THE FERGUSON RIFLE AND ITS ORIGINS

By W. Keith Neal

FIGURE 1. LT. COLONEL PATRICK FERGUSON

Lt. Colonel Ferguson (Fig. 1) took out a patent in 1776 for improvements upon firearms and in it describes his breech loading rifle whereby a screw plug by one turn will raise or lower the breech. He also mentions that the breech may be closed by a slide or by a revolving perforated plug like that of a tap, all these to be made to turn by the trigger guard. Also described is a sight attachment to the breech made on the sliding principle. All these points are important and I shall refer to them again as we go back and look at earlier inventions.

W. KEITH NEAL

Now, the real principle of the Ferguson rifle was the multiple thread which allowed the breech to fall low enough by one turn of the trigger guard to load and close it. Ferguson did not invent this system, or, if he did, it was done independently, for a similar breech action was invented and developed in 1721 by a Frenchman called Isaac de la Chaumette. De la Chaumette had guns made up on this principle by various Parisian gunmakers, notably Brion and Bourgeois and they date from around 1721 to 1730. Fine examples have survived as sporting guns for use with ball and one at least with shot, and the same system was used for cannon, muskets, carbines and pistols. The French soldier, Marshal Saxe was most impressed with the invention and one of the earliest prototypes of this breech loading gun is in the Musee de l'Armee in Paris and is described as the "Amusette de Marechal Saxe." The barrel only of an arquebus which is preserved in the Royal Armoury in Madrid also works on the same multi-start thread principle and is attributed to the 16th Century gunmaker, Christobel Frisleva, as it bears his mark. I have examined this barrel and am by no means convinced that the breech loading part is as old as the date of this maker, i.e. circa 1565, but as the rest of the gun does not exist it is impossible to tell.

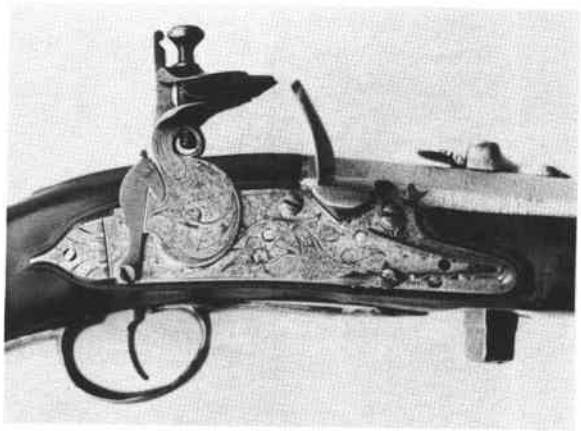

FIGURE 2. ENGLISH, CIRCA 1660

The earliest example of which I am aware, of a multiple thread being used in a breech loader is a rifled screw barrel carbine made by Jonabed Holloway, gunmaker to Charles II by appointment in 1667. This employs a two-start thread and the breech can be taken apart by two complete turns. This is a remarkable piece as it is a high velocity rifle with a re-inforced chamber to take a heavy charge which forces an oversize round ball into the rifling and would, without doubt, develop sufficient velocity to penetrate armor; a very formidable and advanced weapon of its day.

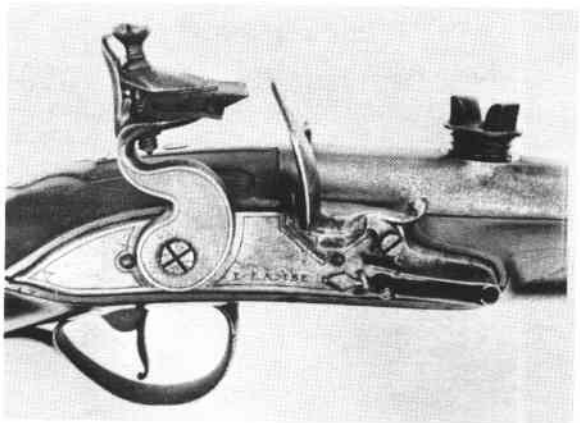

FIGURE 3. ENGLISH RIFLE BY LAMBE, CIRCA 1700

Although there are records of fine pairs of pistols and carbines damascened in gold made by Holloway, this carbine I show is, so far as I am aware, the only surviving example of this very competent maker's work. It has a place in the development of the Ferguson rifle as it employs the quick start multi-thread breech plug. Next to this I can show an English gun of about the same date made to shoot a ball which is loaded underneath like a Ferguson but instead of being actuated by the trigger guard, it has a square plug which has to be turned by a spanner. This plug did not go right through the barrel nor did it have a multi-thread. To load it one had to remove the plug entirely, turn the gun upside down,

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load it with powder and ball, then replace the plug and tighten it with the spanner again. This is the earliest example I have been able to find of the underplug action (Fig. 2).

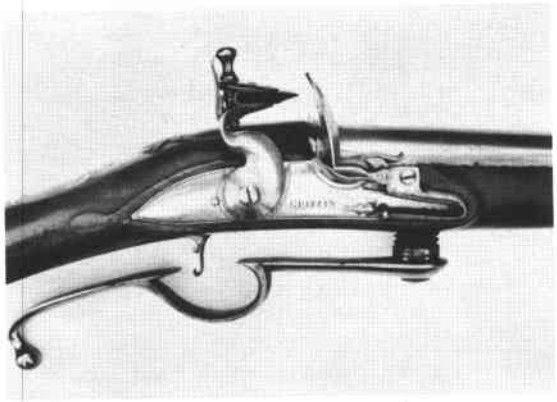

FIGURE 4. ENGLISH RIFLE BY GRIFFIN, CIRCA 1740

This is followed by the top plug action. Again, this does not go through the barrel but it is simpler to operate than the last being on top and forming a back sight.

The next step was to place the plug on the top of the barrel. The earliest example of this which I have discovered is a wheel-lock rifle of German origin; it dates from about 1665 and is almost contemporary with the under-plug English rifle I have just shown.

The earliest English rifle on this principle is made by Lambe of Sarum (or Salisbury); (Fig. 3) it came from the collection of John George and is, in fact, illustrated in his book on English Guns and Rifles. It dates from about 1700.

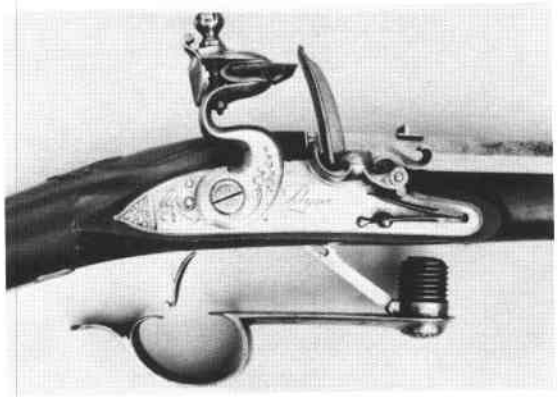

FIGURE 5. ENGLISH RIFLE BY PAYNE, CIRCA 1770

I have purposely shown all these variations of screw plug breech loaders as they form part of the ancestry of the Ferguson rifle, in other words a gun with an easily operated breech plug. Many writers, including Pollard, tried to show that the first trigger guard operated breech loader using a screw plug was of the kind that turned a normal single-start thread plug situated underneath the barrel which had to be turned right out in order to load the weapon. The plug did not, of course, go right through. I can find no evidence to prove that this was the fore-runner of the multiple start thread breech used by Ferguson in his rifle and earlier by De la Chaumette in his guns. All the simple breech loaders of this kind, — and I have examined dozens of them, — are of later date than the earliest of the multiple thread pat-tern. You may well wonder why this simple type was made and used alongside or in preference to the much more ingenious Ferguson action. There are several obvious answers to this. One is that it was simple and cheap to make; the second is that being a single-start thread, it was a lower gear to operate, in other words, one had to turn the lever at least six times to undo it. This is a very important point as I shall be referring presently to the inherent fault of the Ferguson action of "binding-up" due to so many threads having to be turned at one time. Having mentioned the advantages, I will now tell you the disadvantages; it was slow to load; secondly, it was possible to draw the plug right out and perhaps lose it. Now let us think for the moment of the purpose for which these rifles with the simple plug were made. They were almost invariably sporting rifles for shooting park or fallow deer. This was a leisurely sport and was usually done by concealing the sportsman in the butt of an old tree in the park and then driving the herd past him. He would shoot from his hiding place and the chances are the deer would not even "wind" him. Now, it is a pretty difficult task to load a muzzle loader when perched up in a tree, hence a breech loader was needed, so the plug was perfectly suited for this game; there was plenty of time.

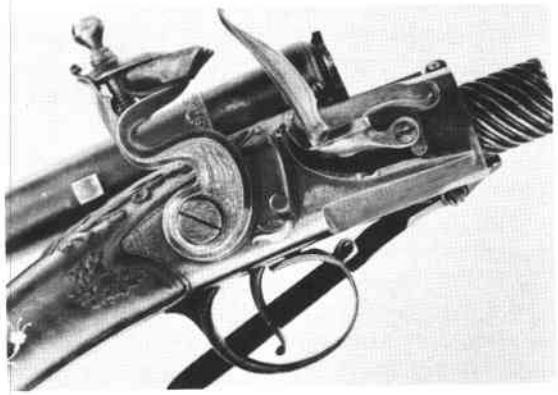

FIGURE 6. ENGLISH BREACH LOADER BY BYRNE, 1770

The rifle fired an oversized ball which was driven through the rifling with great force and it was easy to re-load without being seen or heard by the deer. I have shot with this type of rifle and they are accurate, pretty gas-tight and safe. Admittedly they are fussy but with a little practice, they are easy to use and many shots may be fired without their jamming-up or getting too foul. Here is a good early example by Griffin of Bond Street, made about 1740 for the Earl of Dunmore, the last Governor of Virginia (Fig. 4). A later

and more sophisticated example is by Payne of Kirdford in Sussex (Fig. 5). This has the refinement of a link attached to the guard so that it is impossible to lose it. In the excitement of re-loading one of these rifles, with deer or even bigger game passing close by one's tree, machan or hide, it would be very easy to drop the breech plug and guard and that could be very awkward!

FIGURE 7. FRENCH GUN BY BOURGEOIS, CIRCA 1725

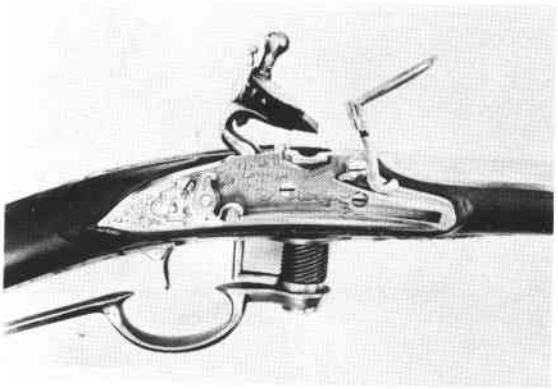

FIGURE 8. FRENCH GUN BY BRION, CIRCA 1730

The next weapon of importance prior to Ferguson's patent is a breech loader made and invented by Charles Byrne. This gentleman took out a patent for this in February 1772 and describes a gun being capable of being detached from the breech piece or fastened thereto by springs, catches or screws. I can show you the only example I have been able to discover of Byrne's invention (Fig. 6). It is of great mechanical interest as the breech is constructed with a twelve-start thread cut on the axis of the barrel which allows the barrel to move forward and unscrew by less than one half-turn. It is held in position by a spring-loaded lever. It is engraved Charles Byrne Invenit and fecit London 1770. This must have been his original piece for which he was later granted a patent. The barrel is fitted with a lug to take a ring spanner in order to manipulate the barrel in screwing and unscrewing. In addition, there is a swivel link which allows the barrel to drop clear for loading, but prevents it from becoming separate or lost. This is a smooth bore gun for firing ball; it would not be suitable for shot. It fires an oversize bullet which would give a gas-tight fit and tolerable accuracy for a smooth bore at close ranges. There are no slots or grease holes in the threaded breech to allow for lubrication and the barrel would undoubtedly have siezed-up after firing if a space of time elapsed between shots. This gun is, however, a magnificent piece of workmanship, finished in the best style with silver wire inlay, raised carving and an ingenious spring-loaded hinged butt cap for absorbing recoil against the shoulder. It has other features including a roller bearing on the pan-cover, which gives us the earliest possible date of at least 1770. The gun shows signs of almost no use and no alteration.

Having covered the fore-runners of Ferguson's invention in principle, I would like to show you a few good examples of the predecessors which work on the earlier De la Chaumette action. There is a gun by Bourgeois a Paris (Fig. 7), the earliest I have, which dates from about 1725. This gun which has a smooth bore has a slightly tapered brass plug with a six-start thread actuated by a steel lever which drops the breech with a full turn. It is beautifully made with gold inlay and is of interest being originally the property of the Baron Hartig, advisor to the Empress Maria Theresia. It features the early short lever trigger guard and has the spring cup cavity in the butt to hold its powder charger. It resembles very closely the early example in the Musee de l'Armee in Paris of the afore-mentioned "Amusette de Marechal Saxe." It is made without a ramrod. The next is by Brion of Paris; this is a slightly later one, made about 1730. It differs from the Bourgeois in that it has a ten-start thread as opposed to a six, the plug being of brass and again slightly tapered and it is turned by a long steel lever which is the trigger guard. Again, it is a gun of the finest quality, coming from the collection of the Grand-duke of Saxe-Weimar. It is a smooth bore made for ball, and has a short fore end fastened in the Spanish style with a barrel loop. There are no grease cups in the breech. Next to this is perhaps the most inspired of all which is the double action weapon made for use as a shot gun. The breech plug is of brass, slightly tapered, with a twelve-start thread turned as in the other gun with a long lever but in addition to turning down the breech plug it has a hinged plate which is connected to the trigger guard and causes this plate to drop at the same time with a single turn allowing a straight passage from the breech for the insertion of a paper cartridge. Due to the mechansim being bulky, it was found necessary to mount the mainspring on the outside to save cutting away wood to the point of making the stock too fragile (Fig. 8). At the same time, the touch hole is placed on the top of the plug and an extension to the pan-cover protects this. There is also a long channel for the priming (Fig. 8-A). Now, this gun was used with an expendable paper cartridge and before firing, all that was necessary, after placing the cartridge in the breech, was to prime the pan and pierce the cartridge with a pricker. As further evidence of this, I can show the butt trap of this remarkable gun open and the partitions not only for spare cartridges but also for the pricker. This gun is also made by Brion of Paris and comes from the armoury

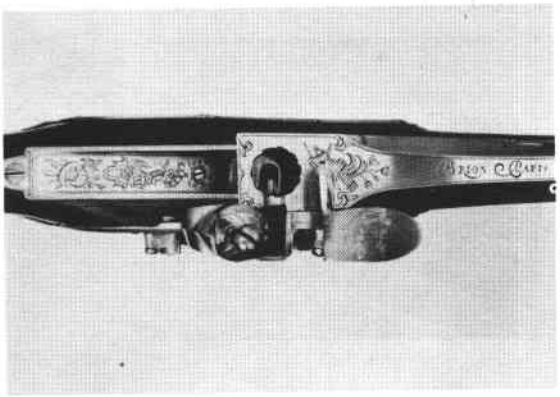

FIGURE 8A. BRION GUN

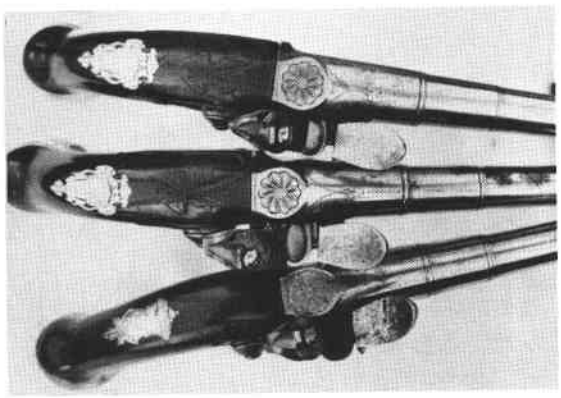

FIGURE 9. ENGLISH PISTOLS BY CLARKSON, CIRCA 1730

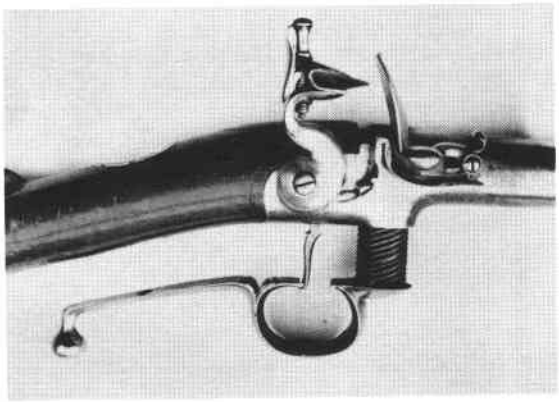

FIGURE 10. ENGLISH GUN BY CLARKSON, CIRCA 1730

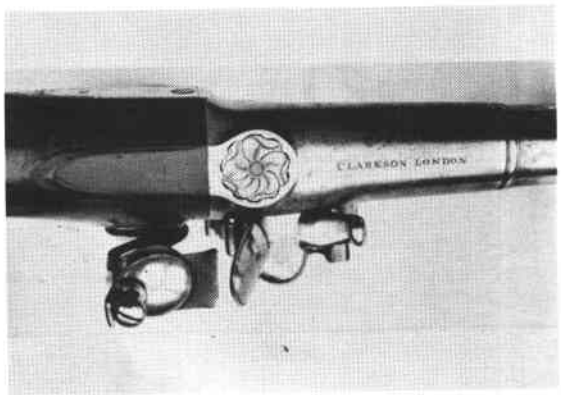

FIGURE 11. CLARKSON GUN

of the Grand-duke of Saxe-Weimar. It is undoubtedly one of the most ingenious breech loaders anticipating our modern guns and resembles the basic action of the Martini rifle.

Other Continental gunmakers experimented with the system. There are several German guns and pistols working basically on De la Chaumette's plan. One outstanding gun is made by the famous Dutch gunmaker, Penterman of Utrecht. It is obviously a close copy of the "Amusette de Marechal Saxe." It has a slightly tapered steel plug with an eleven-start thread and lowers the breech with a single turn. It is stocked to the muzzle and has no ramrod. It has the early cavity in the butt to hold a powder measure, but this has never been completed. It is a finely made and rugged weapon and is the only recorded Dutch example. A pair of Spanish pistols with miquelet locks were also made on the same principle.

Now, having covered the various Continental weapons made on De la Caumette's plan, let us look at what the English gunmakers were doing. The very first which were made in England were produced by an immigrant French gunmaker of Huguenot origin who delighted in the name of Bidet. When he came over to England he brought De la Chaumette's invention with him. Two magnificent guns, both with smooth bore for ball, exist by him; one in Her Majesty the Queen's collection at Windsor and the other in the Duke of Brunswick's collection. The latter has an interesting inscription engraved on its barrel;

Carabine Nouvelle
La Chaumette a produit ce foudrayant tonnerre
De touts ses protecteurs on benira le sort
Puis que c'est le moyen de terminer la guerre
Et d'etablir des siecles d'or

Which can be interpreted as follows;

La Chaumette has produced this terrible gun
By which the destiny of his protectors will be blessed
Since it is the means of ending war
And the establishing of the Golden Age

Bidet was working in London between 1721 and 1730 and these guns will have been made in the early part of his time in England. They bear the marks S.B. for Samuel Bidet and C.M. for Chaumette. Other examples exist in museums and a fine pistol is in Clay Bedford's collection. Bidet joined up with a London gunmaker called Hutchinson and he in turn may have had some connection with the famous gunmaker Clarkson. Be that as it may, such other early English examples are all made by Clarkson and I can show you a fine pair of silver-mounted pistols and another of Queen Anne type signed by him (Fig. 9). These pistols most likely belonged

to the Earl of Dunmore, coming from the late Earl of Dunmore's collection at Faulkland Castle.

To compare with these pistols, I can also show you a smooth bore gun or musket on exactly the same principle and also with a Queen Anne action which practically makes a garniture with the pistols except that its mountings are of steel and not silver (Fig. 10-11). This originally belonged to Admiral Duff and came with many other of his weapons from Feteressoi Castle in Aberdeenshire, once the property of the Keith family, my ancestors, and it was from the steps of this Castle that the Old Pretender, father of Bonnie Prince Charlie, was officially proclaimed King of Scotland. Both pistols and musket are smooth bore and there are no grease cups in the threads. The musket has no fore-end but a plain steel barrel with a hook for an early form of bayonet. This bayonet has been lost which is a great pity as it must have been of a special pattern. Both pistols and gun have ten-start threads. Clarkson produced these De la Chaumette pattern arms approximately between the years 1730 and 1740. A number of them exist; there is another silver-mounted pair in a private collection and a single one also in the collection of Dr. Strassman. The musket I have shown you from my own collection is, so far as I am aware, the only existing one and being a military piece, albeit privately made, is of particular interest in this review.

FIGURE 12. FERGUSON RIFLE BY EGG, CIRCA 1770

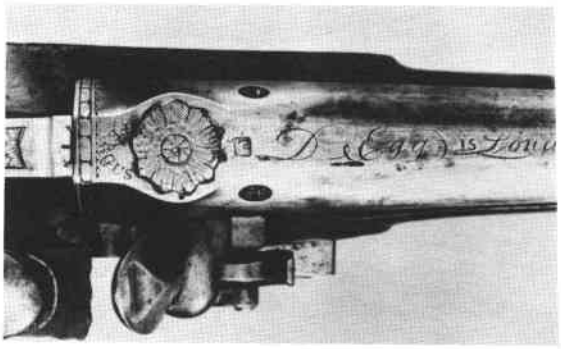

FIGURE 12A. FERGUSON RIFLE

We now come to Ferguston's rifle which he designed and for which he took out his patent as we have already noticed, in 1776. Now, just what did this weapon have that the predecessors did not? Here are the answers. First of all, it was a rifle with rifling designed by Forsyth. Secondly, it was a proper military arm made to take Ferguson's own design of sword bayonet. Thirdly, it's screw plug, which had a ten-start thread, was fitted with grease cups, a highly important improvement. Fourthly, it had Ferguson's patent sight. This took two forms; the first model being a backsight made to raise and lower in a vertical slot behind the breech, the second being a folding leaf sight combined with a large peep sight for rapid shooting. Ferguson did wonderful shooting with his rifle before a select committee of the War Office, firing four shots within a minute at a target at 200 yards, then six shots a minute and finally four shots per minute advancing at the same time at 4 m.p.h. He then poured a bottle of water into the pan and barrel of the rifle so as to wet every grain of powder and in less than half a minute fired with the same rifle without ever extracting the ball. Ferguson was said to be the finest shot in the British Army; according to the testimony of an eye witness he would check his horse, let the reins fall upon the animal's neck, draw a pistol from his holster, toss it aloft, catch it as it fell, aim and shoot the head off a bird on an adjoining fence.

Here is the description of one of Ferguson's own rifles which I have in front of me. Made by D. Egg, it is signed by him on both lock and barrel in script. The barrel itself is 32 inches long and rifled with seven square-cut grooves, the width of the grooves being equal to the width of the lands. It fires a round ball of 24 to the pound. On the breech, on top is the word FERGUS and in front of the plug a crescent in a stamp, being the crest of Ferguson of Pitfour. Stamped on the barrel between the words D. Egg and London is the number of the rifle, No. 15. The barrel is fastened to the stock by three bolts or slides. There is a forward sling swivel hung below and a back swivel fastened to the side of the stock opposite the lock. The back sight is of the first pattern situated behind the breech in a vertical slide. It is elevated to give a range of 200 yards maximum. The mounts are of pale brass known as "Prince's metal" plain with no engraving. The trigger guard which moves the breech is of steel and very stoutly made. The plug itself is of steel made with a ten-start thread and has two wide vertical cuts or furrows down each side to hold grease and lubricate the breech. It also has a flat formed where the powder charge comes in contact with it.

Now, these grease slots made all the difference to the successful working of the rifle plus the flat behind the powder which to some extent prevented the powder fouling to corrode the threads. This was the most important improvement Ferguson made, and it was the lack of lubrication, etc. on the old De la Chaumette weapons which caused their failure. I have shot with both; the De la Chaumette fires perfectly and can be re-loaded and fired if this is done immediately before the fouling has time to harden and corrode the

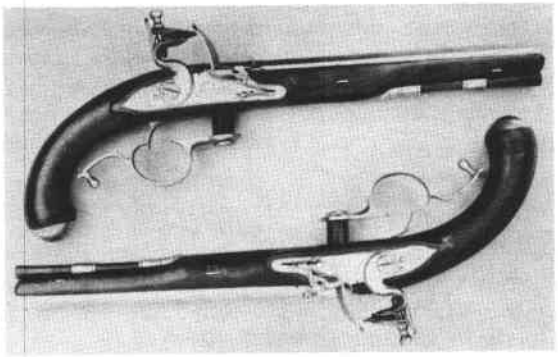

FIGURE 13. ENGLISH PISTOLS BY JOVER, CIRCA 1770

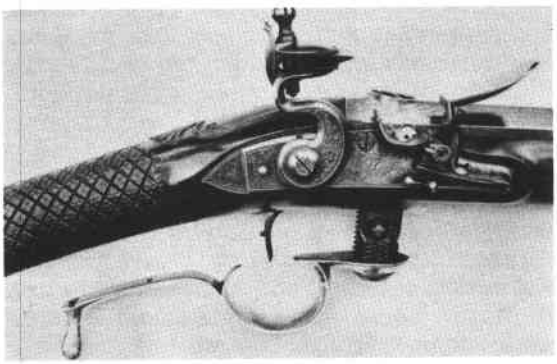

FIGURE 14. ENGLISH RIFLE BY EGG, FROM 1777

threads, but if the weapon is left after being fired for even a couple of hours, it will be found that the plug is so seized-up with the powder fouling hardening that it is impossible to move the breech. It was for this reason that sometimes a ramrod was fitted so that in the event of the breech seizing-up, at least the rifle could still be muzzle loaded. Ferguson, who obviously was well aware of this problem, did his best to eliminate it and I have found if a plentiful supply of the right grease is used in the slots, it will, to a large extent, prevent the seizing-up of the plug but not completely for in cold weather, I am sure that if the rifle was fired and left to stand for a short time, it would be very difficult to operate. Ferguson, when he made his tests, was of course, firing continually so all went well, but I can speak from my own experience using one of Egg's best rifles, that I fired a number of shots in the morning perfectly, then put the rifle aside while I had lunch, and when I picked it up to use in the afternoon it was impossible to remove the breech and I had to take it apart in the workshop. Possibly, with more careful attention to greasing, especially if the rifle was to be left awhile after firing, this seize-up could be avoided, but it is definitely the main drawback to this otherwise excellent system.

Having shown you one of Ferguson's own personal rifles, it may be of interest to review others and also to refer to certain variations. Now, it must be borne in mind that the breech plug with a ten-start thread is a very highly geared-up screw; any seizing-up is going to require ten times the force to free it as against a single-start screw.

Jover of London, a most skillful gunmaker, also designed Ferguson pattern arms both as rifles and pistols. He employed a five-start plug which had to be turned two complete times to lower it for the ball to enter the breech. This was a little more fussy, but it was still very quick, and by halving the number of threads, he halved the force needed to turn it. Jover made excellent rifles and pistols (Fig. 13), the latter also with rifled barrels, on this principle. I can show you a pair of these; they have steel mounts, and the plug is of "Prince's metal." The plugs have no grease slots but do have a flat cut behind the powder. There is a single pistol by this maker and also a rifle on the same plan in Clay Bedford's collection. Another pair is in the Tower of London and still others are known to exist. Now comes the problem of dating. The Jover weapons appear to be of just about the same date as those made by Egg but I am inclined to think they may be a trifle earlier than the patent taken out by Ferguson in 1776. Jover was older than Egg and had been in the business before him. Egg made the first rifles for Ferguson in 1776 so it is impossible to be certain which came first, the egg or the bird. If Jover's are later, then he copied Ferguson's invention by using a slower plug with two turns. Or he may have done so correctly with Ferguson's permission. This we can never discover. Certain it is that after Ferguson's death, many different makers made rifles on his plan and there was no one who would contest it. With so many examples prior to Ferguson's invention, it is most doubtful if it could have been upheld successfully in a court of law. Now, the actual rifles designed and used by Ferguson's corps were made by two contractors, D. Egg and J. Hunt. Only a few of the original weapons have survived and most of those that have are numbered on the barrels and have the word FERGUS stamped at the breech. Ferguson is believed to have supplied his corps at his own cost with the rifles and as this corps consisted of 150 men, at least that number of original military Fergusons were made. In addition, there were pattern rifles made by D. Egg for both the Tower and the East India Company and some actually have the word Tower and G. R. engraved on the lock. These were probably demonstration weapons or pattern arms as they come in a variety of barrel lengths and calibres. Now everyone wants to know what happened to all the Ferguson rifles with which Ferguson's corps was armed. There is an account of the life of Ferguson and his military career written by Mr. James Ferguson of Kinmundy in 1888. From this book, I have gleaned much information. On page 65, he states that "the bore of the British rifle was large and lead was scarce in the Carolinas; the Americans destroyed all the rifles captured at King's Mountain." In the same book, he tells us that Sir William Howe, Commander in Chief of the British Forces, was jealous of the rifle corps which Ferguson commanded, it having been ordered without previous consultation with himself, and he took advantage of Ferguson's being wounded at Charlestown to reduce his

corps and return his rifles to store. This last piece of information has given rise to the belief in certain quarters that Ferguson did not use his rifles at the battle of King's Mountain, but knowing the character of the man and his great trust in those rifles, I think it highly unlikely that Ferguson should have failed to get these back for the use of his men. I have myself come across several of the original Ferguson rifles which were used to arm his corps which have obviously been badly damaged in battle, and which in every case had had the plug hammered up or riveted over to turn them back into muzzle loaders. I have reason to believe that others were in fact recovered and brought back from America but most of them have been lost or destroyed. The fine rifle given by Ferguson to Captain Frederick de Peyster, (see footnotes for details) his favorite officer, has been passed down in his family and is undoubtedly one of the most authentic examples in America, but of all the rifles used to arm Ferguson's original corps of 150 men, it is doubtful if more than eight or ten have survived until today.

Of those that have survived there appear to be two patterns which may be distinguished by the form of the rear sight. The earliest has the sight mounted behind the breech and is integral with the tang of the breech plug. It is made of brass and works in a vertical groove and made to pull up and down to vary the elevation at will, this is shown clearly in the illustration Fig. 12A of one of Ferguson's personal rifles by D. Egg. I have seen this identical form of sight on two similar rifles made by the contractor J. Hunt, and on at least two others made by D. Egg. All these rifles bore the word FERGUS on the breech and date from the time of the battle of King's Mountain. The sight does in fact follow the design as described in the patent specification.

The second pattern has the rear-sight mounted in the normal place about three or four inches forward of the breech. It is a fixed sight with one folding leaf. The fixed sight has a shallow oval like the buckhorn pattern and the leaf sight is perforated with an aperture in the form of a heart. On the top of this leaf is a shallow groove for maximum elevation. The DePeyster rifle and another very similar in the collection of Mr. Clay Bedford have this form of sight, both these rifles are by D. Egg and have G.R. and Crown on the locks.

There were some exceedingly fine sporting rifles made on Ferguson's plan, the finest of all being in Her Majesty The Queen's collection at Windsor. The Prince Regent refers to Ferguson's rifles and did in fact order more than one from D. Egg and speaks very highly of them. I can show you two made by Egg (Fig. 14) in his finest quality; they are almost a pair, both are silver-mounted and London hallmarked for 1777. They retain their original fire blueing on the barrels and must be some of the finest examples of Egg's gunmaking. The plugs are made of hard silver alloy and have the ten-start thread as well as grease slots, etc. They are the last word in perfection. Other rifles made by D. Egg have sliding bayonets, but these are sporting arms and not military. After Ferguson's death, a number of different gunmakers turned out rifles on the Ferguson principle, among these we find Wilson of the Minories, Newton of Grantham, Barber and Bolar of Newark, Knubley and some few others. The latter maker produced rifled pistols and so did Jover.

There were many and various forms of breech loading arms designed over almost the entire period of the flintlock, some with detachable cartridges, some with screw breeches but despite great ingenuity they all suffered from a common complaint, lack of a perfect seal from the powder gases and disruption of the breech mechanism from the resulting fouling. The Ferguson rifle brought the system nearer to success than any other. It barely survived into the 19th Century, the latest one I have is by Barber and Boler of Newark and dates from about 1800. It has a curious history; it belonged to the Ferguson family, the Fergusons of Kindmundie and was brought home from Kandhar. This rifle and the bust of Ferguson, some books on his life and a pair of double barrelled Wogdon pistols all came from the Ferguson home at Kinmundie. They are all that have survived of this great soldier amongst his family possessions. Patrick Ferguson was ahead of his time, the first man to arm British troops with the rifle an outstanding man and a great hero.

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FERGUSON BREECH-LOADING FLINTLOCK RIFLE. This weapon was presented by Major Ferguson to Captain Frederic de Peyster (1775-76) and bequeathed by him to his son, General John Watts de Peyster, of New York City. In turn, John Watts de Peyster loaned the weapon to the War Department. A request was made by the Smithsonian Inst. to have the weapon housed in the National Museum. By the direction of the Secretary of War, and the consent of de Peyster, the weapon was transferred to the National Museum, June 15, 1905.

Name of Maker: D. Egg, London

Proof Marks: Barrel at breech/left, "Crown/G R/arrow." Barrel at breech/right, "Crown/crossed scepters."

Other Marks: Barrel top at breech, "D. EGG LONDON." Lockplate/rear, "D EGG" Lockplate/center; "G Crown R"

Weight: 7 lbs., 3 oz.

Rear Sight: V notch and folding leaf with V notch and aperture.

Length without Bayonet: 49 7/8"

Length with Bayonet: 75 1/4"

Wood used for Stock: Walnut

Length of Stock: 44 5/8"

Width of Stock: 1 13/16" at breech.

Length of Barrel: 34 1/16"

Width at Breech: 1 11/32"

Width at Muzzle: 13/16"

Bore: .69 cal., groves. 21/32"

Number of Lands: 8

Width of Lands: 1/8"

Width of Groves: 1/8"

Depth of Groves: 1/32" full

Twist of Rifling: Right

Front Sight: Blade.

Bayonet Lug: Bottom center of barrel, 2 7/8" from muzzle. 7/16" x 1/8" x 1/8"

Bayonet Blade: 24 11/16"

Bayonet Socket: 4 1/4"

Length of Lockplate: 5 1/4"

Details/Inside Lock: Main Spring, Tumbler, Tumbler Cap, Sear, and Sear Spring. No Marks.

Details/Side Nails: Half Round Head Barrel Keys, 3.

Trigger: Pinned through Stock.

Ramrod: (Rear Half) Walnut tapering rod with nailed steel cap and 3 twist worm.

Non Steel Parts: Butt Plate. Stock Fore Cap, or Muzzle Cap. 3 Ram - rod Pipes.

In Memoriam

WILLIAM G. RENWICK

William G. Renwick, who joined the Society in 1956, passed away September 6, 1971 in Tucson, Arizona at age 85.

He was born in 1886 while his parents were traveling in Germany and spent part of his early life in California. Upon graduation from Pomona College, he was one of the first half dozen people to take an automobile trip across the United States.

While residing near Boston, Mass., he practiced law and beginning in the 1930s, started spending his winters in Arizona.

Mr. Renwick, a gun collector, had a collection totaling more than 2,500 firearms. Because of his knowledge of firearms, he was consulted by curators from famous museums throughout the world.

He was a member of the following organizations — Arms and Armor Club of New York, Arms and Armor Club of England. Union Club of Boston, Union Club of New York, Union In teraliee of Paris, France, Club of Odd Volumes, Boston, M.O.F.W., M.O.W.W., History of Science Society, Chicago, Society of the Cincinnati, Harvard Club of Boston, and Adventurer's Club of Chicago.

Some of his works in the firearms field include a magazine article entitled "The Patterson Colt" and another entitled "The Rifle of Maximilian I."

He was a member of the Massachusetts Arms Collectors and the Company of Military Historians, also the National Rifle Association.