



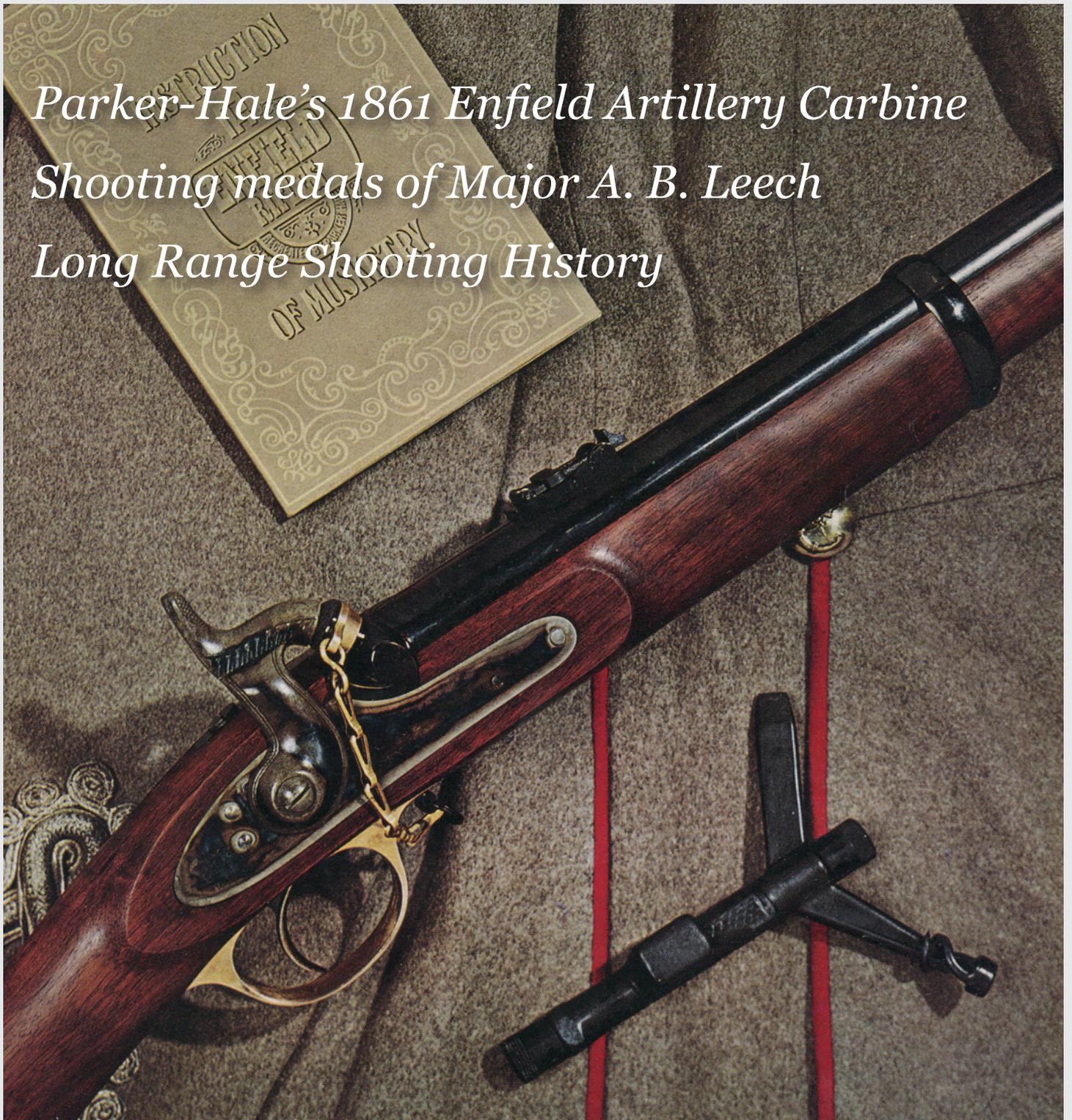
Research Press Journal



Issue 10 | Winter 2020/21

www.researchpress.co.uk

*Parker-Hale's 1861 Enfield Artillery Carbine
Shooting medals of Major A. B. Leech
Long Range Shooting History*



Research Press Journal

Editor: David Minshall

journal@researchpress.co.uk

Firearms

- Long range rifle fire. Long range target rifles. British military longarms. Small arms trials. Ammunition. Accessories. Gunmakers.

Marksmanship

- Military marksmanship. The art of shooting. Long range muzzle loading. National Rifle Association. Creedmoor and the international matches.

19thC Riflemen

- Those who pioneered the sport of target rifle shooting from the muzzle loading and into the black powder breech loading era. Biography.

Rifle Volunteers

- The Volunteer Force was established in 1859. From 1881 territorial regiments included regular, militia and volunteer battalions.

www.researchpress.co.uk

© 2021 Research Press



While every effort is made to trace copyright holders, we may on occasion have failed and apologise to anyone whose rights may have been infringed.

Contents

Issue 10 | Winter 2020/21

- 3 Priming**
News, Events, People & Places
- 4 A Lecture on Military Rifles**
by T.F. Fremantle
- 6 The Remington Rolling Block**
by Matthew Billy
- 9 Shooting Medals awarded to Major A. B. Leech**
by David Minshall
- 13 Long Range Shooting: An Historical Perspective**
by W.S. Curtis
- 24 Parker-Hale's 1861 Enfield Artillery Carbine**
by David Minshall
- 32 The China Cup 1864**
by Nick Leaper

On The Cover

The cover image is that of *Guns Review* magazine, Volume 13, Number 2, February 1973.

Editorial comment at the time noted:

“Our cover picture this month shows Parker-Hales's recreation of the 1861 Enfield Carbine which is supplied complete with the combination tool, snap cap and chain (also illustrated). Without a doubt the finest reproduction long arm we have seen.”

Priming

News, Events, People & Places

Long Range Muzzle Loading in the UK, 2021

The Long Range Rifles Branch of the Muzzle Loaders Association of Great Britain have published their Calendar of Events for 2021. This is a combined series of matches with the MLAGB Mid and Long Range National Rifle Championship Matches.

The calendar currently includes a full programme of events for military and match muzzle loading rifle. *Rescheduling, postponement, or cancellation of dates may be necessary at short notice due to changing COVID-19 measures.* Please keep up to date via the Branch web site: www.longrangerifles.uk.

All events are at the National Shooting Centre, Bisley, Surrey, UK.

News from Arizona

The 'Desert International Black Powder Long Range Championship' is scheduled March 3rd through March 11th, 2021 at Ben Avery Shooting Facility, Phoenix, Arizona. There are three categories; Muzzle Loader, Cartridge Rifle and Vintage Sniper. Shooting at 500 - 1000 yards. See:

<https://azmuzzleloading.com/index.php/long-range/>

NMLRA's Terpstra/Swallow

Long Range Match - 800, 900, 1000 yards

Date: June 12-13, 2021, Camp Atterbury, IN.

Rifles: Any safe original or reproduction traditional muzzle loading or cartridge style firearm in the mid to late 1800's era of International Rifle Matches shooting black powder.

Course of Fire: Five relays over two days. 800, 900, and 1000 yards on Saturday. Two 1000 yards on Sunday. Ten shots for score at each relay. Unlimited sighters, last three converted for score in reverse order. Pair firing, one hour for two shooters. Targets are 6 x 10 ft.

Note that pre-registration is required.

For Match Information see:

www.researchpress.co.uk/index.php/news/2021-nmlra-longrange

Bill Curtis



Regular readers of this *Journal* will be familiar the work of Bill Curtis, antique arms & militaria shooter, collector and historian. Bill passed away peacefully on 4 January 2021. He served with the Royal Artillery, worked in insurance,

joined the Muzzle Loaders Association of Great Britain in 1956 and held various posts within the Association, represented his country at home and abroad in numerous international muzzle loading championships, was the British representative on the founding Muzzle Loaders Associations International Committee, served on the NRA(UK) Council and was a curator of their museum. On retirement he established his own publishing house, W.S. Curtis Publishers Ltd. His mission was to reprint rare books that were significant contributions to small arms history and shooting.

Bill was a prolific collector, not only of muzzle loaders, but bayonets, powder flasks, NRA memorabilia, early cartridges, Victorian gunsmithing tools and literally anything to do with the Crimean War. He had a library on muzzle loading small arms and shooting that is widely regarded to be unrivalled anywhere in the world. He was always keen to use it too, he spent literally decades of his life answering questions and helping others with their own research. The pursuit of knowledge and preservation of the past drove him and I think he inspired many in the same vein too; the latter was certainly true for me.

I knew Bill for over 20 years, corresponded with him, chatted with him and visited often - his council and friendship will be greatly missed.

Bill is survived by his wife Mary, and their only son Reg (*whom I thank for some of the preceding detail*).

David Minshall

A Lecture on Military Rifles

T.F. Fremantle

First published in *Arms & Explosives (London)*,
1 April 1905,

The subject of military rifles now occupies so much of the attention of the British public that it is not surprising to find a reflection of this interest in the proceedings of the Royal United Service Institution. Major the Hon. T. F. Fremantle delivered a very interesting lecture before this society on the 28th ult. There was an excellent attendance, and Major-General Sir Thomas Fraser occupied the chair. It is evident from the arrangement of the matter prepared by the lecturer that he specially laid himself out to consider the particular points of rifle construction which have been the subject of press comment during the past year or so. For instance, on the subject of length, the lecturer pointed out that from the Snider, 4 ft. 7 in. in length, to the new short Lee-Enfield, 3 ft. 8 in. long, there has been a progressive tendency to diminish the same. Hence we must not regard this as in itself a retrograde step. On the subject of the weight of military rifles, the following comparisons of recoil were put forward by the lecturer:

	Weight	Velocity of	Energy of
	<i>lbs. ozs.</i>	<i>ft. per sec.</i>	<i>ft. lbs.</i>
Snider	9 1	12.05	20.42
Martini-Henry	9 0	13.85	26.11
Lee-Enfield	9 4	9.19	11.9
L.-E. Short Rifle	8 2 1/2	10.37	13.4

It is interesting to note that this is the first occasion on which these comparative figures have been published.

When comparing the weight of the various military rifles in service use, we find that the new British rifle stands at the foot of the list with that of Austria, Italy, Roumania and various other 6.5mm. mechanisms next, while Germany, with a 9 lb. rifle, stands at the midway point between 8 and 10 lbs. On the subject of breech mechanism the lecturer pointed out that Great Britain

appeared to be armed with a rifle requiring a very low service pressure. Some interesting observations were put forward in considering the relative advantages of rim and rimless ammunition. Cartridges having rims take up more room than those without, in packing and in the magazine, while in addition to this they are more liable to cause jamming of the cartridge when feeding into the chamber. The general objection to the rimless cartridge, that they have nothing but the taper at the neck to prevent their being forced too far forward into the chamber, is to some extent met by the fact that they are held in place by the extractor hook. The Japanese have adopted a cartridge case grooved for the extractor, having also a very narrow rounded rim projecting enough to give a bearing in the chamber, but not enough to prevent one cartridge sliding over another in feeding up into the magazine. The lecturer seemed to think very highly of this compromise, which though not a new invention, appears to have advantages where magazines are used in combination with clip loading.

The following table of dangerous zones for an object 3 ft. high at 1,000 yards, affords us a sound explanation for the favour with which Major Fremantle undoubtedly regards the high velocity of the 6.5mm. or .256 cartridge.

With the	Enfield	to within	6 yards one way	or the other.
-	Martini-Henry	-	8.5	-
-	.303	-	13	-
-	.256	-	15	-

Whether or not this would be a satisfactory cartridge for the British army must be determined by considerations of the demand for greater stopping power when dealing with the savage races which a colonising power is more likely to encounter than a continental nation. This of course raises the question whether we can increase the velocity while retaining the .303 bullet, and the lecturer gave many excellent reasons for the adoption of such a course. It was nevertheless clear that he regarded .256 calibre as the handy and efficient military cartridge for all-round work. Considerations of weight and recoil must undoubtedly be taken into account in deciding such a question. In speaking of pressure, the lecturer pointed out that great strength of breech mechanism

was desirable in a military weapon, in order that the necessary velocity could be obtained with an absence of so high a muzzle pressure as would disturb the flight of the bullet on emerging from the bore. While Major Fremantle considers the .303 rifle, with a well-made barrel and properly designed ammunition, capable of making quite as accurate shooting as the best of the continental models, he is of opinion that the new short rifle, as produced in the ordinary run of manufacture, does not attain the standard of behaviour of the experimental patterns.

The following interesting comparative table, showing the extreme distances to which the rifles of various countries are sighted, was submitted by the lecturer:

United States (1898 Krag-Jorgensen)	...	1,800 yards
Denmark	2,078 yards
Russia	2,096 yards
Austria, Bulgaria, Greece	2,132 yards
Belgium, France, Germany, Holland, Italy, Japan, Roumania, Spain, Switzerland	2,187 yards
Portugal	2,406 yards
Great Britain	2,800 yards

As regards rapidity of fire with automatic rifles, it is well known that where the recoil is enough to shift the alignment of the barrel, the time necessary to recover the aim much limits the possible rapidity. Consequently the rapidity of fire over a measured period of time is not materially greater than with an ordinary turn-bolt mechanism. In the course of the discussion which followed the lecture, it was pointed out that the automatic rifle was nevertheless a very advantageous contrivance, because it obviated the need for removing the weapon from the shoulder, and thereby enabling a succession of shots to be delivered in a far shorter time than with an ordinary mechanism. If, therefore, an automatic weapon of sufficiently simple design could be produced, it would be likely to be adopted by military nations. Considerations of cost and increased difficulties in the supply of ammunition, presuming that the automatic rifle would consume more rounds in a given time, would not be allowed to stand in the way of its adoption. But in the opinion of the lecturer the time is not yet ripe for the introduction on a practical

scale of this class of weapon. Meanwhile, the best opinion decidedly leans towards the use of velocities from 2,300 to 2,400 ft. per second, and it is possible that even these figures may be notably enhanced. Major Fremantle is, however, of opinion that these changes are likely to be accompanied by the abandonment of calibres larger than .256. Moreover, he demands from the bolt action ample resisting power as provided by lugs placed at the head of the bolt, with a weight of rifle not much less than 8.5lbs. Accompanying these changes the cartridges should, of course, be practically rimless.

All we can say in summary of this lecture is that the programme of reform which Major Fremantle lays down as most desirable, involves nothing more than the adoption of improvements in our own arm for which we have ten or fifteen-year old precedents in the weapons of foreign nations. Our match rifle enthusiasts, whose number but little exceeds 100, and of whom the lecturer is a shining example, are probably as a class the most highly trained and most expert marksmen in the entire world. By reason of the refinements of sighting they use, and the long distances at which they commonly shoot, they have more knowledge of military rifles than anyone using ordinary service sighting can possibly acquire. With such splendid facilities for expert testing, it is a pity that some of the more obvious lessons taught by match rifle shooting cannot be put into practice.

The Remington Rolling Block

Matthew Billy



I have always wanted to own an original Model 1841 Mississippi rifle or 1863 Remington (Zouave) rifle, but my main passion has always been for the Remington rolling block which usually stops me from buying one or both of the above rifles. Now I can say I have the best of both worlds, a Model 1841 Mississippi rifle converted to the Remington rolling Block System. This rolling block rifle does have some issues, it's just like the island of misfit toys in the story of Rudolph the Red Nose Reindeer. If it's a misfit rolling block it will likely end up at my house.

The rear buttstock normally found on the Mississippi rifle is missing on this rifle it was either broken or lost and was replaced with the buttstock off of a Potsdam musket. Also at one time it had a long range rear sight added to the rear of the barrel and it is missing and was replaced with a single leaf rear sight. The sling swivels on the trigger guard and front barrel band have been removed. It looks like all the metal parts were reblued at some point in time. The

gun was listed as being chambered in 58 rimfire, which is quite possible because some of the 54 calibre rifles were rebored to 58 calibre and a 58 rimfire cartridge was available at the time that this conversion was done. When I got possession of the rifle I quickly learned that it was not chambered in 58 rimfire, the Mississippi barrel used for this conversion still was in its original 54 calibre with seven lands and grooves in the barrel. The rifling extended from the front of the barrel all the way back to the end of the breech section of the barrel. The chamber of the rifle was then reamed out to except the 56-56 Spencer cartridge.

In an article from the *Man at Arms* magazine written by Ed Hull about Remington converting military muskets to the Remington system, he states about 1500 converted Model 1841 rifles were sold outside of the USA. The rifle in his collection is 48 inches long and has a .54 calibre barrel 32 inches in length, retaining the original 7-groove rifling. This rifle is also chambered in 56-56 calibre. At the time of his article in the



The Remington Rolling Block



mid 2007 or 2008, he knew of two existing examples that were in “used “condition and having no original finish remaining on the steel parts. Both rifles exhibit the muzzle being turned down to fit the Model 1835/40 bayonet and both have the later model long range rear sight on them. My rifle also has a barrel length of 32 inches, but the end of the barrel was not turned down. It does have the bayonet lug at the same position on the bottom of the barrel as his gun and also matches the location of the bayonet lug on the converted Gillam & Miller rifle in my collection. The brass front sight was removed from the barrel and was then reattached to the front barrel band.



Matthew Billy has been collecting military rolling block rifles, carbines and pistols for some years now. Over the years he has also collected vintage photographs of soldiers with their Remington rolling block arms. Through this column Matthew will be sharing some of his collection and knowledge on the subject.

Editor



Here is a photograph that is in my collection and that George Layman used in his book *“The All New Collector’s Guide to Remington Rolling Block Military Rifles of the World”*. The photograph can be found on page 227.

George notes that it is a rare 1907 photograph that shows a group of Filipino Soldiers armed with Spanish rolling block rifles. The rifles may be chambered in .43 Spanish or .43 Reformado cartridge.

The soldiers are wearing an assortment of American soldier uniform parts, including hats, leggings and Mills cartridge belts.

Their officer is located in the back, left of center of the group of soldiers.

∞



Below: Typical Spanish rolling block rifles. The bottom rifle is an early rifle made by Remington with barrel band springs. The top rifle is a later model made with out barrel band springs.



Shooting Medals awarded to Major A. B. Leech

David Minshall

An important collection of shooting medals awarded to Major A. B. Leech was sold by Dix Noonan Webb, London, on 12 November 2020 in their auction of 'Orders, Decorations, Medals and Militaria.'

Arthur Blennerhassett Leech (1815-1894) was a founder member of the London Irish Rifle Volunteer Corps, and appointed Ensign in June 1860. He was promoted to Captain in May 1861 and Major in 1865. He was a member of the first Irish team to compete for the Elcho Shield in 1865.

At a meeting of Irishmen chaired by Major Leech, held at Wimbledon on 18 July 1866, a resolution was adopted requesting the Irish gentry to "aid in promoting the national sport of Rifle Shooting, with a view to collecting teams to compete in the Annual International Matches at Wimbledon." It was determined to lend every effort towards two teams of Irishmen. One of these teams, to compete for "The Enfield International Contest", was to consist of twenty men shooting with the arm in use by the Regular Army and Volunteers. This team was to be composed of Irishmen who were Volunteers. The second international match was the 'Elcho Shield', competed for by England, Ireland and Scotland in teams of eight men. This was an 'Any Rifle' competition with each man firing 15 shots at each distance, 800, 900 and 1000 yards.

By 1867 local clubs were forming and in January that year an influential preliminary meeting was held at Dublin, Ireland, for the establishment of a National Irish Rifle Association. At a further meeting in January, Major Leech confirmed that he had drawn up a set of rules for the Irish Rifle Association, which were referred to the council of the association for consideration. The rules were approved at a meeting held on 7 February.

The Association was not in the nature of a rifle club, nor did it intend to interfere with the actions of existing clubs, indeed, a desire was to promote local clubs. It was founded to give clubs, and individuals in localities where no club existed, encouragement and information to ensure progress in the art of rifle shooting, and to stimulate improvements in existing rifles.

During the National Rifle Association annual rifle meeting at Wimbledon, between 1862 and 1872, the Elcho Shield match was won eight times by England and three times by Scotland, then, finally, in 1873 Ireland won. Buoyed by their success in beating England and Scotland, Ireland wanted further laurels. Having enlisted the support of several of the best Irish rifle shots, Major Leech addressed a challenge to the riflemen of America to decide the title to the rifle championship of the world.

The challenge was accepted by the Amateur Rifle Club of New York on behalf of the riflemen of America. The subsequent match at Creedmoor in September 1874 was the first in a series of international competitions fired at 800, 900 and 1,000 yards that took place during the remainder of the 1870s. It is the forerunner of the Palma Trophy match still held today. For a short while long range shooting captivated the world with international press coverage and the shooting medals that were sold in November relate to this period.

Major Arthur B. Leech, 1865. Irish Rifle Team for the Elcho Shield.



Shooting Medals awarded to Major A. B. Leech

The Lot description from the sale follows, with *additional comment* by David Minshall (in italics).

Lot 777 - Shooting Medals awarded to Major A. B. Leech, Captain of the Irish Rifle Team.

- i. Irish Rifle Association Shield, gold (18ct., 20.60g), the obverse embossed with trophies of arms and the coats of arms of the four Provinces, and engraved in the centre 'To Arthur Blennerhasset Leech from The Irish Eight', the reverse engraved 'S. S. Young, Jos. K. Millner, John Rigby, William Rigby, James Wilson, R. S. Joyce, John Lloyd, Edmond Johnson', with top gold riband bar, embossed '1873'.

In 1873 Ireland won the Elcho Shield match for the first time. The named men are the Irish Eight that competed against teams from England and Scotland. S.S. Young used a Gibbs-Metford and the remainder of the team used Rigby muzzle loading match rifles. Ireland could not be presented with the shield at Wimbledon prize giving in July as it had been sent to the Vienna Exhibition. When it finally arrived in Dublin in September there were great celebrations.

The Lord Mayor met a procession that arrived at the Mansion House on 18 September 1873, and the Irish Eight came forward and bore the shield into the House. In the supper-room Major Leech addressed the assembled dignitaries on behalf of the Council of the Irish Rifle Association. The Lord Mayor responded and finally John Rigby presented Major Leech with a miniature in gold of the 'All Ireland Challenge Shield' to mark the team's gratitude for his sustained support.

- ii. United Kingdom v. United States of America Shooting Competition Lapel Badge, gold, silver, base metal, and enamel, in the form of a gold bullet, with laurel branch attached, suspended from crossed rifles, with the Red Ensign and the Star Spangled Banner affixed, and all suspended from a top brooch bar inscribed 'Creedmoor 1874', in G. Meg & Co., London, fitted case.

The international rifle competition that took place at Creedmoor in 1874 was between teams from Ireland (not the United Kingdom) and the United States of America.

In October 1874 Leech was elected an honorary director of the National Rifle Association, on motion of Colonel Wingate. On accepting Leech was invited to attend a council meeting of the Association, at which he was presented with this medal as a souvenir of his visit to America.

- iii. United Kingdom v. United States of America Shooting Competition Lapel Badge, gold (9ct?) and enamel, in the form of crossed flags of the United Kingdom and the United States of America, with 'shaking hands' above, surmounted by the year '1874' with top brooch bar inscribed 'America', in Edmond Johnson, Dublin, fitted case.

The international rifle competition that took place at Creedmoor in 1874 was between teams from Ireland (not the United Kingdom) and the United States of America. Edmund Johnson, a member of the Irish team, was by trade a jeweller.

- iv. United States Centennial Shield, gold (18ct?, 13.29g), by Tiffany, New York, the obverse with a surmounted American Eagle standard, the reverse engraved 'American Rifleman to Maj. A. B. Leech. of the International Irish Rifle Team Sept. 13th & 14th 1876., suspended from a gold globe with bar inscribed 'US Centennial', and top brooch bar surmounted by an American eagle and inscribed 'Captain Irish Rifle Team 1876, in Tiffany, New York, fitted case.

The 'riflemen of the world' were invited by the NRA of America to compete at Creedmoor during the centennial celebrations. Teams from Australia, Canada, Ireland and Scotland accepted the invitation to compete for the Centennial Trophy. Each team member fired 15 shots at 800, 900 and 1,000 yards on two consecutive days, 13 and 14 September.

Shooting Medals awarded to Major A. B. Leech



Image © Dix Noonan Webb

Hammer Price £2,600

A buyers' premium of 24% on the hammer price (plus VAT if resident in, or lots are delivered within, the European Union) is payable by the buyer.

Thanks to Dix Noonan Webb for permission to reprint the Lot description and image. *David Minshall*

Dix Noonan Webb
16 Bolton St, Mayfair, London, W1J 8BQ
<https://www.dnw.co.uk/>

Shooting Medals awarded to Major A. B. Leech

America, scoring 3126, emerged the winners. The remaining scores were Ireland 3104, Scotland 3063, Australia 3062, and Canada 2923.

- v. Gaelic Athletic Association Championship Medal, 39mm, silver, the reverse engraved 'Specimen Medal for Collection given to Major Leech 1885', in J. F. O'Crowley, Cork, fitted case.
- vi. National Rifle Association Director's Shield, silver, unnamed, suspended from a top 'Creedmoor' brooch bar, in fitted case, generally extremely fine and a rare set of shooting medals (lot) £1,600-£2,000

In October 1874 Leech was elected an honorary director of the National Rifle Association, on motion of Colonel Wingate.

Footnote

Sold together with a Sporting Prize Medal, silver, with gold (9ct.) central shield, presumably awarded to the recipient's son, the reverse engraved 'No. 1 Coy. R.G.A. Winners R.A. Inter Coy. Hockey Lt. J. G. C. Leech. 1911-12'; various buttons; a Royal Colonial Institute Fellow's lapel badge; a Diggers' Club lapel badge and tie pin, and other ephemera.

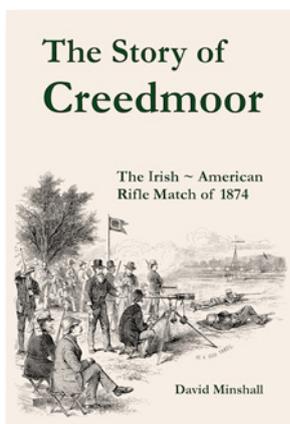


The Story of Creedmoor: The Irish ~ American Rifle Match of 1874

by

David Minshall

ISBN 979-8647289049



The National Rifle Association, barely two years old, was ill-prepared when in November 1873 the 'New York Herald' published a challenge to the riflemen of America from the riflemen of Ireland. Their Creedmoor rifle range on Long Island had opened in Spring that year, and there was growing sporting interest in rifle shooting notably from the Amateur Rifle Club of New York City. In Great Britain their National Rifle Association had been established for over a decade and riflemen regularly competed out to 1,000 yards. The premier 'home countries' long range rifle match between England, Ireland and Scotland, the Elcho Shield, was won for the first time by Ireland in 1873. Buoyed by their success Ireland wanted further laurels, and it was the Amateur Rifle Club that accepted their challenge on behalf of the riflemen of America. The subsequent match at Creedmoor in 1874 was the first in a series of international competitions fired at 800, 900 and 1,000 yards that took place during the remainder of the 1870s. It is the forerunner of the Palma Trophy match still held today. The central story of Creedmoor is told via an extensively annotated article from 1876, the writer's enthusiasm giving a feel for the times and in the lead up to the Centennial Match at Creedmoor that year. David Minshall provides background information on events that lead to the Irish challenge and the 1874 rifle match and concludes the story with details of the follow-up match at Dollymount, Ireland, in 1875. Appendices include a chronology of Creedmoor, correspondence relating to the Irish Challenge and insight into target rifles used at the time. Contemporary illustrations are used throughout.

Order direct from Amazon or via
www.researchpress.co.uk/index.php/publishing

Long Range Shooting: An Historical Perspective

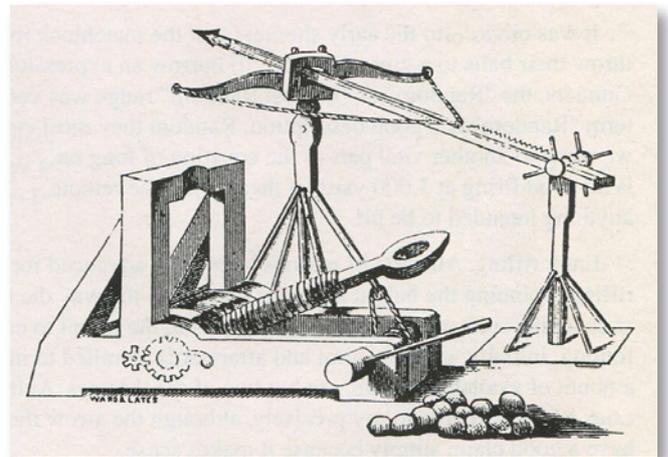
W.S. Curtis

An interest in shooting at long ranges is a subject which lies close to the heart of this writer. Impelled by the ancestral voices of two of his forebears who made gunpowder under the well known name of Curtis's and Harvey and a third who bombarded Sevastopol with 13 inch mortars, he joined the Artillery and spent six years with 25 pounder guns which left him with a taste for long distance lobbing. Civilian life and a necessary reduction in the practical ranges attainable by the order of 90% left him with little choice but Bisley's Stickle-down Range and a limit of 1,200 yards.

This is no treatise on ballistics, the author is neither a scientist nor an engineer and most emphatically not a mathematician. It is really an historical perspective from the earliest times down to the late 19th Century

We must start by seeking a definition of what we mean by "Long Range". This immediately poses the question, "What do we mean by Long?"

In the beginning there was, or so we are led to believe, a proto-man called Homo Erectus. Our readers must, we hope, realise that this expression refers to his stance and not to any particular portion of his anatomy. It would appear that he had learned the art of picking up a stone and bashing his prey with it. One day as "Ugh", for we had better give him a name, took a swing at some passing potential dinner, the stone slipped from his grasp and flew some distance. This had probably happened a great many times in the preceding few hundred thousand years with no more result than mumbled grunts of disgust as the hominid shambled over to recover his lump of rock. But this "Ugh" was a person of genius and distinction possessed of the rudiments of a brain. He connected the rock, its passage through the air, and the thump it made as it landed (possibly on his mate) with a potential for improved destruction of his quarry. Ergo, Long Range is born. This little anecdote serves to establish that "Long Range" means absolutely anything that is a bit further than it was before.



*Ballista and Catapults of Greeks
(Greener 1881)*

We will pass rapidly over the intervening million years or so when the perfection of every form of muscle and stored energy led to the sling, the woomera, the bow, the ballista, the mangonel and all the other numerous engines that the genius of man has devised for the destruction of his fellow creatures.

The form of stored energy that is the subject of this article is chemical – Gunpowder.

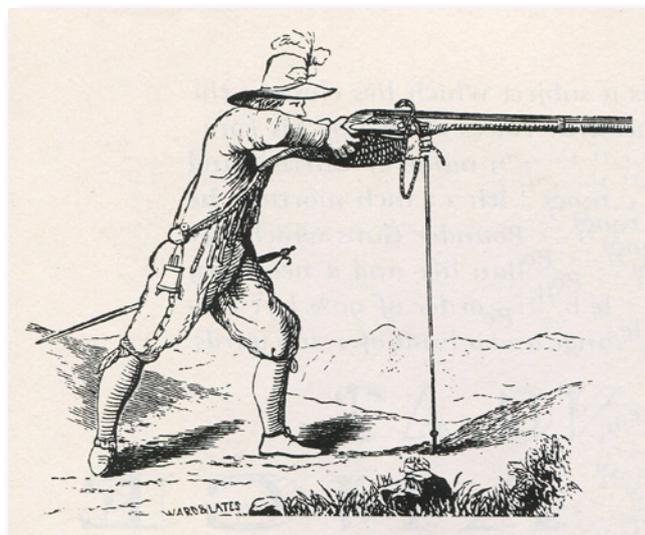
For hundreds of years as powder sought to make its way in the world its potential for long range was rather pathetic. The 15th Century Bowman could outshoot any hand cannoneer and yet the evil smelling, sulphurous and patently hellish (in the medieval sense of the word) material obviously exercised an enormous fascination.

The historical reasons for the decline of the bowmen are many and complex and their economic and demographic causes are not our subject. Suffice it to say that by the 16th Century, demand for soldiers, a shortage of strong peasants trained to the bow, the curiosity of the nobility for new hunting weapons, burgeoning science and the growing number of active intelligences freed by the Renaissance, combined to advance the art or science of Gunnery so that by the 17th Century Europe was ready for the first period of

Long Range Shooting



*Cavalier firing Petronel (after Marianus Jacobus).
(Greener 1881)*



*Spanish Arquebusier of the Sixteenth Century.
(Greener 1881)*

rapid development. The second period was the 19th Century.

The 20th Century, in so far as it relates to guns, rifles and artillery, has advanced little beyond the outbreak of the Great War in 1914. Aircraft, atomic weapons and rockets have seen to that. Today “Long Range” means beyond the limits of the Solar System and tactical, so called “Short Range” ballistic missile systems deliver their warheads for hundreds of miles. Would Sir William Congreve have regarded 500 miles as “Short Range”?

It would be fair, therefore, to define “Long Range” as meaning either “further than before” or “further than the other fellow”, so we will go on to examine some historical and literary references.

The main push behind early gunnery came from the “Great Guns”, siege pieces and pieces of position for the defence of places. Range was not a great object in itself, rather more a matter of hurling large projectiles. Light artillery for the field and the use of anti-personnel case-shot merely extended the range



Zurich Shooting Ground, 1504. (Anne Braun 1981)

enough to avoid the galling fire of infantry. All this was to change dramatically in the 19th Century when small arms suddenly rivaled artillery in range, but we will deal with that later.

The author's main interest these days is in small arms and so, from this point, artillery will not be referred to again except in so far as it affects small arms.

It was obvious to the early shooters that the matchlock muskets would throw their balls to a great distance. To borrow an expression from the Great Gunners, the "Random" or "Utmost Random" range was very great but the term "Random" is a good description. Random they most certainly were, so we come to another vital part of the equation of long range – "Accuracy". It is no good firing at 1,000 yards if there is not the remotest chance of hitting anything intended to be hit.

Enter rifling. All sorts of reasons have been advanced for the invention of rifling. Spinning the ball in a similar manner to the way the flights, when set at an angle, spin an arrow. Cutting grooves in the barrel to catch the powder fouling, initially without spiral and afterwards spiraled to increase the amount of available groove, are but two of the theories. At this distance in time, it is impossible to say precisely, although the arrow theory seems to have a good claim simply because it makes sense.

Rifling is said to have originated in Augsburg around the year 1498 and certainly target practice with the arquebus was common by then. In the early 16th Century there are references to banning grooved barrels because they were unfair. Students of the duel will recognise this problem arising three hundred years later.

By the 17th Century rifles, both breech and muzzle loading, were in fairly common use. During the English Civil War (1640s) there are a number of accounts of sniping by game keepers or park wardens said to have been using rifles. We can assume that ranges to the order of 250 or 300 yards were achieved.

In Europe the hunting rifle was well established and the Schutzenfest was a feature of the recreational scene amongst the Germanic States. This festival almost certainly predates gunpowder and a specimen of a painted iron target dated to 1413 exists from the Free German City of Esslingen. It bears projectile marks but

the nature of the projectiles can only be guessed at.

Thus, by the beginning of the 18th Century we have the riflemen established as persons able to shoot accurately at, by the standards of the day, long range.

During the 18th Century the application of scientific theory based upon observation and experiment expanded rapidly from its 17th Century beginnings. There were a number of treatises of earlier dates, notably that of Nicholas Tartaglia in 1537, followed by Leonard and Thomas Digges in 1571, Diego Ufano in 1614, Robert Norton in 1628 and William Eldred in 1646. These all concerned themselves with artillery and the application of pure mathematics. A good example of the type is John Gray's *A TREATISE OF GUNNERY* published in 1731 which is a perfect example of refined mathematics and quite incomprehensible to this writer (who makes no claim to any mathematical ability anyway).

Whilst these elegant exercises in mathematics were being worked out there were still the remnants of medieval belief best characterised by the Bavarian philosopher Herman Moritz, who claimed, in 1522, that as gunpowder was manifestly a devilish product, the balls flew through the air, hither and yon, impelled by a small demon who sat astride them. It was equally self evident that if the ball was spinning rapidly, not even a demon could stay on it and thus it flew straight.

The great Sir Isaac Newton, in the late 17th Century, led the way into the theory of modern physics but it was Benjamin Robins starting in 1727, who was the first true experimentalist combining observation with theory and who became justly known as the Father of Modern Ballistics. His work on the resistance of the air opened up an entirely new field of research. Hitherto the effects of the air were thought to be so inconsiderable on the movements of a dense object that they were ignored. Indeed, John Gray, in his *TREATISE* of 1731 stated: – "*Tis true indeed the resistance of the air is more sensible, but in solid bodies of heavy metal it is also so very inconsiderable that the error occasioned thereby may be neglected.*" Later, in the same treatise, he permits himself to speculate along the lines subsequently proved by Robins but without imparting any sense of conviction.

Benjamin Robins was a brilliant man who grasped all the fundamentals of ballistics at the same time.

Long Range Shooting

During the course of his experiments on the subject of the resistance of the air at various velocities he noted that the smooth bored muskets he was using showed wild deviations in accuracy. This led to his trials with rifle barrels, the results of which were published in the paper read before The Royal Society on 2nd July 1747. Many people are aware of the most famous extract from this in which he forecasts that the first State to adopt the rifle generally will acquire a superiority unequalled since the invention of gunpowder.

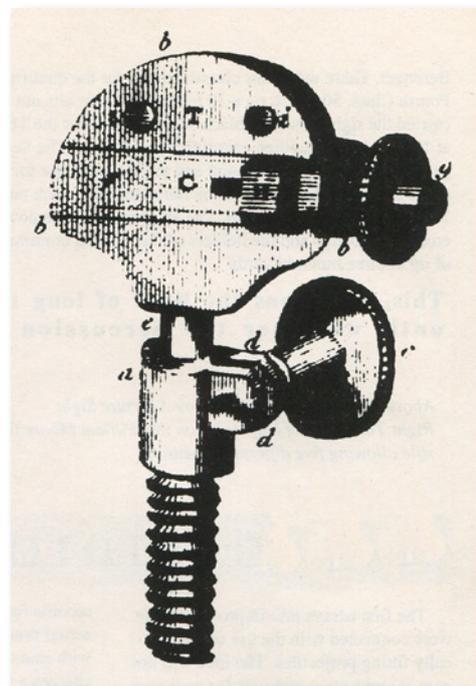
Robins tried his hand at small arms ranges then far beyond anything normally attempted. To quote: "...small rifled barrel piece carrying a leaden ball of near half an ounce weight. For this piece, charged with one drachm [This is the Apothecaries' Measure of 60 grains.] of powder, ranged about 550 yards, at an angle of twelve degrees, with sufficient regularity..." and again "...a rifled barrel piece, loaded at the breech in the English manner. For here the rifles being indented very deep, and the bullet being so large as to fill them up compleatly; I found, that, though it flew with a sufficient exactness to the distance of four or five hundred yards..."

Although he was quoting from the findings of the Bavarian, Leutmann, in the 1720's, Robins postulated the advantages of increasing sectional density and reducing air resistance by the use of an egg shaped projectile. In fact it was nearly a century before these ideas were fully developed and the round ball reigned supreme until the early years of Queen Victoria.

The round ball, however well formed and at whatever velocity it is launched will never be any sort of use beyond four hundred yards. This distance can, therefore, be taken as "Long Range" for small arms up to the 1840s.

On the analogy of the cannon shooting its great heavy ball much further than any small arm, we find that the logical approach was adopted and a class of small(ish) arm appeared throughout the round ball period. This was the wall piece. Generally, in the British Service this was a smooth bore of one inch calibre with a 54 inch barrel which weighed 35 pounds. The ball was nine tenths of inch (giving a windage of one tenth of an inch) and weighed about 1150 grains using a charge of ten drams (275 grains). The accurate range of these was unlikely to have been more than 400 yards although

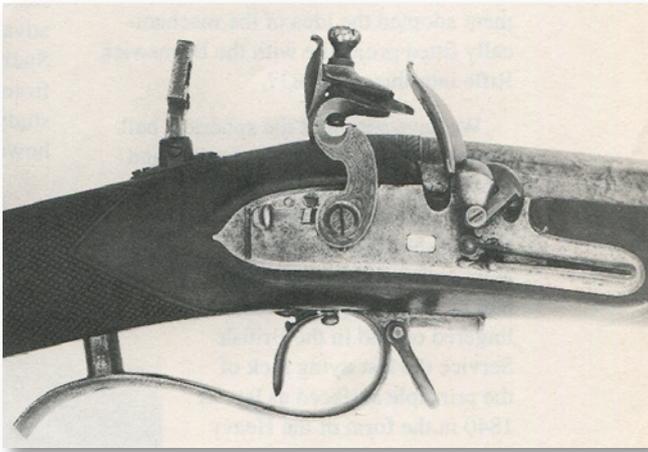
Colonel Mark Beaufoy, [Note that this author has been erroneously referred to in the past as Henry Beaufoy and also Beaufroy] the author of SCLOPPETARIA (1808) mentions on pages 80 and 81 that Swiss wall pieces at half a mile strike an object the size of a man's hat. It must be assumed that these were rifled. In his words "Who, five years ago, when rifles were just coming into notice, would have credited the assertion, one telling him that, with practice, 300 yards would be an almost certain distance?"



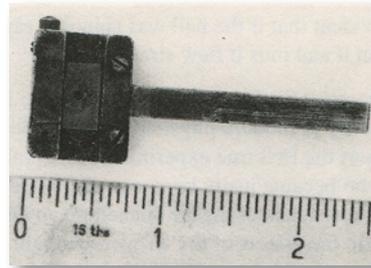
Aperture sight adjustable for wind and elevation. (Colonel Mark Beaufoy)

Ezekiel Baker in his REMARKS ON RIFLE GUNS, Third Edition of 1806 (and later editions) stated - "I have found two hundred yards the greatest range I could fire at to any certainty. At three hundred yards I have fired very well at times when the wind has been calm. At four and five hundred yards I have frequently fired, and I have some times struck the object..."

That unusual man, Colonel George Hanger, Baron Coleraine, who despite his unfortunate later life, had been a capable military man, said in his book TO ALL SPORTSMEN AND PARTICULARLY TO FARMERS AND GAMEKEEPERS (1814) that in the American War, during the 1770's, a prone rifleman shot the horse of Colonel Tarleton's bugler at 400 yards. He spoke of

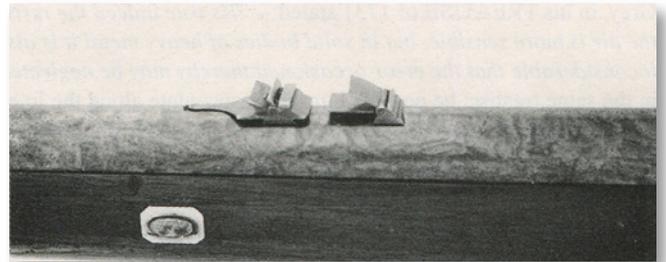


Club Rifle of the period showing aperture sight mounted at the wrist.



Left: The William Moore aperture sight

Below: The range of leaf sights on the William Moore flintlock rifle allowing five different elevations



the need to be able to hit troops in line at 600 yards. He advocated a heavy barrel, a small bore with one turn in the rifling and a large charge.

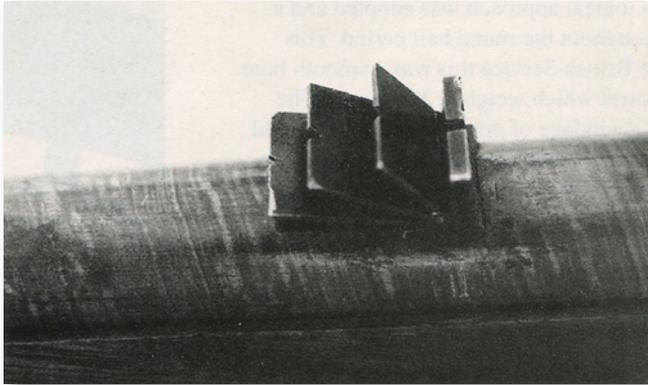
Finally, before leaving the subject of what constitutes “Long Range” in the days of the round ball, we will look at the regulations of The Duke of Cumberland’s Sharp Shooters taken from HELPS AND HINTS HOW TO PROTECT LIFE AND PROPERTY, written in 1835 by Baron de Berenger. There were four classifications for the qualified shot. To achieve the Fourth Class, 50 yards, on a 30 inch target, five hits out of six shots taken off-hand carried the right to wear a black silk cockade. For the Third Class, as the Fourth, but at 100 yards, and a green centre for the cockade. The Second Class fired at 150 yards with three shots off-hand and three from a rest for an all green cockade. To attain the First Class, and still on the same thirty inch target, six shots were taken at 200 yards, but all from a rest. The all green cockade now sports a bronze skull and crossbones badge and the holders of this honour continued their shooting at ranges of up to three hundred yards.

This, then, was the limit of long range until we enter the percussion era.

The first essays into improving range were connected with the use of mechanically fitting projectiles. The idea was not new, it crops up at intervals for well over one hundred years. The ENCYCLOPAEDIA BRITANNICA in the Edition of 1810 discusses at some length the construction of light artillery using spherical ball with studs fitting the rifling. These guns were developed by Doctor Lind and Captain Alexander Blair of the 69th Foot as far back as 1774. The Carron Company were making a one pounder of this description weighing 100 pounds. It was rifled with six semi-circular grooves making one turn in the barrel. To increase their accuracy they were fitted with a telescopic sight incorporating an elevating arc which they called a Collimeter. The British Government adopted the idea of the mechanically fitted projectile with the Brunswick Rifle introduced in 1837.

We have seen that the spherical ball carried its own limitation of range and therefore the only option open was the elongated projectile. In spite of this, the idea of augmenting the weight of the ball by increasing its diameter lingered on and in the British Service the last dying kick of the principle surfaced as late as 1840 in the form of the Heavy Naval Brunswick Rifle. This was .796 calibre (as opposed to the .702 of the army model) with two groove rifling. Fortunately, only one hundred were made of which ninety were actually issued and remained as official stores until the 1860s. Six were used in trials at the Naval Gunnery School,

Long Range Shooting



The unmarked leaf sights of Lovell's Heavy Naval Brunswick Rifle of 1840. 470 yards was the supposed range given by the tallest one.

H.M.S. Excellent. The trial records for these may well still exist. In actual practice, using one of these rifles with exactly duplicated bullets and charges a few years ago, we found that the results were wildly inaccurate at 200 yards. The sight leaves are unmarked on all the specimens that have been seen but they were recommended by Captain Sir Thomas Hastings of H.M.S. Excellent to be marked up to 470 yards. What sort of results could have been obtained at that range is hard to imagine. They might perhaps have been able to land some balls somewhere on a three decker Line of Battle Ship.

The London Gunmaker, Staudenmayer, made air rifles with mechanically fitting bullets before 1820 and this idea was taken up by Captain Norton, an undoubted pioneer in the advancement of long range shooting. Sadly, he suffered throughout his life from a lack of official recognition. A study of his written work suggests that however good his ideas, his methods of promoting them were the probable reason for his lack of success.

A veteran of the Peninsular, Captain Norton was serving in New South Wales and in India from 1815 to 1823 with, one suspects, very little to do. Turning his attention to ballistics, and possibly having a knowledge of Robins's theories, he arrived at the conclusion that elongated projectiles in rifle barrels were the answer. His rifle shells were rounded at both ends and fitted with studs to engage the rifling. He was obsessed with the shell principle, in order to blow up enemy caissons or ammunition wagons at a distance. The experience of

being under the fire of Napoleon's efficient artillery may have had something to do with this. During 1824 he developed the idea in a German made thirteen groove rifle of eleven bore and using this rifle he demonstrated in the Spring of 1826 to the Ordnance Select Committee at Woolwich at 120 yards. The same week he attended Addiscombe, the Academy of the East India Company, and Sandhurst where he gave similar demonstrations. At Addiscombe he blew up an ammunition box in the presence of the entire staff and students one of whom was the fourteen year old John Jacob in his first year there.

Jacob went off to India in 1829 and never returned to England but he must have been very impressed with the demonstration because from 1831, when the young "griffin's" feet touched the ground for the first time after his initial appointment, he experimented continuously with shell rifles and the concept of really long range, by which is meant ranges in excess of 1,000 yards. The Jacob principle is well known; mechanically fitted long heavy projectiles with a rapid twist in a short heavy barrel. It was revolutionary for the day but, it must be said, a blind alley in the story of rifle development, although by the 1850's his practices and the sighting to achieve them had reached 2,000 yards.

It is to France that we must look for the beginnings of the trail that led, effectively, to the later developments of the 19th Century. The French were a growing military and colonial power with interests in North Africa and the Levant. During the conquest of Algeria (which despite modern sentiment was necessary for the suppression of the Algerians, as evidenced by the Bombardment of Algiers in 1816 when a combined fleet from the civilised world, including vessels from that great anti-colonial Republic, the United States of America, were forced to act in exasperation at the depredations of the Corsairs), the French found themselves at a disadvantage against the long barrelled North African Snaphances and Flintlocks used by the tribesmen which easily outranged the French service muskets of the Waterloo type. The Arabs were practising "Long Range".

The French had almost abandoned the rifle during the Napoleonic Wars. Their equivalent to the Baker was the Carabine de Versailles which was basically just a typical German Jaeger rifle. Accounts of the use of these are sparse although Colonel Peter Hawker in his

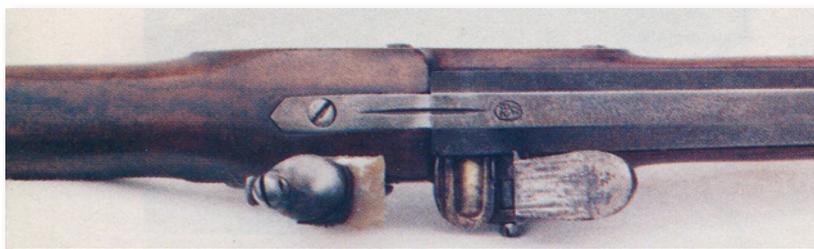
JOURNAL OF A REGIMENTAL OFFICER, published in 1810, claims that the wound he sustained at Talavera in 1809, and which finished his active service career when still a Captain, was caused by a rifle ball.

The French campaigns in Algeria lasted from 1830 virtually until De Gaulle decided to abandon the place in the 1960s. The need for rifles was obvious. The Carabine de Versailles was hopelessly obsolete even assuming that there were any left in the arsenals.

As far back as 1826 Gustave Delvigne, a French Infantry Officer, was seeking a means of reducing or eliminating the windage in the smooth bore musket. In all the service arms of the period a large allowance was made for this. In the British service a ball of 14½ to the pound was used in a barrel of the diameter of 11 to the pound. This was a difference of some 50/1000 of an inch and although the paper of the cartridge took up much of it, a lot of gas escaped around the ball with a consequent loss of both velocity and accuracy. Delvigne devised a method whereby the interior of the breech was made a smaller diameter than the bore and when the ball, which was a loose fit in the barrel, came to rest on the shoulders of the constricted area, a couple of blows with the iron ramrod forced it to expand until it was a tight fit. The resultant loss of the windage enhanced the velocity of the ball but the misshapen ball had become a poor shape in ballistic terms.

At the same time he was also applying this idea to the rifle with a view to avoiding the problems of the old system, called by the French “Balle Forcée”, where the patched ball was driven into the barrel and forced to take the rifling on the way down by blows from a mallet or a heavy iron ramrod. His first rifles on this system were offered to the Land Artillery and contemptuously rejected, but on 29th September 1829 his rifle with a calibre of .590 (15mm) was sent to Toulon by the order of the Minister of Marine for naval trials.

Various modifications were introduced by Poncharra, Thiery and Brunéel in which the ball was supported on the shoulder of the breech by wooden wads or sabots to prevent its being deformed too much. These systems did not last for long and gave way to the Pillar Breech designed by Thouvenin. In this a



The rudimentary groove in the breech forming the back-sight of the Carabine de Versailles, Modelle 1793.

chamber was formed in the breech, not by constricting it, but by inserting a vertical pillar into the breech face around which lay the powder. The ball was similarly expanded by being crushed between the ramrod and the pillar. This system was used by other countries. For example the Prussian Model 1810 Rifle was converted to percussion with a new breech incorporating a pillar and renamed the Model 1835. In the British service the .577 Rifled Cavalry Pistol Pattern 1856 had the pillar although no other service arm was to have it and it was removed from the pistols by 1860.

The importance of the Thouvenin breech only becomes apparent when it is considered in conjunction with the Tamisier bullet for here we see a bullet that is recognisably like the American Burton which achieved such prominence in their Civil War and is used today by almost everyone who shoots the Enfield or Springfield rifles. Captain Minié applied the principle of the expanding cup to the Tamisier bullet and thus removed the need for the pillar. The finishing touch to this form of the expansive bullet came from Colonel Boxer with the boxwood (later baked clay) plug before Whitworth and Metford's long bullets expanded themselves without the aid of plugs by the inertia of their mass.

The French rifles of this period show a sudden flowering of sights suitable for long ranges. Around 1840 a hinged bar which could be raised to the vertical was pierced with a series of holes marked for ranges up to 600 metres. However, in 1846, the Carabine Modele 1846 suddenly sprouts what must be regarded as the first modern sight. It is that seen subsequently on all our service arms from the 1851 Minié to the Long Lee Enfield, but like the 1851 Minié it has no side protection such as was introduced with our Pattern 1853. The

Long Range Shooting



Development of French sighting systems.

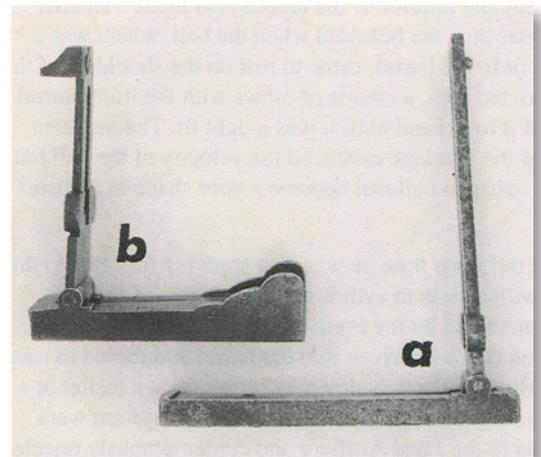
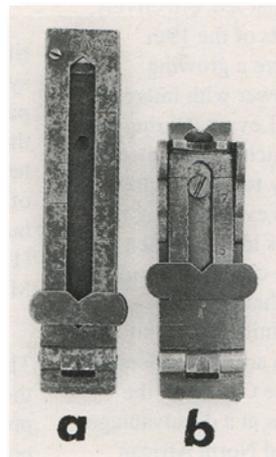
From Right to Left: Breech loading Fusil de Rempart Modelle 1831 / Fusil de Rempart Modelle 1840 / Carabine Thierry Modelle 1840 / Infantry Rifle Modelle 1846.

The same rifles as left, with sights erected.

recorded range on the top of the 1846 sight bar is 1,000 metres or 1,100 yards, the slider moves between 200 and 900 metres and the 100 metre sight is taken with the bar laid flat. A true “Long Range” sight has now arrived.

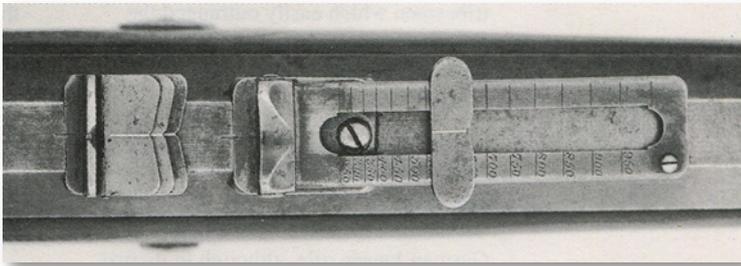
These developments in the late 1840’s sparked off a fever of imitation, speculation and experimentation accompanied by an almost total lack of comprehension of the principles involved on the part of many of the leading rifle makers. Many of them tried putting Minié type sights on any and every rifle that they thought would sell better with them or else applied them at the whim of their equally uncomprehending customers. Two surviving examples illustrate this (*on the following page*). The first is a Purdey finished in 1852 in half inch bore with two groove rifling for the winged sugar loaf bullet. The other is an 1852 double barrelled Lancaster Oval Bore in .53 calibre. Both have Minié type sights to 1,000 yards added to the usual range of leaves. It can be stated with complete confidence that neither could hit a barn door at 1,000 yards and probably not even the barn.

On the literary side the speculation was just as wild and the technical knowledge of the authors equally as lacking. Colonel Chesney’s OBSERVATIONS ON THE PAST AND PRESENT STATE OF FIREARMS AND

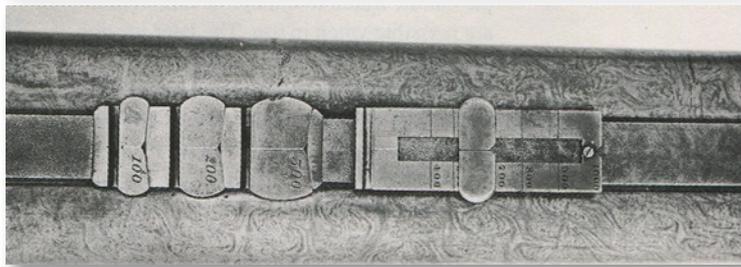


(a) *The first British Long Range Military Sight - The Pattern 1851 Minié.*
(b) *The British sight in its developed form - The Snider Infantry Rifle.*

THE PROBABLE EFFECTS IN WAR OF THE NEW MUSKET published in 1852 quotes THE CEYLON TIMES from early in 1852: “The Comte de Belloy and his friends used on this occasion two French rifles having four grooves taking one whole turn in two metres or 192 inches [This is actually five metres!] in the length of the barrel which is 42 inches. The ball used was of lead 0.672 inch in diameter, 1.158 in height, weighing 730 grains; and with a charge of only nine grains, it penetrated and passed beyond an inch plank at the distance of 900 yards.” There is then an illustration of a cannellured Minié bullet with an iron cup. General Paixhans in CONSTITUTION MILITAIRE



1,000 yard ladder sight fitted, with sublime optimism, to a Purdey sporting rifle of 1852.



An even more impossible concept - 1,000 yard ladder sight added to a Lancaster Oval Bore sporting double rifle of 1852.

DE LA FRANCE (Paris 1849) describes experiments with a new rifled carbine requiring only 4½ grains instead of 9 to propel a ball nearly double the weight formerly used. It must be remembered that the term “ball” here does not mean a sphere. Ranges extended to a quoted 1,093 yards when six out of one hundred hits were made. These amazingly small charges are simply explained by realising that in the translation the term Grain has been substituted without recalculation for the French Gramme which weighs 15½ Grains and would produce the French service charges.

The 1850s was the decade when Long Range shooting really took off. It opened with the Minié Rifle, proceeded via the Crimean War and the Indian Mutiny and closed with the introduction of the Whitworth and the founding of the National Rifle Association, the Final Stage of whose First Meeting in 1860 was shot at 1,000 yards.

The Enfield was introduced during the Crimean War and assumed its place there during the latter stages of the campaign alongside the Minié Pattern 1851. Much has been written of the awesome effects of the Minié Rifles but a comment by the Russian Commander Todleben will suffice: “...*the enormous losses which the enemy’s riflemen inflicted on the Russian artillery. A perfect cloud of riflemen, hid in thick brushwood, opened a very violent and accurate fire against our artillery at the distance of 800 paces. Some of our guns from time to time rained case upon them, but the discharge only checked the fire of the enemy’s riflemen*

for a moment.” Another extract states: “*It was more the fire of rifled small arms than that of the artillery of the enemy which reached our artillerymen, of whom the greater part were killed and wounded.*”

A similar story of the long range success of the Enfield comes from the Indian Mutiny where Mutineers’ artillery was silenced on one occasion by volley firing at 1,100 yards.

While all this was going on the muzzle loading rifle was moving towards its ultimate form. Whitworth’s trials arrived at the calibre of .45 and the bullet weight of 530 grains with a 20 inch spiral using hardened paper patched lead. It is not the intention to go into the numerous forms of rifling that were tried, it is sufficient to say that the ratios arrived at by Whitworth suggest that the apogee of Black Powder and Muzzle Loading had been reached.

The American Civil War from 1861 to 1865 is credited with having produced some astonishing results from the Whitworth. Some of the stories are suspect. Practical experience suggest that the account of the Union General sniped at and killed at a range in excess of one mile can only have been a complete fluke, if indeed, the victim was the actual object at which the sniper was aiming.

The widespread reported use of the Whitworth by the Confederates is a matter which today requires a degree of suspicion. These rifles were present and not only the production of the Whitworth Company, but others with hexagonal bores made under licence. However, it

Long Range Shooting

must be remembered that the name “Whitworth” was often applied by the Americans to the whole generality of British small bore rifles including the Turner, the Kerr, the Henry, etc., all of which produced remarkably similar spent bullets but which can, nevertheless, still be identified by the expert from the battlefield pick-ups.

In 1865 Metford produced a .500 calibre rifle weighing 15 pounds and fitted with a telescopic sight. This was specially made to shoot at 2,000 yards in trials organised at Gravesend. In 1866 another such rifle was made for and used by Sir Henry Halford, and these two rifles were the only ones to hit the target which was 24 feet wide and 12 feet high increasing in 1866 to 18 feet high. The charge of powder was 150 grains and the bullet weighed 700 grains. Elevations were to the order of five degrees. Hits varied from 8 to 14 in strings of 25 shots. 1865 also saw the first of the whole series of Gibbs-Metford Rifles in .461 calibre which, with their clones, were to dominate Match Rifle Shooting in muzzle and later breech loading form right through to the introduction of the .303 in the 1890s.

By now that crucial element in all Long Range shooting, the sights, had become very sophisticated and have not really been bettered to the present day. The foresight had developed into the tunnel with various forms of interchangeable inserts. These took many forms besides the usual circular ring. There was, for instance, a square aperture designed to frame the square black aiming mark used in the 1860s. It became apparent that some of these sight elements were dangerous and lists were prepared showing which were and were not permitted. The danger lay in those that obscured everything from the shooter’s vision except the aiming mark. In those days of iron targets, the marker had to appear at intervals to whitewash the target and the implications are obvious.

Others which have since fallen into disuse, such as the Goodwin Bar, are now enjoying a revival and are found to give very good results. The addition of a cross levelling bubble appeared in the middle 1860s. When using elevations of 120 minutes or more it was crucial that the sights were vertical as canting them had a serious effect both on line and elevation. It was usual to adjust for windage on the foresight which was normally adjustable laterally by a screw threaded through a dovetailed block on the muzzle. This was regulated by

a scale engraved in whichever divisions the maker had decided upon.

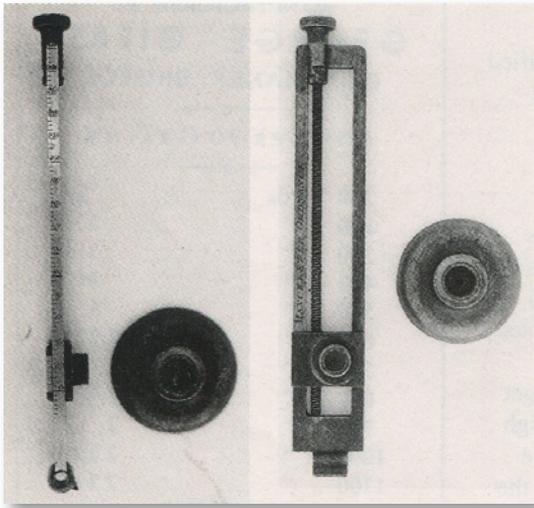
Rear sights consisted of a long bar mounted on the wrist and later on, either the wrist or the heel of the butt for back position shooting, which became more and more popular towards the end of the 19th Century. The adjustment on these was for elevation only, the windage being on the front, until the advent of breech loading made this very impracticable. Fine adjustments were made by means of the Vernier Scale, the use of which was well understood. In order to move the sights smoothly and fairly rapidly it was normal to use double start threads which require a delicate touch in the making. The use of “click” adjustments was not normal although there are very likely examples that were made. It is true that there is nothing new under the sun.

Makers had their own ideas on the subject of the best way to measure elevation on the rear sight, with the front sight usually following the same scale. The best known are Whitworth’s use of inches divided into hundredths and Metford’s degrees and minutes. Of the two, Metford’s was the more scientific and

ELEVATIONS FOR METFORD PATENT RIFLES MANUFACTURED BY GEORGE GIBBS, GUN MAKER, BRISTOL.			
—:0:— POWDER 90 GRAINS. —:0:—			
100 yards	9.5
200	"	...	20
300	"	...	31.5
400	"	...	44
500	"	...	57.5
600	"	...	1.12
700	"	...	1.27.5
800	"	...	1.44
900	"	...	2. 1.5
1000	"	...	2.20
1100	"	...	2.39.5

Each division on slide of front sight is 2', which is equal to two inches on the target for every 100 yards—for instance, at 1000 yards 20 inches.

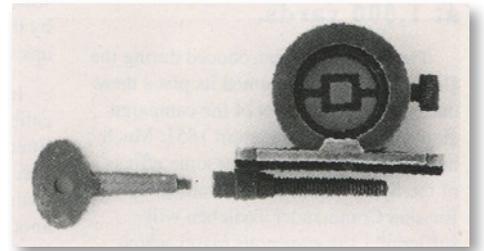
Metford's scale in yards, degrees and minutes, c.1870 (from an original card)



Far Left: Vernier adjustable Long Range tang sight for Whitworth Match Rifle, with its eyepiece, by Manchester Ordnance & Rifle Co. Graduated in hundredths of an inch for three inches and in yards to 1,200 yards.

Left: Rear view of the Whitworth Long Range tang sight showing the detail of the screw adjustment. A double start thread ensures speed with smoothness.

Right: Hooded wind gauge adjustable front sight for the Whitworth Match Rifle with its key for adjustment. This example is fitted with the square aperture to match the square aiming mark of the 1860s.



modern shooters also use minutes of angle as this is a measurement that can be translated easily and quickly into subtended distances at any range.

The arrival of the .303 and its counterparts overseas saw the last of the truly long range small arms intended for general issue to the infantry. The early Lee Enfields, before the outbreak of the Great War in 1914, retained a feature which combined the great range of the new cartridges with the ancient concept of volley firing. Experience on the wide plains of India, North and South Africa suggested that at ranges far beyond any possible ability of a marksman to strike an individual target, entire platoons or companies firing volleys could blanket an area target with fire. For this purpose an additional sight known as the Collective Sight was fitted to the left side of the fore-stock. It was graduated to 2,800 yards allowing a further 800 yards over the normal barrel sight which was limited to 2,000 yards. The short range carnage of the trenches and the use of the medium machine gun, in a role similar to that of a light field gun, put the finishing touches to this idea which has never been revived.

As this is an Historical Perspective it will not go beyond 1914 because target practice at 1,000 yards, increased to 1,200 yards by the end of the previous Century, is not exceeded today and the Military now seem to regard 600 metres as about the maximum effective range of the new 5.56mm. Certain limited military arms are retained which are capable of long range sniping but the generality of infantry today are not expected to know the Art of Musketry as did their

grandfathers.

Today's Historical Shooters have revived the art of 19th Century Long Range Shooting alongside their modern counterparts, the Match Riflemen of the English VIII and their rivals of the Scottish, Irish and now the Welsh VIIIs. The use of the modern Match Rifle is increasing as evidenced by the annual rise in entries for the "Hopton" Match Rifle Aggregate Championship held each year at Bisley. Perhaps tradition now has more influence than the needs of the military.

To close this Perspective an account of "Billy Dixon's Long Shot" taken from the Journal of the American Single Shot Rifle Association will make a fitting end. In June 1874, a mixed group of Comanches, Kiowa and Arapahoe attacked a trading post in the Texas Panhandle; an engagement known as the Second Battle of Adobe Walls. On the third day of the engagement, Billy Dixon shot an Indian at the distance of 1,538 yards with a 50/90 Sharps. Dr. Donald Fusia, Junior, of New Kensington, Pennsylvania, published an article in the Journal of Forensic Sciences (Volume 34, No.4 of July 1989) entitled "A Trajectory Analysis of Billy Dixon's Long Shot". The article investigated the factors involved in such a long shot. The wind deflection at 14.3 miles per hour = 28 feet. The bullet drop was 318 feet. The time of flight 4.8 seconds and the remaining energy 630 foot pounds. From personal experience this author would have allowed for a much longer time of flight but that is his opinion only and he is not familiar with the criteria used by the learned doctor.

∞

Parker-Hale's 1861 Enfield Artillery Carbine

David Minshall

The series of Enfield rifle reproductions by the Birmingham gunmaker Parker-Hale remain popular today, despite being long out of production.

The *Black Powder* magazine of the Muzzle Loaders Association of Great Britain (MLAGB - www.mlagb.com) provides some valuable information as to the introduction and development of this series of Enfield rifles.

News of the introduction of the Pattern 1861 Artillery Carbine was published in the December 1972 *Black Powder* newsletter. The first advert for the Pattern 1853 appeared in December 1974. The Pattern 1858 appears to have been available in the US at least as early as 1975, but not in the UK. The first advert for the Pattern 1858 appeared in January 1976. It is also noted that Roger Hale was firing prototype model Pattern 1853 and Pattern 1858 rifles in MLAGB Championship and Warwickshire Branch meetings in 1974.

Today, comment will sometimes be found in internet discussion that suggests that Parker-Hale reproductions were manufactured using the original Royal Small Arms Factory, Enfield, machinery. This is not the case – Parker-Hale had the benefits of modern machinery and skilled workforce to manufacture the rifles. The specialised nature of the work involved several suppliers, besides Parker-Hale, before the complete rifles could be assembled and finished at their factory.

What Parker-Hale did have

**PARKER-HALE RECREATE
THE 1861 ENFIELD
ARTILLERY CARBINE**

The remarkable accuracy and superior performance of the Enfield rifle made it the most coveted weapon of the 1860's. Rifles manufactured at the Royal Manufactory at Enfield were produced to gauges and a pattern bearing the Royal coat of arms. Recently Parker-Hale, with the assistance of the Q.A.D. Pattern Room at Enfield, England, have re-created the P' 1861 Musketoon Cal. 577 with reference to the unique sealed pattern and original gauges for complete authenticity. The result is a work of high quality and superb craftsmanship.

Parker-Hale have spared nothing in matching the quality of the original carbine and the specification includes finest seasoned, European walnut stock with solid cast brass furniture. The locks are beautifully colour hardened by the original bone charcoal technique and special attention is paid to a superb fit of wood to metal. 5 grooved, cold forged barrel of best steel, original progressive depth rifling .008" deeper at breech than muzzle.

MANY ATTRACTIVE EXTRAS.

Facsimile 1859 "Instructions of Musketry" handbook. Replica 8-part combination tool. Original type snap cap and chain. Cleaning aids. Embroidered coat badge.

Limited Collector's edition, individually serial numbered with Certificate of Authenticity.

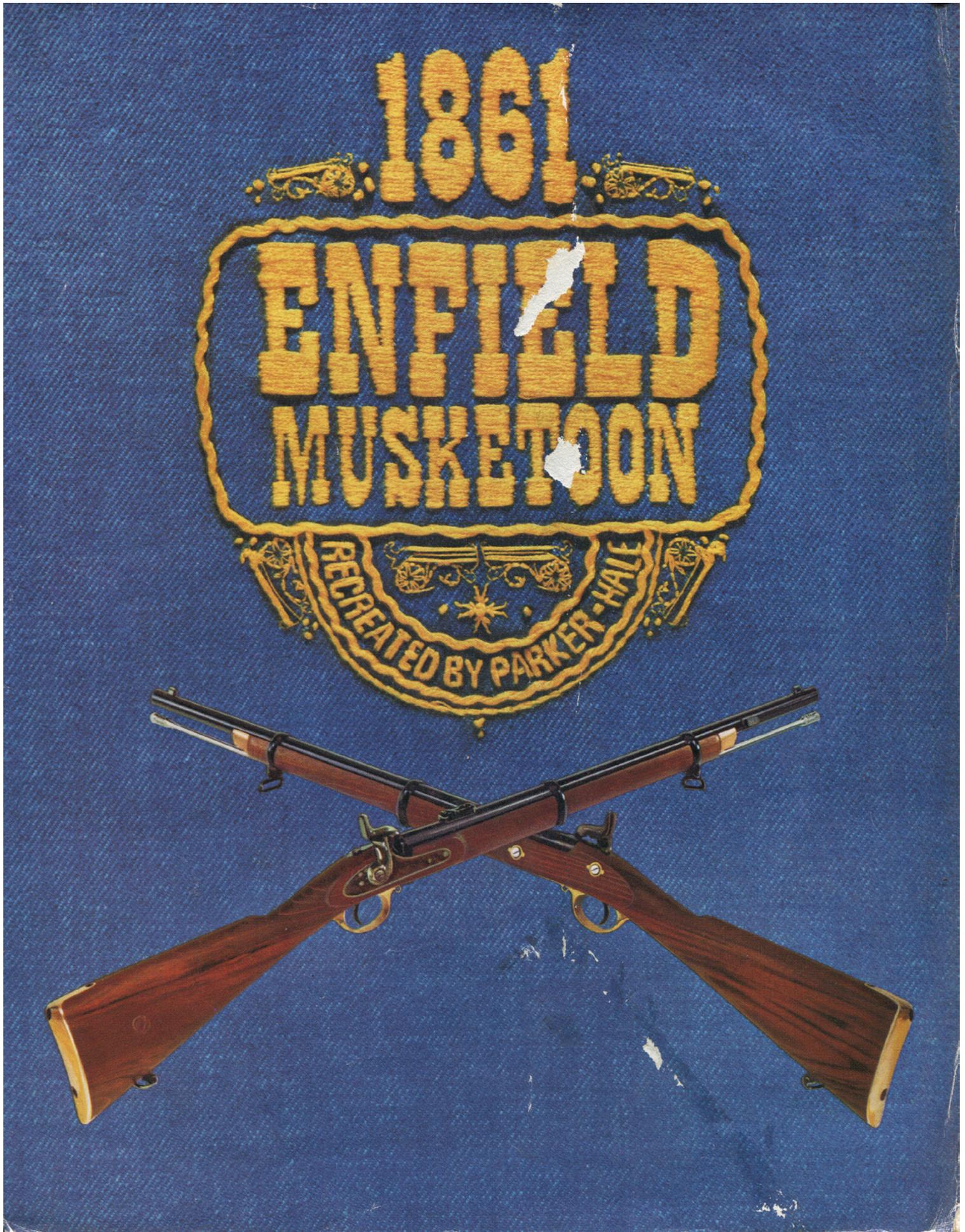
P Parker-Hale Ltd., Birmingham B11 2PZ

This advert appeared in the November 1974 edition of the Muzzle Loaders Association of Great Britain, 'Black Powder Magazine'

access to was a set of original 19th century gauges that were used by Enfield inspectors to check components during production. These gauges enabled Parker-Hale to set up the tooling for their reproductions to be dimensionally

correct.

Following is a contemporary Parker-Hale brochure for their reproduction of the Pattern 1861 Artillery Carbine. Of interest is the illustration, in part, of the original gauges.





An Historical Introduction

The Enfield rifle musket marked the zenith in design and manufacture of the military percussion rifle. Exceptional accuracy and outstanding reliability went to make the Enfield musket the finest infantry weapon of the 19th Century. Its military effectiveness became a legend.

Enfield rifles saw distinguished service with the British Army in the Crimea and during the Indian Mutiny. They also served both protagonists in the American Civil War.

After conversion to breech-loading, based on a design by Jacob Snider of New York, the Enfield rifle continued as the British Army's main infantry weapon for many years.

The musket owed its unparalleled reputation to the skill of the Enfield craftsmen. Their precision machining techniques and exacting assembly methods were unrivalled anywhere in the world. From 1857 until 1866 the bulk of production was carried out at the re-organized Royal Small Arms factory, Enfield Lock, Middlesex—which had recently been equipped with advanced American machines.

Of the various models produced there, the 1853 pattern .577 caliber percussion rifle is undoubtedly one of the most famous guns in military history. It was readily identified by the three retaining bands around the 39 inch blued iron barrel and the distinctive Enfield brass furniture on the stock. This musket first saw active service in the Crimean War where it proved far more devastating than its predecessor, the 1851 pattern rifle. After the battle of Inkerman the Times correspondent, referring to the 1853 Enfield, wrote in awe that the volleys from the British infantry cleft the ranks of the Russians "like the hand of the Destroying Angel, and they fell like leaves in Autumn before them".

During the Indian Mutiny an observer also noted that the Enfield musket was clearly effective, even at a range of 1000 yards. Although it was thought at the time to be the most accurate rifle in the Enfield family modern ballistics experts believe the 33 inch short rifle of the same .577 caliber was just superior.

A carbine was under contract at the Enfield works as early as 1852. It owed its origin to the diligence

**Parker-Hale recreate the
1861 Enfield Artillery Carbine
and pay tribute to the
great Enfield tradition**



and enthusiasm of the many Artillery Officers who were responsible for most of the small arms research carried out during this period.

The carbine had a .577 caliber 3 groove barrel. It had two bands retaining the barrel and was sighted to 300 yards. Although most of those used in the Crimea were set up in England, some were by 1855 being made under licence in Liège.

All of them were fitted with 23 inch long bladed sword bayonets. Minor modifications to the rammer and sword bar lead to a second pattern being authorised in 1858.

However, the constant need for even greater accuracy resulted in a third pattern being adopted in 1861. It was principally distinguished from its forerunners by a 5 groove barrel with tapered rifling. This had been made necessary owing to the introduction of a

smaller diameter service bullet. Because of its superior range and accuracy, the old 300 yard leaf sight was replaced by a 600

yard step sight.

Pattern 61 Artillery carbines were ultimately manufactured at Birmingham, London, Liège and Enfield,

and always

with the same high standards of materials, workmanship and finish which so impressively characterise the Enfield family.

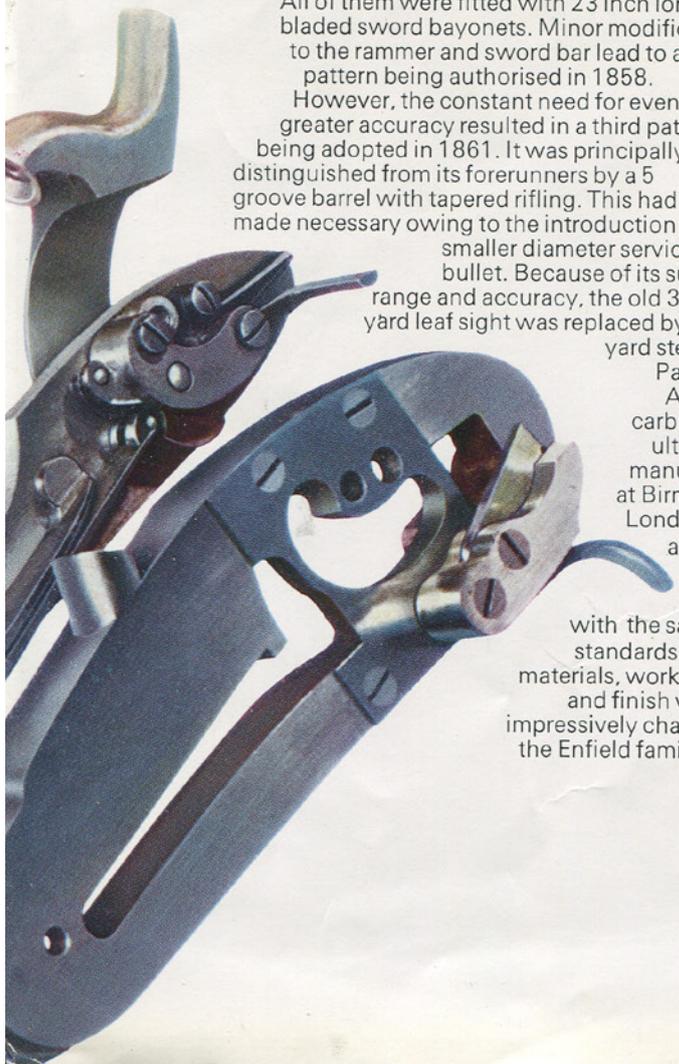
The Re-creation of the History Maker

Carbines manufactured at the Royal Manufactory at Enfield were produced to gauges and in accordance with a pattern bearing the seal of the Adjutant-General and the Royal coat of arms. Now Parker-Hale Limited, with the assistance of the Q.A.D. Pattern Room at Enfield, England, have recreated the P'1861 Artillery Carbine Cal. 577 using this unique sealed pattern and original gauges for complete authenticity.

The original specification has been meticulously followed, as far as possible, even to the tapered rifling, deeper at the breech than the muzzle, which contributed so much to the remarkable accuracy which made these rifles the most coveted weapons of the Civil War.*

The result is a work of high quality and superb craftsmanship which keeps faith with the great Enfield tradition. Everyone who appreciates the best in gunmaking will want to own the Enfield Musketoon—The History Maker.

Made from the original gauges! On the left and at the far right are photographs showing the superb hand made gauges from which the original 1861 Enfield Artillery Carbine was made. Parker-Hale have used these original gauges to re-create this illustrious rifle.



*Jac Weller's article in the July 1971 issue of American Rifleman clearly shows the superior performance of the Enfield Musketoon and rifle over all the other Civil War Minnie rifles tested.



A Limited Edition. Only a limited number of carbines will be made, after which no further models will be produced. Each carbine will have its own number and will be accompanied by a certificate of authenticity.

Complete with all these extras. The Enfield Musketoon is superbly packaged with many quality extras to add to your enjoyment of this fine rifle. You will receive a fascinating 44-page facsimile book of the 1859 "Instructions of Musketry" reproduced from the original text and illustrations. An outstanding accessory is a replica of the original and rare combination tool. This comprises screwdriver, nipple key, pricker, worm, chisel, bullet puller, oil bottle and main spring cramp. An original type snap cap and chain provides essential protection whilst Parker-Hale's own hand made brush and wool mop, which fit the ramrod, represent the very best in cleaning gear. You will be proud to wear the beautifully embroidered coat-badge which is also included.

All in all, today's finest pack for The History Maker.



Specification

Caliber : .577
 Barrel length : 24"
 Overall length : 40 1/4"
 Weight : 7lbs 8ozs
 Stock : seasoned walnut with solid brass furniture
 Barrel : 5 grooves, best quality steel,
Original pattern tapered rifling (.008" deeper at breech than muzzle).
 Sights : Rear sight graduated to 600 yds. Front sight fixed.
 Parker-Hale Limited Birmingham . England





THE ORIGINAL SEALED PATTERN

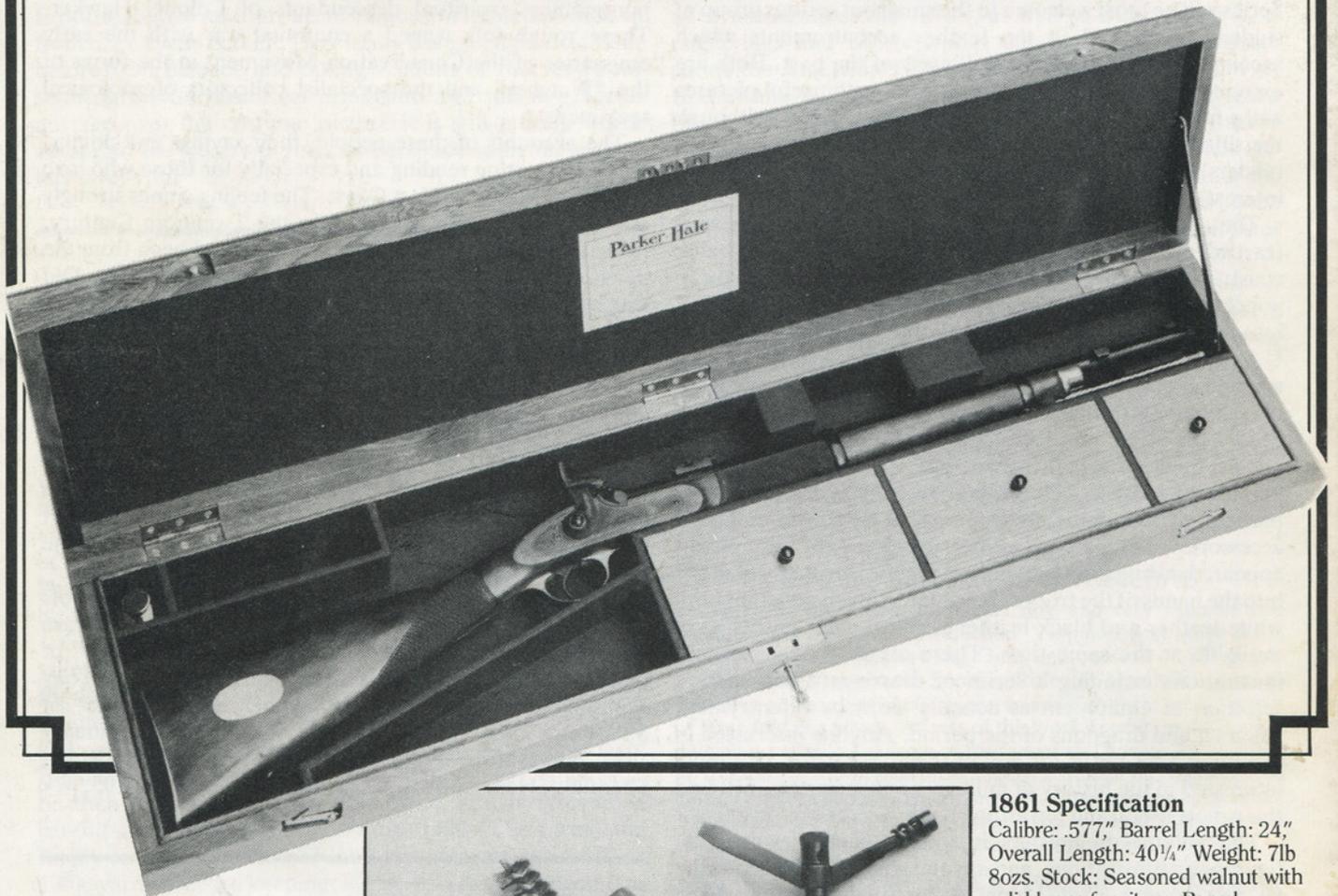


PARKER-HALE
Birmingham England

Printed in England

THE PERFECT PRIZE

A SUPERB OAK CASED 1861 ENFIELD ARTILLERY CARBINE WITH PRESENTATION PLAQUE AND A COMPLETE SET OF ACCESSORIES.



The perfect prize for any competitive shoot. This 1861 Carbine, commonly known as the 'Musketoon', is the first pattern of Enfield rifle to be reproduced by Parker-Hale and has dominated Carbine matches throughout the world. The complete kit includes a magnificent British-made oak case, presentation brass plaque on the stock (ready for engraving), and a full set of accessories and cleaning equipment.

See your Parker-Hale dealer NOW!



1861 Specification

Calibre: .577," Barrel Length: 24," Overall Length: 40 1/4" Weight: 7lb 8ozs. Stock: Seasoned walnut with solid brass furniture. Barrel: 5 grooves, best quality steel, original pattern progressive depth rifling. Sights: Rear sight graduated to 600 yards, front sight fixed.

Accessories

Dixon leather covered powder flask, Enfield combination tool, complete bullet mould, nickel plated brass oil bottle, turnscrew, wool mop and split brass jag.

Parker-Hale Black Powder Replicas are obtainable by special order from your local stockist. Ask for latest details of availability and current prices.

The range now includes the 3-BAND HENRY VOLUNTEER with 36" barrel which meets the requirements of many match rifle shooters for a superbly accurate long range weapon.

PARKER-HALE

Parker-Hale Limited

Golden Hillock Road, Birmingham B11 2PZ Telephone: 021-773 8481 Telex: 338172 SAFARI G

This advert appeared in the 1988 edition of the Muzzle Loaders Association of Great Britain, 'Black Powder Journal'

The China Cup 1864

Nick Leaper

In the 1864 report of the Proceedings of the National Rifle Association, in a section referring to prizes that were pledged to the Association, appears the following statement. “The promise of new prizes is not however confined to this Country, for although no official intimation on the subject has yet been received, there is reason to believe that a valuable Challenge Cup, to be called the China Cup is about to be presented to the Association by Englishmen, many of them Volunteers, residing in the Celestial Empire, who wish thus to testify their appreciation of the services of the National Rifle Association, and the remembrance of rifle friends at home”.

This was the first mention of the trophy but it would be at least 3 years before the trophy itself would be awarded. The next mention of the trophy was in the 1865 report where it is noted as the 11th prize in the list with a value of £525.

This prize, the money for which has been in a great measure raised through the exertions of Major Brine, R.E, late commanding the Hong Kong Volunteers, and of Mr. E. Antrobus and Mr E Webb, late Commanding Officers of the Shanghai Volunteers, has been presented by the Volunteers of China to the Volunteers of Great Britain. The Council (of the NRA) would here, on the part of the Volunteers of Great Britain, express to the Volunteers of China their grateful sense of the liberal public spirit that prompted their splendid gift.

In order to do honour to the Cup it has been named the “Volunteer County Challenge Prize”, and will be annually competed for by 10 selected Volunteers from each county. When won, it will be handed to the Lord



Lieutenant of the winning county, to be kept by him until the next annual competition.

This year, 1865, the winning ten came from the county of Somerset. The Cup was however being executed by Lee Ching at Hong Kong, and would, it was hoped, be ready by the next Wimbledon Meeting.

The late Roger Perkins in his book on Military and Naval Silver “Treasures of the Mess and Wardroom” refers to the trophy as the largest trophy described in the publication.

Lee Ching a prominent silversmith in Hong Kong was commissioned to design and produce the cup with a budget reported to be £5000, an enormous amount of money at the time. The cup which is still

competed for today by T.A. Units weighs more than 2000 oz (52.08 kg), stands 4ft 6in high and 2ft 6in wide at its widest point, and said to hold 64 pints of Champagne although it is said to leak.

A ship of the Peninsular and Oriental Navigation Line carried the trophy when finished to England. However, its journey on to the NRA was not a smooth one. When landed, British Customs and Excise impounded the trophy until payment of £150 import duty had been made. The NRA at that time had powerful friends in high places who made the point the trophy was a competition trophy and not intended for private use or resale and therefore the charge should be waived. Their Lords of the Treasury were minded to agree and the duty charge was dropped.

Lee Ching himself was reported to have been on the receiving end of some trouble in Hong Kong because he had incorporated 5 clawed dragons within the design, along with dogs of foe to the lid.

The dogs were not a problem but at the time 5 clawed dragons were protected by Imperial Law and reserved exclusively by the Emperor. Stories circulated at home that he had been beheaded for contravening the law. These however were refuted but not until 1896 when Englishmen in Hong Kong pointed out whilst this had been the practice it had been rescinded in the early part of the 18th century. Lee Ching survived and continued his craft for many years after.

The match itself would replace the Any Rifle Counties Match, which became the Enfield Counties Match and had been instituted in 1864.

In the year 1865, 32 Counties are listed as entered which was a considerable achievement in the first year. The value of the Cup as already stated was £525; to this was added £100, collected by Major Brine RE by subscription in China and England, and divided into four Prizes.

The Match conditions were team of 10 Efficient Volunteers. Distances 200yds standing and 500 yards any position, with 5 rounds per man at each range. Rifles were to be as per the First Stage of the Queen's. Teams paid a fee of £2.10s from each squad. Highest possible score (HPS) 400 marks.

In **1864** the match was named the Enfield County Match but renamed the China Cup for 1865. The winning County in 1864 was Staffordshire with a score of 273 marks out of a HPS of 400. The rifle used between 1864 and 1870 was the Long Enfield M.L.

The results for **1865** were as follows.

1st	The Cup and £50	Somerset	263
2nd	£25	Lanarkshire	255
3rd	£15	Suffolk	254

In **1866**, with no sign as yet of the trophy, the NRA replaced the £100 subscribed in 1865 and added £50. County entries rose to 350 (35 County Teams) an increase of 30 (3 County Teams) over the previous year. The Match conditions remained as those for the preceding year.

1st	The Cup and £25	Staffordshire	289
2nd	£15	Renfrewshire	279
3rd	£10	Warwickshire	276

The report for **1867** has been omitted from the Proceedings but are noted in the Volunteer Service Gazette, which notes that the beautiful Cup was, that year for the first time exhibited at Wimbledon. It was perhaps the largest piece of silver plate in the country, and did great credit to the Chinese workman to whose care the manufacture of it was entrusted, Lee Ching the silversmith in Hong Kong.

After the meeting it was conveyed to Wentworth the seat of the Earl Fitzwilliam, who as Lord Lieutenant of the winning county would hold it until the following year.

1867 results. 36 teams entered an increase of 10. With 360 shooters. Conditions unchanged.

1st	The Cup and £25	West Yorkshire	296
2nd	£15	Edinburgh	293
3rd	£10	Staffordshire	288

1868. Entries dropped to 32 teams. Conditions of the Match remained unchanged.

1st	The Cup and £25	1st Somerset	283
2nd	£15	Staffordshire	281
3rd	£10	Devonshire	277

1869. Entries down 1 to 31 teams. Conditions of the Match remained unchanged.

1st	The Cup and £25	1st Lanarkshire	279
2nd	£15	Somerset	275
3rd	£10	West Yorkshire	269

1870. Entries down 2 to 29 teams. Conditions unchanged

1st	The Cup and £25	Gloucestershire	274
2nd	£15	Devon	274
3rd	£10	Somerset	272

1871. Entries 29 teams. Conditions unchanged but the rifle used became the Snider BL.

1st	The Cup and £25	Cambridge	292
2nd	£15	Hampshire	289
3rd	£10	Lanarkshire	289

1872. Entries 30. Conditions unchanged.

1st	The Cup and £25	Cambridge	310
2nd	£15	Lancashire	308
3rd	£10	West Yorkshire	307

The China Cup 1864

1873. Conditions changed to one range only, being 500 yds with 10 shots per man HPS 500. It is noted entry fees were to be reduced from £3.10s to £2.10s per team including ammunition although the 1872 conditions still state the entry fee was £2.10s, but that may have excluded ammunition. Rifles were stated as Long Snider 3 groove of Gov. Pattern.

1st	The Cup and £25	Nottingham	333
2nd	£15	Lanarkshire	327
3rd	£10	West Yorkshire	322

1874. Conditions as per 1873.

1st	The Cup and £25	Middlesex	404
2nd	£15	West Yorkshire	372
3rd	£10	Cornwall	370

1875. Conditions as per 1874.

Rifles to be Snider: Class I "A". .577 Bore. Three groove Long Snider bearing the bona fide Government pattern. Government supplied ammunition. Weight not to exceed 9 lb 12 oz including bayonet. Length maximum 56 inch. Measured from muzzle to the butt when placed on the ground. Any pad or shoe for the heel plate of the butt admitting to removal, and thereby allowing of variation at pleasure in the length of the stock, will not be allowed. Pull of trigger Minimum 6 lbs. Sights strictly in accordance with that of the Government Snider Rifle.

Back sight: The Sliding bar may be reversed. One fine line only may be drawn down the centre; this line may be either of platina, or scratched or made with a pencil. Foresight: May be blackened, but any other colour matter will not be allowed.

Position: Competitors may, unless it be otherwise specified, adopt at all distances any position suited to the firing points and target arrangements provided by the NRA all the above as per as Section 7 to 9 of the Regulations.

1st	The Cup and £25	Gloucestershire	365
2nd	£15	Hertfordshire	360
3rd	£10	Lanarkshire	357

1876. Conditions unchanged.

1st	The Cup and £25	Edinburgh	394
2nd	£15	Lancashire	384
3rd	£10	Middlesex	383

1877. Conditions unchanged.

1st	The Cup and £25	Norfolk	391
2nd	£15	Cheshire	366
3rd	£10	Lancashire	365

1878. The number of rounds per man was reduced to 7 which accounts for the drop in scores.

1st	The Cup and £25	Devon	264
2nd	£15	Edinburgh	256
3rd	£10	Berkshire	256

1879. Same conditions as 1878. 31 teams entered.

1st	The Cup and £25	Cheshire	308
2nd	£15	Devon	290
3rd	£10	Lancashire	288

1880. Number of rounds per man per range increased to 10. 15 Teams indicated as entered.

1st	The Cup and £25	Lanarkshire	409
2nd	£15	Renfrew	405
3rd	£10	Devon	394

1881. Conditions unchanged. 32 teams entered.

1st	The Cup and £25	Devonshire	378
2nd	£15	Edinburgh	376
3rd	£10	Middlesex	373

1882. Conditions unchanged but NRA, monies increased to £80

1st	The Cup and £30	Ayrshire	366
2nd	£20	Renfrewshire	363
3rd	£10	Glamorgan	361

1883. Conditions unchanged.

1st	The Cup and £30	Forfar	357
2nd	£30	London Rifle Brigade	356
3rd	£10	Lanark	352

1884. Conditions unchanged. 41 teams entered.

1st	The Cup and £30	Renfrewshire	410
2nd	£20	Lanarkshire	393
3rd	£10	Somerset	387



Above: China Cup 1881, Henry Bolt, Devonshire Team



The China Cup 1864

1885. Conditions unchanged. The rifle used changed to the Martini-Henry. Prize monies increased to £95. 38 teams entered.

1st	The Cup and £30	Dumfries	414
2nd	£20	Lanarkshire	403
3rd	£15	Renfrewshire	399

1886. Conditions unchanged. 40 teams entered.

1st	The Cup and £ 30	Shropshire	418
2nd	£20	Cornwall	412
3rd	£15	Bedford	411

1887. Conditions unchanged. 39 teams entered.

1st	The Cup and £30	Lanark	447
2nd	£20	Glamorgan	440
3rd	£15	Ayrshire	435

1888. Conditions unchanged. 40 teams entered.

1st	The Cup and £30	Lancashire	443
2nd	£20	Renfrewshire	433
3rd	£15	Northumberland	432

1889. Conditions unchanged. 36 team entered.

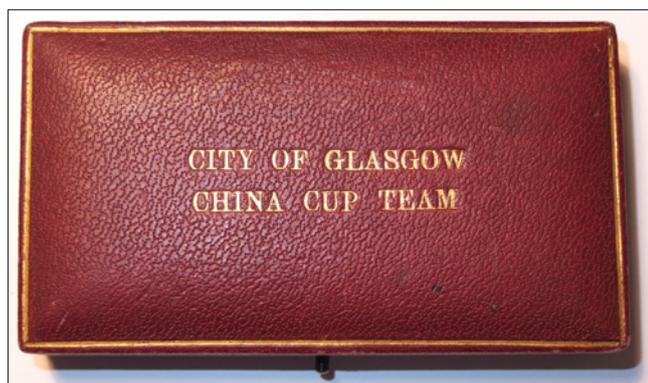
1st	The Cup and £30	Lancashire	431
2nd	£20	Ayrshire	429
3rd	£15	Hampshire	421

1890. First Bisley Meeting. 41 teams entered.

1st	The Cup and £ 30	Lancashire	456
2nd	£20	Surrey	456
3rd	£15	Renfrewshire	452

1891. 34 teams entered.

1st	The Cup and £ 30	Lanarkshire	395
2nd	£20	Cheshire	381
3rd	£15	Hampshire	377



1892. Range 600 yds. 36 teams entered.

1st	The Cup and £ 30	London	383
2nd	£20	Ayrshire	380
3rd	£15	Lanarkshire	378

1893. 37 teams entered.

1st	The Cup and £30	Lancashire	421
2nd	£20	Warwickshire	405
3rd	£15	Yorkshire	402

1894. 37 teams entered.

1st	The Cup and £30	Glamorganshire	401
2nd	£20	Devonshire	400
3rd	£15	Edinburgh	379

1895. Entry fee increased to £ 3.3s. 35 teams entered.

1st	The Cup and £30	Devonshire	414
2nd	£20	City of Glasgow	406
3rd	£15	City of London	391

1896. 31 teams entered.

1st	The Cup and £30	Lancashire	398
2nd	£20	Cambridgeshire	387
3rd	£15	Cheshire	381

1897. The rifle used became the .303 Long Lee Magazine rifle. 30 teams entered.

1st	The Cup and £30	Norfolk	460
2nd	£20	Staffordshire	456
3rd	£15	Hampshire	454

1898. 26 teams entered.

1st	The Cup and £30	Lancashire	442
2nd	£20	Glasgow	438
3rd	£15	Middlesex	437

1899. 32 teams entered.

1st	The Cup and £ 30	Glasgow	451
2nd	£20	Roxburgh	447
3rd	£15	London	445

1900. 23 teams entered.

1st	The Cup and £30	Glasgow	438
2nd	£20	London	434
3rd	£15	Middlesex	433

At this point we will conclude the history of the China Cup.

By 1909 the course of fire had been changed to teams of 10 Territorials from each portion of the Home Territorial Force under the administration of a single Territorial County Association.

The course of fire being 10 rounds per man within a total of one and a half hours at 600 yds.

Each of the winning team receiving a silver brooch similar to the one illustrated. The County Associations also awarded medals or wire badges to members of the teams, these vary in design.

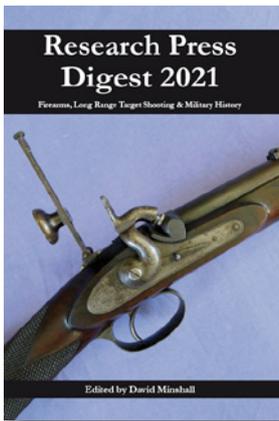




China Cup Team 1921 - The winners of the match held at Bisley were City of London



Postcards, D.B. Minshall collection



Research Press Digest 2021

Edited by

David Minshall

ISBN: 9798555239556

Research Press Digest features newly written articles and reprints of scarce 19th and early 20th century texts. Contents includes the Whitworth rifle, target rifles, Pattern 1853 Rifle Musket and 'The Small Arms of European Armies' (1889). 'The Royal Small Arms Factory, Enfield' provides a description of this model establishment at the time that the Martini-Henry rifle was manufactured. Context to the rapid growth of interest in rifle shooting in Great Britain, from the mid-19th century, is given by articles on the School of Musketry, and the British Volunteer System.

www.researchpress.co.uk/index.php/publishing

Long Range Black Powder Rifle Target Shooting



Long range target shooting with the percussion muzzle loading rifle and black powder cartridge rifle.

Historical study and shooting today.
19th Century competition at Wimbledon, Creedmoor and Dollymount. The rifles, ammunition and equipment, riflemen and gunmakers.

www.facebook.com/groups/researchpress

Muzzle Loaders Association of Great Britain



The MLAGB was formed in 1952 and is the Governing Body for muzzle loading within the UK.

Its objectives are to encourage an interest in muzzle loading firearms, to promote, regulate and safeguard their use and to preserve their freedom of collection.

www.mlagb.com

Historical Breechloading Smallarms Association



The HBSA was founded in 1973. The fundamental aims of the HBSA are to encourage the Preservation of Historic and Heritage Breechloading firearms and to foster the research and study of all aspects of the subject, from the aesthetics of sporting guns and the engraver's art to the functional aspects of firearms used by the soldier, target shooter and the sporting shooter.

www.hbsa-uk.org