

NZART ID: 82, Arm Type: Rifle, Date of Draft: (V1) 1 August 2012, Compiled by: John Osborne & Phil Cregeen

Pattern: 1858 Hay Medium Enfield Rifle Introduced in to NZ Service: 1865, Withdrawn 1880 to 85

Makers: Hollis & Sheath, Isaac Hollis & Sons, Tower, Calisher & Terry

Calibre: .577 in, 25 bore, Bore: 3 groove progressive depth rifling RH twist 1turn in 48 in.,

Barrel length: 36.0 in. OA Length: 51.75 in. Weight: 9 lb 9 oz. (4.4 kg)

Type of Action: percussion muzzle loader, single shot

Magazine: None, Sights: rear sight bed to 400, leaf to 1,150 yds., foresight barleycorn on fixed block.

Bayonet: Pat 1853 Socket with slightly enlarged socket bore to accommodate larger diameter barrel.



Major General Charles Crawford Hay was appointed the first Inspector General of Musketry and Commandant of the Hythe School of Musketry from 1854 to 1867. Hay carried out extensive experimental shooting even up to a mile and found that the 25 bore Pattern 1853 39" barrel three band Enfield Long Rifle shot reasonably well in all conditions with its three groove, progressive depth 1 turn in 78" twist rifling. However, the accuracy obtained from the 1 in 78" twist 33" barrel short "two band" rifle was only fair and the accuracy from the 24" barrel Artillery Carbine and 20" Cavalry Carbine also with 1 in 78" twist was poor.

Hay proved in 1857 that a barrel length of 36" gave the same muzzle velocity as the 39" barrel using the standard British Military issue cartridge. After extensive trials Hay determined that a rifling twist of 1 turn in 48" in the 25 bore gave good accuracy from all barrel lengths with their varying muzzle velocities (the longer the barrel up to 36" the higher the muzzle velocity), even the lowest velocity from the 20" barrel cavalry carbine with 1 in 48" twist rifling was still able to rotate the projectile fast enough at the lower muzzle velocity to stabilize it and achieve relatively good short range accuracy.

Hay also found that the rear V sight on the 1853 Pattern Long Rifle was too close to the eye for clear focusing and moved the rear sight forward. By shortening the barrel length to 36" the rear sling ring attachment needed to be moved back from in front of the trigger guard to midway between the butt and the trigger guard. Hay also recommended the furniture be made of bronze (gun-metal) rather than brass or steel.

New Zealand service

In 1865 the New Zealand Colonial Government placed an order for 5000 Enfield Long Rifles and Bayonets with its London agent. Unfortunately there were no surplus arms available in England and the agent recommended that the order be placed for the superior 25 bore Hay Pattern Enfield Rifle. The NZ Colonial Government agreed and the order was placed with the Birmingham Gun makers Hollis & Sheath. A second order for another 5000 Hay patterns followed but Hollis & Sheath could not supply, so the order was given to Calisher & Terry who subcontracted out to other gun making firms, many of these rifles were assembled at the Tower. The New Zealand Government continued to buy more Enfield Rifles and Carbines as available including Long & Short, Artillery and Cavalry carbines and Terry Carbines

In August 1869 a comprehensive return of arms and ammunition (no Snider Enfield's listed) was prepared for the Select Committee. The return showed the arms and ammunition on issue and in store in the Colony of New Zealand to the Armed Constabulary, Militia, Volunteers and Native Auxiliaries. These included over 20,000 serviceable 25 bore Enfield rifles and carbines (including Hay pattern medium rifles, the principal arm, Long, Short (sword) rifles, Artillery and Cavalry Carbines) and included 1763 Terry 30 bore percussion breech loading carbines. There were over 3 million rounds of Enfield Rifle ammunition and half a million rounds of Terry Carbine ammunition. This return of arms also listed the arms issued to individual friendly Maori and included Tupara (double barrelled guns).

On 16 February 1869 500 Hay Pattern Medium Enfield Rifles were sent to England for conversion to the Snider Breech Loading Mark III Action these arrived back in NZ in November 1869 and were issued to the NZ Armed Constabulary in Napier and Taupo Districts and the Garrisons on the Napier – Taupo Road. The breech loading Hay Pattern Snider proved not to have the long range accuracy of the muzzle loading Enfield Rifles, but the Breech Loading Hay Snider could be reloaded and fired much faster than the Muzzle Loading Enfield. The Snider ammunition delivered equally as good ballistics and accuracy from the 30.5" barrel Snider Enfield Short Rifle with 5 groove 1 in 48 twist rifling compared to the 33.5" barrel Hay pattern Snider and with the added advantage the short rifle could be fitted with a saw back sword bayonet which was more suitable for New Zealand's bush environment.

The Hay Pattern Medium Rifle was the most accurate of all muzzle loading Enfield Rifles. They were used by all Australasian Colonies competitors at the first (and last using muzzle-loaders) Australasian shooting championships held in Victoria in 1872. New Zealand was placed 3rd.

Most of the New Zealand Hay Pattern Medium Rifles were traded as part exchange for replacement Snider Short rifles (often referred to in New Zealand as Sword Rifles) and most of the 500 New Zealand Hay Patterns converted to Snider were later altered into carbines for use by the school cadets.

By 1882 only 914 Enfield Rifles (type not specified) were on issue with a further 10,553 held in stores. This had reduced to 256 Enfield Rifles held in stores by 1884 and none held in 1885 (1).

Typical Marking



Hollis & Sheath Lock



Butt Tang



Tower Lock



Proof marks



Rear sight leaf



sight bed

Note: v notch in top of leaf for 1150 yds

NZ marked Hay Pattern 1858 observed to date.

Hay Pattern				
Arm	NZ Marked	Maker	Dated	Serial No
Hay Pat 58	NZ 398			
Hay Pat 58	NZ 2626	Hollis & Sheath		
Hay Pat 58	NZ 2111	Hollis & Sheath		2074
Hay Pat 58	NZ 2537	Hollis & Sheath		
Hay Pat 58	NZ 2555	Hollis & Sheath		2887
Hay Pat 58	NZ 1517	Hollis & Sheath		
Hay Pat 58	NZ 598	Hollis & Sheath		
Hay Pat 58	NZ 2508	Hollis & Sheath		
Hay Pat 58	NZ 2274	Hollis & Sheath		
Hay Pat 58	NZ 1598	Hollis & Sheath		
Hay Pat 58	NZ 1993	Hollis & Sheath		
Hay Pat 58	NZ 4669	Isaac Hollis & Son		
Hay Pat 58	NZ 4201	Isaac Hollis & son		
Hay Pat 58	NZ 3000	Isaac Hollis & Son		
Hay Pat 58	NZ 1027	Isaac Hollis & Sons		
Hay Pat 58	H NZ 588	Tower	1864	
Hay Pat 58	NZ 252	Tower	1865	
Hay Pat 58	K/NZ/341	Tower	1865	
Hay Pat 58	H/NZ/799	Tower	1864	
Hay Pat 58	I NZ 955	Tower	1865	842
Hay Pat 58	G NZ 340	Tower	1864	

Note: Hollis & Sheath became Isaac Hollis and Sons from 1861

Acknowledgements: Information and photos-John Osborne, John Carter, Phil Cregeen,

References: Hay 1858 Pattern Enfield Rifle by John Osborne

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