

**Pennsylvania Long Rifle:**  
*Overview on an American artifact*



For the frontiersmen and those carving a nation out of a wilderness, the firearm was at least as critical to their survival as the axe and plow. The development of the firearm in colonial America is actually the story of the development of America itself. Further, in the first century and a half, beginning in approximately 1700, it encompassed the rise of a thoroughly American art form, the Pennsylvania long rifle (although many were also made in Virginia and the Carolinas). In the long rifle, we have an artifact that was forged by the needs of its environment. As time went on, the culture of the people subtly changed the rifle until it became uniquely American.

The long rifle was a by-product of the settling of the southeast corner of Pennsylvania. When William Penn began sending settlers up the rivers, which came together at Philadelphia like fingers in a glove, he unwittingly set in motion a long-term cultural event. Each of the parties that traveled up into the wilderness used the rivers as their super highways to travel northward because the topography of the land worked against travel east and west. Long lines of parallel ridges made travel via rivers the natural decision. The rivers deposited these groups of settlers in a fan shaped pattern that started in the west near present day Lancaster on the Susquehanna and continued eastward in an arc until they reached the Easton/Nazareth area on the Delaware. This was to become the heart of the American arms industry until the industrial revolution of the early to mid-1800's developed mass production in the Connecticut River valley and the government established armories at various locations throughout the young nation.

Early gunsmiths, circa 1700-1725 brought with them the skills and thought patterns, which had been part of their training and practice in Europe. Their rifles, called Jaegers (hunter), were stocky, short barreled weapons (30") usually of .60 caliber or larger and often were smooth bore inaccurate muskets. The butt stocks were thick and their general outline was purposeful but hardly graceful. They did, however, incorporate the German fetish for function and their flint ignition locks worked very reliably.

As the Jaegers wore out and were gradually replaced by locally produced rifles, the Pennsylvania environment began to have several effects. For one thing, knowing that they couldn't easily replace the large powder charge and heavy lead ball expended each time they pulled the trigger, accuracy became critical. Each time they pulled the trigger, they wanted to be bringing home a buck or a squirrel. Where the Jaegers in Europe were primarily target shooting or hunting for sport, in the new land, shooting was a matter of survival.

The Pennsylvania Rifle, misnamed the Kentucky Rifle, was developed in Lancaster by Swiss gunsmith, Martin Meylin. Meylin put spiraling grooves in the barrel, known as "rifling". The rifling made it extremely accurate up to 300 yards. The long rifle was an important tool for American frontiersmen in the 17th and early 18th centuries. The rifle put food on the table, protected homes, and helped win battles in the Revolutionary War and the War of 1812.

Barrels were locally manufactured using two basic methods. One involved taking several five or six foot long ribbons, or "skelps", of iron roughly half inch thick and an inch wide and hammer welding them together at one end while red hot. Then these strips were heated and wrapped around a mandrel before being hammer welded together and forged to a rough octagonal shape. The mandrel was withdrawn, the hole was bored smooth and straightened, then rifled in a home made rifling bench, one groove at a time. A second method involved folding a thick, single piece of metal around the mandrel lengthwise. This was hammer-welded smooth along the bottom in a scarf joint. This produced barrels that sometimes split along the seam with heavy loads. The octagonal shape, which was initially hammered into the rough blank, was draw-filed to final shape by hand, although water driven grinders were undoubtedly used in larger production shops.

At the time, rifling was commonly used in the colonies for hunting weapons, but no one advocated the use of rifling for standard military weapons. Indeed, colonial gunsmiths, especially those in the areas of Pennsylvania where German immigrants settled, specialized in producing hunting rifles with very long barrels. These colonial "Pennsylvania" long rifles were the weapons Daniel Boone and other frontiersmen made famous for their range and their accuracy.

With a quality Pennsylvania rifle, a good marksman could expect to hit a target accurately at several hundred yards. In contrast, even the best marksman would expect trouble getting a musket ball to hit a man-sized target at much more than 40 or 50 yards. When British soldiers formed their classic line of defense and all fired their muskets at the same time, they, in essence, became a gigantic shotgun. The advantage of the musket as a military arm was its speed in reloading. In a rifled barrel, the ball has to be rammed down the tight fitting barrel and this takes some time to accomplish, while a musket ball could be dropped in.

The Kentucky (or Pennsylvania) Long Rifle was the most accurate long range gun for several decades. A typical rifle was .40 to .50 caliber, with a full stock made of curly maple, and sported a 42 to 46 inch barrel. A crescent-shaped butt plate, patch box and cheek piece were also common and are helpful in identifying a KY/PA long rifle. The rifle was longer in barrel length for greater accuracy and more efficient powder burn, smaller in barrel width and caliber to reduce weight and allow more shots per pound of lead balls and powder as compared to the European Jaeger rifle. As the long rifle spread into other regions of the country, including the south, and small game became the primary target, calibers worked down even further until .32 was common and .28 wasn't unknown. These were true "squirrel rifles."

The long rifle was a prime factor in several Revolutionary era battles, especially in the West. Perhaps due to this heritage, Kentuckians were known as sharpshooters from the Revolutionary War through WWII and even as late as Vietnam.

Col George Hanger, a British officer, became very interested in the American rifle after he witnessed his bugler's horse shot out from under him at a distance, which he measured several times himself, of "full 400 yards", and he learned all he could of the weapon. He writes: "I have many times asked the American backwoodsman what was the most their best marksmen could do; they have constantly told me that an expert marksman, provided he can draw a good & true sight, can hit the head of a man at 200 yards." (from M. L. Brown's, FIREARMS IN COLONIAL AMERICA)

As the rifles developed, a curious trend started in which each location or township developed distinctive styles not only in decoration but in general shape. Each of these styles, which are termed "schools", were named after their location (Lebanon, Reading, Dauphin, etc). While generalities can be made concerning the differences in the styles it's dangerous to take these as concrete rules. In the first place, gunsmiths often migrated from one part of the territory to another, taking their ideas with them. Also, as time went on, the styles changed and, in some areas, the styles changed faster than in others. A classic example of that is the general shape of the butt stocks.

Through out the region, as time passed, the butt stock became thinner and thinner. Also, the flat shape of the butt plate gave way to an increasingly curved surface. By the time flintlock ignition began to give way to the percussion cap, roughly 1840, the rifles were extremely thin and the curve of the butt plate was sometimes quite exaggerated. The side-view shape of the butt was another of the distinctive differences from area to area. Nazareth and Bucks county, on the east, retained straight lines, similar to the Jaeger, where, on the other extreme, barely 25 miles away, in Bethlehem, rifles often had extremely curved shapes, sometimes termed "Roman nose" stocks. Travel less than an hour further and the stocks become very linear as is typical of rifles from the Lancaster area.

Lancaster County was one of the first areas settled and was incorporated in 1729. It was to become one of the pronounced centers for arms manufacturing and its craftsmen became well known for their style and skill. Several generalities about rifles from this area during the "golden age" (1770-1840) can be made: The butt stocks tend to be straighter, with fewer curved top lines than the rest of the schools and their brass patch boxes, usually engraved, often worked daisies into their motif. The wood of choice was tightly striped "tiger stripe" or "fiddle back" maple. Maple was plentiful in the Pennsylvania hills although only 5% of the red maple trees had curl and less than .5% of the denser sugar maples had it. However, once a good sized tree with curl was felled, it would yield enough stock blanks to keep a number of gunsmiths busy for some time.



It is likely that for every rifle using fancy wood, there were dozens made using more common grades of wood. The survival rate, however, greatly favors the higher quality rifles because they existed in more up-scale social environments and their quality was recognized and protected throughout their lives. The more mundane rifles rarely survived to modern times because they were kept working until they were used up.

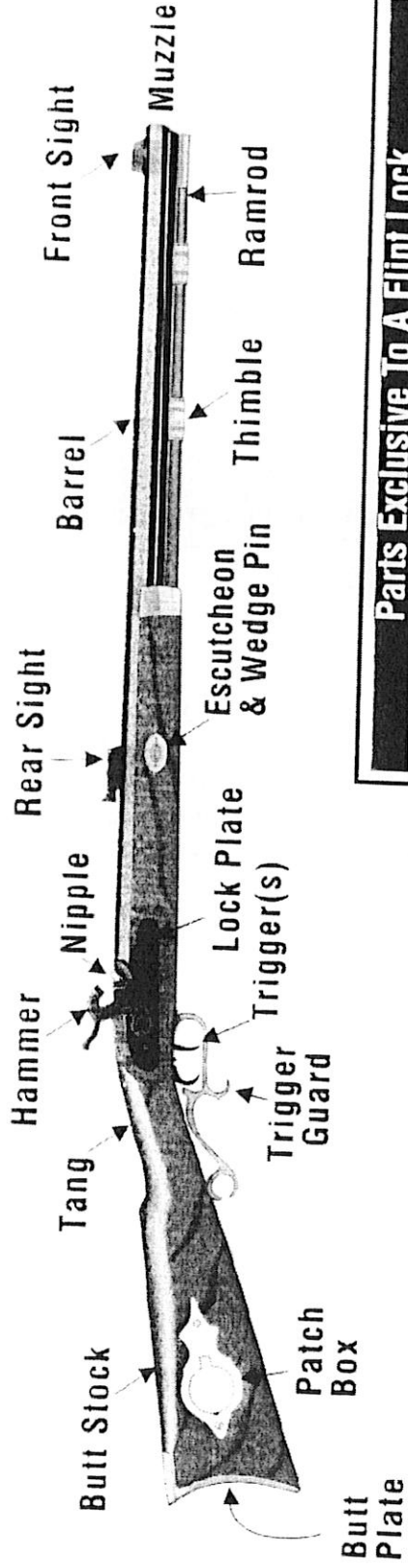
Maple is tough and light, but the colorful curly grain made it extremely difficult to work because each curl represents a partial reversal of the wood grain. Patience, wasn't a virtue, it was a necessity. The wood, nearly white in its natural state, was stained with a variety of compounds which darkened the softer grain more quickly causing the stripes to stand out. It was then usually rubbed down with many coats of boiled linseed oil.

In almost all cases, by 1840, styling had begun to get extreme, with random brass and silver inlays, less graceful lines, and no raised, rococo carving. In addition a huge trade had developed in plain, utilitarian pieces destined for the frontier, which had long since passed them by.

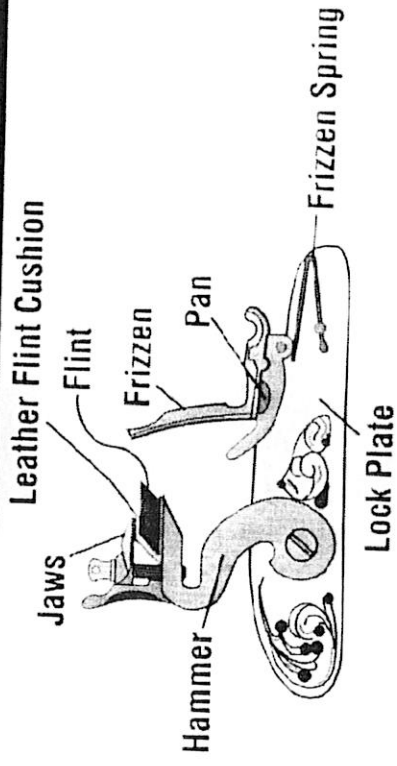
As man pushed west, the character of the rifle changed with the environment. The horse, rather than the rivers, became the preferred method of travel and a slim wisted, long barreled weapon, exquisite though it may appear, was too cumbersome and entirely too fragile for the rigors of the new life. Also, the further west they went, the increased size of the game demanded a harder hitting firearm.

By the time Ohio was being settled the fragile full stock of the long rifle had begun to give way to a half-stock design with a rib or number of hoops under the barrel to retain the ramrod. Also, the barrels rapidly shrank in length until 36" became a standard, but they were much bigger in diameter and the caliber seldom went above .45. Less attention was paid to decoration and more to function.

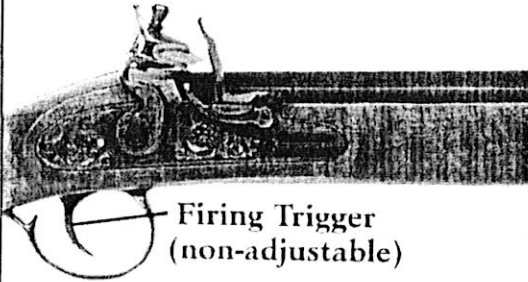
The gold rush dragged hundreds of thousands of would-be miners and settlers out into the Great Plains and western mountains where the target was likely to be buffalo, mule deer, bear, Native Americans, or other gold seekers. The size of the balls fired again began to climb with the famed St. Louis Hawken rifles averaging .50 to .54 caliber. The Hawken brothers, by the way, descended from a long line of gunsmiths who were there at the very beginning of the settlement of Lancaster, PA.



**Parts Exclusive To A Flint Lock**

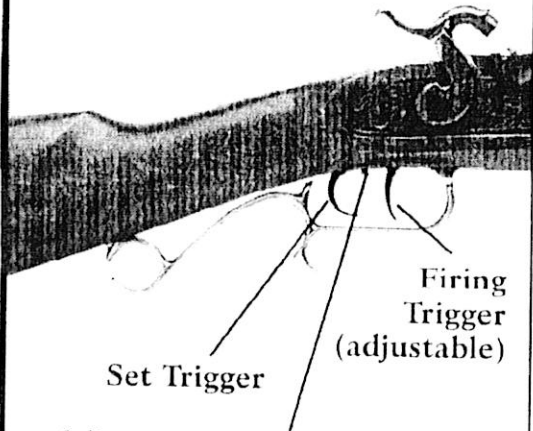


Single Trigger



Firing Trigger  
(non-adjustable)

Double Trigger

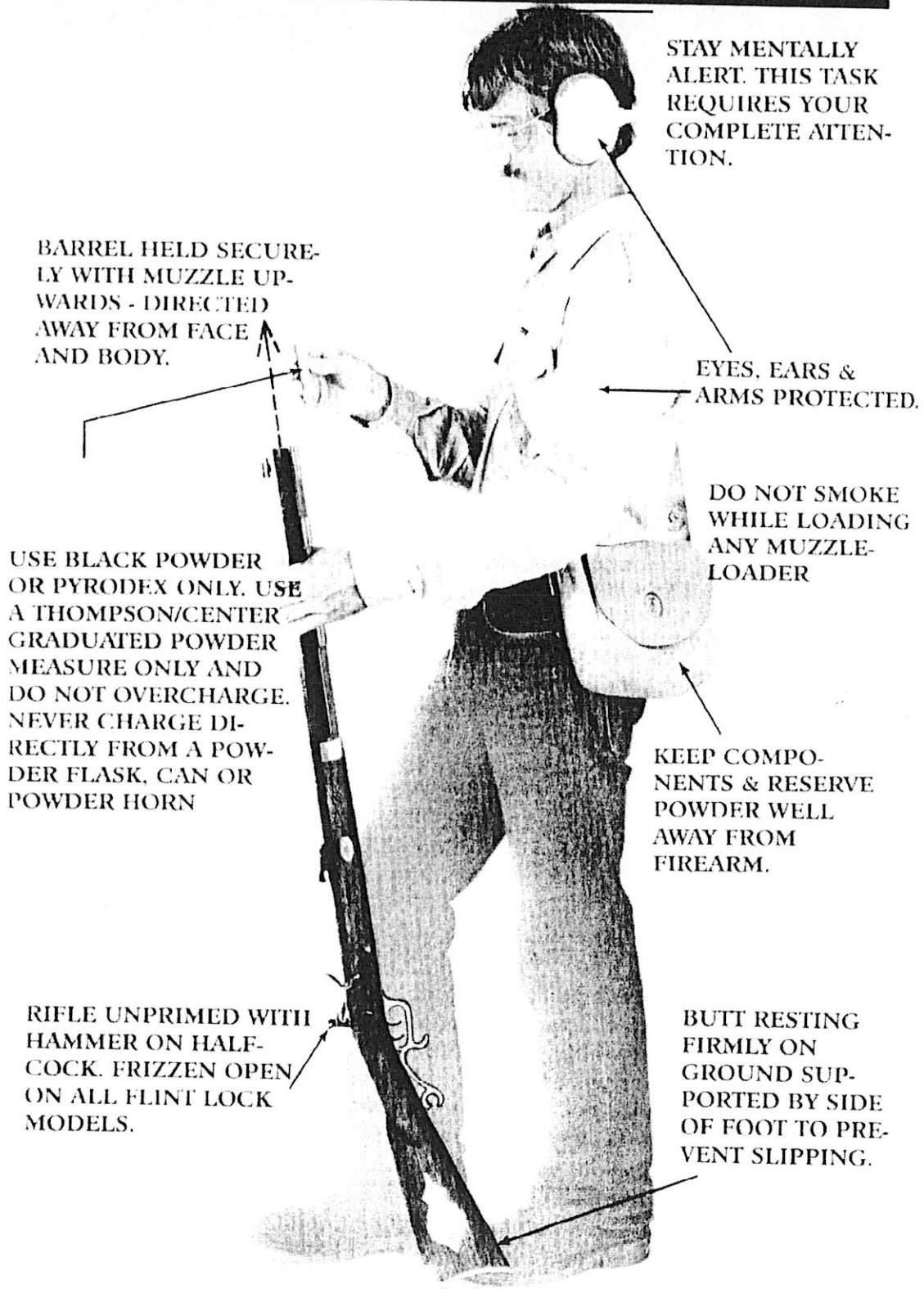


Set Trigger

Firing  
Trigger  
(adjustable)

Adjustment Screw controls the  
amount of set trigger engagement

# Rifle Section



STAY MENTALLY ALERT. THIS TASK REQUIRES YOUR COMPLETE ATTENTION.

BARREL HELD SECURELY WITH MUZZLE UPWARDS - DIRECTED AWAY FROM FACE AND BODY.

EYES, EARS & ARMS PROTECTED.

USE BLACK POWDER OR PYRODEX ONLY. USE A THOMPSON/CENTER GRADUATED POWDER MEASURE ONLY AND DO NOT OVERCHARGE. NEVER CHARGE DIRECTLY FROM A POWDER FLASK, CAN OR POWDER HORN

DO NOT SMOKE WHILE LOADING ANY MUZZLE-LOADER

KEEP COMPONENTS & RESERVE POWDER WELL AWAY FROM FIREARM.

RIFLE UNPRIMED WITH HAMMER ON HALF-COCK. FRIZZEN OPEN ON ALL FLINT LOCK MODELS.

BUTT RESTING FIRMLY ON GROUND SUPPORTED BY SIDE OF FOOT TO PREVENT SLIPPING.

## Summary of Charging & Priming Your Muzzleloader

1. Check to ensure that the firearm is uncharged.
2. Wipe the bore free of all oil.
3. Pointing the muzzle in a safe direction, snap several caps on the nipple clearing away any oil/residue which may be in the nipple channel. Dry the flash pan completely in a flint lock model.
4. Place hammer in half-cock notch. Keep the Frizzen open on the flint lock models.
5. Set rifle on its butt, holding muzzle away from your face and body.
6. Pour pre-measured powder charge down the bore and settle the powder.
7. Load round ball by placing patch over muzzle, centering it, and placing ball on top, or load bullet by placing it in muzzle straight.
8. Drive patched ball or bullet into muzzle with appropriate short starter.
9. Push the patched ball or bullet the remainder of the way down the bore using short strokes with the ramrod.
10. Firmly seat the projectile on the powder charge. Check the ramrod to ensure that the bullet and charge are seated to the proper depth.
11. Return ramrod to proper location in thimbles under the barrel.
12. Carefully place a Number 11 Percussion Cap, Musket Cap or 209 Primer on the nipple immediately prior to aiming and shooting, or prime flash pan and close the frizzen.

## References

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<http://frontierfolk.org/ky-lr.htm>

[http://www.palongrifles.com/home/LongriflePages/Longrifle\\_history.htm](http://www.palongrifles.com/home/LongriflePages/Longrifle_history.htm)

[http://web.bryant.edu/~history/h364material/musket/rev\\_gun5.htm](http://web.bryant.edu/~history/h364material/musket/rev_gun5.htm)

<http://www.airbum.com/NeatShtpix/LongRifle.html>

Shooting Thompson/Center Black Powder Muzzleloading Firearms, 2000.

Thompson/Center Arms Co., PO Box 5002, Rochester, New Hampshire 03866.

On October 2, 2009, the Pennsylvania House of Representatives signed a resolution recognizing the significance of the Pennsylvania-made longrifle, to the history of industry and fine art in America.

The resolution was first referred to Pennsylvania's General Assembly on March 17, 2009, as House Bill No. 952, to designate the Pennsylvania Rifle as the official firearm of the Commonwealth of Pennsylvania. Craig Dally, 138th District representing Northampton County, introduced the bill after extensive consultation with one of his constituents, William Henry Atherton. Mr. Atherton is on the board of directors of the Jacobsburg Historical Society and is a great grandson of iron industrialist and gunsmith, William Henry III, who in 1812 erected the Boulton Gun Works near Nazareth, PA. Today, the Boulton Historic Site is part of the Jacobsburg National Historic District and is maintained and interpreted by the Jacobsburg Historical Society, whose mission in part is to preserve and present the art and industry of early American gunsmithing.

Together with several longrifle historians, Representative Dally and Mr. Atherton built a strong case for the Commonwealth to officially recognize and promote the longrifle as an important Pennsylvania product. Upon passage of the resolution, Representative Dally noted, "Future generations should appreciate the heritage of the long-barreled rifle and the craftsmanship of gunsmiths who made them. I urge anyone with an interest in the early history of Pennsylvania, in general, and gunsmithing, in particular, to visit the Jacobsburg Historical Society."

Following is the text of the Pennsylvania Rifle resolution, signed by Keith R. McCall, Speaker of the Pennsylvania House of Representatives:

Whereas, Pennsylvania gunsmithing tradition has played an important role in the development of the United States of America; and

Whereas, During Pennsylvania's early history settlers placed chief reliance on their rifles for sustenance, security and survival; and

Whereas, the Pennsylvania Rifle, a unique firearm that was different in principle and outline from any other weapon in the world, was developed by skilled gunsmiths in the Moravian communities of Christian's Spring, Northampton County, as well as by artistic riflemaker Marlin Meylin in Willow Street, Lancaster Co; and

Whereas, the Pennsylvania Rifle was the first truly American firearm and due to its exceptional accuracy and range was considered the greatest achievement in the development of firearms during the 18th century; and

Whereas, Playing an important role in the early years of the Industrial Revolution in Pennsylvania and New England the Pennsylvania Rifle was also instrumental in the American fur trade and was carried west and south by frontiersmen as they set out to expand the boundaries of the nation; and

Whereas, the Pennsylvania Rifle has been lauded for its beauty and craftsmanship, as well as the ingenuity of the skilled gunsmiths who crafted it; and

Whereas, the color combinations, carvings, engravings and graceful slenderness of the Pennsylvania Rifle cause it to stand alone and remain unchallenged as a primary example of early American art; and

Whereas, Future generations should appreciate the heritage of this long-barreled rifle, born to artistic gunsmiths in the communities of the Commonwealth of Pennsylvania; therefore be  
Resolved That the House of Representatives recognize the significance of the Pennsylvania Rifle in the history of the United States and the Commonwealth of Pennsylvania.