Eighteenth Century Firearms:
History, Development and a Focus on Calibers

Wellington Goddin, Jr.
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Dr. McDaniel
American Firearms of the late eighteenth and early nineteenth centuries reflect the diversity of the new country development and show a combination of continental weapons. Settlers from several countries mixed together and so did their weapon-making techniques that led to an ultimately superior breed of firearms. The two main influences upon American firearms development were the British and the Germans. The English contributions being the English smoothbore and the German rifle. Neither weapon was perfected before arriving in America yet each was refined, especially the rifle.

The English smoothbore arrived with the first settlers at Jamestown in the seventeenth century in the form of the matchlock. This weapon utilized a slow-burning rope to ignite the charge. Also used in this period were the wheel lock and the snap splice musket. The wheel lock used a purite activated by a wound spring for ignition. The snap splice was a direct predecessor of the flint lock utilizing a flint to create the spark for ignition. These actions were very limited use in the colonies because they were closely followed by the dog and English lock. These new locks provided a one piece battery and pan called a frizzen.

By the mid eighteenth century the flint lock in its true form dominated firearms production. The English almost entirely used large caliber smoothbores which followed in the colonies to some degree. They were very versatile. The same gun could be loaded with small shot for small game and fox or with one or several shot for big game. These smoothbore weapons were accurate up to a range of eighty to one hundred yards but worthless at greater distances.

For conventional military use the smoothbore or musket was favored.
It was cheap to produce but more importantly it was easy to reload. Without rifling grooves in the barrel, the ball could be seated easily and quickly for the next shot. The closed rank tactics of the Revolutionary period were based on the musket. Successive volleys at close range. The object of firepower was volume rather than accuracy so that the slower to reload yet more accurate rifle had no place on the conventional battle field.

For close ranges a musket that fired a large shot was ideal. These muskets ranged in caliber from a low of .58 caliber to a high of .80 caliber. At the ranges common to the musket a heavy shot with a low velocity was more effective than a smaller shot even with increased velocity. The "Brown Bess", a British military arm, set the pattern for muskets of the eighteenth century. It was eleven-gauge or .75 caliber.

Using the Brown Bess as a model, Colonial Committees of Safety contracted with local gunsmiths to produce muskets. These muskets ranged from .65 caliber to .77 caliber and attempted to fill the void created by the lack of any government armories. Also very popular during the war was the "Charleville" model 1763 French musket. This firearm had a caliber of .69 and a barrel length of forty-four-and-a-half inches. Their entrance into the war of France supplied 100,000 of these weapons to the continentals. The US flintlock musket, Model 1795 was patterned closely after the "Charleville" which indicates its success in America.

British muskets and fowling pieces of the period ranged in the .60's, .70's and even .80's. Judging from my research it is reasonable to believe that smoothbore muskets and fowling pieces were of a caliber no less than .54 and extended into the .60 caliber range. There is nothing to indicate that a smoothbore of less than .54 caliber existed or even
was used to any extent. All research indicates that handgun calibers were the same as rifle calibers. The range of British pieces is from the low 50's to lower .60's. American handguns seem to be mostly of .60 caliber or greater with the smallest being a .54 caliber.

Whereas the smoothbore shows its British influence and never develops further, the rifle was refined and made practical in America. It was a weapon that was ignored for the most part due to some obstacles in its development. In America a need for increased accuracy focused "yankee ingenuity" and produced a practical and formidable weapon. In England the rifle had been totally ignored as there was no real need for such a weapon. One must look to Germany and its American settlers to find the rifle. It was the Germans that brought the basics that formed the foundation for American rifle development.

German settlers from America brought with them the "Jäger" or German hunting rifles with them. The Germans had used a heavy rifle with a large bullet. The problem came in loading. In order to fit a bullet in the German rifle, the ball was rammed into the barrel, the powder was then flattened which expanded the bullet to the rifling grooves. This flattening of the ball spoiled ballistics and slowed the loading process.

The Americans solved the problems of the German gun, by using a smaller ball and wrapping it in a greased patch. The loading problem was taken care of. The barrel was lengthened to increase accuracy by providing more efficient burning of the powder. The stock was lightened to cure the weight problem.

This new rifle was custom tailored to meet the requirements of the American frontiersman. It was light weight with high velocity. The rifle could be handled in the woods and had an effective range up to three hundred yards while at the same time it was economical lead and powder-wise. These weapons originally ranged in caliber from .45 to .60.
but by the Revolutionary period the calibers had been changed to .40 to .45 due to the increased velocity. With the increased velocity the larger calibers produced an unpleasant amount of recoil and the lower calibers were quite adequate for the job. By this stage the "Kentucky" or "Pennsylvania" rifles were producing velocities over two thousand feet per second. These velocities were to be increased only with the advent of new twentieth-century powders. The first U.S. government rifle was the model 1803 produced at the Harpers Ferry Armory. This weapon was based on the Pennsylvania rifle utilizing a .54 caliber.

Rifles were made by wrapping a strip of soft iron around a core of iron called a mandrel. The outer strip was heated and hammered until the seams had been welded. The mandrel would be removed, the barrel reamed and a breech plug fitted in one end. Then the barrel would be ground into an octagon shape and fitted to the stock.

In connection with the Liberty Hall excavation several conclusions can be drawn. As it was on the frontier firearms must have played a part in the lives of students and their neighbors. As stated in a book on gunsmithing in colonial Virginia.

"The lives of frontiersmen depended on reliable weapons and their firearms, so gunsmiths naturally followed the frontier; names of more such craftsmen are found in the records of the frontier countries than in the more settled areas..."

The weapons of the frontier to include Rockbridge country and Liberty Hall Academy would have been predominately rifles. There are general reasons for this predominance. Defense would call for a rifle. Most game indigenous to the area could be taken with a rifle especially deer and turkey. The concept that the rifle made up the majority of the frontier weaponry is reflected in the following quote:

"Many gunsmiths on the frontier especially in the Shenandoah Valley..."
made rifles. Rifles appear to have been the favorite firearm in the region of Virginia west of the Tidewater area.\textsuperscript{12}

Firearms production did take place in Rockbridge country during the period of Liberty Hall. Records indicate that at least four persons practiced the art of gunsmithing in the county: John Hannah

- John Hannah (1754 to 1781)
- John Davidson (1757 to 1832)
- William Lyle (c. 1782)
- John Walder (c. 1794)

As for identification of artifacts found at the Liberty Hall site, some generalized statements can be made. Research indicates, in my opinion, that it would be reasonable to consider any balls of a caliber larger than .54 as smoothbore musket, fowling piece or pistol ammunition. This assumption also holds true for any small shot found that smaller than .30 caliber. The handgun question is largely irrelevant as it seems handguns were usually carried by the military and were of little use to the average frontier inhabitant. Also I feel it is safe to classify any ball of the .34 to .54 caliber range as rifle ammunition. A visual check for rifling marks could indicate whether the ball had been fired or not.
OUTSIDE VIEW OF U.S. MILITARY FLINTLOCK_HAMMER AT FULL COCK, PAN CLOSED.

INNER VIEW OF MILITARY FLINTLOCK_HAMMER FORWARD, PAN OPEN.

A_LOCK PLATE
B_HAMMER
C_CAP
D_HAMMER SCREW
E_TUMBLER SCREW
F_FRIZZEN
G_FRIZZEN SPRING
H_FRIZZEN SCREW
I_FRIZZEN SPRING SCREW
J_PAN
K_SIDE SCREW HOLES
L_MAINSPRING
M_MAINSPRING SCREW
N_BRIDLE
O_BRIDLE SCREW
P_TUMBLER
Q_SEAR
R_SEAR SCREW
S_SEAR SPRING
T_SEAR SPRING SCREW
ENDNOTES

2. Ibid pp. 44-45.
4. From Flintlock to M1 p. 22-23.
5. The Fireside Book of Guns p. 47.
10. From Flintlock to M1 p. 53.
BIBLIOGRAPHY


