

ADVANCES IN THE DESIGN OF MILITARY SMALL ARMS

by Major (Retd) M J Fogwell

The Minie and Enfield rifle muskets used with such success by the British army in the Crimean War took the range of engagement with shoulder controlled weapons far beyond that which had been achieved with the smooth bore musket. Time and again Russian columns were stopped and broken at ranges of 600 yards or more.

The School of Musketry which formed at Hythe in 1853 was responsible for the user testing of the new rifle muskets and for training the army to make the optimum use of them. This principle has been followed through the years and applied to the expanded range of weapons adopted by the infantry

I will touch some of the weapons with historical significance, these are exhibits from the Infantry and Small Arms School Corps Weapons Collection, Land Warfare Centre, Warminster, which is well worth a visit.

The Ferguson Breech Loading Rifle of 1774. This British rifle had a breech block in the form of a vertical bolt opened by a simple horizontal turn of the trigger guard. This rifle, the partial brainchild of Captain Ferguson was issued to one company under his command. Ferguson was killed in 1780. His invention appears to have died with him. It is impossible to assess the true military potential of the Ferguson but a doubling of the rate of fire might well have been achieved.

The Spencer Repeating Carbine. This American 7 shot tubular magazine carbine of 1863 was an amazing weapon for its time. Operated by an under lever action, with separate operation of the hammer it was initially rejected by the Union's General Ripley. President Lincoln was later to intercede on Spencer's behalf and by 1865 some 95,000 carbines had been supplied to the Union cavalry. The Spencer's firepower was said by both sides to be a factor in turning the war in favour of the North.

The Thorneycroft Carbine of 1901. This .303 inch British carbine is a bolt operated 5 round magazine weapon based on the 'Bullpup' configuration (i.e. shorter overall configuration without reducing barrel length.) The hideous efficiency of the magazine rifle used by the Boer against the British in the 2nd Boer War convinced Lord Roberts that a short magazine fed rifle was needed; common to both cavalry and infantry. The final outcome was the Short Magazine Lee-Enfield (SMLE) rifle. The Thorneycroft was a private venture probably aimed at meeting this requirement.

In the late 1940s concurrent with Soviet development of the AK 47 the British developed the **Enfield Model 2 rifle** in 7mm calibre. This was a first generation Bullpup which proved to be a reliable, accurate and realistic design. It had the fatal disadvantage of using lower powered medium range ammunition. NATO and particularly the Americans were not ready for this. It was rejected in favour of the American designed 7.62mm round and resulted in the adoption by the British of the Belgian FAL design rifle.

The automatic pistol followed Maxim's use of recoil in the machine gun. The first commercially and technically successful self-loading pistol was that produced by Borchardt. The 1893 Borchardt made use of the toggle joint action which later gave birth to the Luger pistol, made in much greater numbers by the German armament industry. The Collection's **Borchardt 7.65 mm** calibre is well balanced and functional; in effect a self loading carbine.

The Bergman Machine Pistol 18 (MP 18) designed by Hugo Schmeisser made an appearance in the closing stages of the First World War, too late to have a significant influence on its outcome, but clearly designed around the close quarter battles of the final stage of an assault in trench warfare. The Bergman is a 9mm blow back weapon which used the 32 round snail magazine, which had been developed for the Luger pistol. This weapons real importance lies in the pattern it set for its successors.



TOP	7mm Enfield Model 2	c1950
MIDDLE	7.65mm Borchardt	c1893
BOTTOM	9mm Bergman MP 18	c1918



TOP	Ferguson Breech Loading Rifle	c1774
MIDDLE	Spencer Repeating Carbine	c1863
BOTTOM	Thorneycroft Carbine	c1901

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The 7.92 Fallschirmjaeger Gewehr 42 (FG 42) emerged as a design following the successful but costly operation to capture Crete with an airborne force. Following the Germans inquiry into the operation the requirement for the parachutist to carry a longer range, harder hitting weapon in quantity was stated. In FG 42 the designers ingeniously shortened the basic infantry weapon by moving the magazine forward on the left side and buried the rear of the receiver in a hollow spring loaded butt. The result was a deadly full power assault weapon which in fact never proved itself as no major airborne operation was mounted after Crete. It was first used in the dramatic rescue of Mussolini.

The 7.92 mm Machine Gun 42 (MG 42) was introduced in 1942 using the very successful characteristics of the earlier MG 34. Dr Grunow, a German industrialist whose speciality was mass production of metal stampings, devoted his talents to producing a receiver which would accept a short recoil, Stecke design lock and Breda type barrel change. Belt fed with a rate of fire of 1200 rounds per minute in NATO 7.62 mm, calibre it must be regarded as one of the most cost effective air-cooled machine gun designs ever produced.



TOP	7.92mm FG 42 and bayonet	c1942
BOTTOM	7.92 mm MG 42	c1942

The Weapons Collection is available for viewing, private study, and anyone interested in the development of weapons such as those related in this article.

Contact the Regimental Secretary, who is also the Officer In Charge of the Collection.