

The Berthier Mousqueton Mle M16

- a fine French service carbine

by Alek Wadi



Testing the Mousqueton Berthier M16 at 100m.

When retired, you do things at your own pace: fishing, hunting, shooting at the range, travelling, gardening and caring for your family. You also share old family photos with your kids. While doing this, I unearthed a photograph from my father during the World War II Tunisia Campaign (1942-43). Dad rarely mentioned the events, but I remember he always referred to his service rifle as the 'Mouste-con', an affectionate French military slang for his loyal Mousqueton. On this photo I could positively identify a five-shot Berthier Mousqueton Modèle 1916. But what is a Mousqueton or a carbine compared to a rifle prior to 1945?

Until the late 19th-early 20th century, a rifle ('fusil' in French) was a heavy large-calibre, long-barrelled firearm fitted with a long bayonet and allocated to infantry. At the time, the length of the rifle fitted with a bayonet was important using the hedgehog formation or line of defence to shock and repulse a cavalry charge. Artillery, engineering units and military police had rarely to deal with cavalry charges, hence a lighter short-barrel rifle (a Mousqueton - now called a carbine) was allocated to them. The Mousqueton was also a dedicated rifle used by mounted troops on horseback or even later on bicycle or motorbike by the gendarmerie. Nowadays, there are no more Mousquetons for obsolete mounted troops, but simply rifles and carbines.

After many years looking, I acquired a Mousqueton Mle 1892 M16. But first, let us glance at the genesis of the French Berthier service firearms. >

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A post-war rifle race

Franco-German antagonism led to an arms race long before and after the 1870 Franco-Prussian War. By 1866, the French had commissioned the breechloader 11mm Chassepot needle rifle while the Prussians shot the 15.4mm 1848 Dreyse needle rifle and the British used the massive .577 Snider-Enfield (1866). But most innovations came from the German and French rivalry. In 1871, the German Empire fielded the *Infanterie-gewehr 71* bolt-action single-shot 11.15x60mmR. In turn, in the same year, the British Empire adopted the lever-action *Martini-Henry* tilting-block single-shot breechloading rifle.

By 1874, the French utilised the single-shot *GRAS Modèle 1866/74 fusil* using an 11x59.5mmR metallic cartridge. The race for more firepower per rifle was intensifying. The Prussians swiftly adopted a modified *G71 (Infanterie-gewehr M71/84)* with an eight-round tubular magazine. All of these used black powder/low bullet velocity (350mps).

Soon new rifles appeared with a spring-loaded *Mannlicher* magazine box stacking up rounds for fast reloading. Another issue surfaced: at the time, besides the infantry, many troops were still mounted like the *Lancers, Hussars and Cuirassiers* who had once been armed with swords or lances. After being long equipped with swords, lances and single-shot black powder pistols, French mounted troops were equipped with rifles and the massive *M1873 11mm revolver*. But the French cavalry was mostly struggling with *GRAS* rifles. Furthermore, the artillery corps was still carrying long-barrel rifles while manning cannons.

In 1886, the French adopted the innovative eight-round tubular magazine (*Kropatschek* design) *Fusil Lebel Modèle*



Alek Wadi's father shooting the Mousqueton M16 during the North African campaign in Tunisia in WWII (1942).

1886 - a world first to use smokeless gunpowder and a smaller 8mm calibre. In spite of the *Lebel's* superior ballistic and long-range accuracy, this beautifully engineered rifle was difficult to operate and maintain in the field. Furthermore, the tubular magazine concept was slow and tough to reload and anyway too long a rifle (130cm with an 80cm barrel) for trench warfare and cavalry.

The need for a shorter and lighter service carbine with an efficient reloading system became glaringly evident, more so allowing easy and fast shooting and reloading while riding a horse, manning artillery or in trenches. By 1888, the Germans had the *Infanterie-gewehr M88* with a five-round,

single-column *Mannlicher* magazine and the 7.92x57J smokeless powder cartridge to counter the 8mm *Lebel*.

In turn, in March 1890, the short and light *Mousqueton* and carbines designed by *Emile Berthier* with the three-round *Mannlicher* magazine surfaced in the French Army. The Germans upgraded the *M88* into the famous *Infanterie-gewehr M98* (1898) with a shorter barrel (74cm for the rifle and 59cm for the carbine) and a staggered five-round magazine with a new stripper clip, which was much easier and faster to use than the *Mannlicher* pack charger. The early 1890 *Berthiers* lagged behind with the three-round pack magazine, but were much valued by French troops.

Design	Model and units issued	Cartridge (mm)	Length (mm)	Weight (kg)	Barrel (mm)	Rounds/magazine type with charger or clip
Berthier	<i>Mousqueton de Cavalerie 1890</i>	8x50R	945	3.0	453	3/Mannlicher
Berthier	<i>Carabine de Cuirassier 1890</i> (both in excess of 220,000 units)	8x50R	945	3.0	453	3/Mannlicher
Berthier	<i>Carabine de Gendarmerie 1890 (58,871)</i>	8x50R	945	3.1	453	3/Mannlicher
Berthier	<i>Mousqueton d'Artillerie 1892 (890,459)</i>	8x50R	945	3.0	453	3/Mannlicher
Lebel	<i>Fusil Lebel 1886-93 (3,450,000)</i>	8x50R	1300	4.2	800	8/tubular
Berthier	<i>Fusil 1902 'Indochinois'</i>	8x50R	1126	3.3	633	3/Mannlicher
Berthier	<i>Fusil 1907 'Sénégalais'</i>	8x50R	1306	3.8	803	3/Mannlicher
Berthier	<i>Fusil 1907/115</i>	8x50R	1303	3.8	798	3/Mannlicher
Berthier	<i>Fusil 1907/115 M16</i>	8x50R	1303	3.8	798	5/Mannlicher
Berthier	<i>Mousqueton 1892 M16 or M16 (487,480)</i>	8x50R	945	3.3	453	5/Mannlicher
Berthier	<i>Fusil 1907/115 M34</i>	7.5x54	1080	3.7	580	5/Mauser clip
Berthier	<i>Fusil 1902 M37</i>	7.5x54	1075	3.7	570	5/Mauser clip
MAS36	<i>Fusil MAS36 (1,115,000)</i>	7.5x54	1021	3.7	575	5/Mauser clip

Mousqueton 1892 M16 reads: Model 1892 modified 1916.

During wars, many *Berthiers* were refurbished with fully interchangeable parts bearing different serial numbers.

The Berthier Mousqueton Mle M16

During WWI, various carbines and mousquetons were available from other common contemporary rifles (with calibre) in:

- 1887 France: Fusil Lebel M86 in 8x50mmR Lebel
- 1888 Germany: Gewehr 88 in 7.92x57mm Mauser
- 1891 Italy: Carcano M91 in 6.5x52mm
- 1891 Japan: Arisaka Type 30 in 6.5x50mm Arisaka
- 1891 Russia: Mosin-Nagant M91 in 7.62x54mmR
- 1891 Belgium: 1889 Belgian Mauser in 7.65x53mm Argentine
- 1893 Spain: Mauser M93 in 7x57mm Mauser
- 1893 Turkey: Mauser M93 in 7.65x53mm Argentine
- 1895 Austria-Hungary: Mannlicher M1895 in 8x50mmR Mannlicher
- 1896 Sweden: Gevär m/96 in 6.5x55mm
- 1903 USA: M1903 Springfield in 30-06 Springfield
- 1907 UK: SMLE Mk III Lee-Enfield in .303R
- 1911 Switzerland: Schmidt-Rubin 1896/11 in 7.5x55 Swiss.

The improved Berthier Fusil 1907/15 M16 and Mousqueton M16 with five-round Mannlicher magazine became available in November 1916 to equip the French and



The Berthier Mousqueton M16 with blade bayonet and chargers.

colonial troops along with the Lebel 1886/ M93 rifles. The details of the Berthier firearms and the Mousqueton 1892 M16 that my father dutifully carried for nearly nine years of his army time with the colonial Zouaves, the artillery corps and mine-clearing units in Tunisia, are shown in the accompanying table.

Mousquetons, carbines and rifles

Over the years Berthier firearms were upgraded before, during and after WWI, with modifications to the stock, bolt handle, bolt lugs, chamber, magazine, sling attachments, sights, cleaning rod, bayonet lug and stacking hardware resulting in some 11 different configurations between 1890 and 1937 before being replaced by the MAS36

7.5x54mm-calibre rifle (see the September 2009 *Australian Shooter*).

The Berthier Mousqueton M16

All Berthier firearms evolved from the 1890 Mousqueton de Cavalerie and Carabine de Cuirassier 1890 having a three-round magazine concealed in the stock. The Berthier Mousqueton M16 differs with its five-rounds charger Mannlicher-type tin magazine protruding ahead of the triggerguard such as the Mosin-Nagant 1891. The floorplate opens up to eject the five- or three-cartridge pack-charger.

The stock and sling

The Mousqueton M16 linseed oil treated

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The Berthier Mousqueton Mle M16

walnut stock is has two parts: the stock itself, with two cross-pins either side of the magazine, is 85cm long with 35cm from the rear butt to the trigger; and a top 20cm hand-guard ahead of the bolt enclosing the rear-sight with the serial number in another window on the left side. Early Berthiers had a brass-tipped rod in a channel on the left side of the stock gradually removed and cleanly filled in with a wood band from 1927.

Many variations of the Berthier stock were issued; the most noticeable is the Cuirassier three-round carbine 1890 lacking the buttstock comb and with a chequered non-slip leather buttplate to be shouldered by the Cuirassiers wearing steel breast-plates. The 1890 underside toe swivel was abandoned as it caught uniforms and was replaced in 1895 with an inletted groove on the left side of the buttstock with a sling steel bar to hold the 3cm-wide leather sling. The early concentric front swivel sling ring underneath the barrel band was moved to the right side. The Mousqueton was now comfortably carried flat on every trooper's back.

The receiver-trigger-magazine and pack-charger

The beautifully machined one-piece Berthier steel trigger/single-stack magazine mechanism sits into the steel forged receiver. To take out the set, the user removes the screw at the rear of the trigger-guard then removes the tamper-proof wood screw in front of the magazine cover. The slotted screw on the right side of the



receiver then disengages the mechanism secured with a front hook engaged into the receiver. A recoil lug is at the rear of the receiver. The magazine elevator is pressed down when the three- or five-round pack-charger is inserted.

To remove the charger with the rounds in it, depress the charger catch located inside the trigger-guard and the charger will pop out of the receiver. The trigger pull is a crisp two-stage 2.5kg. After the last shot, the empty charger is released through the

open floorplate by depressing the charger catch or simply by introducing a full three- or five-round charger.

The barrel

The thin barrel - 12.5mm at the muzzle and 453mm long - was chambered for the new 8x50mmR Lebel cartridges up to the mid 1930s. It has a one in 25cm (9.5") four-grooved left-hand twist. The groove and the land diameter are 8.3 and 8mm respectively. Note that the barrel stamped 'N' is for .325/.327" projectiles and not for the common .323". Two barrel bands hold the barrel onto the stock: one with a round sling swivel and the other at the end of the stock with a bayonet lug and an offset stacking hook (quillon) for standing a trio of carbines upwards.

The bolt

The Mousqueton has a 90-degree turn-down bolt handle, while the Berthier had a straight one. The bolt can only be removed from the receiver by unscrewing the large slotted screw on the bolt body then rotating clockwise the bolt-head out of the bolt body now in three main parts: the bolt head with the extractor and two vertical lugs; the bolt body with the bolt handle, the bolt head screw, the firing pin with a core spring and hammerless cocking piece; and the cocking piece that is disconnected from the bolt body by pressing the firing pin against a wooden surface and turning the bolt end knob freeing the firing pin and main spring. The bolt is beautifully manufactured and



The rear-sight enclosed into the hand-guard and the window exposing the serial number.

The Berthier Mousqueton Mle M16

comprises only eight parts. The pear-shaped bolt handle is a black finish, while the bolt body is clean polished steel.

The sights

The tangent rear-sight is graduated from 200 to 1000m and extended by a ladder-sight from 1200 to 2000m for volley fire. The first V-shaped notch was replaced with a square U-notch. The trapezoidal front post sight welded 10mm before the muzzle is 4mm wide at the top with a shallow V-groove in it to allow for accurate shooting. The line of sight is 35cm long. The effective firing range is given to be about 200 to 250m.

The bayonet

The different Berthier versions were fitted with blade (Mle 1892) or spike bayonets.

The markings

The serial number is on the left side of the wooden hand-guard, repeated on each major part and stamped on the buttstock left side and left side of the receiver. The barrel manufacturer (MA C - Châtellerault, MA T - Tulle or MA P - Paris) and manufacturing date and other control stamps appear on the chamber. But the most important marking is the 'N' stamps on the receiver ring and

the chamber, indicating that the chamber was re-reamed (1932) to accept the 'balle' spitzer projectile N (8mm M 1932N), which has a larger diameter (.325, .327) compared to the early balle M and D (.323).

The buttstock is also embossed with the serial number and often a dated manufacturer seal. When removing the buttplate, you will find the stock manufacturer stamp embossed and a 2x8cm hole to safely carry messages.

The safety

Like all French service rifles up to WWII, the Berthier had no safety device, but only an early half-cock notch, which was soon removed because too many soldiers had forgotten to remove the safety catch during battle. Also, a safety on a service rifle was an added manufacturing cost that the French Government of the time would not consider: hence saving on life and on costs.

The cartridge

In 1884, the French chemist Paul Vieille invented and patented the modern nitrocellulose-based smokeless gunpowder, which was three times more powerful than black powder by weight and leaving little residue. Two years later, the French Army adopted a smallbore/smokeless powder >



The 8x51mmR Lebel 'Balle M' 1886, left, 'Balle D' 1898 and 'Balle N' 1932, shown with a Lebel case.

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ammunition. This was the 8x50R Lebel for the Lebel 1886 imitated by Switzerland the same year, Germany and Austria (1888), Italy, Japan and Russia (1891), the US (1892) and Britain (1895).

All Berthiers up to 1932 and after used the 8x50R Lebel ammunition. The 1886 truncated-cone-shaped, 51mm-long 8x50R rimmed case was initially loaded with a 232-grain flat-nose, lead-cored cupronickel jacketed bullet ('Balle M') propelled by smokeless powder at 628mps. It was then replaced in 1898 by the first military spitzer boat-tailed mono-metal turned-brass or copper 198-grain bullet ('Balle D' at 750mps) used also for the Hotchkiss and Chauchat machine-guns.

It was ultimately upgraded to the cartridge Modèle 1932N, with an improved spitzer boat-tail, lead-cored and cupronickel-over-steel jacketed 232-grain 'Balle N' (700mps, mostly for machine-guns) with a reinforced neck case diameter of .357" instead of .347" for the early ammunition. The firing spring was reinforced and the sights modified to accommodate the new ammunition's ballistic: a logistic nightmare. The available 8x51R Lebel PPU-Partizan case and factory ammunitions (Ref. A-417, 700mps) use a 200-grain FMJ boat-tail .327 bullet (Ref. B-417). In any case, do not

shoot vintage 'N' or factory ammunition in any Berthier or Lebel barrel and chamber not stamped with an 'N'.

At the range

The Berthier Mousqueton M16 comes fast to the shoulder, with the supporting hand comfortably placed in front of the magazine. After a necessary barrel clean-up, I tested my Mousqueton M16 using reloaded PPU-Partizan cases with LR210 Federal primers and 8mm Hornady 195-grain bullets (.323, ref. 3236) propelled by 45 grains of ADI 2206H, not crimped, with an overall length of 71mm, leaving a staggering free-bore of 7mm. This free-bore is likely to accommodate the longer 232-grain service 'balle N'. The average velocity I measured with my Berthier M16 is about 649mps (SD 2.9mps, five shots).

You may use undersized .323 projectiles in any Berthier stamped or not stamped 'N', but accuracy may suffer. The first test target using the .323 Hornady projectile certainly confirms a poor accuracy just acceptable for a service firearm. This may be improved using other bullet brands and diameters. However, with my reloading, my sight on 400m and with some practice, I hit a 50cm-diameter gong target at 400m four times out of five shots.



The Berthier Mousqueton M16 bolt with the five-round pack-charger.

The Mousqueton M16 rate of fire is reported to be about 20 to 25 rounds per minute with a bit of practice as I found the pack-charger difficult to load with cartridges and then operate, but again, practice helps. I also remember my father saying the Mousqueton recoil was fierce. He was right...you will get a kick if the Mousqueton is not properly shouldered and a stunning muzzle blast too.

In closing, I am happy to reconnect with my father's memorabilia and learn more about his Mousqueton - a fine and little known carbine that would still do well these days for large feral hunting and possibly be used in Combined Services Rifle competitions. ●



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