= BL 18 inch Mk I naval gun =

The BL 18 @-@ inch Mk I naval gun was a breech @-@ loading naval gun used by the Royal Navy during World War I. It was the largest and heaviest gun ever used by the British . Only the Second @-@ World @-@ War Japanese 40 cm / 45 Type 94 had a larger calibre , 18 @.@ 1 inches (46 cm) , but the British shell was heavier . The gun was a scaled @-@ up version of the BL 15 inch Mk I naval gun and was developed to equip the " large light cruiser " (a form of battlecruiser) Furious . Three guns were built , but they did not see combat with Furious , before they were removed from her and transferred to the Lord Clive @-@ class monitors General Wolfe and Lord Clive for coast bombardment duties . Only 85 rounds were fired in anger before the war ended . All three were removed from service in 1920 and served as proving guns for cordite tests . Two were scrapped in 1933 and the last one survived until it was scrapped in 1947 .

= = Design and development = =

The 18 @-@ inch gun had its genesis in the insistence of the First Lord of the Admiralty , Admiral Fisher , for the biggest possible gun mounted on the fastest possible ship . He conceived of what he called " large light cruisers " carrying four 15 @-@ inch (380 mm) guns , which became the Courageous class , but he wanted their half @-@ sister Furious to carry an even bigger gun . The Elswick Ordnance Company was the only company capable of manufacturing such a large gun and began design work in 1915 . It was designated as the " 15 @-@ inch B " to conceal its real size and was derived from the design of the 15 @-@ inch Mk I already in service .

The gun and its breech mechanism weighed a total of 149 long tons (151 t) , almost half again as much as the 15 @-@ inch gun 's 100 long tons (102 t) . It was mounted in a single @-@ gun turret , also designated as the 15 @-@ inch B , derived from the twin @-@ gun 15 @-@ inch Mark I / N turret . The barbettes of Furious were designed to accommodate either turret , in case problems arose with the 18 @-@ inch gun 's development . The gun could depress to ? 3 ° and elevate to a maximum of 30 ° . Ammunition development for the gun was naturally focused on anti @-@ ship shells for Furious , and it fired a 3 @,@ 320 @-@ pound (1 @,@ 510 kg) , 4 crh armour @-@ piercing , capped (APC) shell , at a muzzle velocity of 2 @,@ 270 ft / s (690 m / s) to a distance of 28 @,@ 900 yards (26 @,@ 400 m) . It could fire one round per minute . The turret 's revolving mass was 826 long tons (839 t) , only a slight 2 % more than the 810 long tons (823 t) of its predecessor .

The guns proved to be too powerful for Furious ' light hull , and they became available for other uses during 1917 , after trials showed the ship could not handle the stress of firing . Admiral Sir Reginald Bacon , commander of the Dover Patrol , conceived a plan to mount two guns inside the shell of the Palace Hotel in Westende from where they could bombard the naval facilities at Zeebrugge and Bruges , provided that the hotel was captured during the upcoming Battle of Passchendaele . He planned to transport the guns across the English Channel lashed to the torpedo bulges of monitors . He also thought that they could be used on the decks of monitors and as such a dual purpose carriage was designed for the guns , which could be used both afloat and ashore . Only a limited amount of traverse was required for either role , but elevation had to be increased to 45 ° to maximize range . The concept was approved 23 September 1917 , and Elswick was ordered to design the new ' B CD ' mounts for delivery in five months .

The original concept for land use involved a special elevating slide that could traverse 6 ° to either side . Ammunition handling , elevation and ramming were to be done via hydraulic pump , but the breech was hand @-@ worked . The gun was to be installed in a turf @-@ covered concrete dome with a gunport for the barrel . As much as possible of the gun and its mount was designed to be assembled out of range of German artillery and then moved on a special broad @-@ gauge railway to the site on specially @-@ designed wheels . The transportable section weighed 210 long tons (213 t) .

After the British Army failed to capture Westende , the mounting was optimised for use on a monitor . It was very simple , consisting of two large girders connected together at each end with the gun

and its carriage between them . The mount could only traverse 10 ° inside its fixed , ½ -inch (12 @.@ 7 mm) gun shield and was aimed over the starboard side of the monitor . It was loaded at a fixed angle of 10 ° , but it could only fire between 22 ° and 45 ° to equalize the stresses on the carriage and the ship . It was provided with hydraulically powered cranes , loading tray , rammer and breech mechanism to minimize the crew 's workload , but the ammunition parties had to use muscle power . The shells were stowed below deck and had to be moved by overhead rail to the hatch in the deck behind the gun to be lifted up and loaded . The cordite propellant charges were kept in eighteen steam @-@ heated storage tanks mounted on the forecastle deck abaft the funnel and moved to the gun on a bogie mounted on rails , two one @-@ sixth charges at a time , which reduced the rate of fire to about one round about every 3 ? 4 minutes . The monitors had to be extensively modified to handle the gun . Numerous additional structural supports had to be added underneath the gun to support its weight of 384 long tons (390 t) ; the sides had to be plated in to accommodate the additional crewmen and the interior rearranged for the 18 ? inch shells and the loading arrangements .

= = Service = =

A total of three guns were built by Armstrong Whitworth , two for Furious and a spare . The forward gun was removed from Furious in March 1917 , before she was completed , when she was ordered to be converted to a seaplane carrier . The second gun was removed later in 1917 , and she was converted into an aircraft carrier . The new ' B CD ' mounts were delayed , and the mount for Lord Clive @-@ class monitor General Wolfe was not delivered until 20 June 1918 . The gun from Furious ' ' A ' turret was lifted aboard on 9 July , but the General Wolfe was not ready to begin firing trials until 7 August . She was given the nickname of ' Elephant and Castle ' , as the enormous gun @-@ mount structure dominated the ship 's profile .

While the new mounting was being designed , further effort was put into the ammunition to extend the range as much as possible . Use of a supercharge , where one of the six charges was increased in weight to 165 pounds (74 @.@ 8 kg) , making a total of 690 pounds (313 @.@ 0 kg) propellant , and increasing the elevation to 45 ° extended the range to about 36 @,@ 900 yards (33 @,@ 700 m) with the existing 4 crh shells . New 8 crh high explosive shells , with a longer , thinner ballistic cap , were ordered , but only two shells had been delivered before the end of the war . Some of the existing stock of 500 APC and 500 CPC (common , pointed , capped) shells on hand from Furious were modified with the new cap and were probably the only shells used during the war .

General Wolfe was assigned to the Dover Patrol on 15 August 1918 , but did not fire on any targets until 28 September , when a large force of monitors was gathered to harass German lines of communication . She was anchored bow and stern , broadside to her target , and had difficulties dealing with the tidal currents . She opened fire on the railway bridge at Snaeskerke (4 miles (6 @.@ 4 km) south of Ostend) at a range of 36 @,@ 000 yards (32 @,@ 918 m) and made naval history as the heaviest shell fired from the largest gun at the longest range in action to date . She fired 52 shells that day and found that the recoil from her 18 ? inch gun moved her sideways with her shallow hull and also caused her to roll , which slowed her rate of fire . She fired a total of 81 rounds before the end of the war .

The second gun , Furious ' spare , was mounted in Lord Clive , but she was not ready for combat until 13 October 1918 . She fired three rounds the following day , but had to cease fire to avoid hitting friendly advancing troops . One round had already been loaded when the order came to cease fire so she fired it , with a reduced charge , into a minefield to seaward . A total of 85 18 @-@ inch shells were fired in action by both guns . Wear on General Wolfe 's gun was measured at about 0 @.@ 37 inch after firing 161 effective full charges (EFC) - 105 rounds including proof and practice , with 57 being supercharges . This indicates the gun would have been good for well over 300 EFC , comparable with most other British ordnance using Cordite MD .

The third gun , from Furious ' ' Y ' turret , was intended for Prince Eugene , which had been modified to accept it earlier in the year , but the war ended before it was mounted , although the monitor was ordered to Portsmouth to have it fitted on 19 October . The guns were removed from

the monitors in December 1920 . Gun No. 1 , from Furious ' ' Y ' turret , was lined down to 16 inches (410 mm) and used in cordite @-@ proving tests for the BL 16 @-@ inch Mk I gun , intended for the cancelled G3 battlecruisers , and used in the Nelson @-@ class battleships . It remained in use until 1942 and was scrapped in 1947 . The other two guns were used at Shoeburyness and Yantlet artillery ranges in the Thames Estuary for similar duties ; they were scrapped in 1933 .

One mount survived and was used to mount a spare BL 14 @-@ inch Mk VII gun from the battleship King George V. It was emplaced near Dover in 1940 , and the combination was named " Pooh " , after Winnie @-@ the @-@ Pooh .