 knots ( 19 km / h ; 12 mph ) . In service , they could actually steam for 4 @, @ 860 nmi ( 9 @, @ 000 km ; 5 @, @ 590 mi ) . The ships were equipped with electricity generators with a combined output of 500 kilowatts ( 670 hp ) .

#### = = = Armament = = =

The ships were armed with a main battery of four 12 @-@ inch ( 305 mm ) / 40 caliber guns in two twin gun turrets on the centerline , one forward and aft . The guns fired a 870 @-@ pound ( 390 kg ) shell at a muzzle velocity of 2 @, @ 400 feet per second ( 730 m / s ) . The turrets were Mark V mounts , which allowed for reloading at all angles of elevation . These mounts could elevate to 20 degrees and depress to -7 degrees . Each gun was supplied with sixty shells .

The secondary battery consisted of eight 8 @-@ inch ( 203 mm ) / 45 guns and twelve 6 @-@ inch ( 152 mm ) / 45 guns . The 8 @-@ inch guns were mounted in four twin turrets ; two of these were superposed atop the main battery turrets , with the other two turrets abreast the forward funnel . The 8 @-@ inch guns were the Mark VI type , and they fired 260 lb ( 120 kg ) shells at a muzzle velocity of 2 @, @ 750 ft / s ( 840 m / s ) . They were supplied with 125 shells per gun . The 6 @-@ inch guns were placed in casemates in the hull . The 6 @-@ inch Mark VI guns fired a 105 lb ( 48 kg ) shell at 2 @, @ 800 ft / s ( 850 m / s ) .

For close @-@ range defense against torpedo boats , they carried twelve 3 @-@ inch / 50 guns mounted in casemates along the side of the hull and twelve 3 @-@ pounder guns . As was standard for capital ships of the period , the Virginia class carried four 21 in ( 530 mm ) torpedo tubes , submerged in her hull on the broadside . They were initially equipped with the Mark I Bliss @-@ Leavitt design , but these were quickly replaced with Mark II , designed in 1905 . The Mark II carried a 207 pounds ( 94 kg ) warhead and had a range of 3 @, @ 500 yards ( 3 @, @ 200 m ) at a speed of 26 knots ( 48 km / h ; 30 mph ) .

= = = Armor = = =

Virginia 's main armored belt was 11 in ( 279 mm ) thick over the magazines and the machinery spaces and 8 in ( 203 mm ) elsewhere . It extended 3 feet ( 0 @. @ 91 m ) above the waterline and 5 feet ( 1 @. @ 5 m ) below . The main battery gun turrets ( and the secondary turrets on top of them ) had 12 @-@ inch ( 300 mm ) thick faces and 2 in ( 51 mm ) thick roofs . For the main battery turrets , their sides were 8 in thick , while the superposed turrets had reduced protection on their sides , at 6 in of armor plating . The supporting barbettes had the 10 in ( 250 mm ) of armor plating . The two waist turrets had 6 @. @ 5 in ( 170 mm ) thick faces , 6 in thick sides , and 2 in thick roofs . Six inch thick armor plating protected the casemate guns . The conning tower had 9 in ( 230 mm ) thick sides and a 2 in thick roof . The ships ' decks ranged in thickness from 1 @. @ 5 to 3 inches ( 38 to 76 mm ) and they were sloped on the sides to connect with the lower edge of the main belt .

= = Construction = =

= = Service history = =

All five ships of the class served with the Atlantic Fleet for the majority of their careers . In 1907 , Virginia , Georgia , and New Jersey took part in the Jamestown Exposition to commemorate the 300th anniversary of the founding of the Jamestown colony . The five ships took part in the cruise of the Great White Fleet in 1907 ? 09 , though Nebraska , which had been built on the west coast of the United States , joined the fleet after it had reached California in 1908 . The fleet left Hampton Roads on 16 December 1907 and steamed south , around South America and back north to the US west coast . The ships then crossed the Pacific and stopped in Australia , the Philippines , and Japan before continuing on through the Indian Ocean . They transited the Suez Canal and toured the Mediterranean before crossing the Atlantic , arriving back in Hampton Roads on 22 February 1909 for a naval review with President Theodore Roosevelt .

The ships then began a peacetime training routine off the east coast of the United States and the Caribbean , including gunnery training off the Virginia Capes , training cruises in the Atlantic , and winter exercises in Cuban waters . In late 1909 , Virginia , Georgia , and Rhode Island visited French and British ports . Throughout their careers , political unrest in several Central American countries prompted the United States to send the ships to protect American interests in the region . New Jersey was sent to Cuba to assist the Cuban Pacification in support of the government of President Tomás Estrada Palma . All five ships became involved in the Mexican Revolution as the United States intervened to protect its nationals living in the country , culminating in the occupation of Veracruz in April 1914 . New Jersey was also sent to protect American interests in Haiti and the Dominican unrest in 1914 .

In July 1914 , World War I broke out in Europe ; the United States remained neutral for the first three years of the war . Tensions with Germany came to a head in early 1917 following the German unrestricted submarine warfare campaign , which sank several American merchant ships in European waters . On 6 April 1917 , the United States declared war on Germany . The Virginia @-@ class ships initially were used for training gunners and engine room personnel that would be necessary for the rapidly expanding wartime fleet . Starting in September 1918 , the ships began to be used as escorts for convoys bringing soldiers to France , though this duty was cut short by the

Armistice with Germany signed in November . With the war over , the Virginias were used to ferry American soldiers back from France through mid @-@ 1919 .

The ships ? thoroughly obsolete by this time ? were briefly retained in the post @-@ war period before being decommissioned . Nebraska , Georgia , and Rhode Island were transferred to the Pacific Fleet , with the latter serving as the flagship of the 1st Squadron , though they were all out of service by 1920 . Under the terms of the Washington Naval Treaty , signed in 1922 , they were to be discarded as part of the naval armament limitation program . Virginia and New Jersey were sunk as target ships off Cape Hatteras by Army bombers under the supervision of Billy Mitchell in September 1923 . The other three ships were sold to ship breakers in November that year .