

Information sheet no 030

Naval Gunnery

Before 1850 the naval gun in use was the cannon. It was a muzzle-loading smooth bore firing a solid ball by using a charge of gunpowder. The solid shot could be fired at a distance of one mile, although the most effective and preferred distance was 100 yards - known as the half pistol. Guns were fired from the broadside of the ship in battle, as most of the canons could be fired simultaneously or in a ripple effect and inflict the most damage to an enemy ship. There were minor improvements made prior to 1850 but technical advances after this date until the twentieth century revolutionized naval gunnery. Changes included

- explosive shell replacing solid shot;
- rifle bore replacing smooth bore;
- improved rate of fire by replacing muzzle-loading guns with breech-loading guns;
- improved propellants with gunpowder being replaced by cordite.

Despite these technological advances, there was a lack of incentive in the Royal Navy to improve gunnery techniques. This was due to a belief that 'what was good enough for Nelson is good enough for us' and the feeling of security engendered by the long period of peace during the nineteenth century.

At the turn of the twentieth century, people such as Admiral Fisher and Captain Scott caused a dramatic change to this situation by insisting on adequate gunnery training. Practice shoots were conducted at long range and human error was minimised by the introduction of range-finding instruments. The introduction of the range director in 1912 was a means of directing and controlling the gunfire of warships. By having the director on the ship's fore-top, above the funnel and gun smoke, at ships did not aim at their target through smoke and could target its enemy more accurately. Within a decade, the range of accurate naval gunnery had increased from 2000 to 10,000 yards. The speed of firing also increased from one round in three minutes to two rounds in one minute using the heaviest guns. The launch of the 'all big gun' battleship HMS *Dreadnought* in 1906 with a reliance on gunnery as the supreme naval weapon of destruction helped to quicken the pace of improvement.

During the 1930's, radio direction finding (RDF) equipment superseded the director with its ability to detect ranges far more accurately than any range-finder, during day and night and through fog. This later became known in 1940 by the Americans as "radar" for 'RADio Detection And Ranging' and the term has been used internationally since then.

From these developments, the automatic gun which loads, trains, lays and fires itself with supreme accuracy, and the target seeking weapons such as guided missiles and anti-missiles have been developed for today's warfare.