

1 C.D. Michel – SBN 144258
Sean A. Brady – SBN 262007
2 Anna M. Barvir – SBN 268728
Matthew D. Cubeiro – SBN 291519
3 MICHEL & ASSOCIATES, P.C.
180 E. Ocean Boulevard, Suite 200
4 Long Beach, CA 90802
Telephone: (562) 216-4444
5 Facsimile: (562) 216-4445
Email: abarvir@michellawyers.com

6 Attorneys for Plaintiffs

7
8 IN THE UNITED STATES DISTRICT COURT
9 FOR THE SOUTHERN DISTRICT OF CALIFORNIA

10 VIRGINIA DUNCAN, et al.,

11 Plaintiffs,

12 v.

13 XAVIER BECERRA, in his official
14 capacity as Attorney General of the State
of California,

15 Defendant.

Case No: 17-cv-1017-BEN-JLB

**EXHIBITS 10-19 TO THE
DECLARATION OF ANNA M.
BARVIR IN SUPPORT OF
PLAINTIFFS' MOTION FOR
SUMMARY JUDGMENT OR,
ALTERNATIVELY, PARTIAL
SUMMARY JUDGMENT**

Hearing Date: April 30, 2018
Hearing Time: 10:30 a.m.
Judge: Hon. Roger T. Benitez
Courtroom: 5A

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EXHIBIT 10

COMPLETE GUIDE TO GUNS & SHOOTING

**by
John Malloy**

DBI BOOKS, INC.

Exhibit 10
00282

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About Our Covers

The exciting world of guns and shooting is filled with a variety of firearms for different purposes and games. Our covers show just a few of the types of guns you'll likely encounter as you journey into this wonderful field.

At the top is Ruger's Red Label 12-gauge over/under chambered for 2³/₄-inch shells. It sports a rare blued receiver and fixed Modified and Improved Cylinder chokes. This shotgun is a very popular choice for hunters and competitive shooters alike.

The revolver is Colt's premier model, the Python. Chambered for 357 Magnum, this wheelgun has been a favorite of sport shooters, law enforcement personnel and hunters for many years, and is well known for its silky-smooth action. Shown here is the 6-inch barrel model with target stocks.

At left center is the famous Browning Hi-Power autoloading pistol in 9mm Parabellum. With the grip, feel and reliability by which others are judged, the Hi-Power is one of the most popular pistols in the world. This example is shown with target sights.

At bottom is the Ruger M77R Mark II bolt-action rifle in caliber 30-06. Since its introduction in the late 1960s, the M77 rifle has appeared in many forms, in myriad chamberings, and is the rifle of choice for many hunters because it represents excellent value. It's shown here with a Redfield 2¹/₂-7x Tracker scope in Ruger mounts.

Photo by John Hanusin.

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Exhibit 10
00283

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Semi-Automatic Pistols

A semi-automatic pistol is a handgun that uses the energy of one shot to get itself ready for the next shot. This energy is generally from recoil, but may come from the gas generated by the previous shot.

Semi-automatic pistols are sometimes called self-loaders or autoloaders. More commonly, they are just called automatics, although they do not fit the definition of a true automatic firearm.

The semi-automatic pistol has the same three basic parts as the revolver: frame, barrel and action. However, the operation is very different.

In a revolver, the multiple cartridge chambers were in the cylinder. The barrel of a semi-automatic has a single chamber in the rear of the bore.

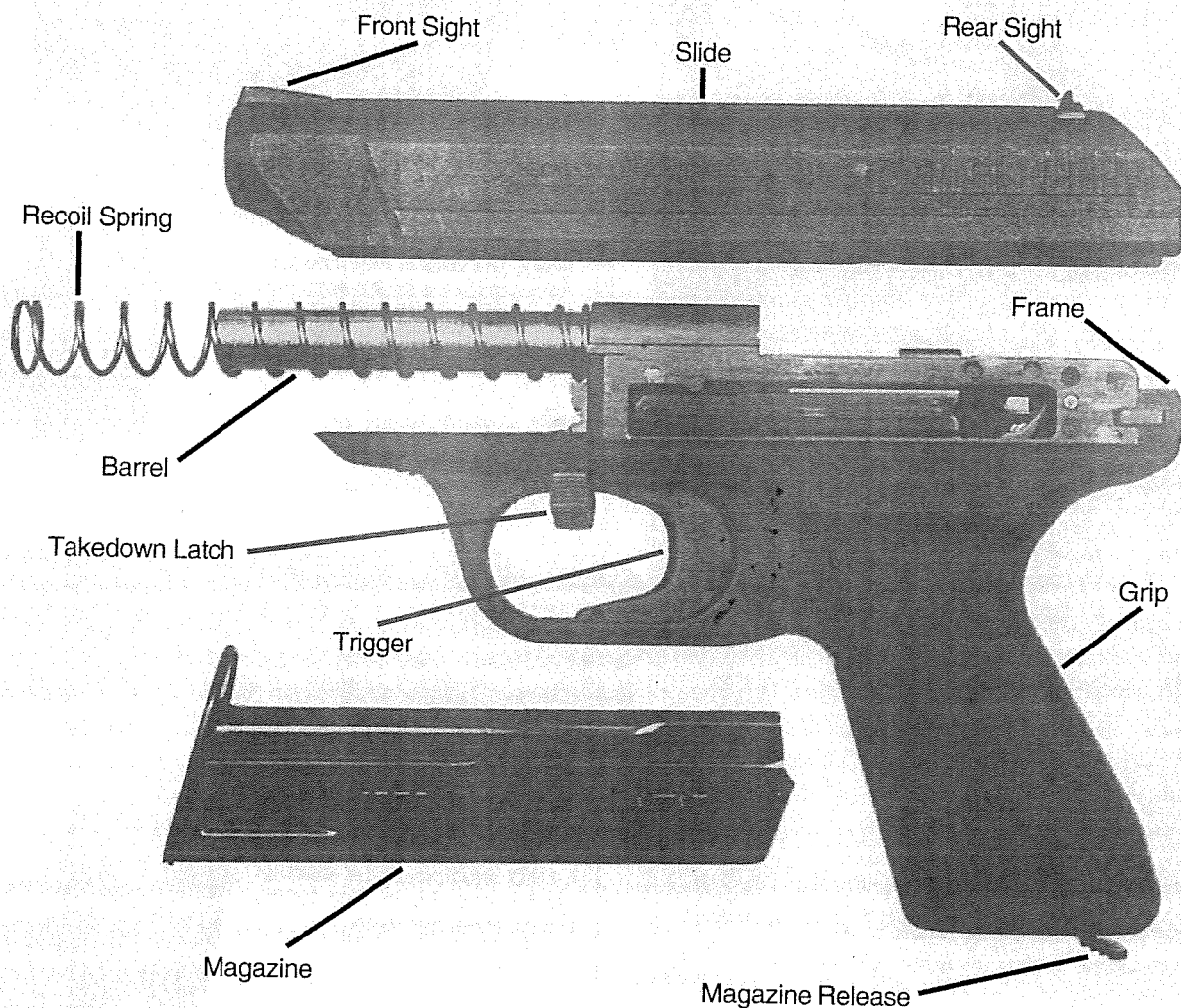
The frame of a semi-automatic generally has a hollow grip which contains the *magazine*, a storage device to hold cartridges to be fed into the chamber. The frame may also contain a *magazine release*, *slide stop* (also called a slide lock or slide

release) to hold the action open, and *safety*, a mechanical device to reduce the chance of accidental firing.

The details of semi-automatic pistol actions vary greatly. Some have a hammer (similar to that of revolvers) that strikes a firing pin. Some are striker-fired, that is, the firing pin is spring-loaded and released to strike the primer, firing the cartridge. Such pistols are often called hammerless. However, some "hammerless" guns have hammers that are not visible, but which are concealed in the mechanism of the pistol.

The earliest semi-automatics, such as the Borchardt, Mauser and Luger, had exposed barrels with a breechblock behind the chamber. In the late 1890s, John M. Browning came up with a marvelous invention, the *slide*. It rode atop the frame and covered the barrel, recoil spring and other mechanisms, allowing a very compact pistol. You may hear the term "slide" used generically for any kind of semi-automatic pistol mechanism. When you hear the command "Slides Back" on a pistol range, you open the action of your semi-automatic pistol, no matter what the design.

ANATOMY OF A SEMI-AUTOMATIC





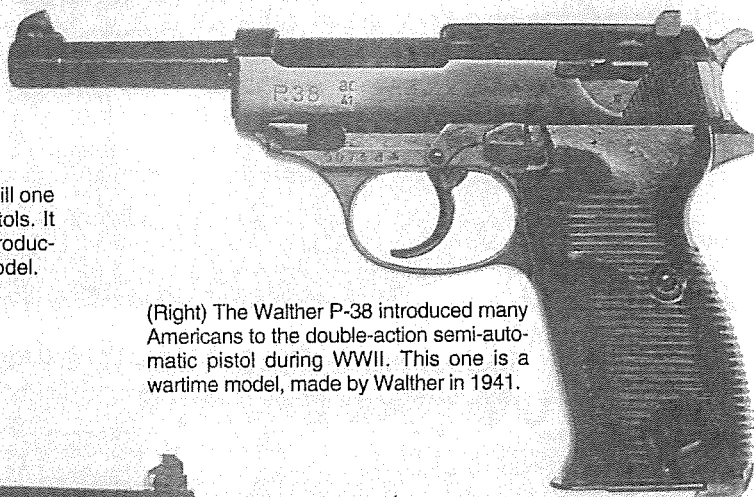
(Left) The 1911 Colt, a single-action pistol, is considered by many to be the best semi-automatic pistol ever designed. It was adopted by the U.S. Army in 1911 and is still in limited military service.



(Above) During WWII, Model 1911A1 pistols were made in large quantities by different manufacturers. This one was made by Ithaca. This specimen has the distinction of being the first semi-automatic pistol ever owned by the writer.



(Left) The Colt 1911 design is still one of the world's most popular pistols. It has remained in commercial production as the Colt Government Model.



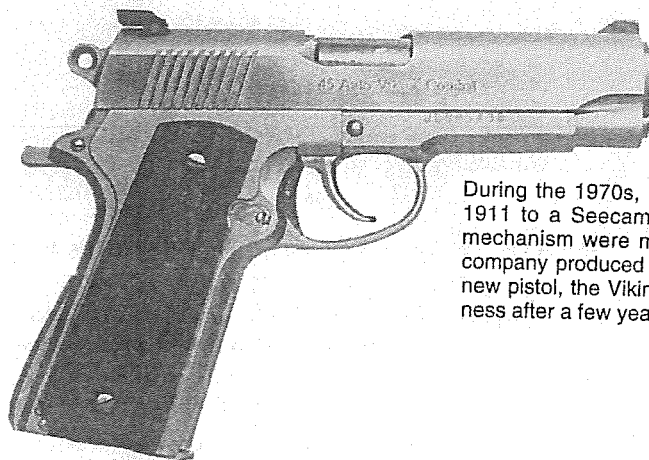
(Right) The Walther P-38 introduced many Americans to the double-action semi-automatic pistol during WWII. This one is a wartime model, made by Walther in 1941.



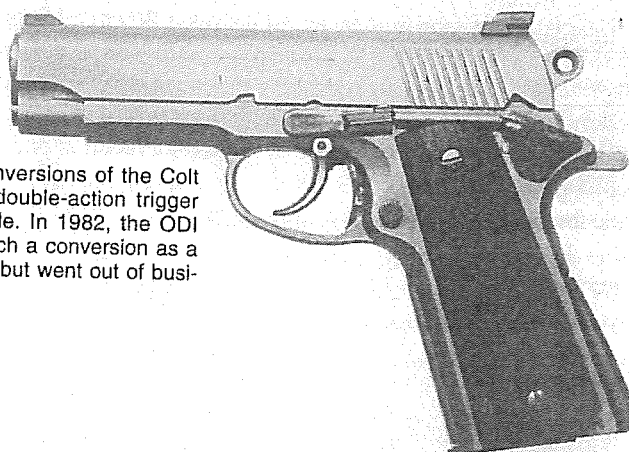
The Ruger 22 semi-automatic pistol, introduced in America in 1949, became one of the most popular 22-caliber pistols of all time.



A DAO 9mm pistol, the Sardius was introduced in the late 1980s and imported from Israel.



During the 1970s, conversions of the Colt 1911 to a Seecamp double-action trigger mechanism were made. In 1982, the ODI company produced such a conversion as a new pistol, the Viking, but went out of business after a few years.



SEMI-AUTOMATIC PISTOL

Most of the semi-automatic pistols you will encounter will be either single action (the most numerous type), conventional double action (next most), or double-action-only. You still need to know how the one in your hand works, but the basic procedures are the same.

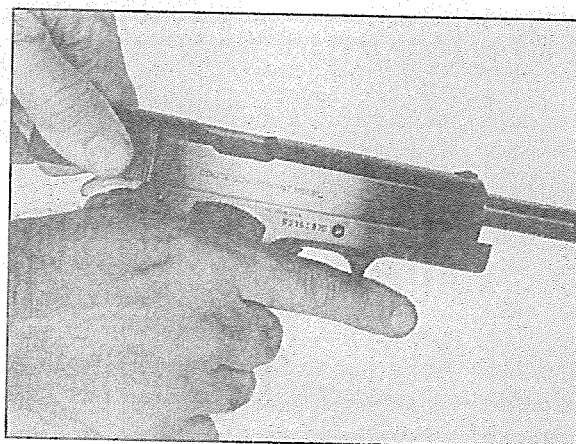
These steps are generally correct for all semi-automatic pistols. Keep in mind, though, that there are many different mechanical designs.

To load:

1. Remove the magazine.
2. Pull the slide to the rear and lock it open with the slide stop (if the pistol has one).
3. Visually inspect the chamber to make sure it is empty.
4. Lay the pistol down (pointing in a safe direction, of course).
5. Load the magazine. Push cartridges into it, down and to the rear.
6. Pick up the pistol and insert the loaded magazine.
7. Release the slide stop. The slide will move forward, stripping the top cartridge from the magazine and loading it into the chamber. For pistols that do not have a slide stop, pull the slide all the way back and release it so that it can move forward and chamber a cartridge.

To unload:

1. Remove the magazine.
2. Pull the slide all the way to the rear. This will eject the cartridge from the chamber.
3. Visually check the chamber to make sure it is empty.



When operating the slide on a semi-automatic pistol, keep your finger off the trigger. This Colt Government Model is a 45 ACP.



Open the Ruger pistol by pulling the internal "slide," or bolt, rearward.

Here is how a semi-automatic pistol works: When a shot is fired, the energy of that shot pushes the slide to the rear. The empty cartridge case is extracted from the chamber and ejected from the pistol at the end of the rearward movement of the slide. As the slide moves backward, it compresses a recoil spring. When the rearward travel is completed, the spring pushes the slide forward again. As the slide moves forward, it strips a cartridge from the magazine and pushes it into the chamber. The hammer or striker was recoiled during the rearward movement, and the pistol is ready to fire another shot.

Early semi-automatic pistols were single action. From our discussion of revolvers, remember that the trigger thus performs the single action of releasing the hammer or striker.

Double-action semi-automatics were being tested as early as 1907, when the Knoble pistol was given a trial by the U.S. Army. The German Walther PP pistol was a commercially successful double-action design in the early 1930s. Then, during World War II, the double-action Walther P-38 became familiar to American GIs.

These pistols were double action for the first shot, then the recoiling slide cocked the hammer, and succeeding shots were single action.

Some of the early double-action designs had a decocking lever. If the pistol were cocked for single-action shooting, depressing the lever would safely lower the hammer without firing the cartridge. A decocking lever is featured on most traditional double-action semi-automatics made today.

Other early designs were double-action-only. That is, every shot was fired by a long pull on the trigger which first cocks the hammer and then releases it. The slide chambers a new round for each shot, but does not cock the hammer or striker. Primarily, these early pistols were small pocket pistols carried for personal protection. Examples are the Little Tom and Le Francais pistols.

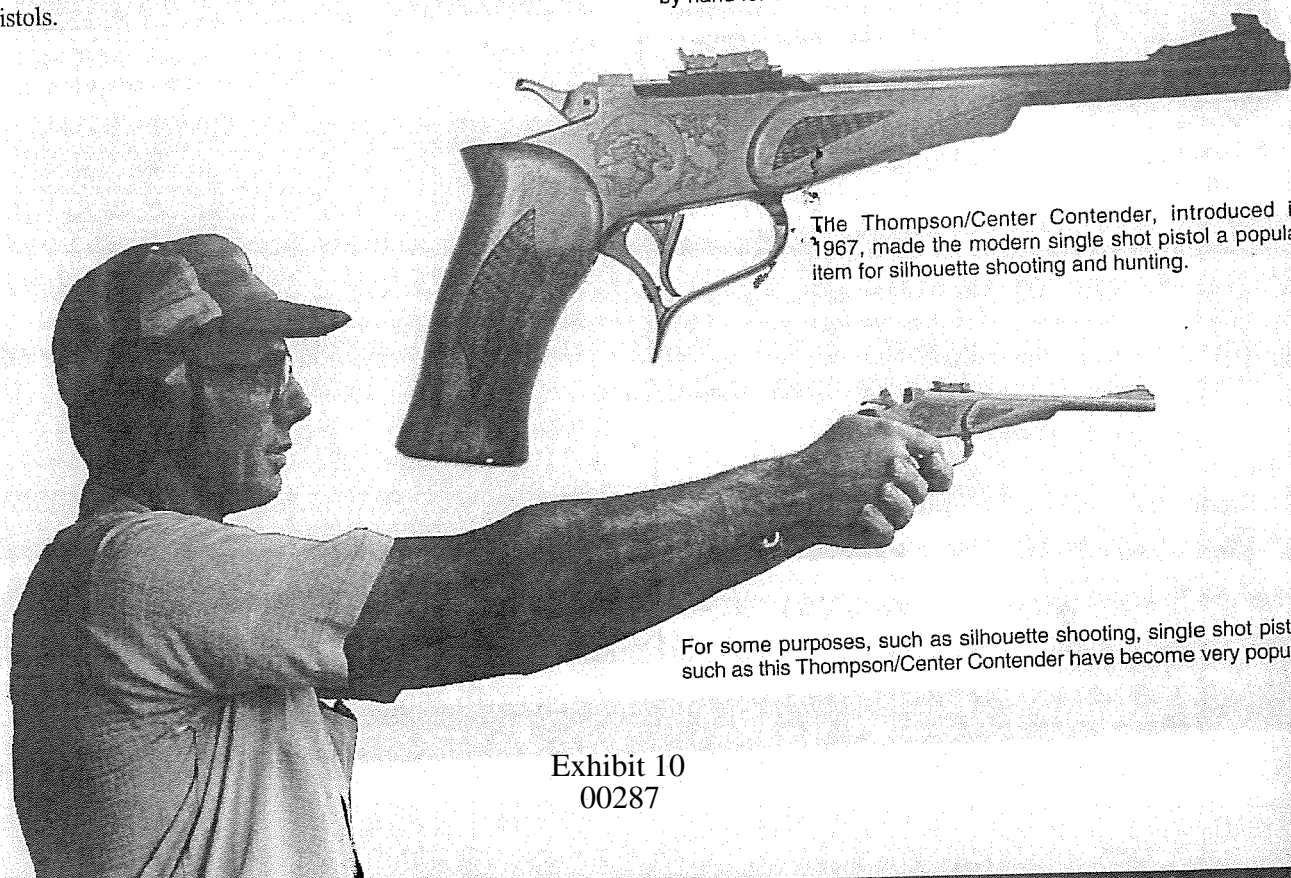
In recent times, as liability lawsuits became common, some law enforcement units required officers to carry pistols that could not be cocked. The thinking was that they could not be sued for a nervous officer's twitching off a shot from a cocked pistol if it couldn't be cocked.

Double-action-only (DAO) pistols have become more common because of this. Also, the popular Glock pistol, a modified form of DAO, is widely used. Glock, however, calls their design "Safe Action."

Because it might provide an advantage to be able to fire precise single-action shots, Browning introduced the BDM (Browning Double Mode) pistol. An external adjustment with a screwdriver can make the pistol operate in either of the two different manners.

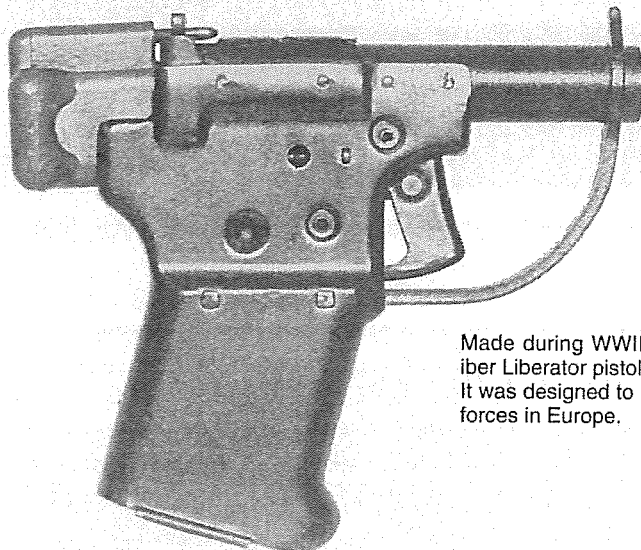


This Semmerling LM4 is one of the few manually operated repeating pistols produced in recent times. It is in 45 ACP and must be cycled by hand for each shot.

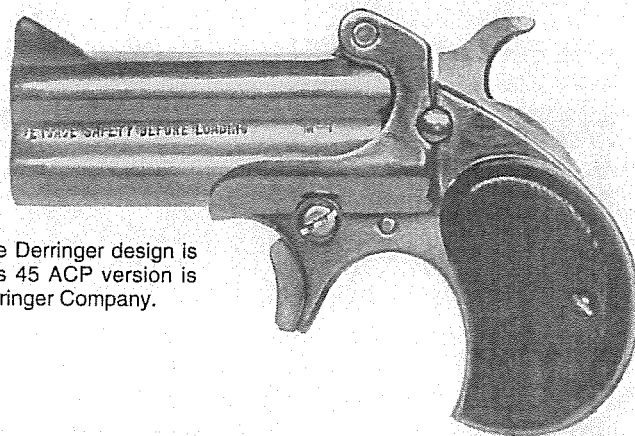


The Thompson/Center Contender, introduced in 1967, made the modern single shot pistol a popular item for silhouette shooting and hunting.

For some purposes, such as silhouette shooting, single shot pistols such as this Thompson/Center Contender have become very popular.



Made during WWII, the single shot 45-caliber Liberator pistol was made very cheaply. It was designed to be dropped to resistance forces in Europe.



This Remington Double Derringer design is still in production. This 45 ACP version is made by American Derringer Company.

If you are planning to try out a pistol, better be sure you have the instruction manual or knowledgeable advice handy. Instruction manuals may usually be obtained from the manufacturer for free.

Single Shot Handguns

At one time, long ago, all handguns were single shots. The revolver replaced the single shot as a military sidearm rather quickly, and eventually the single shot faded from the hunting and target shooting scenes, too.

Almost.

Only the 22-caliber single shot pistol continued in service in the highest echelons of target shooting, and a few diehards hunted with single shots of various kinds. There had been single shot derringers, cartridge equivalents of Henry Derringer's original muzzle-loading pocket pistol. During World War II, a single shot 45-caliber pistol, nicknamed the Liberator, was dropped to the French Underground behind enemy lines. A brief flurry of single shot pistols was seen after World War II, as Savage, Sheridan and Mendoza introduced inexpensive 22-caliber pistols suitable for the trail or tackle box.

However, if anything can claim to have reintroduced the single shot pistol to America, it is probably the silhouette shooting sport. Long-range pistol shooting at steel silhouettes favors

accuracy and power, not cartridge capacity or rapidity of fire. Single shot handguns increased in popularity. Shooters soon learned that anything suitable for silhouettes also served as a pretty good hunting pistol, too.

Although the Thompson/Center Contender is likely to be the single shot pistol most commonly encountered today, others have been made in some quantities. In production at the time of this writing are pistols by Remington, Anschutz, Ithaca, Maximum, Merrill (now RPM), Wichita and others.

Other Handgun Types

There are also double-barrel derringers in production today. Most are copies or modifications of the old Remington Double Derringer. Their popularity today is really no surprise, as the original reportedly remained in production from 1866 to 1935. One manual repeating pistol, the compact 45-caliber Semmerling, remains in very limited production. Four-barrel pistols have been made, and sometimes copies or new designs have been put into production for a while.

Such handguns are generally small, usually bought for protection and fired only a few times for familiarity. We will not spend further time on them, but they are interesting arms, as are all handguns, in my opinion.

EXHIBIT 11

JOIN | RENEW | DONATE

MENU



Magazine Disconnect

by Rick Hacker - Friday, September 11, 2015



Q: I have just started reading American Rifleman, and I love the technical information in the magazine. But it seems like you guys sometimes assume every reader knows what every gun term you use means. What is a magazine disconnect? Is it the same thing as a safety?

A: The answer is “yes” and “no.” A common misconception—usually made by those not familiar with semi-automatic pistols—is to assume that when the magazine is withdrawn from the firearm, the gun is empty. There may still be, however, a live round in the chamber. If the slide is in battery with a cartridge chambered, the gun—whether a single-action like the M1911 or a double-action (first shot only) like the Beretta Model 92FS—can be fired, even with the magazine removed. A magazine disconnect, sometimes called a magazine disconnect safety, is designed to prevent this.

Thus, a handgun such as the Browning High Power, which has a magazine disconnect, cannot be fired if the magazine is even partially withdrawn, as the firing pin is mechanically blocked from striking the primer. With the magazine fully reinserted, the handgun becomes operational again.

For some, the presence of a magazine disconnect is a welcome feature and another layer of mechanical safety—of course, no mechanical device should take the place of common safety practices, including always keeping the muzzle pointed in a safe direction and assuming every gun is loaded.

Nonetheless, the inclusion of a magazine disconnect has some potentially serious drawbacks in a handgun intended for defensive use. For example, if the magazine has not been completely seated in the gun, which can happen, especially under stress, the pistol will not fire. Too, inadvertently depressing the magazine release while drawing the pistol has the same unwanted effect.

Also, while performing a tactical reload, in which a partially empty magazine is replaced with a fully loaded magazine in a situation where increased capacity might be needed, a magazine disconnect renders the gun useless during the reloading process. This puts the handgunner momentarily in a vulnerable situation with a partially loaded gun that will not operate.

I experienced all of these situations while undergoing the strenuous but comprehensive 250 Pistol Class at Gunsite in Paulden, Ariz. Whether or not you opt for a pistol with a magazine disconnect, it is critical that you understand how your pistol operates (or when it doesn't) and train to become proficient with whatever handgun you choose.

IN THIS ARTICLE

AMERICAN RIFLEMAN MAGAZINE

MAGAZINE DISCONNECT

Q&A

RICK HACKER

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EXHIBIT 12

Exhibit 12

00293

78 Alb. L. Rev. 849

Albany Law Review
2014-2015

Symposium: A Loaded Debate: The Right to Keep and Bear Arms in the Twenty-First Century
Article

David B. Kopel^{al}

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***849 THE HISTORY OF FIREARM MAGAZINES AND MAGAZINE PROHIBITIONS**

I. INTRODUCTION

In recent years, the prohibition of firearms magazines has become an important topic of law and policy debate. This article details the history of magazines and of magazine prohibition. The article then applies the historical facts to the methodologies of leading cases that have looked to history to analyze the constitutionality of gun control laws.

Because ten rounds is an oft-proposed figure for magazine bans, Part II of the article provides the story of such magazines from the sixteenth century onward. Although some people think that multi-shot guns did not appear until Samuel Colt invented the revolver in the 1830s, multi-shot guns predate Colonel Colt by over two centuries.¹

Especially because the Supreme Court's decision in *District of Columbia v. Heller*² considers whether arms are "in common use" and are "typically possessed by law-abiding citizens for lawful purposes,"³ the article also pays attention to whether and when particular guns and their magazines achieved mass-market success in the United States. The first time a rifle with more than ten rounds of ammunition did so was in 1866,⁴ and the first time a *850 handgun did so was in 1935.⁵

The detailed history of various firearms and their magazines stops in 1979--a year which is somewhat ancient in terms of the current gun control debate. Back in 1979,

revolvers still far outsold semiautomatic handguns.⁶ No one was trying to ban so-called assault weapons,⁷ although such guns were already well established in the market.⁸

For the post-1979 period, Part II briefly explains how technological improvements in recent decades have fostered the continuing popularity of magazines holding more than ten rounds

Part III of the article describes the history of magazine prohibition in the United States. Such prohibitions are of recent vintage, with an important exception: during prohibition, Michigan, Rhode Island, and the District of Columbia banned some arms that could hold more than a certain number of rounds; Ohio required a special license for such guns.⁹ The Michigan and Rhode Island bans were repealed decades ago; the Ohio licensing law was repealed in 2014, having previously been modified and interpreted so that it banned no magazines.¹⁰ The District of Columbia ban, however, remains in force today, with some revisions.¹¹

The Supreme Court's Second Amendment decisions in *District of Columbia v. Heller* and *McDonald v. Chicago*¹² paid careful *851 attention to history. Several post-*Heller* lower court opinions in Second Amendment cases have also examined history as part of their consideration of the constitutionality of gun control statutes. Part IV of this article examines the legality of magazine bans according to the various historical standards that courts have employed.

II. THE HISTORY OF MAGAZINES HOLDING MORE THAN TEN ROUNDS

In *District of Columbia v. Heller*, the Supreme Court ruled that the District of Columbia's handgun ban was unconstitutional partly because handguns are in “common use.”¹³ The Second Amendment protects arms that are “typically possessed by law-abiding citizens for lawful purposes.”¹⁴

Magazines of more than ten rounds are older than the United States.¹⁵ Box magazines date from 1862.¹⁶ In terms of large-scale commercial success, rifle magazines of more than ten rounds had become popular by the time the Fourteenth Amendment was being ratified.¹⁷ Handgun magazines of more than ten rounds would become popular in the 1930s.¹⁸

A. Why Consumers Have Always Sought to Avoid Having to Reload During Defensive Gun Use

When a firearm being used for defense is out of ammunition, the defender no longer has a functional firearm. The Second Amendment, of course, guarantees the right to an *operable* firearm.¹⁹ As the *Heller* Court explained, the Council of the District of Columbia could not require that lawfully-possessed guns be kept in an inoperable status (locked or disassembled) in the home, because doing so negates their utility with respect to “the core lawful purpose of self-defense.”²⁰

When the defender is reloading, the defender is especially vulnerable to attack. When ammunition is low but not exhausted (e.g., two or three rounds remaining), that may be insufficient to *852 deter or control the threat, especially if the threat is posed by more than one criminal. If the victim is attacked by a gang of four large people, and a few shots cause the attackers to pause, the victim needs enough reserve ammunition in the firearm to make the attackers worry that even if they rush the victim all at once, the victim will have enough ammunition to knock each attacker down. When guns are fired defensively, it is unusual for a single hit to immediately disable an attacker.

Accordingly, from the outset of firearms manufacturing, one constant goal has been to design firearms able to fire more rounds without reloading.

To this end, manufacturers have experimented with various designs of firearms and magazines for centuries. While not all of these experiments were successful in terms of mass sales, they indicated the directions where firearms development was proceeding. The first experiments to gain widespread commercial success in the United States came around the middle of the nineteenth century.

B. Magazines of Greater than Ten Rounds are More than Four Hundred Years Old

The first known firearm that was able to fire more than ten rounds without reloading was a sixteen-shooter created around 1580, using “superposed” loads (each round stacked on top of the other).²¹ Multi-shot guns continued to develop in the next two centuries, with such guns first issued to the British army in 1658.²² One early design was the eleven-round “Defence Gun,” patented in 1718 by lawyer

and inventor James Puckle.²³ It used eleven preloaded cylinders; each pull of the trigger fired one cylinder.²⁴

As with First Amendment technology (such as televisions or websites), the Second Amendment is not limited to the technology that existed in 1791.²⁵ The *Heller* Court properly described such an asserted limit as “bordering on the frivolous.”²⁶ But even if *Heller* *853 had created such a rule, magazines of more than ten rounds are older than the Second Amendment.

At the time that the Second Amendment was being ratified, the state of the art for multi-shot guns was the Girandoni air rifle, with a twenty-two-shot magazine capacity.²⁷ Meriwether Lewis carried a Girandoni on the Lewis and Clark expedition.²⁸ At the time, air guns were ballistically equal to powder guns in terms of bullet size and velocity.²⁹ The .46 and .49 caliber Girandoni rifles were invented around 1779 for use in European armies and were employed by elite units.³⁰ One shot could penetrate a one-inch thick wood plank or take down an elk.³¹

C. The Nineteenth Century Saw Broad Commercial Success for Magazines Holding More than Ten Rounds

Firearm technology progressed rapidly in the 1800s. Manufacturers were constantly attempting to produce reliable firearms with greater ammunition capacities for consumers. One notable step came in 1821 with the introduction of the Jennings multi-shot flintlock rifle, which, borrowing the superposed projectile design from centuries before, could fire twelve shots before reloading.³²

Around the same time, pistol technology also advanced to permit more than ten shots being fired without reloading. “Pepperbox” *854 pistols began to be produced in America in the 1830s.³³ These pistols had multiple barrels that would fire sequentially.³⁴ While the most common configurations were five or six shots,³⁵ some models had twelve independently-firing barrels,³⁶ and there were even models with eighteen or twenty-four independently-firing barrels.³⁷ Pepperboxes were commercially successful and it took a number of years for Samuel Colt's revolvers (also invented in the 1830s) to surpass them in the marketplace.³⁸

The 1830s through the 1850s saw a number of different firearm designs intended to increase ammunition capacity. In 1838, the Bennett and Haviland Rifle was invented; it was a rifle version of the pepperbox, with twelve individual chambers that were manually rotated after each shot.³⁹ This would bring a new chamber, preloaded with powder and shot, into the breach, ready to be fired.⁴⁰ Alexander Hall and Colonel Parry W. Porter each created rifles with capacities greater than ten in the 1850s.⁴¹ Hall's design had a fifteen-shot rotating cylinder (similar to a revolver), while Porter's design used a thirty-eight-shot canister magazine.⁴²

The great breakthrough, however, began with a collaboration of Daniel Wesson (of Smith and Wesson) and Oliver Winchester. They produced the first metallic cartridge--containing the gunpowder, primer, and ammunition in a metallic case similar to modern ammunition.⁴³ Furthermore, they invented a firearms mechanism that was well suited to the new metallic cartridge: the lever ***855** action.⁴⁴ Their company, the Volcanic Repeating Arms Company, introduced the lever action rifle in 1855.⁴⁵ This rifle had up to a thirty-round tubular magazine under the barrel that was operated by manipulating a lever on the bottom of the stock.⁴⁶ The lever-action allowed a shooter to quickly expel spent cartridges and ready the firearm for additional shots.⁴⁷ An 1859 advertisement bragged that the guns could be loaded and fire thirty shots in less than a minute.⁴⁸ In 1862, the Volcanic evolved into the sixteen-round Henry lever action rifle, lauded for its defensive utility.⁴⁹

The Henry rifle further evolved into the Winchester repeating rifle, and the market for these firearms greatly expanded with the first gun produced under the Winchester name.⁵⁰ Winchester touted the Model 1866 for defense against "sudden attack either from robbers or Indians."⁵¹ According to advertising, the M1866 "can . . . be fired thirty times a minute,"⁵² or with seventeen in the magazine and one in the chamber, "eighteen charges, which can be fired in nine seconds."⁵³ The gun was a particularly big seller in the American West.⁵⁴ There were over 170,000 Model 1866s produced.⁵⁵

Next came the Winchester M1873, "[t]he gun that won the West."⁵⁶ The Winchester M1873 and then the M1892 were lever actions holding ten to eleven rounds in tubular magazines.⁵⁷ There were over 720,000 copies of the Winchester 1873 made from 1873 to ***856** 1919.⁵⁸ Over a million of the M1892 were

manufactured from 1892 to 1941.⁵⁹ The Italian company Uberti, which specializes in high-quality reproductions of western firearms, produces reproductions of all of the above Winchesters today.⁶⁰ Another iconic rifle of the latter nineteenth century was the pump action Colt Lightning rifle, with a fifteen-round capacity.⁶¹

Manufactured in Maine, the Evans Repeating Rifle came on the market in 1873.⁶² The innovative rotary helical magazine in the buttstock held thirty-four rounds.⁶³ It was commercially successful for a while, although not at Winchester's or Colt's levels. Over 12,000 copies were produced.⁶⁴

Meanwhile, the first handgun to use a detachable box magazine was the ten-round Jarre harmonica pistol, patented in 1862.⁶⁵ In the 1890s, the box magazine would become common for handguns.⁶⁶

Pin-fire revolvers with capacities of up to twenty or twenty-one entered the market in the 1850s;⁶⁷ they were produced for the next half-century, but were significantly more popular in Europe than in America.⁶⁸ For revolvers with other firing mechanisms, there were some models with more than seventeen rounds.⁶⁹ The twenty-round Josselyn belt-fed chain pistol was introduced in 1866, and various other chain pistols had even greater capacity.⁷⁰ Chain pistols did not win much market share, perhaps in part because the large *857 dangling chain was such an impediment to carrying the gun.⁷¹

The semiautomatic firearm and its detachable box magazine were invented before the turn of the century. It was the latest success in the centuries-old effort to improve the reliability and capacity of multi-shot guns.

In 1896, Germany's Mauser introduced the C96 "broomhandle" pistol, which remained in production until the late 1930s, selling nearly a million to civilians worldwide.⁷² The most common configuration was in ten-round capacity, but there were a variety of models with capacities as low as six or as high as twenty.⁷³ The latter was the Cone Hammer pistol, with twenty-round box magazine.⁷⁴

The Luger semiautomatic pistol was brought to the market in 1899 (although it is commonly known as the "1900").⁷⁵ Through many variants, it was very popular for both civilians and the military markets, and remained in production for nearly

a century.⁷⁶ The most common magazines were seven or eight rounds, but there was also a thirty-two-round drum magazine.⁷⁷

D. Manufacturers in the Twentieth Century Continued the Trend of Increasing Ammunition Capacity and Reliability for Civilian Firearms.

The twentieth century saw improvements on the designs pioneered in the 1800s and expanding popularity for firearms with more than ten rounds.

***858** Since the late 1890s, the Savage Arms Company has been one of the classic American firearms manufacturers.⁷⁸ In 1911, the company introduced their bolt-action Model 1911, a twenty-shot repeater with a tubular magazine in .22 short caliber.⁷⁹ The rifle was popular for boys and for shooting galleries.⁸⁰

By the 1930s, American manufacturers such as Remington, Marlin, and Winchester were producing many tubular magazine rifles in .22 caliber.⁸¹ These firearms are classic rifles for “plinking” (casual target shooting), especially popular for young people. Based on firearms catalogues from 1936 to 1971, there are over twenty such firearms models from major American manufacturers with magazines of sixteen to thirty rounds in one or more of the calibers.⁸²

In 1927, the Auto Ordinance Company introduced their ***859** semiautomatic rifle that used thirty-round magazines.⁸³ These rifles are still in production today.⁸⁴

The M-1 carbine was invented for the citizen soldier of World War II.⁸⁵ Thereafter, the M-1 carbine became and has remained a popular rifle for civilians in America.⁸⁶ The U.S. government's Civilian Marksmanship Program, created by Congress, put nearly a quarter million of these guns into the hands of law-abiding American citizens starting in 1963, at steeply-discounted prices.⁸⁷ Partly using surplus government parts, the Plainfield Machine Company, Iver Johnson, and more than a dozen other companies cumulatively manufactured over 200,000 for the civilian market, starting in the late 1950s.⁸⁸ The standard magazines are fifteen and thirty rounds.⁸⁹

The most popular rifle in American history is the AR-15 platform, a semiautomatic rifle with standard magazines of twenty or thirty rounds.⁹⁰ The AR-15 was brought to the market in 1963, with a ***860** then-standard magazine of twenty;

the thirty-round standard magazine was developed a few years later.⁹¹ The 1994 Supreme Court case *Staples v. United States*⁹² described the AR-15 as “the civilian version of the military’s M-16 rifle,” and noted that many parts are interchangeable between the two guns.⁹³ The crucial distinction, explained the Court, is that the AR-15 is like all other semiautomatic firearms in that it can fire “only one shot with each pull of the trigger.”⁹⁴ The Court pointed out that semiautomatic firearms “traditionally have been widely accepted as lawful possessions.”⁹⁵ So legally speaking, the semiautomatic AR-15 is the opposite of the M-16 machine gun: “[C]ertain categories of guns--no doubt including the machineguns, sawed-off shotguns, and artillery pieces that Congress has subjected to regulation-- . . . have the same quasi-suspect character we attributed to owning hand grenades But . . . guns falling outside those categories traditionally have been widely accepted as lawful possessions”⁹⁶

By 1969, the AR-15 faced competition from the Armalite-180 (twenty-round optional magazine), the J&R 68 carbine (thirty rounds), and the Eagle Apache carbine (thirty rounds).⁹⁷

Springfield Armory brought out the M1A semiautomatic rifle in 1974, with a twenty-round detachable box magazine.⁹⁸ The next year, the Ruger Mini-14 rifle was introduced, with manufacturer-supplied standard five, ten, or twenty-round detachable magazines.⁹⁹ Both the M1A and the Mini-14 are very popular to this day.¹⁰⁰

***861** By 1979, all of the above guns were challenged in the American market by high-quality European imports such as the Belgian FN-FAL Competition rifle (optional twenty-round magazine), the German Heckler & Koch HK-91 and HK-93 rifles (twenty rounds), the Swiss SIG AMT rifle (twenty rounds), and the Finnish Valmet M-71S rifle (thirty rounds).¹⁰¹

Citizen firearms with detachable magazines holding more than ten rounds were not limited to rifles, however. In 1935, Browning introduced the Hi-Power pistol.¹⁰² This handgun was sold with a thirteen-round detachable magazine and is still in production.¹⁰³

In Europe, more so than in America, Browning had to compete against the Spanish Gabilondo twenty-round Plus Ultra, introduced in 1925.¹⁰⁴ Spain’s Arostegui,

Eulogio brought out the Azul--a semiautomatic with standard magazines of ten, twenty and thirty-- in 1935.¹⁰⁵

Browning's first notable American competition came with the 1964 introduction of the Plainfield Machine Company's "Enforcer," a pistol version of the M1 carbine with a thirty-round magazine.¹⁰⁶

A tremendous commercial success was the Beretta model 92, a nine millimeter pistol with a sixteen-round magazine, which entered the market in 1976.¹⁰⁷ In various configurations (currently the Beretta 92F) the Beretta is one of the most popular of all modern handguns.¹⁰⁸ Browning introduced another popular handgun in 1977, the fourteen-round BDA (Browning Double Action).¹⁰⁹ Also coming on the market at this time were European handguns such as Austria's L.E.S. P-18 (eighteen rounds) and *862 Germany's Heckler & Koch VP 70Z (also eighteen rounds).¹¹⁰

E. Magazines After 1979

We end this story in 1979, when Jimmy Carter was President,¹¹¹ the Bee Gees bestrode the AM radio Top 40,¹¹² Gaston Glock was manufacturing curtain rods in his garage,¹¹³ Americans were watching *Love Boat* on broadcast television,¹¹⁴ and people on the cutting edge of technology were adopting VisiCalc, the first spreadsheet program, run from huge floppy discs.¹¹⁵

Long before 1979, magazines of more than ten rounds had been well established in the mainstream of American gun ownership. Indeed, they had been so established before almost everyone alive in 1979 was born.

After 1979, technological improvements continued to foster the popularity of magazines holding more than ten rounds. First of all, there were improvements across the board in manufacturing, so that magazine springs became more reliable, particularly for magazines holding up to thirty rounds. This greatly reduced the risk of a misfeed. Reliability was also enhanced by improvements in shaping the magazines' "lips"--the angled wings at the top of the magazine which guide the next round of ammunition into the firing chamber.¹¹⁶

Magazines of all sizes benefited from increasing use of plastic polymers in manufacturing.¹¹⁷ Today, many magazine walls are *863 made from plastic, rather than metal. Closer tolerances in manufacturing, lower costs, and increased durability have all improved magazine quality and reliability.

Likewise, the vast majority of magazines today have a removable baseplate (also known as a “foot plate”).¹¹⁸ Removal of the baseplate allows the magazine to be disassembled for cleaning (e.g., removal of gunpowder residue) or repair (e.g., replacing a worn-out spring).¹¹⁹ The existence of a removable baseplate also makes it possible for consumers to add after-market extenders to a magazine.¹²⁰ These extenders may simply increase the grip length (to better fit a particular consumer's hands), and they may also increase capacity by one, two, or three rounds.¹²¹ Thus, a consumer with a ten-round factory magazine can add a two-rounder extender to create a twelve-round magazine.

Most importantly, the double-stack magazine was perfected. In some box magazines, the ammunition is contained in a single column.¹²² In the double-stack magazine, there are two columns of ammunition, side-by-side and touching.¹²³ When the gun is used, the magazine will first reload a round from column A, then a round from column B, then from column A, and so on.¹²⁴

The practical effect is this: for a handgun, a single stack magazine of seventeen rounds would stick out far below the bottom of the grip, making the gun unwieldy for carrying and holstering. With a double-stack configuration, a seventeen-round magazine can fit inside a standard full-sized handgun grip. The practical limitation of grip size (the size of the human hand) means that relatively larger capacity magazines are possible for relatively smaller cartridges. Thus, a double-stack magazine for the midsize nine millimeter round might hold up to twenty or twenty-one rounds, whereas a double-stack for the thicker .45 ACP cartridge would hold *864 no more than fifteen.

III. THE HISTORY OF AMMUNITION CAPACITY BANS

An important factor in the consideration of the constitutionality of firearms laws is whether they are traditional and longstanding. For example, the *Heller* Court pointed out that “[f]ew laws in the history of our Nation have come close to the severe restriction of the District's handgun ban.”¹²⁵ The handgun ban was contrasted with “longstanding” guns controls, such as those prohibiting gun

possession by felons or the mentally ill.¹²⁶ Following *Heller*, the Tenth Circuit has explained that Second Amendment cases must consider “the rarity of state enactments in determining whether they are constitutionally permissible.”¹²⁷

At the time the Second Amendment was adopted, there were no laws restricting ammunition capacity. This was not because all guns were single-shot. As detailed above, multi-shot guns predate the Second Amendment by about two hundred years, and Lewis and Clark carried a powerful twenty-two-round gun on their famous expedition.¹²⁸

The first laws that restricted magazine capacity were enacted during the prohibition era, nearly a century and a half after the Second Amendment was adopted, and over half a century after the adoption of the Fourteenth Amendment. In 1927, Michigan prohibited “any machine gun or firearm which can be fired more than sixteen times without reloading.”¹²⁹ Also in 1927, Rhode Island banned “any weapon which shoots more than twelve shots semi-automatically without re-loading.”¹³⁰

The Michigan ban was repealed in 1959.¹³¹ That same year, the *865 Rhode Island law was changed to fourteen shots, and .22 caliber rimfire guns were excluded.¹³² The Rhode Island ammunition capacity law was fully repealed in 1975.¹³³

The two statutes applied only to firearms, with Rhode Island only for semiautomatics. Neither statute covered a magazine that was not inserted in a firearm.

In 1933, Ohio began requiring a special permit for the possession or sale of a semiautomatic firearm with an ammunition capacity of greater than eighteen rounds.¹³⁴ In 1971, during a recodification of the state criminal code, an exemption for .22 caliber was added, and for other calibers the limit was raised to thirty-two or more rounds.¹³⁵

Significantly, the Ohio statute was interpreted to not ban the sale of any magazine or any gun, but to forbid the simultaneous purchase of a magazine and a compatible gun.¹³⁶ (Of course purchase was allowed if one has the special permit.)¹³⁷ With or without the permit, one could buy a sixty-round magazine in Ohio.¹³⁸ The licensing law was fully repealed in 2014.¹³⁹

*866 The only longstanding statute banning magazines is found in the District of Columbia. In 1932, Congress passed a District of Columbia law prohibiting the possession of a firearm that “shoots automatically or semiautomatically more than twelve shots without reloading.”¹⁴⁰ In contrast, when Congress enacted the National Firearms Act of 1934 to impose stringent regulations on machine guns, it chose to impose no restrictions on magazines.¹⁴¹ When the District of Columbia achieved home rule in 1975,¹⁴² the district council did not choose to repeal the law but instead promptly enacted the bans on handguns and on self-defense with any gun in the home,¹⁴³ which were later ruled unconstitutional by the Supreme Court in *Heller*.¹⁴⁴ The District of Columbia interpreted the magazine law so that it outlawed all detachable magazines and all semiautomatic handguns.¹⁴⁵ The District stands alone in its historical restriction of magazines.

The only widespread restriction on magazine capacity came in 1994 when Congress enacted a ban on new magazines holding more than ten rounds.¹⁴⁶ The law was in effect until 2004, at which point Congress allowed it to sunset.¹⁴⁷ The effects of this law were studied extensively in a series of U.S. Department of Justice reports authored by Doctor Christopher Koper and two others. The final report, issued in 2004, concluded: “there has been no discernible reduction in the lethality and injuriousness of gun violence, based on indicators like the percentage of gun crimes resulting in death or the share of gunfire incidents resulting in injury”¹⁴⁸ Further, *867 “the ban has not yet reduced the use of [such magazines] in crime”¹⁴⁹ Doctor Koper noted also that state-level firearm bans have not had an impact on crime.¹⁵⁰

In the modern era, only a few states have enacted magazine restrictions, starting with New Jersey's 1990 ban on magazines over fifteen rounds.¹⁵¹ That ban applies only to detachable box magazines for semiautomatic firearms.¹⁵² A couple years later, Hawaii banned handgun magazines over twenty rounds, and later reduced that to ten.¹⁵³ Maryland in 1994 banned the sale or manufacture of magazines over twenty rounds; the ban did not affect possession, loans, acquisition, or importation.¹⁵⁴ The Maryland limit was reduced to ten in 2013.¹⁵⁵

In 1999 California banned the sale of magazines over ten rounds but allowed grandfathered possession, and New York did the same in 2000.¹⁵⁶ (Currently, large capacity magazine bans in Colorado, Connecticut, and Massachusetts also

have grandfather provisions, while New Jersey, the District of Columbia, and Hawaii do not.)¹⁵⁷ In 2013 New York removed grandfathering and reduced the limit to seven.¹⁵⁸ The seven-round limit was suspended shortly thereafter, since there are no seven-round magazines available for many guns.¹⁵⁹ Instead, the legislature forbade owners of ten-round magazines to load more than seven rounds.¹⁶⁰ This restriction was *868 declared to violate the Second Amendment in a federal district court decision.¹⁶¹ New York City outlaws rifle or shotgun magazines holding more than five rounds.¹⁶²

Also in 2013, Colorado enacted a ban on magazines over fifteen rounds,¹⁶³ and Connecticut did the same for magazines over ten.¹⁶⁴ Both statutes allowed current owners to retain possession.¹⁶⁵

Finally, one state has followed Ohio's former approach of magazine licensing, rather than prohibition. In 1994, Massachusetts began requiring that possession and additional acquisitions of magazines over ten rounds be allowed only for citizens who have a "Class A" firearms license--which most Massachusetts gun owners have.¹⁶⁶

IV. WHAT DOES THE HISTORY MEAN?

Given the history above, what does modern legal doctrine say about the permissibility of outlawing magazines, as in the so-called SAFE Act's ban on possession of magazines of more than ten rounds and loading more than seven rounds in a magazine, or New York City's ban on long gun magazines of more than five rounds? What about bans in other states of more than ten rounds (Maryland, Connecticut, the District of Columbia, California, and Hawaii for handguns only) or more than fifteen rounds (New Jersey and Colorado)?

This Part analyzes these questions in light of Second Amendment *869 precedents from the *Heller* Court and from subsequent cases that have relied at least in part on history and tradition in judging Second Amendment cases.

A. The Crucial Years: 1789-1791 and 1866-1868

For original meaning of the Second Amendment, the most important times are when the Second Amendment was created and when the Fourteenth Amendment

was created, since a core purpose of the latter amendment was to make the individual's Second Amendment right enforceable against state and local government.¹⁶⁷ Congress sent the Second Amendment to the states for ratification in 1789, and ratification was completed in 1791.¹⁶⁸ The Fourteenth Amendment was passed by Congress in 1866, and ratification by the states was completed in 1868.¹⁶⁹

1. Magazines in 1789-1791 and 1866-1868

As of 1789 to 1791, multi-shot magazines had existed for two centuries, and a variety of models had come and gone.¹⁷⁰ The state-of-the-art gun between 1789 and 1791 was the twenty- or twenty-two-shot Girandoni air rifle, powerful enough to take down an elk with a single shot.¹⁷¹

By the time that the Fourteenth Amendment was introduced in Congress, firearms with magazines of over ten or fifteen rounds had been around for decades.¹⁷² The best of these was the sixteen-shot Henry Rifle, introduced in 1861 with a fifteen-round magazine.¹⁷³ The Henry Rifle was commercially successful, but Winchester Model 1866, with its seventeen-round magazine, was massively successful.¹⁷⁴ So by the time ratification of the Fourteenth Amendment was completed in 1868, it was solidly established that firearms with seventeen-round magazines were in common use.

*870 2. Magazine Prohibitions in 1789-1791 and 1866-1868

From the colonial period to the dawn of American independence on July 4, 1776, and through the ratification of the Fourteenth Amendment, there were no prohibitions on magazines. Indeed, the first magazine prohibition did not appear until the alcohol prohibition era in 1927.¹⁷⁵ Thus, the historical evidence of the key periods for original meaning strongly suggests that magazine bans are unconstitutional.

B. "Typically Possessed by Law-Abiding Citizens for Lawful Purposes" or "Dangerous and Unusual"?

The Supreme Court's *Heller* decision distinguished two broad types of arms. Some arms, such as handguns, are "typically possessed by law-abiding citizens for lawful purposes."¹⁷⁶ These arms are also described by the Court as being "in common

use.”¹⁷⁷ In contrast, some other arms are “dangerous and unusual.”¹⁷⁸ Examples provided by the Court were short-barreled shotguns or machine guns.¹⁷⁹ The common, typical, arms possessed by law-abiding citizens are protected by the Second Amendment; the “dangerous and unusual” arms are not protected.¹⁸⁰ By definition, “unusual” arms are not “in common use” or “typically possessed by law-abiding citizens for lawful purposes.”¹⁸¹

The *Heller* Court did not expressly mandate that historical analysis be used when deciding whether an arm is typical or common or “dangerous and unusual.” The *Heller* Court approvingly quoted the 1939 Supreme Court decision *United States v. Miller*,¹⁸² which had described the original meaning of the Second Amendment as protecting individually-owned firearms that were “in common use at the time.”¹⁸³ The *Miller* Court's 1939 decision did not extend Second Amendment protection to sawed-off *871 shotguns;¹⁸⁴ as *Heller* explained *Miller*, the *Miller* principle was that sawed-off shotguns are dangerous and unusual.¹⁸⁵

To be precise, *Miller* did not formally rule that short shotguns are *not* Second Amendment arms; the Court simply reversed and remanded the district court's decision granting criminal defendant Miller's motion to quash his indictment.¹⁸⁶ The Supreme Court said that the suitability of sawed-off shotguns as Second Amendment arms was not a fact that was subject to “judicial notice.”¹⁸⁷ Presumably the federal district court in Arkansas could have taken up the remanded case and then received evidence regarding what sawed-off shotguns are used for and how common they are. But Miller and his co-defendant Frank Layton had disappeared long before the case was decided by the Supreme Court.¹⁸⁸

Regardless, subsequent courts, including the court in *Heller*, read *Miller* as affirmatively stating that sawed-off shotguns are not protected by the Second Amendment.¹⁸⁹

Even though *Heller*'s “common” or “typical” versus “dangerous and unusual” dichotomy seems primarily concerned with contemporary uses of a given type of arm, history can still be useful. As detailed in Part II, magazines of more than ten rounds have been very commonly possessed in the United States since 1862.¹⁹⁰ Common sense tells us that the small percentage of the population who are violent gun criminals is not remotely large enough to explain the massive market for magazines of more than ten rounds that has existed since the mid-nineteenth

century. We have more than a century and a half of history showing such magazines to be owned by many millions of law-abiding Americans.¹⁹¹

Thus, a court which today ruled that such magazines are “dangerous and unusual” would seem to have some burden of explaining how such magazines, after a century and a half of being *872 “in common use” and “typically possessed by law-abiding citizens for lawful purposes,” became “dangerous and unusual” in the twenty-first century.

This is not possible. Today, magazines of more than ten rounds are more common than ever before.¹⁹² They comprise about forty-seven percent of magazines currently possessed by Americans today.¹⁹³ The AR-15 rifle (introduced in 1963) is the most popular rifle in American history, with sales of several million;¹⁹⁴ its standard magazines are twenty or thirty rounds.¹⁹⁵

C. “Longstanding” Controls Versus “Few Laws in the History of Our Nation”

Just as *Heller* distinguishes types of arms (common or typical versus dangerous and unusual), *Heller* distinguishes types of arms-control laws. One type of arms controls are “longstanding,” and these are “presumptively lawful.”¹⁹⁶ Examples listed by *Heller* are bans on gun possession “by felons and the mentally ill,” bans on carrying guns “in sensitive places such as schools and government buildings,” and “conditions and qualifications on the commercial sale of arms.”¹⁹⁷

The *Heller* Court highlighted the unusual nature of the District of Columbia anti-gun laws:

Few laws in the history of our Nation have come close to the severe restriction of the District's handgun ban. And some of those few have been struck down. In *Nunn v. State*, the Georgia Supreme Court struck down a prohibition on carrying pistols openly (even though it upheld a prohibition on carrying concealed weapons). In *Andrews v. State*, the Tennessee Supreme Court likewise held that a statute that forbade openly carrying a pistol “publicly or privately, without regard to time or place, or circumstances,” violated *873 the state constitutional provision (which the court equated with the Second Amendment). That

was so even though the statute did not restrict the carrying of long guns.¹⁹⁸

What was the history that led the Court to declare the handgun prohibition to be “unusual”--that is, to be the opposite of a traditional gun control that was presumptively constitutional? The District of Columbia handgun ban was enacted in 1975 and took effect in 1976.¹⁹⁹ Chicago enacted a similar ban in 1982, and a half-dozen Chicago suburbs followed suit during the 1980s.²⁰⁰ In 1837, the Georgia legislature had enacted a handgun ban, but that was ruled unconstitutional on Second Amendment grounds by the unanimous Georgia Supreme Court in 1846.²⁰¹ In 1982 and 2005, San Francisco enacted handgun bans, but they were both ruled unlawful because of their plain violation of the California state preemption statute, which forbids localities to outlaw firearms which are permitted under state law.²⁰²

These are the facts under which the Supreme Court declared handgun bans to be suspiciously rare in America's history--at the other end of the spectrum from the presumptively constitutional “longstanding” controls.

The 1975 District of Columbia handgun ban was thirty-three years old when the Supreme Court decided *Heller* in 2008. This suggests that thirty-three years is not sufficient for a gun control to be considered “longstanding.” As detailed in Part III, the first of today's magazine bans was enacted by New Jersey in 1990, at fifteen rounds.²⁰³ The first state-level ten-round ban did not take effect until California passed such a law in 2000.²⁰⁴ These statutes, and other post-1990 magazine bans, would not qualify as “longstanding.”

Previously, three states and the District of Columbia had enacted some magazine restrictions during the alcohol prohibition era.²⁰⁵ The District of Columbia ban, with modifications, is still in effect.²⁰⁶ The Michigan and Rhode Island bans were repealed long ago.²⁰⁷ The Ohio special licensing statute allowed the free purchase of any magazine, but required a permit to insert a magazine of thirty-two rounds or more into a firearm; the permit requirement was repealed in 2014.²⁰⁸ It is indisputable in the modern United States that magazines of up to thirty rounds for rifles and up to twenty rounds for handguns are standard equipment for many popular firearms.

Several post- *Heller* lower courts have conducted in-depth examinations of the history of particular gun control laws. The next Part examines each of those cases and then applies their methodology to the historical facts of bans on magazines of more than five, seven, ten, and fifteen rounds.

D. Lower-Court Decisions Applying History

1. Ezell v. City of Chicago

After *McDonald v. City of Chicago* made it clear that the Second Amendment applies to municipal governments, the Chicago City Council relegalized handgun possession and outlawed all target ranges within city limits.²⁰⁹ Assessing the constitutionality of the ban, the Seventh Circuit used a two-step test, similar to analysis that is sometimes used in First Amendment cases: (1) Is the activity or item within the scope of the Second Amendment, as historically understood? If the answer is “no,” then the restrictive law does not violate the Second Amendment.²¹⁰ (2) If the answer to the first question is “yes,” then the court will apply some form of the heightened scrutiny. The intensity of the scrutiny will depend on how close the restriction comes to affecting the core right of armed self-defense.²¹¹

*875 So the *Ezell* court began the step-one analysis by considering whether target practice was historically considered part of the Second Amendment right.²¹² Chicago had argued to the contrary, listing some eighteenth- and nineteenth-century state statutes and municipal ordinances restricting firearms discharge within city limits.²¹³ The Seventh Circuit found almost all of the listed ordinances to be irrelevant.²¹⁴ Many of them did not ban firearms discharge but simply required a permit.²¹⁵ Others were plainly concerned with fire prevention, an issue that would not be a problem at a properly-designed modern range.²¹⁶ Thus:

Only two--a Baltimore statute from 1826 and an Ohio statute from 1831--flatly prohibited the discharge of firearms based on concerns unrelated to fire suppression, in contrast to the other regulatory laws we have mentioned. This falls far short of establishing that target practice is wholly outside the Second Amendment as it was understood when incorporated as a limitation on the States.²¹⁷

So according to the Seventh Circuit, the historical example of repressive laws in one state and one city are insufficient to support the inference that the repressed activity is outside the scope of the Second Amendment.²¹⁸ The historical basis of restrictions that would affect magazines over fifteen rounds is nearly as thin: two states with statutes enacted in 1927, and later repealed, plus the District of Columbia's 1932 law.²¹⁹ As for imposing a ban for guns with magazines of more than ten rounds (or seven or five), there is *no* historical basis. Thus, under the *Ezell* analysis, bans on magazines infringe the Second Amendment right as it was historically understood, and such bans must be analyzed under heightened scrutiny.

2. *United States v. Rene E.*

In 2009, the First Circuit heard a Second Amendment challenge *876 to a federal statute that restricted, but did not ban, handgun possession by juveniles.²²⁰ The federal statute was enacted in 1994,²²¹ and so of course was not “longstanding.”²²² The First Circuit looked at the history of state laws restricting juvenile handgun possession, to see if they were longstanding.²²³

The First Circuit found state or local restrictions on handgun transfers to juveniles and judicial decisions upholding such restrictions from Georgia (1911 case), Tennessee (1878 case),²²⁴ Pennsylvania (1881 case),²²⁵ Indiana (1884 case),²²⁶ Kentucky (1888 case),²²⁷ Alabama (1858 case),²²⁸ Illinois (1917 case upholding a Chicago ordinance),²²⁹ Kansas (1883 case allowing tort liability for transfer), and Minnesota (1918 case allowing tort liability for transfer).²³⁰

Thus, the First Circuit was able to point to six state statutes, all of them enacted well over a century previously.²³¹ They were buttressed by one municipal ordinance and two cases allowing tort liability, both of these being nearly a century old.²³²

The history of magazine restrictions is considerably weaker than that of the juvenile handgun statutes analyzed in *Rene E.* There were six statutes on juveniles, all of which were enacted before 1890, and one of which predated the Civil War.²³³ This is much more than the pair of state statutes on magazines dating from the late 1920s.

The *Rene E.* case does not attempt to quantify how many state statutes are necessary for a gun control to be longstanding; however, we can say that magazine restrictions fall well short of the historical foundation that the First Circuit relied on to uphold juvenile handgun restrictions. While *Rene E.* and *Ezell* both used history, the particular way that they used it was different. For *Rene E.*, history was mixed in *877 with substantive analysis of the modern federal statute, which the First Circuit praised for its “narrow scope” and “important exceptions.”²³⁴

For *Ezell*, history was just the first step. *Ezell* used history to determine that the range ban was not presumptively lawful; once that question was answered, *Ezell* proceeded to analyze the ban under heightened scrutiny.²³⁵

3. *Heller II*

a. *Majority Opinion*

In the 2008 case *District of Columbia v. Heller*, the Supreme Court ruled that two District of Columbia ordinances violated the Second Amendment: the handgun ban and the ban on the requirement that any firearm in the home be kept locked or disassembled and thus unusable for self-defense.²³⁶ Further, the District of Columbia required a permit to carry a gun anywhere (even from room to room in one's home)²³⁷ and permits were never granted; the Court ordered that plaintiff Dick Heller be granted a permit.²³⁸

The Council of the District of Columbia responded by repealing all three of the unconstitutional ordinances and enacting the most severe gun control system in the United States.²³⁹ Dick Heller and several other plaintiffs challenged the new ordinances in the case known as *Heller II*.²⁴⁰

Using the two-step test, the District of Columbia Circuit majority first examined whether any of the challenged provisions were “longstanding.”²⁴¹ If so, then the provision would be held as not violating the Second Amendment right, with no further analysis needed.²⁴²

Regarding handgun registration, the majority identified statutes from New York (1911), Illinois (1881), Georgia (1910), Oregon *878 (1917), and Michigan (1927).²⁴³ In addition, some jurisdictions required handgun buyers to provide information about themselves to retailers, but did not require that the retailer

deliver the information to the government: California (1917), Territory of Hawaii (1927), and the District of Columbia (1932).²⁴⁴ So “[i]n sum, the basic requirement to register a handgun is longstanding in American law, accepted for a century in diverse states and cities and now applicable to more than one fourth of the nation by population.”²⁴⁵

The requirement that the government be provided with some basic information about persons acquiring handguns, in a manner that was “self-evidently de minimis” was therefore constitutional.²⁴⁶ Seven states, with laws originating between 1881 and 1927, were apparently sufficiently numerous and “diverse” to qualify as “longstanding.”

However, although de minimis registration of handguns was longstanding, many of the new District of Columbia requirements went beyond traditional de minimis systems.²⁴⁷ Further, “[t]hese early registration requirements, however, applied with only a few exceptions solely to handguns--that is, pistols and revolvers--and not to long guns. Consequently, we hold the basic registration requirements are constitutional only as applied to handguns. With respect to long guns they are novel, not historic.”²⁴⁸ So the case was remanded to the district court for further fact-finding, since the District of Columbia government had provided the court with almost no information about whether the novel requirements passed heightened scrutiny by being narrowly tailored.²⁴⁹

The case had come to the District of Columbia Circuit following cross motions for summary judgment.²⁵⁰ While the circuit court decided that the novel registration requirements needed a more complete factual record, the panel also decided that the record contained enough information for a ruling on the merits of the District's ban on various semiautomatic rifles, which the district council labeled “assault weapons,” and on the District's ban on *879 magazines holding more than ten rounds.²⁵¹

The District of Columbia Circuit majority stated “[w]e are not aware of evidence that prohibitions on either semi-automatic rifles or large-capacity magazines are longstanding and thereby deserving of a presumption of validity.”²⁵² In a footnote, the majority cited the 1927 Michigan magazine statute and the 1932 District of Columbia ordinance detailed in Part III of this article.²⁵³ There is no reason to think that the majority's determination on this point would change if the 1927 Rhode Island statute had also been cited.

Importantly, the majority did not suggest that the magazine bans enacted in 1990 or thereafter had any relevance to whether magazine bans are “longstanding.”

Accordingly, the majority proceeded to analyze the rifle and magazine bans. The majority provided two paragraphs of explanation of why the rifle ban passed intermediate scrutiny and one paragraph on why the magazine ban did so.²⁵⁴

Discussion of whether intermediate scrutiny was the correct standard, or whether magazine bans pass intermediate scrutiny, is beyond the scope of this article. However, it does seem to appear that the District of Columbia Circuit would have acted more prudently by remanding the case for fact-finding in the district court. To support the ban, the panel majority could only point to legislative testimony by a gun-prohibition lobbyist and by the District of Columbia police chief, plus a Department of Justice report on the 1994 to 2004 federal ban on such magazines.²⁵⁵ Notably, the panel majority did not address the report's finding that a ten-year nationwide ban had led to no discernible reduction in homicides, injuries, or the number of shots fired in crimes.²⁵⁶

b. Dissent

A forceful dissent by Judge Brett Kavanaugh critiqued the majority's application of intermediate scrutiny.²⁵⁷ He argued that *880 the majority's approach was necessarily incorrect, because its logic on banning semiautomatic rifles would allow a ban on all semiautomatic handguns--which constitute the vast majority of handguns produced today.²⁵⁸

More fundamentally, he argued that *Heller* does not tell courts to use tiered scrutiny to assess gun control laws.²⁵⁹ Rather, *Heller* looks to history and tradition.²⁶⁰ So gun controls that are well-grounded in history and tradition are constitutional; gun control laws which are not so grounded are unconstitutional.²⁶¹

Using the standard of history and tradition, Judge Kavanaugh argued that the entire District of Columbia registration scheme was unconstitutional.²⁶² Regarding de minimis handgun registration, the statutes cited by the majority were mostly record-keeping requirements for gun dealers, not centralized information collection by the government.²⁶³ The novel and much more onerous requirements

of the District of Columbia registration system for all guns had no basis in history and tradition.²⁶⁴ For all firearms, any registration system beyond dealer record-keeping requirements was unconstitutional.²⁶⁵

Judge Kavanaugh examined the history of semiautomatic rifles and found them to be in common use for over a century and thus protected by the Second Amendment from prohibition.²⁶⁶ He did not have similar information on magazines and thus urged that the magazine issue be remanded for fact-finding.²⁶⁷ In light of the evidence on magazines that has been presented subsequent to the 2011 *Heller II* decision, Judge Kavanaugh's methodology *881 straightforwardly leads to the conclusion that the District of Columbia magazine ban is unconstitutional.²⁶⁸ The *Heller II* majority rightly recognized that magazine bans are not "longstanding,"²⁶⁹ and this article has demonstrated that magazines of more than ten rounds have been a common part of the American tradition of firearms ownership since before the ratification of the Fourteenth Amendment in 1868.

4. *Silvester v. Harris*

Another decision carefully employing historical analysis is *Silvester v. Harris*,²⁷⁰ from the United States District Court for the Eastern District of California.

A California statute requires that firearms purchasers wait ten days before they can take their gun home from the store.²⁷¹ In California, background checks on firearms buyers are sometimes completed within minutes and sometimes can take a week or longer.²⁷² Senior District Judge Anthony Ishii (appointed to the federal court in 1997 by President Clinton)²⁷³ ruled the waiting period unconstitutional, to the extent that the waiting period lasted longer than the time required to complete the background check on a given buyer.²⁷⁴

Like the Seventh Circuit in *Ezell*, Judge Ishii looked to 1791 and 1868 as the crucial periods.²⁷⁵

California Attorney General Kamala Harris had directed the court to a book arguing that between 1790 and 1840 many Americans might have to travel for several days in order to buy a gun, so there was a de facto waiting period between the time a person decided to buy a gun and when a person could take possession

of the gun.²⁷⁶ Judge Ishii held this irrelevant; the court's job was to consider the legality of government regulations that *882 might impede the exercise of a constitutional right and the book provided no evidence that government-imposed waiting periods for firearm purchases existed between 1790 and 1840.²⁷⁷

Another book explained that the first waiting period law was proposed in 1923-- a one-day waiting period for handguns.²⁷⁸ The law was adopted in California and eventually by eight other states.²⁷⁹ This too was irrelevant, ruled the court, because it had nothing to do with 1791 or 1868.²⁸⁰

The court explained that “[i]t is Defendant's burden to show that the 10-day waiting period either falls outside the scope of Second Amendment protections as historically understood or fits within one of several categories of longstanding regulations that are presumptively lawful.”²⁸¹

The complete absence of evidence of waiting periods in 1791 and 1868 eliminated the first possibility.²⁸² What about the question of whether waiting periods were “longstanding regulations that are presumptively lawful”? The answer to this question is not confined to 1791 and 1868.

The court explained that “the concept of a ‘longstanding and presumptively lawful regulation’ is that the regulation has long been accepted and is rooted in history.”²⁸³ California's 1923 statute did not come close. Besides that, the California wait was only one day and only for retail handguns.²⁸⁴ Not until 1975 was the number of days extended to double digits and not until 1991 to long guns.²⁸⁵ Consistent with the unusual nature of waiting periods, only ten states and the District of Columbia today have a waiting period for at least some firearms.²⁸⁶

Thus, the court concluded that the plaintiffs' challenge had passed step one of the two-step test,²⁸⁷ and the court proceeded to apply heightened scrutiny.²⁸⁸ The court stated that it did not have to decide whether to use strict or intermediate scrutiny.²⁸⁹ The *883 waiting period statute failed intermediate scrutiny, as applied to persons who already possessed a firearm (based on state registration data), and who passed the background check when purchasing an additional firearm.²⁹⁰ Therefore, *a fortiori*, the statute would fail strict scrutiny. The court gave the state legislature 180 days to revise the statute so as to eliminate the post-background-check waiting period for persons who already have a gun.²⁹¹ The

plaintiffs had not challenged the waiting period as applied to first-time gun buyers, nor as to persons who had not yet passed the background check.²⁹²

V. CONCLUSION

Rifle magazines holding more than ten or fifteen rounds have been common in the United States since the mid-nineteenth century.²⁹³ Handgun magazines over ten rounds have been common since 1935, and handgun magazines over fifteen have been common since the mid-1960s.²⁹⁴

Magazine prohibition has historically been rare. There is *no* historical basis for a magazine limit of ten rounds or lower. As for prohibitions with higher limits, there are only two examples, both of them from 1927, the outer edge of what courts have considered to be examples of state statutes that may be considered “longstanding”: Michigan (enacted 1927, repealed 1959), Rhode Island (enacted 1927, loosened 1959, repealed 1975).²⁹⁵ Ohio formerly required a special permit to actually insert a magazine above a certain size into a firearm but never banned sales.²⁹⁶ (The original limit was eighteen rounds or more and later was thirty-two rounds or more.)²⁹⁷ As is often the case, the District of Columbia is the *sui generis* outlier, with its 1932 restriction still in effect today, with some modifications.²⁹⁸

Of all the courts that have examined history when ruling on gun control issues, no court has ever held that laws of two or three states plus one city are sufficient to establish a gun law as being “longstanding” or part of American history and tradition. To the contrary, ammunition capacity limits are far outside the norm of the traditional exercise and regulation of Second Amendment rights. Not until California in 1999 did any state set a magazine limit as low as ten.²⁹⁹

What does this mean for modern legal analysis? Under judicial methods which hew closely to history and tradition, the historical absence (of limits of ten or less) or the extreme rarity (limits of fifteen or less) would be sufficient for any such modern limit to be ruled unconstitutional. Owning such magazines is very long-established manner in which the right to arms has historically been exercised in America.

Other courts perform a two-step test. Challengers to magazine limit laws should always pass step one, since magazine limits are not “longstanding.”

As for step two--review under some form of heightened scrutiny--the Supreme Court taught in *Heller* that when the “severe restriction” of a “ban” has support from “[f]ew laws in the history of our Nation,” the law's constitutionality is very doubtful. This was true for the prohibition of handguns, and it is also true for the prohibition of magazines holding more than five, seven, ten, or fifteen rounds.

Footnotes

a1 Adjunct Professor of Advanced Constitutional Law, Denver University, Sturm College of Law. Research Director, Independence Institute, Denver, Colorado. Associate Policy Analyst, Cato Institute, Washington, D.C. Professor Kopel is the author of fifteen books and over ninety scholarly journal articles, including the first law school textbook on the Second Amendment. *See generally* NICHOLAS J. JOHNSON, DAVID B. KOPEL, GEORGE A. MOCSARY & MICHAEL P. O'SHEA, *FIREARMS LAW AND THE SECOND AMENDMENT: REGULATION, RIGHTS, AND POLICY* (2012). Professor Kopel's website is <http://www.davekopel.org>. The author would like to thank Joseph Greenlee and Noah Rauscher for research assistance.

1 *See* Clayton E. Cramer & Joseph Edward Olson, *Pistols, Crime, and Public Safety in Early America*, 44 WILLAMETTE L. REV. 699, 716 (2008).

2 *District of Columbia v. Heller*, 554 U.S. 570 (2008).

3 *Id.* at 624-25, 627.

4 *See infra* notes 50-55 and accompanying text.

5 *See infra* notes 102-03 and accompanying text.

6 The U.S. manufacturing figures were compiled by the Bureau of Alcohol, Tobacco & Firearms. Although they were public documents, they were not made widely available in the 1970s. The following are the full-year production data by U.S. manufacturers. The figures do not include production for sale to the military. 1973: 452,232 pistols, 1,170,966 revolvers; 1974: 399,011 pistols, 1,495,861 revolvers; 1975: 455,267 pistols, 1,425,833 revolvers; 1976: 468,638 pistols, 1,425,407 revolvers; 1977: 440,387 pistols, 1,423,984 revolvers; 1978: 499,257 pistols, 1,458,013 revolvers; 1979: 637,067 pistols, 1,531,362 revolvers; 1980: 785,105 pistols, 1,586,149 revolvers. *Statistical Tabulation of Firearms Manufactured in the United States--and Firearms Exported--as Reported Yearly by Bureau of Alcohol, Tobacco and Firearms on ATF Form 4483-A*, AM. FIREARMS INDUSTRY (Nov. 1981) at 28-29.

7 *See* David B. Kopel, *The Great Gun Control War of the Twentieth Century--and Its Lessons for Gun Laws Today*, 39 FORDHAM URB. L.J. 1527, 1578-79 (2012) (beginning of “assault weapon” issue in the mid- and late 1980s); L. Ingram, *Restricting of Assault-Type Guns Okd by Assembly Unit*, L.A. TIMES, Apr. 9, 1985, at 3.

8 Below, this article describes many models of semi-automatic rifles introduced since 1927. *See infra* notes 82-101 and accompanying text. All of them have been labeled an “assault weapon” by one or more proposed bills. *See, e.g.*, LEGAL CMTY. AGAINST VIOLENCE, BANNING ASSAULT WEAPONS--A LEGAL PRIMER FOR STATE AND LOCAL ACTION 59-60 (2004), available at http://smartgunlaws.org/wp-content/uploads/2012/05/Banning_Assault_Weapons_A_Legal_Primer_8.05_entire.pdf (proposing a model assault weapons law).

9 *See infra* notes 129-30, 134, 140 and accompanying text.

10 *See infra* notes 131-33, 135-39 and accompanying text.

- 11 See *infra* notes 140-45 and accompanying text.
- 12 McDonald v. City of Chi., 561 U.S. 742 (2010).
- 13 District of Columbia v. Heller, 554 U.S. 570, 627-29 (2008).
- 14 *Id.* at 625.
- 15 See *infra* notes 21-24 and accompanying text.
- 16 See *infra* note 65 and accompanying text.
- 17 See *infra* notes 43-55, 172-73 and accompanying text.
- 18 See *infra* notes 102-03 and accompanying text.
- 19 See *Heller*, 554 U.S. at 630, 635 (declaring the District of Columbia's requirement that all firearms in the home be "rendered and kept inoperable at all times" as unconstitutional).
- 20 *Id.*
- 21 See LEWIS WINANT, FIREARMS CURIOSA 168-70 (2009); *A 16-Shot Wheel Lock, AMERICA'S 1ST FREEDOM* (June 2014), [http:// www.nrapublications.org/index.php/17739/a-16-shot-wheel-lock/](http://www.nrapublications.org/index.php/17739/a-16-shot-wheel-lock/) (NRA member magazine).
- 22 Cramer & Olson, *supra* note 1, at 716.
- 23 *Id.* at 716 & n.94.
- 24 See *id.* at 716-17; *This Day in History: May 15, 1718, HISTORY*, <http://www.historychannel.com.au/classroom/day-in-history/600/defence-rapid-fire-gun-patented> (last visited Feb. 21, 2015).
- 25 *Heller*, 544 U.S. at 582.
- 26 *Id.* ("Some have made the argument, bordering on the frivolous, that only those arms in existence in the 18th century are protected by the Second Amendment. We do not interpret constitutional rights that way. Just as the First Amendment protects modern forms of communications, and the Fourth Amendment applies to modern forms of search, the Second Amendment extends, *prima facie*, to all instruments that constitute bearable arms, even those that were not in existence at the time of the founding." (citations omitted)).
- 27 JIM SUPICA ET AL., TREASURES OF THE NRA NATIONAL FIREARMS MUSEUM 31 (2013).
- 28 JIM GARRY, WEAPONS OF THE LEWIS & CLARK EXPEDITION 94 (2012).
- 29 JOHN L. PLASTER, THE HISTORY OF SNIPING AND SHARPSHOOTING 69-70 (2008)..
- 30 See SUPICA ET AL., *supra* note 27, at 31.
- 31 *Id.* The Lewis and Clark gun is on display at the National Rifle Association's Sporting Arms Museum in Springfield, Missouri. Mark Yost, *The Story of Guns in America*, WALL ST. J., Sept. 3, 2014, at D5.
- 32 NORM FLAYDERMAN, FLAYDERMAN'S GUIDE TO ANTIQUE AMERICAN FIREARMS AND THEIR VALUES 683 (9th ed. 2007) [hereinafter FLAYDERMAN'S GUIDE]. According to James S. Hutchins, historian emeritus at the National Museum of American History, Smithsonian Institution, Mr. Flayderman has been a "revered expert in antique American arms and a vast range of other Americana for half a century...." James S. Hutchins, *Foreword* to NORM FLAYDERMAN, THE BOWIE KNIFE: UNSHEATHING THE AMERICAN LEGEND 7 (2004). Mr. Flayderman has been appointed as historical consultant to the U.S. Army Museum, U.S. Marine Corps Museum, and the State of Connecticut's historic weapons collections. Andrea

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Valluzzo, *E. Norman Flayderman*, 84; *Antique Arms Expert*, ANTIQUES & ARTS WKLY. (July 2, 2013), <http://test.antiquesandthearts.com/node/185567#.VMvRAGjF8YM>.

33 JACK DUNLAP, AMERICAN BRITISH & CONTINENTAL PEPPERBOX FIREARMS 16 (1964).

34 LEWIS WINANT, PEPPERBOX FIREARMS 7 (1952).

35 *See, e.g.*, *Pocketsize Allen and Thurber Pepperbox Revolver*, ANTIQUE ARMS, <http://aaaawt.com/html/firearms/f102.html> (last visited Feb. 21, 2015).

36 DOE RUN LEAD COMPANY'S MUSEUM, CATALOGUE OF CONTENTS 66 (1912).

37 DUNLAP, *supra* note 33, at 148-49, 167 (describing three European eighteen-shot models and one twenty-four-shot model); SUPICA ET AL., *supra* note 27, at 33 (describing the Marietta eighteen-shot model); WINANT, *supra* note 21, at 249-50 (describing a twenty-four-shot pepperbox).

38 WINANT, *supra* note 34, at 28.

39 FLAYDERMAN'S GUIDE, *supra* note 32, at 711.

40 *See id.*

41 *Id.* at 713, 716.

42 *Id.* The Porter Rifle was said to be able to fire up to sixty shots per minute. Mary Moran, *P.W. Porter, Inventor of the Porter Rifle*, DEAD MEMPHIS TALKING (April 18, 2014), <http://deadmemphistalking.blogspot.com/2014/04/pw-porter-inventor-of-porter-rifle.html> (reprinting an article from New York Post). About 1250 of these guns were produced. S.P. Fjestad, *What's It Worth? The Porter Rifle*, FIELD & STREAM, <http://www.fieldandstream.com/articles/guns/rifles/2009/01/whats-it-worth-porter-rifle> (last visited Feb. 21, 2015).

43 *See* FLAYDERMAN'S GUIDE, *supra* note 32, at 303 ("The self-contained cartridge was a special type, the hollowed out conical bullet containing the powder, and backed by the primer."); HAROLD F. WILLIAMSON, WINCHESTER: THE GUN THAT WON THE WEST 26-27 (1952).

44 *See Smith & Wesson History*, SMITH & WESSON, http://www.smith-wesson.com/webapp/wcs/stores/servlet/Category4_750001_750051_757941_-1_757938_757812_image (last visited Feb. 21, 2015).

45 FLAYDERMAN'S GUIDE, *supra* note 32, at 304.

46 *Id.* at 303; WILLIAMSON, *supra* note 43, at 13.

47 WILLIAMSON, *supra* note 43, at 25. Oliver Winchester had an ownership interest in Volcanic and acquired the company in 1857. FLAYDERMAN'S GUIDE, *supra* note 32, at 300.

48 WILLIAMSON, *supra* note 43, at 25.

49 *See Id.*, at 28-31; Joseph Bilby, *The Guns of 1864*, AM. RIFLEMAN ((May 5, 2014), <http://www.americanrifleman.org/articles/2014/5/5/the-guns-of-1864/>). About 14,000 Henry rifles were sold in 1860-66. FLAYDERMAN'S GUIDE, *supra* note 32, at 305. The Henry Rifle is still in production today. *See About Henry Repeating*, HENRY, <http://www.henryrifles.com/about-henry-repeating/> (last visited Feb. 21, 2015).

50 *See* WILLIAMSON, *supra* note 43, at 49.

51 R.L. WILSON, WINCHESTER: AN AMERICAN LEGEND 32 (1991).

52 WILLIAMSON, *supra* note 43, at 49.

- 53 LOUIS A. GARAVAGLIA & CHARLES G. WORMAN, FIREARMS OF THE AMERICAN WEST 1866-1894, at 128 (1985). The Winchester Model 1866 was produced until 1898. FLAYDERMAN'S GUIDE, *supra* note 32, at 306.
- 54 WILSON, *supra* note 51, at 34.
- 55 FLAYDERMAN'S GUIDE, *supra* note 32, at 306.
- 56 *Model 1873 Short Rifle*, WINCHESTER REPEATING ARMS, [http:// www.winchesterguns.com/products/catalog/detail.asp?family=027C&mid=534200](http://www.winchesterguns.com/products/catalog/detail.asp?family=027C&mid=534200) (last visited Feb. 21, 2015).
- 57 *Id.*
- 58 FLAYDERMAN'S GUIDE, *supra* note 32, at 307. The Model 1873 was Pa Cartwright's gun on the 1959 to 1973 television series *Bonanza*. SUPICA ET AL., *supra* note 27, at 108.
- 59 FLAYDERMAN'S GUIDE, *supra* note 32, at 311. The Model 1892 was John Wayne's gun in many movies. SUPICA ET AL., *supra* note 27, at 109.
- 60 2014 STANDARD CATALOG OF FIREARMS: THE COLLECTOR'S PRICE & REFERENCE GUIDE, 1237 (Jerry Lee ed., 2013). The 1995 edition of this annually-published guide was relied on by the court in *Kirkland v. District of Columbia*, 70 F.3d 629, 635 n.3 (D.C. Cir. 1995).
- 61 The original Colt held up to fifteen rounds in calibers of .32-.20, .38-.40, and .44-.40. FLAYDERMAN'S GUIDE, *supra* note 32, at 122. Uberti currently produces a modern replica of the Colt Lightning, medium frame model, of which 89,000 were produced between 1884 and 1902. *Id.*
- 62 *Id.* at 694.
- 63 DWIGHT B. DEMERITT, JR., MAINE MADE GUNS & THEIR MAKERS 293-95 (rev. ed. 1997); FLAYDERMAN'S GUIDE, *supra* note 32, at 694. A later iteration of the rifle held twenty-five or twenty-eight rounds in the buttstock. DEMERITT, *supra*, at 301. The American Society of Arms Collectors endorses the Demeritt book as "the definitive work for historians and collectors" of Maine guns. DEMERITT, *supra*, at vi.
- 64 FLAYDERMAN'S GUIDE, *supra* note 32, at 694.
- 65 WINANT, *supra* note 21, at 244-45. The magazine stuck out horizontally from the side of the firing chamber, making the handgun difficult to carry in a holster, which perhaps explains why the gun never had mass success. SUPICA ET AL., *supra* note 27, at 33.
- 66 *See infra* notes 72-77 and accompanying text.
- 67 SUPICA ET AL., *supra* note 27, at 48-49; WINANT, *supra* note 21, at 67-70.
- 68 SUPICA ET AL., *supra* note 27, at 49.
- 69 *See, e.g.*, WINANT, *supra* note 21, at 62-63, 207-08.
- 70 *Id.* at 204, 206.
- 71 *See id.* at 205.
- 72 JOHN W. BREATHED, JR. & JOSEPH J. SCHROEDER, JR., SYSTEM MAUSER, A PICTORIAL HISTORY OF THE MODEL 1896 SELF-LOADING PISTOL 272 (1967) (production of 1,150,000, of which "almost a million" were sold on the commercial, non-military market); *see* John Elliot, *A Sweeping History of the Mauser C96 Broomhandle Pistol*, GUNS.COM (Jan. 26, 2012), <http://www.guns.com/2012/01/26/a-sweeping-history-of-the-mauser-c96-broomhandle-pistol/>.

- 73 2014 STANDARD CATALOG OF FIREARMS, *supra* note 60, at 708-09.
- 74 *Id.*; BREATHED & SCHROEDER, *supra* note 72, at 23, 30-31, 38-39, 54-55. At least between 1896 and 1905, Mauser's direct sales to the United States were small. *Id.* at 266-67. Spain's Astra brought out its own versions of the Mauser, with several models having twenty-round magazines starting in 1928. *Id.* at 208. But these do not appear to have had much distribution in the United States. *Id.* at 266-67.
- 75 See 2014 STANDARD CATALOG OF FIREARMS, *supra* note 60, at 650.
- 76 Among the many models was the 1906 American Eagle. *Id.* at 653. George Luger's invention was licensed to many companies, including Mauser (Germany) and Vickers (England). *Id.* at 657-58. The gun was never manufactured under Luger's own name. See *id.* at 650-62.
- 77 JEAN-NOËL MOURET, PISTOLS AND REVOLVERS 126-27 (1993); SUPICA ET AL., *supra* note 27, at 86.
- 78 See *Savage Arms History*, SAVAGE ARMS, <http://www.savagearms.com/history/> (last visited Feb. 21, 2015).
- 79 JIM PERKINS, AMERICAN BOYS' RIFLES 1890-1945, at 191 (1976).
- 80 *Id.* Similarly, the Remington Model 12B Gallery Special was introduced in 1910, with an optional extended magazine that held twenty-five .22 shorts. ROY MARCOT, REMINGTON, "AMERICA'S OLDEST GUN MAKER" 149 (James W. Bequette & Joel J. Hutchcroft eds. 1998).
- 81 See, e.g., 2014 STANDARD CATALOG OF FIREARMS, *supra* note 60, at 687-88, 870, 1343.
- 82 Models listed in the 1936 *Shooter's Bible* include; Remington Model 34 bolt action, Remington Model 121 slide action, Remington Model 341 bolt action, Stevens No. 71 slide action, Savage Model 5 bolt action, Stevens Model 76 semiauto, Stevens-Springfield Model 86 bolt action, Winchester Model 62 slide action, and Winchester Model 61 slide action. STOKER ARMS CORP., SHOOTER'S BIBLE, 1936, at 108-09, 112, 123-24, 126-27, 140 (photo. reprint 1974).
Some additional models include: Stevens Model 87 bolt action, Remington 550 semiauto, Mossberg Model 46B bolt action, Mossberg Model 46M bolt action, Winchester Model 74 semiautomatic, Marlin 39 A lever action, and Marlin Model 81 DL bolt action. BOB BROWNE, 2 THE GUNSMITHS MART, 1949-1950, at 212, 214, 216, 218, 221 (2011) (reprinting article from *Hunting & Fishing*, Oct. 1948).
The 1959 annual edition of the *Shooter's Bible* adds the semiautomatic Savage Model 6 to the above list. STOKER ARMS CORP., SHOOTER'S BIBLE, 1959, at 103 (1959). For some of the models previously mentioned, see *id.* at 80, 87, 91, 101.
Histories of Savage and Stevens firearms include the following not listed above: Stevens No. 66 bolt action, Stevens Model 46 bolt action, Model 1914 slide action, Savage Model 29 slide action, Savage Model 29 G slide action. JAY KIMMEL, SAVAGE AND STEVENS ARMS COLLECTOR'S HISTORY 35 (1990); BILL WEST, SAVAGE AND STEVENS ARMS, at 11--12, 13--8, 14--44, 15--10, 16--10 (1971). Savage purchased Stevens in 1920. *Savage Arms History*, *supra* note 78.
For use of the *Shooter's Bible* by the courts, see *United States v. Olson*, No. 94-30387, 1995 U.S. App. LEXIS 36973, at *1-2 (9th Cir. Dec. 15, 1995) (stating that the book was properly used as a source for a Bureau of Alcohol, Tobacco, and Firearms agent's expert opinion); *United States v. Fisher*, 353 F.2d 396, 399 (5th Cir. 1965) (Gwin, J., dissenting) (considering information in the book to determine whether the evidence relied on by the trial court was sufficient to justify the trial court's holding); *Potter v. United States*, 167 Ct. Cl. 28, 48 n.1 (Ct. Cl. 1964) (citing the book for the history of Gabilondo firearms); *United States v. Precise Imports Corp.*, 458 F.2d 1376, 1377 (C.C.P.A. 1972) (reviewing the record produced at the trial court, which included pages from the 1967 edition of the book).
- 83 2014 STANDARD CATALOG OF FIREARMS, *supra* note 60, at 84; *T1-C*, THOMPSON, www.auto-ordnance.com/firearms/thompson-t1-c.asp (last visited Feb. 21, 2015).
- 84 See *T1-C*, *supra* note 83.

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- 85 See BRUCE N. CANFIELD, BRUCE CANFIELD'S COMPLETE GUIDE TO THE M1 GARAND AND THE M1 CARBINE 163 (1999).
- 86 See *id.* at 163, 279 (noting high desirability and demand for the firearm after the war ended); see also Joseph P. Tartaro, *The Great Assault Weapon Hoax*, 20 U. DAYTON L. REV. 619, 622 (1995) (“[T]he M1 carbine [is] beloved by millions of war veterans, collectors, and recreational shooters.”).
- 87 CANFIELD, *supra* note 85, at 163; LARRY L. RUTH, 2 WAR BABY! COMES HOME: THE U.S. CALIBER .30 CARBINE 575 (R. Blake Stevens ed., 1993); *About the CMP, CIV. MARKSMANSHIP PROGRAM*, <http://thecmp.org/about/> (last visited Feb. 21, 2015).
- 88 See CANFIELD, *supra* note 85, at 163, 279 (noting the large quantity of surplus carbine parts and that firms created commercial carbines using these parts in the 1950s and 1960s). The largest producers were Plainfield's 112,000 from 1962 to 1978 and Iver Johnson's 96,700 from 1978 to 1992. *Post WWII Commercially Manufactured M1 Carbines (U.S.A.): Iver Johnson Arms*, M1CARBINESINC.COM, http://www.m1carbinesinc.com/carbine_ij.html (last visited Feb. 21, 2015); *Post WWII Commercially Manufactured M1 Carbines (U.S.A.): Plainfield Machine Co., Inc.*, M1CARBINESINC.COM., http://www.m1carbinesinc.com/carbine_plainfield.html (last visited Feb. 21, 2015). The U.S. Government sold 240,000 of its own surplus in 1963 into the Civilian Marksmanship Program. CANFIELD, *supra* note 85, at 163. Thereafter, the program (then known as “DCM”—Director of Civilian Marksmanship) sold M1s to Americans from the supply of World War II M1 carbines that had been exported to allied nations and subsequently returned to the United States when the allied nation switched to a newer type of rifle. See RUTH, *supra* note 87, at 575, 723. As of 2014, the Civilian Marksmanship Program's supply of carbines for sale has been exhausted. *M1 Carbine, CIV. MARKSMANSHIP PROGRAM*, <http://www.thecmp.org/Sales/carbine.htm> (last visited Feb. 21, 2015).
- 89 RUTH, *supra* note 87, at 575.
- 90 See NICHOLAS J. JOHNSON, DAVID B. KOPEL, GEORGE A. MOCSARY & MICHAEL P. O'SHEA, FIREARMS LAW AND THE SECOND AMENDMENT: REGULATION, RIGHTS, AND POLICY 12, 809 (2012) (noting the wide range of uses for the gun and its popularity). The “AR” stands for “ArmaLite Rifle.” *Modern Sporting Rifle Facts*, NAT'L SHOOTING SPORTS FOUND., <http://www.nssf.org/msr/facts.cfm> (last visited Feb. 21, 2015). ArmaLite did the initial design work on the AR-15 before selling the rights to Colt's. ARMALITE, INC., A HISTORICAL REVIEW OF ARMALITE 3 (Jan. 4, 2010), available at <http://www.armalite.com/images/Library%5CHistory.pdf>.
- 91 PATRICK SWEENEY, THE GUN DIGEST BOOK OF THE AR-15, at 104 (2005). About this time, the Cetme-Sport semiauto rifle with an optional twenty-round detachable box mag magazine came on the market. GUN DIGEST 1968, at 335 (John T. Amber ed., 22nd Anniversary Deluxe ed. 1967).
- 92 *Staples v. United States*, 511 U.S. 600 (1994).
- 93 *Id.* at 603.
- 94 *Id.* at 602 n.1, 603.
- 95 See *id.* at 612.
- 96 See *id.* at 611-12.
- 97 See GUN DIGEST 1970, at 294 (John T. Amber ed., 24th Anniversary Deluxe ed. 1969).
- 98 See 2014 STANDARD CATALOG OF FIREARMS, *supra* note 60, at 1102 (noting the twenty-round box magazine); *M1A Series*, SPRINGFIELD ARMORY, <http://www.springfield-armory.com/m1a-series/> (last visited Feb. 21, 2015).
- 99 2014 STANDARD CATALOG OF FIREARMS, *supra* note 60, at 1173.

- 100 See M1A Scout, *What is an M1A Rifle*, M1A RIFLES (July 2, 2009), <http://www.m1arifles.com/tag/m14/>; Shawn Skipper, *8 Things You Might Not Know About the Ruger Mini-14*, DAILY CALLER (June 3, 2014), <http://dailycaller.com/2014/06/03/8-things-you-might-not-know-about-the-ruger-mini-14/>. Another gun introduced in 1976 also used magazines larger than fifteen. The Bingham company (from Norcross, Georgia) brought out the PPS 50 and AK-22, .22 caliber rifles with detachable magazines of fifty or twenty-nine rounds. 2 014 STANDARD CATALOG OF FIREARMS, *supra* note 60, at 163. The PPS-50 is currently manufactured by Mitchell's Mausers. See PPS-50/22, MITCHELL'S MOUSERS, <http://www.mauser.org/pps-50-22/> (last visited Feb. 21, 2015). That the gun is still in production four decades later is impressive, but the PPS-50 never became an all-American favorite as did the M1, AR-15, M1A and the Mini-14.
- 101 GUN DIGEST 1980, at 319-21 (Ken Warner ed., 34th Anniversary Deluxe ed. 1979). Also on the market were the Commando Arms carbine (five, fifteen, thirty or ninety rounds), and the Wilkinson Terry carbine (thirty-one rounds). *Id.* at 319, 322.
- 102 2 014 STANDARD CATALOG OF FIREARMS, *supra* note 60, at 182.
- 103 *Id.* at 432-33.
- 104 See *id.* at 465.
- 105 *Id.* at 72; BREATHED & SCHROEDER, *supra* note 74, at 216-17.
- 106 See GUN DIGEST 1965, at 229 (John T. Amber eds., 19th Anniversary Deluxe ed. 1964).
- 107 2 014 STANDARD CATALOG OF FIREARMS, *supra* note 60, at 121.
- 108 *Id.* at 122. In 1985 the M9 version of this pistol became the standard U.S. military issue sidearm. *Id.* at 124.
- 109 *Id.* at 184.
- 110 See GUN DIGEST 1980, *supra* note 101, at 297-98. L.E.S. was the American partner of Austria's Steyr. The following courts have relied on one of the annual issues of GUN DIGEST: *Sturm, Ruger & Co. v. Arcadia Mach. & Tool, Inc.*, No. CV 85-8459 MRP, 1988 U.S. Dist. LEXIS 16451, at *3-4 (C.D. Cal. Nov. 4, 1988); *A. Uberti & C. v. Leonardo*, 892 P.2d 1354, 1364 (Ariz. 1995) (discussing how the inclusion of the defendant's guns in the *Gun Digest* established that defendant had sufficient minimum contacts with the state to satisfy personal jurisdiction); *Couplin v. State*, 378 A.2d 197, 202 n.2 (Md. Ct. Spec. App. 1977); *Citizens for a Safer Cmty. v. City of Rochester*, 627 N.Y.S.2d 193, 203 n.5 (Sup. Ct. 1994).
- 111 JULIAN E. ZELIZER, JIMMY CARTER 3 (2010).
- 112 See DAVID N. MEYER, THE BEE GEES: THE BIOGRAPHY 213-14 (2013).
- 113 PAUL M. BARRETT, GLOCK: THE RISE OF AMERICA'S GUN 13-16 (2012).
- 114 GAVIN MACLEOD & MARK DAGOSTINO, THIS IS YOUR CAPTAIN SPEAKING: MY FANTASTIC VOYAGE THROUGH HOLLYWOOD, FAITH & LIFE 138-39 (2013).
- 115 See, e.g., BOB DENTON, THE PC PIONEERS 97-100 (2d ed. 2014); ROBERT E. WILLIAMS & BRUCE J. TAYLOR, THE POWER OF: VISICALC (1981) (advising how to properly use the VisiCalc system and providing practice exercises on the system).
- 116 See generally David Tong, *The Care, Feeding and Reliability of Semi-Automatic Pistols*, CHUCKHAWKS.COM, http://www.chuckhawks.com/care_reliability_autopistols.htm (last visited Feb. 21, 2015).

- 117 See, e.g., Tim Lau, *AR15/M16 Magazine Drop Test: Plastic Vs. Aluminum*, MODERN SERVICE WEAPONS, (Dec. 9, 2012), [http:// modernserviceweapons.com/?p=1072](http://modernserviceweapons.com/?p=1072) (comparing the performance of plastic and aluminum magazines).
- 118 Michael Shain, Expert Report and Opinion at 5-6, *Cooke v. Hickenlooper*, No. 13-cv-01300-MSK-MJW (D. Colo. Aug. 1, 2013), available at <http://coloradoguncase.org/Shain-report.pdf>. Kopel is counsel for the Colorado Sheriffs who are the plaintiffs in this case, which is currently on appeal to the Tenth Circuit.
- 119 See Mike Wood, *3 Simple Keys to Cleaning Your Pistol Magazines*, POLICEONE.COM, July 11, 2014, [http:// www.policeone.com/Officer-Safety/articles/7358758-3-simple-keys-to-cleaning-your-pistol-magazines/](http://www.policeone.com/Officer-Safety/articles/7358758-3-simple-keys-to-cleaning-your-pistol-magazines/).
- 120 Michael Shain, Expert Report and Opinion at 5-7, *Cooke*, No. 13-cv-01300-MSK-MJW.
- 121 See, e.g., *Magazine Adapters*, TOP GUN SUPPLY, [http:// www.topgunsupply.com/gun-accessories-for-sale/ magazine-adapters.html](http://www.topgunsupply.com/gun-accessories-for-sale/magazine-adapters.html) (last visited Feb. 19, 2014) (selling magazine adapters that increase capacity and/or increase grip length).
- 122 *Magazines, Clips, and Speedloaders*, FIREARMS ADVANTAGE, [http:// www.firearmsadvantage.com/ magazines_clips_speedloaders.html](http://www.firearmsadvantage.com/magazines_clips_speedloaders.html) (last visited Feb. 21, 2015).
- 123 *Id.*
- 124 *Id.*
- 125 *District of Columbia v. Heller*, 554 U.S. 570, 629 (2008).
- 126 *Id.* at 626, 629.
- 127 *Kerr v. Hickenlooper*, 744 F.3d 1156, 1178 (10th Cir. 2014).
- 128 See *supra* notes 21-31 and accompanying text.
- 129 Act of June 2, 1927, No. 373, § 3, 1927 Mich. Pub. Acts 887, 888 (repealed 1959) (“It shall be unlawful within this state to manufacture, sell, offer for sale, or possess any machine gun or firearm which can be fired more than sixteen times without reloading”). In 1931, the provision was consolidated into section 224 of the Michigan Code.
- 130 Act of Apr. 22, 1927, ch. 1052, §§ 1, 4, 1927 R.I. Acts & Resolves 256, 256-57 (amended 1959).
- 131 Under the 1959 revision: “Any person who shall manufacture, sell, offer for sale or possess any machine gun or firearm which shoots or is designed to shoot automatically more than 1 shot without manual reloading, by a single function of the trigger ... shall be guilty of a felony....” Act of July 16, 1959, No. 175, sec. 1, § 224, 1959 Mich. Pub. Acts 249, 250. Michigan’s current statute on machine guns contains very similar language. See MICH. COMP. LAWS SERV. § 750.224 (LexisNexis 2014) (“A person shall not manufacture, sell, offer for sale or possess... [a] machine gun or firearm that shoots or is designed to shoot automatically more than 1 shot without manual reloading, by a single function of the trigger.”).
- 132 Firearms Act, ch. 75, secs. 11-47-2, -8, 1959 R.I. Acts & Resolves 260, 260, 263 (amended 1975).
- 133 This was accomplished by changing the Firearms Act’s definition of “Machine gun” to mirror the federal definition:
[A]ny weapon which shoots, is designed to shoot, or can be readily restored to shoot, automatically more than one shot, without manual reloading, by a single function of the trigger. The term shall also include the frame or receiver of any such weapon, any combination of parts designed and intended for use in converting a weapon into a machinegun, and any combination of parts from which a machinegun can be assembled if such parts are in the possession or under the control of a person.

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- Firearms Act, ch. 278, sec. 1, § 11-47-2, 1975 R.I. Pub. Laws 738, 738-39, 742 (amended 1989). Rhode Island's definition of machine gun was changed again in 1989. Act of July 10, 1989, ch. 542, sec. 7, § 11-47-2, 1989 R.I. Pub. Laws. 1371, 1375-76 (codified at R.I. GEN. LAWS ANN. § 11-47-2 (West 2014)).
- 134 Act of Apr. 8, 1933, No. 166, sec. 1, §§ 12819-3, -4, 1933 Ohio Laws 189, 189 (amended 1972).
- 135 Act of Dec. 22, 1972, No. 511, sec. 1, § 2923.11, 1972 Ohio Laws 1866, 1963; OHIO REV. CODE ANN. § 2923.11 (LexisNexis 2014).
- 136 *Ohio: Disclaimer*, BUDSGUNSHOP.COM (July. 11, 2014), [http:// www.budsgunshop.com/catalog/feeds/state_reg/ohio_restrictions.pdf](http://www.budsgunshop.com/catalog/feeds/state_reg/ohio_restrictions.pdf).
- 137 OHIO REV. CODE ANN. § 2923.17.
- 138 *See, e.g., Surefire 60-Round High-Capacity Magazine MAG5-60*, GANDER MTN., <http://www.gandermountain.com/modperl/product/details.cgi?pdsc=SureFire-60-Round-High-Capacity-Magazine-MAG5-60&i=447625> (last visited Feb. 21, 2015) (allowing online customers to arrange for pick-up of a SureFire 60-Round High-Capacity Magazine at any of nine Ohio stores).
- 139 H.R. 234, 2013-2014 Leg., 130th Sess. § 2 (Ohio 2014) (enacted) (repealing relevant definition statute, and taking effect Mar. 23, 2015).
- 140 Act of July 8, 1932, Pub. L. No. 72-275, §§ 1, 8, 47 Stat. 650, 650, 652.
- 141 National Firearms Act, Pub. L. 73-474, 48 Stat. 1236 (1934).
- 142 *D.C. Home Rule*, COUNCIL D.C., <http://dccouncil.us/pages/dc-home-rule> (last visited Feb. 21, 2015).
- 143 *See* Firearms Control Regulations Act of 1975, No. 1-142, § 201, 23 D.C. Reg. 1091, 1097 (July 23, 1976).
- 144 *See supra* notes 13-14, 19-20 and accompanying text.
- 145 *See* VIVIAN S. CHU, DC GUN LAWS AND PROPOSED AMENDMENTS 5-6 (2011) (“Prior to Heller, the DC Code's definition of ‘machine gun’ included ‘any firearm, which shoots, is designed to shoot or can be readily converted to shoot... semiautomatically, more than 12 shots without manual reloading.’ By virtue of this broad definition, any semiautomatic weapon that could shoot more than 12 shots without manual reloading, whether pistol, rifle, or shotgun, was deemed a ‘machine gun,’ and prohibited from being registered. It appears that under the District's old definition, registration of a pistol was largely limited to revolvers.” (quoting D.C. Code § 7-2501.01(10) (LexisNexis 2008))).
- 146 Violent Crime Control and Law Enforcement Act of 1994, Pub. L. 103-322, § 110103(a)-(b), 108 Stat. 1796, 1998-99.
- 147 § 110105, 108 Stat. at 2000.
- 148 CHRISTOPHER S. KOPER ET AL., AN UPDATED ASSESSMENT OF THE FEDERAL ASSAULT WEAPONS BAN: IMPACTS ON GUN MARKETS AND GUN VIOLENCE, 1994-2003, at 96 (2004), available at <https://www.ncjrs.gov/pdffiles1/nij/grants/204431.pdf>.
- 149 *Id.* at 2.
- 150 *Id.* at 81 n.95.
- 151 Act of May 30, 1990, ch. 32, §§ 2C:39-1(y), -3(j), 1990 N.J. Laws 217, 221, 235 (codified at N.J. STAT. ANN. § 2C:39-1(y), -3(j) (West 2014)).
- 152 § 2C:39-1(y). There is an exemption for certain competitive target shooters. *Id.* § 2C:39-3(j).

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- 153 Act of June 29, 1992, ch. 286, sec. 3, § 134-8, 1992 Haw. Sess. Laws 740, 742 (codified at HAW. REV. STAT. ANN. § 134-8 (LexisNexis 2014)).
- 154 Act of May 26, 1994, ch. 456, § 36H-5, 1994 Md. Laws 2119, 2165 (amended 2013).
- 155 See Firearm Safety Act of 2013, ch. 427, § 4-305, 2013 Md. Laws 4195, 4210 (codified at MD. CODE. ANN., CRIM. LAW § 4-305 (LexisNexis 2014)).
- 156 See Act of July 19, 1999, ch. 129, sec. 3, § 12020(a)(2), (c)(25), 1999 Cal. Stat. 1781, 1785, 1793 (repealed 2012); Act of Aug. 8, 2000, ch. 189, sec. 11, § 265.02(8), 2000 N.Y. Laws 2788, 2793 (amended 2013).
- 157 *Large Capacity Ammunition Magazines Policy Summary*, L. CENTER TO PREVENT GUN VIOLENCE (May 31, 2013), <http://smartgunlaws.org/large-capacity-ammunition-magazines-policy-summary/>; see *supra* notes 158, 165 and accompanying text.
- 158 Act of Jan. 15, 2013, ch. 1, secs. 38, 46-a, §§ 265.00.23, 265.36, 2013 N.Y. Laws 1, 16, 19 (codified at N.Y. PENAL LAW § 265.36 (McKinney 2014)).
- 159 Freeman Klopott, *Cuomo's 7-Bullet Limit to Be Suspended Indefinitely, Skelos Says*, BLOOMBERG (Mar. 24, 2013), <http://www.bloomberg.com/news/2013-03-25/cuomo-s-7-bullet-limit-to-be-suspended-indefinitely-skelos-says.html>.
- 160 PENAL §§ 265.36-.37; OFFICE OF DIV. COUNSEL, GUIDE TO THE NEW YORK SAFE ACT FOR MEMBERS OF THE DIVISION OF STATE POLICE 7, 9 (2013), available at http://www.nypdcea.org/pdfs/NYSP_Safe_Act_Field_Guide.pdf.
- 161 N.Y. State Rifle & Pistol Ass'n v. Cuomo, 990 F. Supp. 2d 349, 372-73 (W.D.N.Y. 2013).
- 162 N.Y.C., N.Y., ADMIN. CODE § 10-306(b) (2015).
- 163 Act of Mar. 20, 2013, ch. 48, sec. 1, §§ 18-12-301(2)(a)(I), - 302(1), 2013 Colo. Sess. Laws 144, 144-45 (codified at COLO. REV. STAT. § 18-12-302(1) (2014)).
- 164 Act of April 4, 2013, P.A. 13-3, § 23, 2013 Conn. Acts 47, 66 (Reg. Sess.) (codified at CONN. GEN. STAT. ANN. § 53-202w (West 2015)).
- 165 COLO. REV. STAT. § 18-12-302(2) (permitting a person to maintain possession of a banned magazine if he/she owned it prior to the effective date of the law and maintained “continuous possession” thereafter); CONN GEN. STAT. §§ 53-202w(e)(4), 53-202x(a)(1) (permitting a person to maintain possession of a banned magazine if he/she possessed it prior to the effective date of the law and declared it to the government).
- 166 MASS. GEN. LAWS ANN. ch. 140 §§ 121, 131(a) (West 2014) (allowing possession and acquisition of magazines manufactured before Sept. 1994 by anyone with a Class A license); Matt Carroll, *Snapshot: Gun Licenses Per 1,000, 2012*, BOSTON.COM, (Jan. 24, 2013), http://www.boston.com/yourtown/specials/snapshot/massachusetts_snapshot_gun_licenses_2012 (showing the prevalence of Class A licenses in Massachusetts). A 2014 bill enacted in Massachusetts eliminated the lower category of “Class B” firearms licenses, so presumably all licensed firearms owners in Massachusetts will be able to acquire magazines of more than ten rounds, albeit only magazines manufactured before 1995. Act of Aug. 11, 2014, ch. 284, 2014 Mass. Acts, available at <https://malegislature.gov/Laws/SessionLaws/Acts/2014/Chapter284>.
- 167 See, e.g., *Ezell v. City of Chi.*, 651 F.3d 684, 702-03 (7th Cir. 2011).
- 168 JOHNSON, KOPEL, MOCSARY & O'SHEA, *supra* note 90, at 218.
- 169 *Id.* at 299.
- 170 See *supra* Part II.B.

- 171 See *supra* notes 27-31 and accompanying text.
- 172 See *supra* notes 32-35 and accompanying text..
- 173 RICHARD C. RATTENBURY, A LEGACY IN ARMS: AMERICAN FIREARM MANUFACTURE, DESIGN, AND ARTISTRY, 1800-1900, at 135 (2014); see *supra* note 49 and accompanying text.
- 174 CLIFFORD R. CADWELL, GUNS OF THE LINCOLN COUNTY WAR 50 (2009); RATTENBURY, *supra* note 173, at 136; *supra* notes 55-55 and accompanying text.
- 175 See *supra* notes 129-30 and accompanying text; see also Act of June 2, 1927, No. 372, § 3, 1927 Mich. Public Acts 887, 888-89 (repealed 1959) (regulating the possession of and carrying of certain firearms that were capable of firing sixteen shots without reloading).
- 176 See *id.* at 625, 629 (majority opinion).
- 177 *Id.* at 627 (quoting *United States v. Miller*, 307 U.S. 174, 179 (1939)).
- 178 *Heller*, 554 U.S. at 627.
- 179 See *id.* at 625, 627.
- 180 See *id.* at 627.
- 181 See *id.*
- 182 *Id.* (quoting *Miller*, 307 U.S. at 179).
- 183 *Heller*, 554 U.S. at 627 (quoting *Miller*, 307 U.S. at 179) (internal quotation marks omitted).
- 184 *Miller*, 307 U.S. at 178.
- 185 *Heller*, 554 U.S. at 625.
- 186 *Miller*, 307 U.S. at 177, 183.
- 187 *Id.* at 178. “Judicial notice” is when courts rely on facts that are not in the record of the case, but which are indisputably true. FED. R. EVID. 201. For example, they may be a subject of common knowledge (e.g., that in Arkansas, the sun is never visible in the sky at midnight) or can be ascertained from indisputable sources (e.g., that a particular section of the Code of Federal Regulations contains certain language). See *id.*
- 188 Brian L. Frye, *The Peculiar Story of United States v. Miller*, 3 N.Y.U. J.L. & LIBERTY 48, 65-68 (2008). *The Peculiar Story of United States v. Miller* was cited by the Court in *Heller*. *Heller*, 554 U.S. at 623.
- 189 *Heller*, 554 U.S. at 621-22.
- 190 See *supra* Part II.
- 191 See *supra* Part II.
- 192 See *Fyock v. City of Sunnyvale*, No. C-13-5807-RMW, 2014 U.S. Dist. LEXIS 29722, at *13 (N.D. Cal. Mar. 5, 2014) (agreeing with and incorporating affidavit from plaintiffs' expert that “whatever the actual number of such magazines in United States consumers' hands is, it is in the tens-of-millions, even under the most conservative estimates.”).
- 193 *Id.* (“Plaintiffs cite statistics showing that magazines having a capacity to accept more than ten rounds make up approximately 47 percent of all magazines owned.”).

- 194 PATRICK SWEENEY, THE GUN DIGEST BOOK OF THE AR-15, at 14 (2005); see Meghan Lisson, *Run on Guns: AR-15s Sales Soar*, CNBC (Apr. 25, 2013), <http://www.cnbc.com/id/100673826>.
- 195 SWEENEY, *supra* note 194, at 99.
- 196 *District of Columbia v. Heller*, 554 U.S. 570, 626, 627 n.26 (2008).
- 197 *Id.* at 626-27.
- 198 *Id.* at 629 (citations omitted) (citing *Nunn v. State*, 1 Ga. 243, 251 (1846); *Andrews v. State*, 50 Tenn. 165, 187 (1871)); see also *Heller*, 554 U.S. at 629 (“A statute which, under the pretence of regulating, amounts to a destruction of the right, or which requires arms to be so borne as to render them wholly useless for the purpose of defence, would be clearly unconstitutional” (quoting *State v. Reid*, 1 Ala. 612, 616-17 (1840)) (internal quotation marks omitted)).
- 199 Edward D. Jones, III, *The District of Columbia's “Firearms Control Regulations Act of 1975”: The Toughest Handgun Control Law in the United States--Or Is It?*, 455 ANNALS AM. ACAD. POL. & SOC. SCI. 138, 139 (1981).
- 200 See *McDonald v. City of Chi.*, 561 U.S. 742, 749 (2010); Steve Chapman, *Chicago's Pointless Handgun Ban: City Gun Ordinances Proved to Be a Failure*, CHI. TRIB., Mar. 4, 2010, at C21.
- 201 *Nunn*, 1 Ga. at 246, 251. The *Heller* Court cited this case with approval. *Heller*, 554 U.S. at 612.
- 202 *Fiscal v. City & Cnty. of S.F.*, 70 Cal. Rptr. 3d 324, 326, 341-42 (Ct. App. 2008); *Doe v. City & Cnty. of S.F.*, 186 Cal Rptr. 380, 381 (Ct. App. 1982).
- 203 See *supra* note 151-52 and accompanying text.
- 204 See *supra* note 156 and accompanying text.
- 205 See *supra* notes 129-30, 134, 140 and accompanying text.
- 206 See *supra* notes 140-45 and accompanying text.
- 207 See *supra* notes 131, 133 and accompanying text.
- 208 See *supra* notes 135-39 and accompanying text.
- 209 *Ezell v. City of Chi.*, 651 F.3d 684, 690-91 (7th Cir. 2011).
- 210 *Id.* at 702-03.
- 211 *Id.* at 703.
- 212 *Id.* at 704.
- 213 *Id.* at 705-06.
- 214 *Id.*
- 215 *Id.* at 705.
- 216 *Id.* at 706.
- 217 *Id.* (quoting *District of Columbia v. Heller*, 554 U.S. 570, 632 (2008)); see also *Heller*, 554 U.S. at 632 (“[W]e would not stake our interpretation of the Second Amendment upon a single law... that contradicts the overwhelming weight of other evidence....”).
- 218 See *Ezell*, 652 F.3d at 706.

- 219 *See supra* notes 131, 133, 140 and accompanying text.
- 220 18 U.S.C. § 922(x)(2)-(3) (2013); *United States v. Rene E.*, 583 F.3d 8, 16 (1st Cir. 2009).
- 221 *Rene E.*, 583 F.3d at 12.
- 222 *Id.*
- 223 *Id.* at 14-15.
- 224 *State v. Callicutt*, 69 Tenn. 714, 716-17 (1878).
- 225 *McMillan v. Steele*, 119 A. 721, 722 (Pa. 1923).
- 226 *State v. Allen*, 94 Ind. 441, 441 (1884).
- 227 *Tankersly v. Commonwealth*, 9 S.W. 702, 703 (Ky. 1888).
- 228 *Coleman v. State*, 32 Ala. 581, 582-83 (1858).
- 229 *Biffer v. Chicago*, 116 N.E. 182, 184 (Ill. 1917).
- 230 *Schmidt v. Capital Candy Co.*, 166 N.W. 502, 503-04 (Minn. 1918).
- 231 *United States v. Rene E.*, 583 F.3d 8, 14-15 (1st Cir. 2009).
- 232 *Id.*
- 233 *Id.*
- 234 *Id.* at 11-16 (“[T]his law, with its narrow scope and its exceptions, does not offend the Second Amendment.”). Exceptions include farm and ranch work as well as target shooting or other activities under parental supervision. 18 U.S.C. § 922(x)(3)(A)(i)-(ii) (2013).
- 235 *Ezell v. City of Chi.*, 651 F.3d 684, 706 (7th Cir. 2011).
- 236 *District of Columbia v. Heller*, 554 U.S. 570, 635 (2008).
- 237 *Id.* at 574-75.
- 238 *Id.* at 635.
- 239 *See Heller v. District of Columbia (Heller II)*, 670 F.3d 1244, 1248-49 (D.C. Cir. 2011).
- 240 *Id.* at 1247.
- 241 *Id.* at 1252-53.
- 242 *See id.* at 1252.
- 243 *Id.* at 1253-54.
- 244 *See id.* at 1254.
- 245 *Id.* The court listed seven states that today have handgun registration laws. *Id.* at n.*.
- 246 *Id.* at 1254-55.
- 247 *Id.* at 1255.
- 248 *Id.*

249 *See id.* at 1247.

250 *See id.*

251 *Id.* at 1246, 1260, 1264.

252 *Id.* at 1260.

253 *Id.* at 1260 n.*.

254 *Id.* at 1262-64.

255 *Id.* at 1263-64.

256 KOPER EL AL., *supra* note 148, at 92.

257 *Heller II*, 670 F.3d at 1285 (Kavanaugh, J., dissenting) (“A ban on a class of arms is not an ‘incidental’ regulation. It is equivalent to a ban on a category of speech. Such restrictions on core enumerated constitutional protections are *not* subjected to mere intermediate scrutiny review. The majority opinion here is in uncharted territory in suggesting that intermediate scrutiny can apply to an outright ban on possession of a class of weapons that have not traditionally been banned.”).

258 *Id.* at 1285-86.

259 *See id.* at 1282.

260 *Id.* (“*Heller* was resolved in favor of categoricalism--with the categories defined by text, history, and tradition--and against balancing tests such as strict or intermediate scrutiny or reasonableness.”).

261 *See id.*

262 *Id.* at 1286.

263 *See id.* at 1292-93.

264 *Id.* at 1294.

265 *See id.*

266 *See id.* at 1287 (citing JOHNSON, KOPEL, MOCSARY & O'SHEA, *supra* note 90, at 11).

267 *Heller II*, 670 F.3d at 1296 n.20 (Kavanaugh, J., dissenting) (“The D.C. ban on magazines of more than 10 rounds requires analysis in the first instance by the District Court. In order to apply *Heller's* test to this prohibition, we must know whether magazines with more than 10 rounds have traditionally been banned and are not in common use. The parties here did not brief that question in much detail. Evidence presented to the District Court on the history and prevalence of magazines of more than 10 rounds would be helpful to the proper disposition of that issue under the *Heller* test. Therefore, I would remand to the District Court for analysis of that issue.”).

268 *See* Lindsay Colvin, Note, *History, Heller, and High-Capacity Magazines: What Is the Proper Standard of Review for Second Amendment Challenges?*, 41 FORDHAM URB. L.J. 1041, 1075-80 (2014).

269 *Heller II*, 670 F.3d at 1260.

270 *Silvester v. Harris*, No. 1:11-CV-2137 AWI SAB, 2014 U.S. Dist. LEXIS 118284 (E.D. Cal. Aug. 25, 2014).

271 CAL. PENAL CODE §§ 26815(a), 27540(a) (West 2014).

272 *Silvester*, 2014 U.S. Dist. LEXIS 118284, at *82.

- 273 *Chief District Court Judge Anthony W. Ishii*, U.S. DIST. COURT: E. DIST. OF CAL., http://www.caed.uscourts.gov/caed/staticOther/page_630.htm (last visited Feb. 21, 2015).
- 274 *Silvester*, 2014 U.S. Dist. LEXIS 118284, at *101-02.
- 275 *Compare id.* at *30, with *Ezell v. City of Chi.*, 651 F.3d 684, 702-03 (7th Cir. 2011).
- 276 *Silvester*, 2014 U.S. Dist. LEXIS 118284, at *8-9.
- 277 *See id.* at *9-10, *78.
- 278 *Id.* at *11.
- 279 *Id.*
- 280 *Id.* at *11-12.
- 281 *Id.* at *75.
- 282 *Id.* at *75-76.
- 283 *Id.* at *78 (citations omitted).
- 284 *Id.* at *79.
- 285 *Id.*
- 286 *Id.* at *30.
- 287 *Id.* at *75-76.
- 288 *Id.* at *80.
- 289 *Id.*
- 290 *Id.* at *90-91, 96-97.
- 291 *Id.* at *101-03.
- 292 *See id.* at *23-25.
- 293 *See supra* notes 43-64 and accompanying text.
- 294 *See supra* notes 102-06 and accompanying text.
- 295 *See supra* notes 130, 132-33 and accompanying text.
- 296 *See supra* notes 136-39 and accompanying text.
- 297 *See supra* notes 134-35 and accompanying text.
- 298 *See supra* notes 140-45 and accompanying text.
- 299 *See supra* note 156 and accompanying text.

78 ALBLR 849

EXHIBIT 13

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by
Lewis Winant

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solid rather than a perforated bullet somewhere in a series of superposed loads so as to stop the Roman candle effect and to permit resumption of firing by means of another lock.

A very rare and fine German piece is shown in figure 193. This most remarkable gun is capable of doing everything we assume Mr. Cardiff's double-lock gun may have been capable of doing, and it appears to antedate Mr. Cardiff's patent. No maker's name is on it, but the Nuremberg mark is clear.

As illustration 193 shows, there are two locks, the forward being a conventional wheel lock, and the rear an unusual combination wheel lock-matchlock. There is but one trigger.

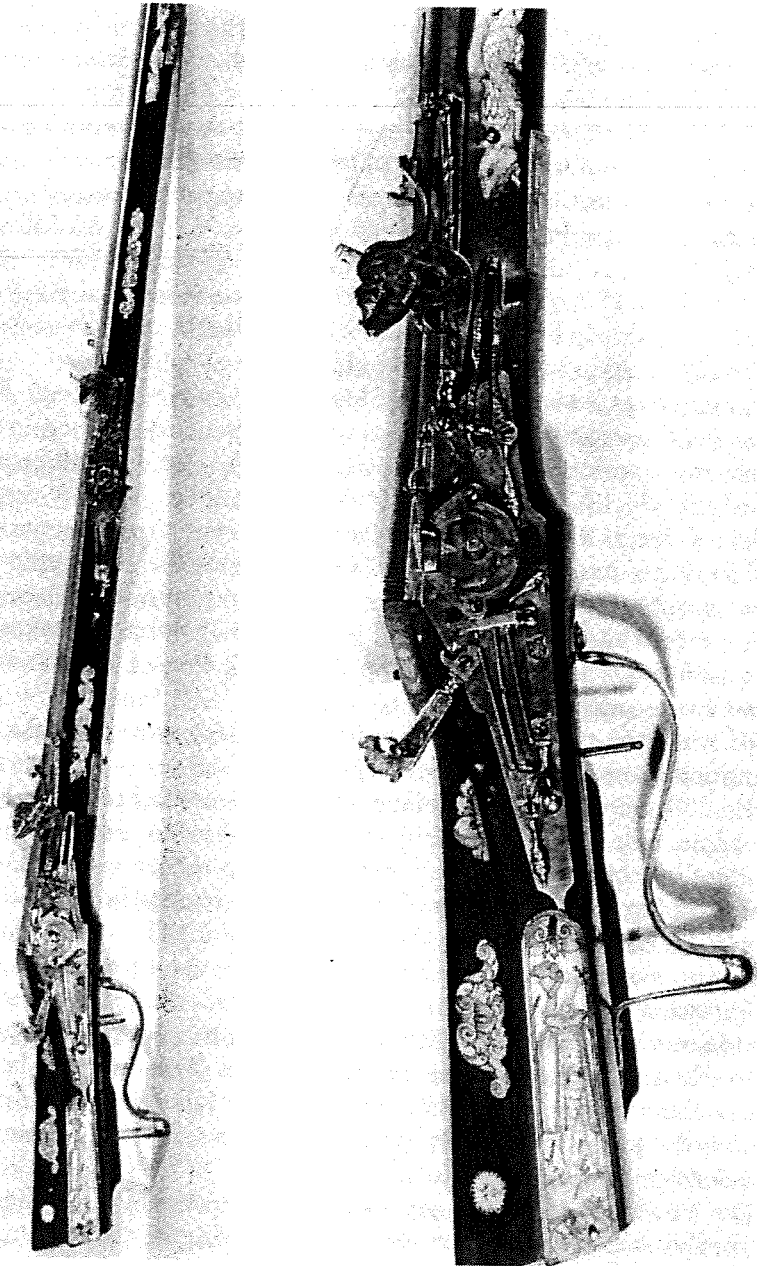
The gun may be used as a single-shot, employing the rear lock only, or it may be charged with sixteen superposed loads so that the first pull of the trigger will release the wheel on the forward lock and fire nine Roman candle charges, a second pull will release the wheel on the rear lock and set off six more such charges, and finally a third pull will fire the one remaining shot.

A safety catch which prevents movement of the wheel on the rear lock at the first trigger pull must be released, after the first series of nine shots, before the second series of six shots can be discharged. To fire the final shot by the third trigger pull it is necessary either again to span the wheel of the rear lock, or to use the match ignition.

The trigger is connected to the forward lock by a wire running through the frame. When the trigger is pulled the priming powder is ignited and fire goes from the pan directly through a touch hole to the foremost powder charge. If the gun be properly loaded the first shot will be followed by eight more self-acting and unpreventable discharges going off in quick succession.

The ignition of the first of the six shots in the second series requires that a train of priming powder be laid from the pan of the rear lock to a touch hole located some six or more inches forward. A tube is provided that runs under the lockplate and along the barrel. This tube is detachable so it may be readily filled with the flash powder and is held to the barrel by a clip.

After the firing of both series of Roman candle shots the gun remains a loaded single-shot weapon. For the final shot the pan of the rear lock must be reprimed, and a sliding gate between the pan and a rearmost touch hole moved aside. The shot may



193. and 194. Wheel lock gun/ Frank E. Bivens, Jr. collection.

then be set off either by the matchlock or the wheel lock. Whether pressure on the trigger will send the spanned wheel spinning or move a lighted match into the pan, depends on how a lever on the side of the lock is set.

A close-up of the remarkable rear lock is shown in figure 194.

No original bullets for this gun exist, but charges such as were used in the Chambers gun, or even combustible cartridges such as were used in the Danish espingoles, could be successfully used in it. As in the Kesling gun (which along with the espingoles and the Chambers guns will be described shortly) the first bullet to be loaded would be solid. The seventh and sixteenth bullets, in order of loading, would also be solid.

It is perhaps well to depart at this time from a chronological order, so the espingole cartridges may be described. The espingoles were multiple barrel weapons used by Danish military forces, chiefly the Navy. An early report made in 1842 by the Chief of Naval Ordnance of Denmark reported that the guns could not be used freehand, and went on to say, ". . . the espingole must have a support and may thus be used only at places adapted for the purpose . . ." and ". . . when ignition has taken place the shooting cannot be stopped. The loading of the espingole can be performed only by trained people; it must be executed with the greatest care, requires a lot of appliances, takes up much time, and consequently cannot be done during a battle." Improvements were made, the early smooth bore barrels were later rifled, and the espingoles were kept in use in quantity for another thirty years. The novelty of these guns was in their combustible paper cartridges. Each cartridge had its bullet with a hole bored longitudinally through the center. This hole contained a slow burning fuse. When the fuse in the foremost cartridge was lighted by the operator, the charge would shortly explode and at the same time ignite the fuse in the next cartridge. From then on the explosions were automatic. The intervals between shots which gave the operator time to take aim were determined by the burning speed of the train of slow burning powder, or fuse.

The two important improvements in the espingole, the rifling of the barrels and the fully developed cartridges, came about 1850.

Figure 195 reproduces illustration #332 from Thierbach's

EXHIBIT 14

JOIN | RENEW | DONATE

MENU

NRA
America's 1st Freedom



16-Shot Wheel Lock

Saturday, May 10, 2014

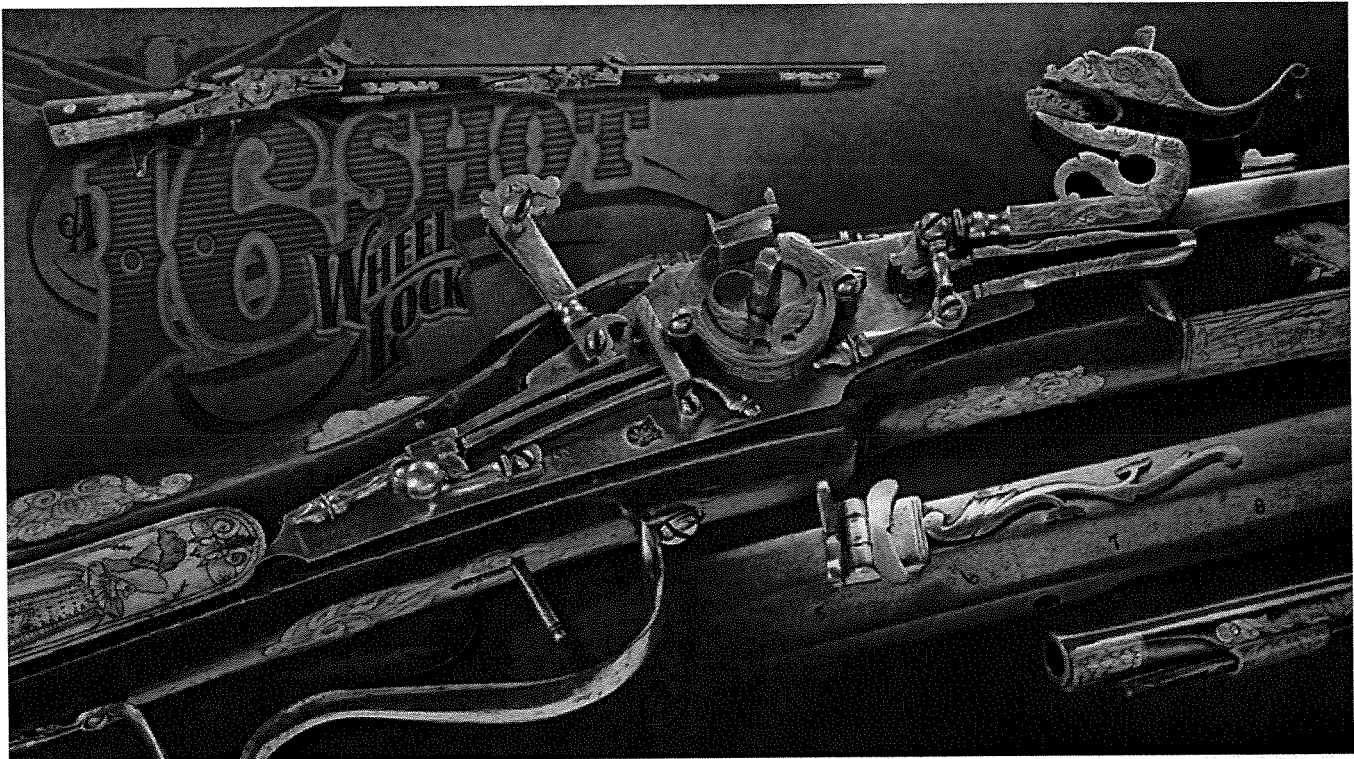


Photo credit: Michael Ives

Technologically ahead of its time, this highly decorated firearm achieved a multi-shot capability that would not be reached again until the American Civil War.

Exhibit 14

00341

An unknown German gunsmith before 1600 crafted this oval-bore .67-caliber rifle that was designed to fire 16 stacked charges of powder and ball in a rapid “Roman candle” fashion. One mid-barrel wheel lock mechanism ignited a fuse to discharge the upper 10 charges, and another rearward wheel lock then fired the remaining six lower charges. In the event of a failure of either of the two wheel locks, a backup matchlock could be utilized to fire the charges. Elaborately embellished, this unusual shoulder arm has many bone and ivory inlays depicting period dress and even shows an individual loading a firearm. Numbers representing each charge are engraved in order along the side of the barrel.

On loan from Wanenmacher's Tulsa Arms Show, this unique rifle is just one of thousands of historic firearms on display in the extensive galleries at the NRA National Firearms Museum in Fairfax, Va.

Interested in engraved arms? Visit either of the two NRA museums—the NRA National Firearms Museum at NRA Headquarters in Fairfax, Va., or our new NRA National Sporting Arms Museum at Bass Pro Shops in Springfield, Mo. Both locations include exemplary handguns, rifles and shotguns available for viewing seven days a week. Admission is free (donations gratefully accepted). For more details, visit www.nramuseum.com or call (703) 267-1600.

EXHIBIT 15

Exhibit 15

00343

44 Willamette L. Rev. 699

Willamette Law Review

Summer 2008

Article

Clayton E. Cramer¹ Joseph Edward Olson²

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PISTOLS, CRIME, AND PUBLIC: SAFETY IN EARLY AMERICA

There is a vigorous debate under way about the scope of the Second Amendment. What are the limits of that right? What “arms” does it protect? Does it protect an individual right to possess and perhaps to carry firearms? The District of Columbia, in its attempt to defend its 1976 gun control law, has argued that the widespread possession of handguns (“pistols”) represents an especially serious public safety hazard, and that even if arguendo, the Second Amendment protects an individual right, it would not extend to pistols, which the District of Columbia characterizes as “uniquely dangerous weapons” that present “unique dangers to innocent persons.”³

This paper examines what was likely the Framers' original public meaning of the Bill of Rights provision that protects “the right of the people to keep and bear arms,” with no apparent limitations concerning handguns. We do so by examining what the history of pistols in early America tells us about foreseeable technological developments.

I. Guns, Arms, Fire-Arms, Pistols: Some Definitions

A few definitions are appropriate because there have been a few subtle changes in the meaning of some of the terms over the last two centuries. “Gun” had a more restricted meaning in the eighteenth century than it does today, referring in some contexts to privately owned cannon,⁴ but most often to what today we call long guns: *700 weapons designed to be fired with two hands with either smoothbore or rifled barrels. The smoothbore weapons included fowling pieces,

blunderbusses, and muskets, all of which could--and often did-- fire either shot or lead balls. The only real distinction between a fowling piece and a musket was that muskets were of larger caliber and were intended for more powerful charges of gunpowder, thus being capable of firing a lead ball that would be deadly at a greater distance. Blunderbusses,⁵ with their characteristic belled muzzles, were short-range antipersonnel weapons that put an enormous quantity of shot in a broad pattern--the "assault weapon" of their day in terms of lethality and the number of persons that they could kill or wound.

TABULAR OR GRAPHIC MATERIAL SET FORTH AT THIS POINT IS NOT DISPLAYABLE

Eighteenth Century Blunderbuss⁶

That "gun" did not include "pistol"⁷ is demonstrated by the number of statutes that include both "gun" and "pistol" on a list of arms. For example, Colonial statutes requiring churchgoers to be armed in South Carolina (1743)⁸ and Georgia (1770)⁹ distinguish between "a gun" and a pair of pistols. Perkin & Coutty of Philadelphia advertised in 1781 that they made firearms "in all its *701 branches, where gentlemen may be supplied with Guns and Pistols of the neatest and best quality, on the shortest notice."¹⁰ Even as late as 1828 this distinction between guns and pistols appeared in a proclamation from Washington, D.C. Mayor Joseph Gales:

WHEREAS it has been too much the habit of idle and inconsiderate persons, on Christmas and New Year's Day and Eve to indulge in firing off guns, pistols, squibs, and crackers, and burning of gun-powder in divers other ways, to the great annoyance of the peaceable inhabitants of this city, and to the manifest danger of their persons and property¹¹

The term "fire-arm" was also more restricted in meaning than today. Even though there are no examples in the Oxford English Dictionary, we know from contemporary documents that, as early as 1775 and as late as 1806, the term "fire-arm" was restricted to muskets.¹² It did not include pistols, rifles¹³ or blunderbusses. At the start of the Revolution, General Gage ordered the people of Boston to turn in their arms. As an incentive, General Gage offered passes to leave Boston to all who turned in their weapons, because no weapons or ammunition

were allowed to leave Boston. On April 27th, “the people delivered to the selectman 1778 fire-arms, 634 pistols, 973 bayonets, and 38 blunderbusses.”¹⁴ Additionally an 1806 congressional committee report used the phrase “fire arms and rifles,” suggesting that “fire arm” may have been used in the sense of “military musket,” rather than the broader definition in use today.¹⁵

As is the case today, “arms” was not limited to firearms in the Colonial and Revolutionary periods, although most “arms” that appear in official documents from those periods are firearms (in the modern sense of the word--something that uses rapidly burning *702 gunpowder to generate gas to discharge projectiles). For example, Massachusetts purchased 948 small arms in the first months of the Revolution for which we have both a count and a price.¹⁶ Of these, some are explicitly identified as firearms, while others are simply referred to as “arms” or “small arms.” Firearms ($n = 341$, standard deviation = 0.21841) had an average purchase price of 1.680 pounds sterling. Other arms ($n = 607$, standard deviation = 0.07642) had an average purchase price of 1.638 pounds sterling. At a ninety-five percent confidence interval, there is no overlap in pricing between the two groups. This suggests that while there might well have been some firearms in the “arms” or “small arms” category, it is unlikely that “arms” consisted entirely of firearms.¹⁷

While pistols were not included in the category of “guns,” they were certainly “arms,” along with a number of impact and edged weapons of the time. As Webster's A Dictionary of the American Language (1828) defined arms, “In law, arms are any thing which a man takes in his hand in anger, to strike or assault another.”¹⁸ The Oxford English Dictionary definitions for “arms” are more specific than Webster's: “Instruments of offence used in war; weapons. fire-arms: those for which gunpowder is used, such as guns and pistols, as opposed to swords, spears, or bows. small-arms: those not requiring carriages, as opposed to artillery.” But all the examples cited in the Oxford English Dictionary of the usage of the word “arms,” from 1300 to 1870, conform to the definition given by Webster--those which can be taken in the hand.¹⁹

*703 II. Pistol Regulations

There are almost no regulatory distinctions between pistols and long guns in statutes before 1791.²⁰ When Colonial statutes refer to pistols, it is usually as part of a list of other arms, with no indication that they were treated differently. As an example, in 1684 Virginia passed a law that sought to encourage private ownership

of guns by exempting privately owned guns from being impressed for public service. To encourage the inhabitants to be “well and compleatly furnished when commanded to musters,” all “swords, muskets . . . pistols, carbines, guns, and other armes and furniture, as the inhabitants of this country . . . shall provide and furnish themselves with, for their necessary use and service, shall from henceforth be free and exempted from being imprest or taken from him or them”²¹ A statute adopted at the Massachusetts 1713-1714 legislative session complained, “Whereas by the indiscreet firing of guns laden with shot[t] and ball within the town and harbour of Boston, the lives and limbs of many persons have been lost, and others have been in great danger, as well as other damage [sic] has been sustained”²² The legislature prohibited firing of any “gun or pistol” in Boston (“the islands thereto belonging excepted”).²³

Measures that sought to disarm African-Americans also made no distinctions between categories of arms. Pennsylvania's 1700 “Act for the Trial of Negroes” provided that “if any Negro shall presume to carry any guns, swords, pistols, fowling-pieces, clubs or other arms or weapons whatsoever, without his master's special license for the same,” he would receive twenty-one lashes on his bare back.²⁴

A 1743 South Carolina statute required “every white male inhabitant of this Province” under sixty years old, “who is or shall be liable to bear arms in the militia of this Province” and who attended “church or any other public place of divine worship,” to “carry with *704 him a gun or a pair of horse-pistols . . . with at least six charges of gun-powder and ball.” Those who failed to do so would be fined twenty shillings--a week's wages for many colonists.²⁵ (Georgia adopted a very similar statute in 1770.)²⁶

The only examples of laws that treat pistols differently from other arms suggest that pistols were regarded as either less dangerous than long guns, or perhaps, that they enjoyed some protected status as weapons of self-defense. In January of 1776, the Maryland Revolutionary government ordered those not prepared to associate with the Revolutionary cause to turn over their firearms for the use of the militia--with one notable exception. The counties were told to order all freemen to “deliver up to the committee of observation for this county, all fire-arms, if he hath any, except pistols.”²⁷ Even with all the concerns about Loyalists who might take advantage of the arrival of British troops to cause mischief, there was apparently no need to disarm them of their pistols.²⁸ A similar exception--allowing those not entirely

trusted with long guns to nevertheless possess pistols--occurred in Maryland as late as 1781.²⁹

Arlan K. Gilbert's examination of post-Revolutionary gunpowder manufacturing mentions an incident that suggests that the carrying of handguns was not particularly restricted in Maryland.

An earlier explosion occurred on October 17, 1783, in the yard of a Mrs. Clement in Baltimore, where some gunpowder had been placed to dry. Three boys, two of them Negroes, went into the yard to clean their pistols. One of them carelessly fired his pistol near the powder, causing it to blow up. One boy was killed and the other two seriously injured.³⁰

A Boston ordinance from 1786 that prohibited storing a variety of loaded weapons in buildings makes no apparent distinctions between different categories of weapons. The ordinance prohibited *705 keeping loaded "fire-arms, or any bomb, granade, or other shell . . . in any house, outhouse, barn, stable, store, ware-house, shop, or other building."³¹ Other sections apply this prohibition to "cannon, swivels, mortars" and other military ordnance.³²

Saul Cornell has pointed to this law as evidence that there was no individual right to keep and bear arms at the time:

This is a law that effectively makes it illegal in the city of Boston to have a loaded firearm. To have a loaded firearm in the city of Boston in the 1780s is against the law. The founding fathers were willing to ban loaded guns in the city of Boston.³³

One would think that if there were other laws or ordinances regulating the possession of loaded firearms, Cornell would not have been silent about it. The absence of other examples suggests that Boston's ordinance was somewhat remarkable.

A careful reading of the ordinance, however, reveals that its purpose was not Cornell's general ban on guns in Boston, but on the act of leaving them loaded and unattended: "[w]hereas the depositing of loaded arms in the houses of the town

of Boston, is dangerous to the lives of those who are disposed to exert themselves when a fire happens to break out in the said town”³⁴

The ordinance did not prohibit carrying loaded firearms within the city of Boston--only leaving them unattended in a building--and as the preamble makes clear, this law was for the protection of those fighting fires. These were all black powder arms that are susceptible to explosive ignition from external heat sources as well as prone to accidental discharge because of their exposed firing mechanisms. Unloading a flintlock firearm (except by firing it) was a tedious task, and it is easy to see why the city felt that it was appropriate to require guns not be kept loaded and unattended. That Boston felt the need for such a law, however, suggests that gun ownership was also common, as was having loaded firearms in one's home or business. Further, fires were more common at that time than today. But if only ten *706 percent of homes had a gun, and only ten percent of those homes had a loaded gun, the intersection of houses on fire and houses with loaded guns in them would have been very small indeed. The law also clearly considered the possession of firearms, cannon, and grenades to be unremarkable, and the carrying of loaded firearms a sufficiently common practice as to need no separate regulation--and no prohibition while walking the streets of Boston.³⁵

There also remains the question of whether pistols were included among “firearms” in this Boston ordinance. They certainly were not explicitly listed, and previous usage (such as the inventory of weapons turned over to General Gage) would arguably suggest that pistols were not included.

III. Why Were Pistols Treated So Cavalierly?

There are a number of possible explanations for why the Colonial and Revolutionary periods treated pistols like other firearms. One possibility is that pistols were relatively scarce and therefore might not have attracted particular regulatory attention. The evidence is very clear, however, that pistols were not scarce in the Colonial period, during the Revolution, or into the early Republic. Seventeenth century Colonial probate inventories reveal that while pistols were not as commonly owned as long guns, they were also not particularly rare. One analysis of all Plymouth Colony probate inventories through the 1670s found that, of 339 listed firearms, 13%³⁶ were pistols, and 54.5% of lead projectiles recovered from Plymouth Colony digs were pistol ammunition.³⁷

Ads offering pistols for sale appear throughout the Colonial period, although less commonly than ads for long guns. At least one ad offering guns for sale, including pistols, appears among the surviving issues of the Boston Gazette published in 1720.³⁸ Sampling Boston Gazette ads from the 1741-1742 period reveals at least two different merchants offering pistols for sale. One of the merchants, Samuel Miller, identified himself as a gunsmith.³⁹

*707 Similarly, merchants offered pistols for sale in the South Carolina Gazette on occasion.⁴⁰ Ads specifically for pistol-powder (finer grained so that it would burn more rapidly in a shorter barrel) appeared as well.⁴¹ Also, at least one gunsmith, who identified himself as working on pistols, advertised in the South Carolina Gazette: “John Scott Gun Maker from London who performs all sorts of Gun or Pistol Work for ready Money only.”⁴²

The Pennsylvania Gazette showed a number of pistols for sale in the eighteenth century. Philadelphia merchants advertised pistols for sale repeatedly from 1744 onward.⁴³ Robert Towers offered, as part of his selection, “rifle double barrel and smooth bore guns, pistols, flints, bullet and shot molds.”⁴⁴ Specifically, pocket pistols were offered for sale as well in 1750, showing that concealable handguns were known, lawful, and likely carried concealed.⁴⁵ In 1772 and 1773, Heinrich Diebenberger advertised in Pennsylvania newspapers that he sold pistols,⁴⁶ as did Henry Deabarear, who sold “pistols for holsters and the pocket.”⁴⁷ Ads offering gunpowder specifically for pistols also appear in the Pennsylvania Gazette.⁴⁸ In 1748 in New York City, Edward Annely advertised his services as a gunsmith and dealer in *708 imported guns. “He likewise makes guns and pistols as any gentleman shall like”⁴⁹

Pocket pistols also appear to have been carried by those out exploring the natural wonders of America. A 1772 account of a natural bridge in Virginia includes the following description of the echo characteristics of the area: “after this I fired a Pocket Pistol under the Arch, the Report of which was louder than a Swivel [a type of small mounted artillery used on ships].”⁵⁰

Although pistols were usually imported before the Revolution (typically from Britain), they were also made in America. Medad Hills made a pair of pistols for William Smith in 1771.⁵¹ Surviving pistols that were apparently made in Colonial America also include a pistol owned by Peter Grubb, who made gun

barrels for the Lancaster Committee of Safety during the Revolution. The lock is apparently English-made, but the rest of the pistol appears to have been made in Pennsylvania--perhaps by I. Perkins of Philadelphia or by Grubb himself.⁵² While the makers of other pistols are uncertain, William Antes is clearly the maker of one surviving Colonial period American-made pistol. Antes signed both the barrel and the lock, suggesting that he made the entire pistol.⁵³ Another surviving signed pistol of the Colonial period was made by Matthew Sadd of Hartford, Connecticut "in the middle 1700s."⁵⁴ Other surviving examples include a pistol made by Cornelius Atherton in New England; surviving pistols by Henry Mauger of Berks County, Pennsylvania and by William Shenner of Reading, Pennsylvania;⁵⁵ and pistols by Nathan Bailey (made for Connecticut).⁵⁶

The previously mentioned count of firearms surrendered to General Gage by the citizens of Boston also indicates that pistols *709 were fairly common. They comprised nearly one-fifth (18.5%) of the 3,423 firearms surrendered.⁵⁷

On May 30, 1775, the New York Provincial Congress recommended "to the Inhabitants of this Colony in general, immediately to furnish themselves with necessary Arms & Ammunition."⁵⁸ On August 22, 1775, it ordered cavalymen to provide themselves with a horse, saddle, "a case of pistols . . . one pound of gunpowder and 3 lbs. of sizeable bullets, . . . and a carabine." Like the infantry, cavalymen were to "be provided . . . with 1 lb of pow[d]er and 3 lbs of bullets." While not explicit as to who would provide the gunpowder and bullets, it is clear that every man aged sixteen to fifty was to "furnish himself" with either a long gun or "a case of pistols."⁵⁹

On May 2, 1787, the Continental Congress ordered the public auction of a collection of military odds and ends: "413 old militia Arms . . . 365 old militia gun barrels . . . 985 old gun locks . . . 2000 damaged muskets . . . 700 pistols . . . 1194 damaged muskets . . . 1066 damaged carbines . . . 4446 damaged musket barrels," and a bit more than thirteen tons of damaged powder.⁶⁰ Pretty clearly, the government believed that there was a market for pistols, and it did not suffer from modern fears of selling surplus handguns to the population.

John Nicholson, a gunsmith, offered a variety of firearms for sale in November of 1781, including "Pistols . . . upon the most reasonable terms."⁶¹ Edward Pole advertised his "Military Laboratory" where "Owners and Commanders of Armed Vessels may be supplied, for either the use of Small Arms or Cannon, at the shortest

notice, with ever species of Military Stores.” Among the items for sale included “Musket's [sic] and pistol's [sic].” That Pole's *710 customers included civilians is suggested by the offering of “Musket cartridges in blank, for the exercise of the militia.”⁶²

In 1785, Anthony Desverneys, Jr. of South Carolina advertised that he “continues to make and repair all sorts of guns, Pistols and generally everything that belongs to the Gunsmith's Business.”⁶³ Francis Brooks in 1791 Philadelphia advertised himself as a “Pistol Maker.”⁶⁴ John Miles's 1798 advertisement in the Pennsylvania Packet made it clear that there was a civilian market for pistols: “Gun and Pistol Manufactory . . . Where Merchants, Captains of vessels, and others may be supplied with all sorts of small arms, on the lowest terms and shortest notice.”⁶⁵

Ads for lost pistols from the Revolutionary period also suggest that pistols were not particularly rare. An October 24, 1781 Pennsylvania Gazette ad offers a reward: “Was LOST on the Commons, A Silver mounted Pistol. Whoever has found the same, and will bring it to the Sheriff Office, shall receive ONE GUINEA REWARD.”⁶⁶ Other ads throughout the period for lost pistols suggest that people must have been carrying them often, both to have them fall out of a belt or pocket and to have them be sufficiently concealable so that there was no loud “thunk” as the pistol hit the ground: “LOST, on Saturday, the 5th instant, A Silver mounted PISTOL, with a brass barrel, on the road between Chester and this city”⁶⁷ or “WAS lost, on the evening of the 25th of January last, on the road leading from Philadelphia to the Lower Ferry, a very neat Pocket Pistol”⁶⁸

Various accounts in the first few years of the early Republic suggest that the possession and carrying of pistols remained common. Isaac Weld's account of his travels in North America between 1795 *711 and 1797 described how in the back country, “[t]he people all travel on horseback, with pistols and swords.”⁶⁹

When Aaron Burr was tried for his criminal conspiracy to detach the Southwest into its own country, one of the pieces of evidence used against him was a meeting between a Mr. Blannerhassett and a number of other conspirators--all of them armed. Burr's defense attorney argued that gun ownership was the norm in the early Republic:

If there were evidence of a merely friendly meeting, it would be the same as if there were no assemblage. If they were to give evidence that Blannerhassett and some of those with him were in possession of arms,

as people in this country usually are, it would not be sufficient of itself, to prove that the meeting was military.

Arms are not necessarily military weapons. Rifles, shot guns and fowling pieces are used commonly by the people of this country in hunting and for domestic purposes; they are generally in the habit of pursuing game. In the upper country every man has a gun; a majority of the people have guns everywhere, for peaceful purposes. Rifles and shot guns are no more evidence of military weapons than pistols or dirks used for personal defence, or common fowling pieces kept for the amusement of taking game. It is lawful for every man in this country to keep such weapons.⁷⁰

Given this body of evidence, it is difficult to argue that pistols were loosely regulated because of their scarcity.

IV. Were Pistols Less Misused in the Eighteenth Century?

Were pistols less misused in the Colonial and Revolutionary periods? It is conceivable that if pistols were rarely misused, the Framers might have neglected to exclude pistols from the “arms” that “the people” had a right to keep and bear. However, references to criminal and violent uses of pistols occur occasionally in the Colonial and Revolutionary era, and these occurrences are never treated as unusual or surprising because of the type of weapon. Along with misuse by professional criminals, pistols also appear to be commonly used in crimes of passion and suicides of the period.

***712** John Winthrop makes several references to pistols in New England in the nineteen years that his journal covers. A theological dispute at Pascataquack (now Dover, New Hampshire) in 1641 soon led the factions to arm themselves and march--at least one member is identified as armed with a pistol. There were murders with pistols at Stamford, Connecticut and at Penobscott in 1644 and an attempted murder with a pistol at Cape Sable in 1646.⁷¹ Winthrop never expressed any surprise or disgust over the presence of pistols-- and he was not a man inclined to withhold his moral revulsion at the actions of his fellow Englishmen.

Eighteenth century accounts also mention pistols, and their presence is never surprising. Eliza Lucas Pinckney describes the suicide of Anne LeBrasseur with a pistol as “melancholy and shocking;” however, newspaper accounts suggest that what was shocking about LeBrasseur's suicide was not the weapon, but that she was “a Disciple of Mr. Whitefield's” (the noted Anglican evangelist).⁷² There are other examples of suicides in this period by pistol, and apparently, they were never surprising for the choice of method.⁷³ A similar account of a planned suicide involving pistols also appears as a result of a fatal hunting accident.⁷⁴ Further, accidental deaths involving pistols occasionally appear, but never with any note of surprise.⁷⁵

The September 7, 1749 Pennsylvania Gazette reported that, “Sunday night last, about eight a Clock, Richard Green, coming to Town from Kensington, was stopt on the Road, and his Money demanded, by two Men with Pistols . . .”⁷⁶ There are other examples available in the Pennsylvania Gazette that illustrate how criminal misuse of and accidental deaths from pistols was never expressed as surprising.⁷⁷ A gang of robbers, having terrorized New York City, moved on to Philadelphia in 1749. A newspaper account of their *713 crimes reported that, “two Men, unknown, were lately at Mr. Rush's, a Gun smith, enquiring for six Pair of Pocket Pistols, to make up twelve Pair, having as they said, got the six Pair at some other Place.”⁷⁸

An account from the Pennsylvania Gazette in 1765 reprints a report from Boston:

Last Wednesday Evening, just after seven o'Clock, as a Man was going over Boston neck, he was stopped by a Fellow, who presenting a Pistol to his Breast, bid him deliver, swearing he would send a Brace of Balls thro' him instantly if he refused; but the Man replying he had but 3 Pistareens about him, he ordered him to go about his Business, and then ran of--doubtless apprehending a Pursuit, as there were a Number of People hastening towards them. He was a little Fellow, had on a surtout Coat, wore his Hat slapped before, and had a Pair of Pistols.⁷⁹

Other examples are available in which robbers were described as using pistols or as being taken into custody while armed with pistols.⁸⁰ Much like today, pistols also appeared in offenses that might be categorized as crimes of passion.⁸¹

As noted above, accidental deaths appear as well and are expressed as tragic--but not shocking--occurrences:

Monday Evening last a very melancholy Accident happen'd in this City, when a young Gentleman having been on board the Clinton Privateer, then going out, had a Pair of Pistols given him; which on his coming on Shore he carried into a Publick House, among some of his Acquaintance, where one of them was found to be loaded; upon which several Attempts were made to discharge it; but it missing Fire, he sat down in order to amend the Flint; in doing of which, the Pistol unhappily went off, and shot Mr. Thomas Cox, Butcher, through the Head, in such a Manner that some of his Brains came out, and he fell down dead without speaking a Word.⁸²

Pistols appear repeatedly among the South Carolina Regulators and the criminals to whom they administered frontier justice in the 1760s.⁸³ Foolish persons engaged in duels appear in newspaper *714 accounts, and the presence of pistols was not cause for surprise.⁸⁴ Nor was there any surprise when pistols appear in the hands of the law-abiding citizenry. For example, Rev. Whitfield is described as preaching in Massachusetts where “he was attended by many Friends with Muskets and Pistols on Account of the Indians.”⁸⁵

Pistols also appear in the hands of non-militia members who engage in guerilla warfare against the British at the start of the Revolution. “Samuel Whittemore, aged eighty years,” upon seeing British soldiers marching towards Concord, prepared himself by oiling “his musket and pistols and sharpening his sword.” When the soldiers returned,

Whittemore had posted himself behind a stone wall, down Mystic Street about four hundred and fifty feet The distance seemed an easy range for him, and he opened fire, killing the soldier he aimed at. They must have discovered his hiding place from the smoke-puff, and hastened to close in on him. With one pistol he killed the second Briton, and with his other fatally wounded a third one. In the meantime, the ever vigilant flank guard were attracted to the contest, and a ball from one of their muskets struck his head and rendered him unconscious. They rushed to the spot, and clubbed him with their muskets and pierced him with their

bayonets until they felt sure he was dead Whittemore lived eighteen more years, dying in 1793 at the age of ninety-eight.⁸⁶

Enough pistols were present in private hands in Pennsylvania in 1774 for the legislature to include handguns in a law regulating New Year's Day festivities. This statute made it illegal for:

[A]ny person or persons shall, on any thirty-first day of December, or first or second day of January, in every year, wantonly, and without reasonable occasion, discharge and fire off any handgun, pistol, or other firearms, or shall cast, throw or fire any squibs, rockets or other fireworks, within the inhabited parts of this province⁸⁷ *715
 Could the small town nature of Colonial and Revolutionary America have played a part in framing a Second Amendment lacking a negative reference to handguns? America really only had three cities of any notable size in 1791: Philadelphia, New York, and Boston--none of which would even be a large town by current standards. Could the Framers simply not have envisioned the dangers that handguns might create in a city of several hundred thousand inhabitants? No. Many of the Framers had spent time in London and were certainly aware of that city's burgeoning crime problem and the recent growth in gun-facilitated violence. Given the leading colonists abiding interest in all dimensions of London society, it seems likely that many of those who had not traveled there were nevertheless well aware of the problems of crime in England's urban area.

A sampling of the criminal cases of the Old Bailey covering the period 1674-1789 demonstrates that pistols appear commonly in these records especially in the period just before the adoption of the Bill of Rights.⁸⁸

Table 1. Old Bailey Case Data

Decade	Pistol or Pistols cases	Sampled Criminal Misuse	Stolen	Accidental Death	Lawful Use	
1670s	16	16	12	1	1	0
1680s	38	5	4	0	0	0
1690s	80	8	3	1	2	0
1700s	11	11	9	0	0	1

1710s	58	6	5	1	0	0
1720s	113	12	7	3	0	1
1730s	185	10	6	1	0	0
1740s	135	10	7	1	0	0
1750s	139	10	8	1	0	1
1760s	128	10	6	2	0	0
1770s	286	10	7	3	0	0
1780s	336	10	5	3	0	1
Totals	1525	118	79	17	3	4
%		7.74%	66.95%	14.41%	2.54%	3.39%
Projected			1020.97	219.7	38.77	51.69
std. dev.			2.39	1.08	0.62	0.49
Years covered						
116						
Incidents/Year			8.8	1.89	0.33	0.45

*716 V. Technology Marches Onward

One argument for treating the Second Amendment's protection as obsolete is that the technology of firearms has advanced so dramatically since 1791--a modern pistol provides so much destructive potential--that the Framers, were they present today, would recognize the absurdity of allowing ordinary law-abiding persons to possess or carry such a weapon. Alternatively, those with a mirthful spirit suggest that the Second Amendment should protect only the type of weapons available in 1791 when the states ratified the Second Amendment.

It is certainly true that firearms technology has advanced since 1791--but not as much as some would like to think. Repeating, magazine-fed firearms date back to at least the 1600s;⁸⁹ concealable “pepperbox” handguns capable of firing five to seven shots without reloading were in use by the end of the eighteenth century;⁹⁰ and there are some indications that multibarrel handguns were in development as early as the seventeenth century.⁹¹ Several multibarrel repeating firearms survive from the late seventeenth century, and at least one six shot flint-lock pistol survives from the first half of the eighteenth century.⁹² Additionally, some British soldiers were issued magazine-fed repeating guns as early as 1658.⁹³

For example, in 1718 (seventy-one years before the drafting of the American Bill of Rights) the “Puckle Gun” was patented in England.⁹⁴ It was a repeating firearm from which multiple individual *717 shots could be discharged without physically reloading the gun. The tripod-mounted flintlock revolver had a barrel 2 feet, 9 inches long and a bore of 1.2 inches.⁹⁵ It was fitted with a removable “pre-loaded” cylinder that held eleven charges and was rotated by hand. Each shot required an independent decision to fire and a separate pull of the trigger. Several examples were manufactured and, in a demonstration at the Royal Woolrich Armory, the

gun fired sixty-three shots in seven minutes in a rainfall.⁹⁶ This rate of nine shots per minute was three times quicker than the fastest musket of the time, which also could not fire reliably in the rain. Further increasing its firepower, the gun could be loaded to throw either one large or sixteen small Musquet Balls at every discharge.

In March 1722, the Daily Courant carried an advertisement for “Several sizes in Brass and Iron of Mr. Puckle's Gun, called a Defence. . . . at the Workshop thereof, in White-Cross-Alley, Middle Moorfields.”⁹⁷ Although Puckle made strenuous efforts to market the gun, raising a company for this purpose in 1721, he was unable to acquire sufficient investors or a military contract. He did, however, prove that a repeating firearm was within the reach of inventors.

In 1776, Captain Patrick Ferguson was more successful than Puckle, gaining both a British patent and a military contract for his breech-loading rifle. Ferguson's design built on the 1704 work of Isaac de la Chaumette and the 1720 designs of John Warsop.⁹⁸ The goal was in sight seventy years before the hardware was produced. The Ferguson rifle saw its first action in the Revolutionary War. Ferguson, now a Major, lead a small corps of riflemen armed with his invention. The rifles were use with great success until the Battle of Brandywine in 1778, during which Ferguson was seriously wounded. Without the inventor in command, the test ended and the unit was *718 soon merged into the regular infantry.⁹⁹ Thus, breech-loading, repeating rifles were more than just imaginable in 1791.

The next development in repeating firearms would take place in pistols.

TABULAR OR GRAPHIC MATERIAL SET FORTH AT THIS POINT IS NOT DISPLAYABLE

An Allen & Thurber Pepperbox, Early Nineteenth Century¹⁰⁰

The development of the percussion ignition system in 1816 encouraged further development of the pepperbox by making revolving handguns more practical--the concept of a repeating handgun was certainly known in 1791, if still unrefined. Even the development of the modern revolver by Samuel Colt did not suddenly render the pepperbox obsolete; Americans continued to use pepperboxes for self-defense for several decades after Colt's invention,¹⁰¹ and there are indications from medico-legal texts published as late as 1895 that pepperboxes were not just curiosities.¹⁰²

***719** Even with respect to single shot pistols, the technological advance is less dramatic than it first appears. Pocket pistols of the Revolutionary-era were often surprisingly compact, such as this example owned by Paul Revere.

TABULAR OR GRAPHIC MATERIAL SET FORTH AT THIS POINT IS NOT DISPLAYABLE

Paul Revere's Pocket Pistol ¹⁰³

Being so compact, those who were expecting trouble might carry two, four, or even six single shot pistols on their belt. This was such a sufficiently common practice that pistols were often sold (or stolen) in pairs ¹⁰⁴ -- sometimes as a “case of pistols” or a “brace of pistols.” ¹⁰⁵ ***720** The phrase “brace of pistols” frequently appears in eighteenth century documents to describe this solution to the single shot problem. ¹⁰⁶

A criminal carrying six single-shot pistols in his pockets and on his belt in 1791 would admittedly not be as quick to fire those six shots as his 2008 counterpart using a modern revolver or semiautomatic pistol. However, most often, pistols induce compliance or deter attack without being discharged, and when fired, three shots are usually sufficient even with a modern handgun. ¹⁰⁷ A modern pistol shooter can discharge three accurate shots in about three seconds. His 1791 equivalent might accurately fire three bullets in about ten seconds (with the extra time coming from the need to draw three times). As a practical matter, the often decisive first shot can be discharged in virtually equal time. ¹⁰⁸ This is hardly an order of magnitude enhancement in the ability of handguns to discharge bullets and cause damage.

On the other side of the equation, advances in medical, communication, and protective technology have more than kept pace with the improvement in handgun technology. Any abdominal wound in 1791 was nearly a guarantee of death from peritonitis. Improvements in surgical technique and the ability to rapidly move a ***721** victim to a hospital have also dramatically improved the chances of surviving gunshots. ¹⁰⁹

It is clear that the goal of multi-shot firearms was on the mind of gunsmiths, inventors, and shooters in 1791. Rudimentary repeating firearms existed, as did magazine-fed firearms. Faster, more secure and weather-resistant ignition technology was being pursued at the time of the drafting of the federal Bill of

Rights. Firing mechanisms had advanced from the cumbersome matchlock to the relatively compact, more reliable and durable flintlock. Guns were in hand and getting better with every generation. Inventors knew where they wanted to be, and they were proving the truth of the familiar saying that "What man can imagine, he can invent."

Compare this with the new mediums through which the First Amendment is exercised today. There was no rudimentary radio in 1791, although the concept of long range communication had existed for centuries using fire, mirror flashes and signal flags. Benjamin Franklin had just received his shock of electricity, but there was no wave theory and certainly no thought of amplitude or frequency modulation (AM or FM). The technological jump (actually a series of jumps) to radio and television was beyond imagination at that time.

Perhaps a more meaningful question than whether the improvement in weapons technology obsolesces the Second Amendment is whether any provision of the Bill of Rights could survive such a test. The technology of mass communications in 1791 limited a publisher to printing a few hundred "dangerous opinions" an hour; modern radio and television broadcasting and the Internet make it possible for NBC to repeatedly fire off a particular viewpoint into the sight and hearing of tens of millions of people in a few minutes. Would this dramatic technological advance justify a more restrictive view of the First Amendment's freedom of the press?

Similarly, should we use the dramatic improvements in the technology of travel as an excuse to declare obsolete the Eighth Amendment's guarantee of bail in non-capital cases? Does the increased risk of terrorism in an age of biological and radiological weapons justify excluding telecommunications from the Fourth Amendment's protections against warrantless search and seizure? There are legitimate questions that might be asked about how *722 technological change may render certain applications of 1791 concepts out of date--but if this is true, then the courts should treat the entire Bill of Rights in a consistent way.

Footnotes

- 1 B.A. (History with Distinction), Sonoma State University; M.A. (History), Sonoma State University.
- 2 B.A., University of Notre Dame (Liberal Studies); J.D. (with distinction), Duke University; LL.M, University of Florida. Professor of Law, Hamline University School of Law.
- 3 Petition for Writ of Certiorari at 22-23, *District of Columbia v. Heller*, No. 07-290 (U.S. Sept. 4, 2007).

- 4 See J. Hammond Trumbull, Public Records of the Colony of Connecticut 497 (Hartford, Conn., Brown & Parsons 1850) (describing “two great gunns” documented in “An Inventory of the Estate of Mr. William Whiting, deceased”).
- 5 An eighteenth century “blunderbuss” is the equivalent of a twentieth century shotgun but often of very large bore diameter.
- 6 Photograph courtesy of the Idaho Historical Museum and the J. Earl Curtis Exhibition at the Old Idaho Penitentiary.
- 7 An eighteenth century “pistol” is the equivalent of a twentieth century handgun.
- 8 7 David J. McCord, Statutes at Large of South Carolina 417-19 (A. S. Johnson 1840), available at <http://www.claytoncramer.com/primary/militia/SCStatAtLarge7-417.jpg>; <http://www.claytoncramer.com/primary/militia/SCStatAtLarge7-418.jpg>; <http://www.claytoncramer.com/primary/militia/SCStatAtLarge7-419.jpg>.
- 9 19 Allen D. Candler, The Colonial Records of the State of Georgia 137-40, (Chas. P. Byrd 1911), available at <http://www.claytoncramer.com/primary/militia/GA1770BringGunsToChurch.pdf>.
- 10 PA. Gazette May 2, 1781 (emphasis added).
- 11 Joseph Gales, Jr., A Proclamation (Dec. 23, 1828), reprinted in An American Time Capsule: Three Centuries of Broad­sides and Other Printed Ephemera (Library of Congress, Rare Book & Special Collections Div.), <http://hdl.loc.gov/loc.rbc/rbpe.19301000> (last visited May 5, 2008) (emphasis added).
- 12 An eighteenth century “musket” is a long gun with a smoothbore barrel capable of discharging a single lead ball of about three-quarter inch diameter with accuracy at moderate distances.
- 13 An eighteenth century “rifle” is a long gun with a rifled barrel capable of discharging a single lead ball of about one-half inch diameter with accuracy at longer distances
- 14 Richard Frothingham, History of the Siege of Boston, and of the Battles of Lexington, Concord, and Bunker Hill 94-95 (Little, Brown, & Co. 6th ed. 1903) (1849) (emphasis added).
- 15 1 American State Papers: Military Affairs No. 62 (William S. Hein & Co., Inc. 1998) (1832), available at <http://memory.loc.gov/llsp/016/0200/02040198.tif> (emphasis added).
- 16 See American Archives: Fourth Series, containing a Documentary History of the English Colonies in North America from the King's Message to Parliament of March 7, 1774 to The Declaration of Independence of the United States 1347, 1349, 1353, 1357-62, 1367 (Washington, M. St. Clair Clarke & Peter Force 1837) [hereinafter American Archives]; Provincial Congress of Mass., The Journals of Each Provincial Congress of Massachusetts in 1774 and 1775, at 536-37, 584-93 (Boston, Dutton & Wentworth 1838).
- 17 See John Winthrop, Winthrop's Journal: History of New England 1630-1649, at 191 (James Kendall Hosmer ed., Charles Scribner's Sons 1908). In at least one early Colonial source, “armed” means “with armor,” because the soldiers under Indian attack are described as “some ten only (who had pieces which could reach them) shot” and yet later, “they shot only one of ours, and he was armed, all the rest being without arms.” Id. That some soldiers fired guns, while one was described as “armed” and rest were not, shows that “armed” meant “with armor.” This indicates that “arms” could include body armor as well as a variety of weapons.
- 18 Noah Webster, An American Dictionary of the English Language (New York, S. Converse 1828) (emphasis added).
- 19 Oxford English Dictionary 634 (J.A. Simpson & E.S.C. Weiner, eds., Clarendon Press 1989).
- 20 See generally Clayton E. Cramer, Armed America: The Remarkable Story of How and Why Guns Became as American as Apple Pie (2006).

- 21 3 The Statutes at Large: Being a Collection of all the Laws of Virginia, from the First Session of the Legislature, in the Year 1619, at 13 (William Waller Hening, ed., R. & W. & G. Bartow) (1823) (emphasis added).
- 22 3 Acts and Resolves, Public and Private, of the Province of the Massachusetts Bay: To Which Are Prefixed the Charters of the Province with Historical and Explanatory Notes 305 (Boston, Albert J. Wright 1878).
- 23 Id. (emphasis added).
- 24 2 Statutes at Large of Pennsylvania from 1682 to 1801, at 77-79 (Pennsylvania, Clarence M. Busch 1896) (emphasis added).
- 25 McCord, *supra* note 8, at 417-19 (emphasis added).
- 26 Candler, *supra* note 9, at 137-40.
- 27 78 Archives of Maryland 75, 110 (Baltimore, James Lucas & E. K. Deaver and Annapolis, Jonas Green), available at <http://aomol.net/megafile/msa/speccol/sc2900/sc2908/000001/000078/pdf/am78--75.pdf>; <http://aomol.net/megafile/msa/speccol/sc2900/sc2908/000001/000078/pdf/am78--110.pdf>.
- 28 Id.
- 29 203 Archives of Maryland 278 (Baltimore, James Lucas & E. K. Deaver and Annapolis, Jonas Green), available at <http://aomol.net/megafile/msa/speccol/sc2900/sc2908/000001/000203/pdf/am203--278.pdf>.
- 30 Arlan K. Gilbert, Gunpowder Production in Post-Revolutionary Maryland, Md. Historical Magazine, Sept. 1957, at 188 n. 7.
- 31 An Act in Addition to the Several Acts Already Made for the Prudent Storage of Gun-Powder Within the Town of Boston, Massachusetts Session Laws (1786) (on file with author) [hereinafter 'Boston Law'].
- 32 Id.
- 33 Saul Cornell, Assoc. Professor, Ohio State Univ., Address at the Center to Prevent Handgun Violence Second Amendment Symposium: After the Emerson Decision, Setting the Record Straight on the Second Amendment 64 (Feb. 16, 2000) (transcript available at <http://www.gunlawsuits.org/pdf/defend/second/symposium.pdf>).
- 34 Boston Law, *supra* note 31.
- 35 Id.
- 36 44 pistols out of 339 firearms.
- 37 Plymouth Archaeological Rediscovery Project, Firearms in Plymouth Colony, Tbls. 2 & 4 (2002), <http://plymoutharch.tripod.com/id73.html>.
- 38 Boston Gazette, May 30, 1720.
- 39 See Boston Gazette, Nov. 17, 1741; Boston Gazette, Dec. 8, 1741; Boston Gazette, Feb. 2, 1742; Boston Gazette, May 11, 1742; Boston Gazette, May 18, 1742; Boston Gazette, May 25, 1742; Boston Gazette, July 13, 1742; Boston Gazette, Aug. 10, 1742; Boston Gazette, Aug. 24, 1742; Boston Gazette, Aug. 31, 1742.
- 40 See S.C. Gazette, Oct. 25, 1735; S.C. Gazette, Sept. 18, 1736; S.C. Gazette, Feb. 26, 1741; S.C. Gazette, Mar. 5, 1741; S.C. Gazette, Sept. 5, 1741; S.C. Gazette, Sept. 12, 1741; S.C. Gazette, Oct. 10, 1741; S.C. Gazette, Dec. 19, 1741.
- 41 See S.C. Gazette, Jan. 13, 1733; S.C. Gazette, Sept. 14, 1734; S.C. Gazette, July 28, 1733; S.C. Gazette, May 24, 1735; S.C. Gazette, Mar. 8, 1740.
- 42 S.C. Gazette, Mar. 8, 1740.

- 43 See Pa. Gazette, Nov. 1, 1744; Pa. Gazette, Sept. 26, 1745; Pa. Gazette, Oct. 3, 1745; Pa. Gazette, Oct. 17, 1745; Pa. Gazette, Feb. 11, 1746; Pa. Gazette, July 17, 1746; Pa. Gazette, July 30, 1747; Pa. Gazette, May 5, 1748; Pa. Gazette, May 12, 1748; Pa. Gazette, Sept. 15, 1748; Pa. Gazette, Oct. 25, 1750; Pa. Gazette, Nov. 27, 1755; Pa. Gazette, Aug. 2, 1759; Pa. Gazette, Feb. 11, 1762; Pa. Gazette, Apr. 14, 1763; Pa. Gazette, May 19, 1763; Pa. Gazette, Apr. 12, 1764; Pa. Gazette, Apr. 19, 1764; Pa. Gazette, May 28, 1772; Pa. Gazette, Feb. 17, 1773.
- 44 Pa. Gazette, Sept. 6, 1764 (emphasis added).
- 45 See Pa. Gazette, June 21, 1750; Pa. Gazette, Sept. 27, 1750.
- 46 Wochtenlichter Pennsylvanische Staatsbote, Sept. 4, 1772 and Sept. 14, 1773, translated and quoted in James Whisker, *The Gunsmith's Trade* 159-60 (1992).
- 47 Pa. Gazette, Aug. 16, 1770; Pa. Gazette, Sept. 15, 1773; Pa. Gazette, Dec. 24, 1778.
- 48 See Pa. Gazette, Aug. 25, 1748; Pa. Gazette, May 5, 1748; Pa. Gazette, Nov. 10, 1748; Pa. Gazette, Nov. 16, 1749; Pa. Gazette, Mar. 6, 1750; Pa. Gazette, May 24, 1750; Pa. gazette, June 14, 1750; Pa. gazette, Nov. 1, 1750.
- 49 Henry J. Kauffman, *Early American Gunsmiths: 1650-1850*, at 4 (1952) (quoting *New-York Gazette Revived in the Weekly Post-Boy*, Aug. 1, 1748) (emphasis added).
- 50 Pa. Gazette, Nov. 25, 1772 (emphasis added).
- 51 George A. Stickels, *The William Smith Pistols Made by Medad Hills*, *The Gun Report*, Sept. 1979, at 10-12.
- 52 Frank Klay, *The Samuel E. Dyke Collection of Kentucky Pistols* 4-9 (1972).
- 53 *Id.*
- 54 Merrill Lindsay, *The New England Gun: The First Two Hundred Years* 64 (1975).
- 55 See Klay, *supra* note 52, at 10-15; Michael H. Lewis, *The Gunsmiths of Manhattan 1625-1900: A Checklist of Tradesmen* 6 (1991).
- 56 Lindsay, *supra* note 54, at 52, 54, 56, 61, 64.
- 57 Frothingham, *supra* note 14, at 94-95.
- 58 15 Berthold Fernow, *Documents Relating to the Colonial History of the State of New York* 5 (AMS Press, Inc. 1969) (1887).
- 59 *Id.* at 42-43. A "case" of pistols ordinarily contained two handguns. A letter dated May 21, 1775 from a committee in Tryon County, complaining of a shortage of ammunition--but saying nothing about a shortage of firearms--has a similar implication. See *American Archives*, *supra* note 16, at 665-66.
- 60 32 *Journals of the Continental Congress, 1774-1789*, at 244-46 (Roscoe R. Hill, ed., 1936) (emphasis added).
- 61 Kauffman, *supra* note 49, at 71 (quoting *Pa. Journal*, Nov. 24, 1781) (emphasis added).
- 62 Edward Pole, *Military Laboratory*, at No. 34, Dock Street, Near the Drawbridge, Philadelphia (Philadelphia, R. Aitken 1789), reprinted in *An American Time Capsule: Three Centuries of Broadside and Other Printed Ephemera* (Library of Congress, Rare Book & Special Collections Div.), <http://hdl.loc.gov/loc.rbc/rbpe.1470090a> (last visited May 5, 2008) (emphasis added). See also *PA. Packet*, Nov. 28, 1778 (displaying a similar ad for Pole).
- 63 Kauffman, *supra* note 49, at 23 (quoting *S.C. Gazette & Public Advertiser*, Oct. 13, 1785) (emphasis added).
- 64 *Id.* at 14 (quoting *Federal Gazette*, Sept. 21, 1791) (emphasis added).

- 65 Id. at 66 (quoting Pa. Packet (Claypoole's American Daily Advertiser), Apr. 26, 1798) (emphasis added).
- 66 Pa. Gazette, Oct. 24, 1781 (emphasis added).
- 67 Pa. Gazette, June 9, 1784 (emphasis added).
- 68 Pa. Gazette, Apr. 6, 1774 (emphasis added).
- 69 Isaac Weld, *Travels Through the States of North America, and the Provinces of Upper and Lower Canada, During the Years 1795, 1796, and 1797*, at 234 (London, John Stockdale 1807) (emphasis added).
- 70 David Robertson, *Reports of the Trials of Colonel Aaron Burr, (Late Vice President of the United States,) for Treason, and for a Misdemeanor* 582 (Philadelphia, Hopkins & Earle 1808).
- 71 Winthrop, *supra* note 17, at 27, 153, 180, 275.
- 72 Eliza Lucas Pinckney, *The Letterbook of Eliza Lucas Pinckney* 42 & n.55 (Elise Pinckney, ed., Univ. of S.C. Press 1997).
- 73 See Pa. Gazette, Dec. 27, 1759; Pa. Gazette Aug. 22, 1765.
- 74 S.C. Gazette, May 29, 1736.
- 75 S.C. Gazette, Nov. 27, 1740.
- 76 Pa. Gazette, Sept. 7, 1749.
- 77 Pa. Gazette, Oct. 31, 1745 (accidental discharge of a pistol causes death); Pa. Gazette, Apr. 20, 1749 (criminal shooting from inside a barricaded home); Pa. Gazette, Oct. 27, 1763 (attempted robbery in Lancaster County, Pennsylvania); Pa. Gazette, June 27, 1787 (attempted robbery in Bush Hill, Virginia with a pistol and blunderbuss).
- 78 Pa. Gazette, Aug. 31, 1749.
- 79 Pa. Gazette, Feb. 7, 1765 (emphasis added).
- 80 Pa. Gazette, Dec. 10, 1751; Pa. Gazette, Mar. 5, 1783; Pa. Gazette, July 2, 1783.
- 81 S.C. Gazette, July 24, 1736.
- 82 Pa. Gazette, Oct. 31, 1745 (emphasis added).
- 83 See Richard Maxwell Brown, *The South Carolina Regulators* 25, 40, 54 (1963).
- 84 S.C. Gazette, Sept. 6, 1735.
- 85 Pa. Gazette, Aug. 15, 1745.
- 86 Frank Warren Coburn, *The Battle of April 19, 1775*, at 141-42 (Kennikat Press, 2d ed. 1970) (1922). See also Abram English Brown, *Beneath Old Roof Trees* 262-63 (Boston, Lee & Shepard 1896) (recounting the same story and also quoting Whittemore's obituary in the Feb. 6, 1793 *Columbia Sentinel*, which reports very nearly the same facts as Coburn).
- 87 Pa. Gazette, Dec. 28, 1774 (emphasis added). New Year's revelry is still a problem in American cities. Minnesota did not get around to dealing with it until 1993. See Minn. Stat. §609.66, subd. 1a (a)(3) (2007).
- 88 See *Proceedings of the Old Bailey, 1674-1834*, <http://www.oldbaileyonline.org/search/> (last visited Jan. 16, 2008). The term "pistol" appears occasionally to refer to a Spanish or French coin, and more rarely, used an adjective to describe something small or short.

- 89 See Claude Blair, Pollard's History of Firearms 207, 214 (1983); William Wellington Greener, The Gun and Its Development 80-81 (Cassell & Co., 8th ed. 1907) (1881).
- 90 Blair, *supra* note 89, at 207, 214. While most surviving pepperbox handguns are percussion system, and therefore nineteenth century, there are occasional references to flintlock pepperbox handguns. \$150 Paid for Flintlock, N.Y. Times, Nov. 19, 1919, at 11.
- 91 Charles Edward Chapel, Guns of the Old West: An Illustrated Guide 84 (2002); Greener, *supra* note 89, at 509.
- 92 Greener, *supra* note 89, at 82-83.
- 93 A. V. B. Norman & Don Pottinger, English Weapons & Warfare: 449-1660, at 206-07 (1979).
- 94 A copy of the James Puckle Portable Gun patent is available at <http://www.wedmore.org.uk/puckle/James.htm> (last visited May 20, 2008).
- 95 An essay on the Puckle Gun by a historian from De Montfort University, Leicester, UK, is available at <http://ccrkba.org/pub/rkba/news/Quick-firingGun.htm> (last visited on May 20, 2008) [hereinafter Puckle Gun Essay].
- 96 A surviving example of the "Puckle Gun" was observed by the author, Professor Olson, at the Tower of London Armory. See also James H. Willbanks, Machine Guns: An Illustrated History of Their Impact 23 (2004).
- 97 Puckle Gun Essay, *supra* note 95.
- 98 See generally Ferguson Rifle and Military Innovation in the 18th Century, <http://johnsmilitaryhistory.com/fergusonrifle.html> (last visited May 20, 2008).
- 99 Lance Klein, This Barbarous Weapon, <http://www.11thpa.org/ferguson.html> (originally posted on <http://www.nlmra.org/>) (last visited on May 20, 2008).
- 100 Photograph courtesy C.W. Slagle of Scottsdale, Arizona. There were dozens of similar early pepperboxes at the gun show where the author photographed this one.
- 101 See William Elsey Connelley, Quantrill and the Border Wars 399 (Torch Press 1910); Anson Uriel Hancock, Silhouettes from Life on the Prairie, in the Backwoods 155 (Chicago, C.H. Kerr 1893); Frank Hickenlooper, An Illustrated History of Monroe County, Iowa 257 (1896); John A. Joyce, A Checkered Life 135 (Chicago, S.P. Rounds, Jr. 1883); John S. Mosby, The Memoirs of Colonel John S. Mosby 8 (Charles Wells Russell, ed., Little, Brown, & Co. 1917).
- 102 Medico-Legal Society of New York, Bulletin of the Medico-Legal Congress, Held at the Federal Building in the City of New York, September 4th, 5th and 6th, 1895, at 168 (New York, Medico-Legal Journal 1898).
- 103 Photograph courtesy of the Massachusetts Historical Society.
- 104 See 78 Archives of Maryland, *supra* note 27, at 63; William P. Palmer, Calendar of Virginia State Papers and Other Manuscripts, 1652-1781, Preserved in the Capitol at Richmond 81 (Richmond, VI, R. F. Walker, ed. 1875). Advertisements for stolen pairs of pistols listed in runaway ads can be found in: Thomas Costa, Virginia Runaways: Runaway Slave Advertisements from 18th-century Virginia Newspapers, <http://etext.lib.virginia.edu/subjects/runaways/search.html> (last visited May 5, 2008). Advertisements for pairs of pistols for sale can be found in: Pa. Gazette, Apr. 2, 1752; Pa. Gazette, Oct. 25, 1753; Pa. Gazette, Dec. 5, 1754; Pa. Gazette, Aug. 10, 1774; Pa. Gazette, May 10, 1775; Pa. Gazette, Jan. 8, 1767; Pa. Gazette, March 29, 1780; Pa. Gazette, Dec. 5, 1781; Pa. Gazette, May 19, 1784; Pa. Gazette, June 27, 1787; Pa. Gazette, Aug. 31, 1749; Pa. Gazette, Sept. 19, 1751; Pa. Gazette, Oct. 1, 1761; Pa. Gazette, Oct. 21, 1762; Pa. Gazette, Dec. 14, 1774; Pa. Gazette, April 15, 1776; Pa. Gazette, Jan. 24, 1778; S.C. Gazette, Mar. 8, 1740.
- 105 See Pa. Gazette, Oct. 1, 1761; Pa. Gazette, Sept. 1, 1779.

- 106 See Pa. Gazette, May 20, 1756; Some Account of the Loss of the Hartwell East-Indiaman, The Annual Register, or a View of the History, Politics, and Literature, for the Year 1787, at 253 (London, J. Dodsley 1789); Account of the Disaster that befell his Majesty's Ship Guardian, Lieutenant Riou, Commander, The Annual Register, or a View of the History, Politics, and Literature, for the Year 1790, at 260 (London, J. Dodsley 1793); Matthew Gregory Lewis, The Monk: A Romance 203 (J. Bell 1796); Jasper Sprange, The Tunbridge Wells Guide 247 (London, n. pub. 1797); Robert Bisset, Douglas; or, The Highlander 189 (London, T. Crowder 1800).
- 107 A multi-year study by the New York City Police Department reported that:
[In actual gunfights,] the average number of shots fired by individual officers in an armed confrontation is between two and three rounds, less than half the capacity of the service revolver. The two to three rounds per incident has remained constant over the years covered by the report. It also substantiates an earlier study by the L.A.P.D. (1967) which found that 2.6 rounds per encounter were discharged. The necessity for rapid reloading to prevent death or serious injury was not a factor in any of the cases examined. In close range encounters, under 15 feet, it was never reported as necessary to continue the action
New York City Police Department Analysis of Police Combat Situations, at Rapid Reloading, <http://www.theppsc.org/Grossman/SOP9/1981.htm> (last visited May 20, 2008).
- 108 These observations are based on the experience of the author, Professor Olson, an accomplished NRA pistol instructor, a state CCW instructor, and a thirty year competitor in combat pistol competitions.
- 109 See 2 Samuel David Gross, A System of Surgery: Pathological, Diagnostic, Therapeutic, and Operative 615 (6th ed. Philadelphia, Henry C. Lea's Son & Co. 1882).

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EXHIBIT 16

"DEFENCE" RAPID-FIRE GUN PATENTED

15 MAY 1718

On this day in 1718, London lawyer James Puckle patented the "Defence Gun." The first well-documented rapid-fire gun in the world, the Defence Gun is considered a precursor of the machine gun.

Since the 14th century, inventors had been attempting to create small caliber, rapid-fire artillery. In the scientific formula of arms warfare, small caliber (which meant controllable recoil) + rapid projection of projectiles = maximum casualties to the enemy. Though many devices were devised, created, and tested—including one from Leonardo da Vinci, which never left the drawing board—few amounted to much on the battlefield.

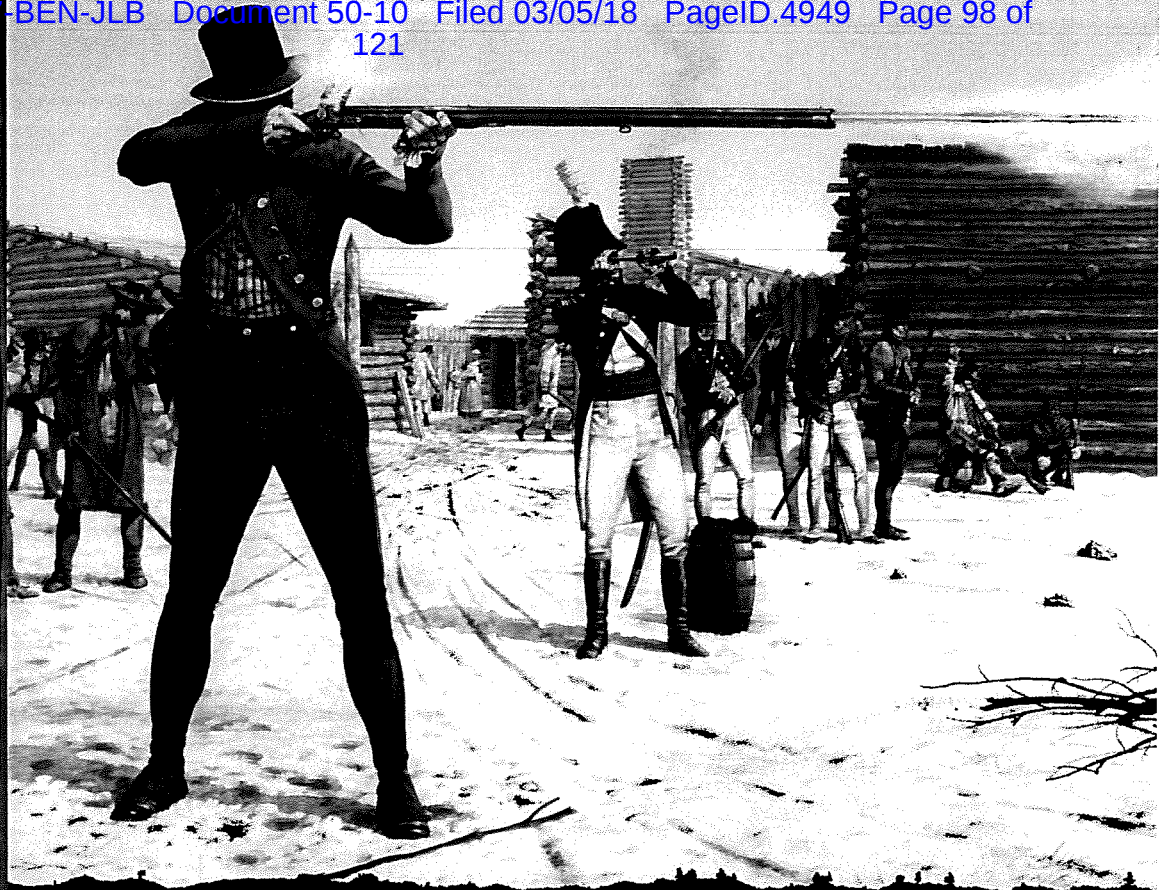
Until 1718, when Puckle, a noted British lawyer, inventor, and writer, invented and patented the first well-documented rapid-fire gun and what many call the precursor to the modern machine gun. The Defence, or Puckle, gun was a tripod-mounted single-barreled flintlock weapon. Its barrel was about a metre long with a bore of about three centimetres. The preloaded revolving cylinder held 11 charges and could fire 63 shots in seven minutes, or 9 shots per minute—three times faster than the fastest loading time of any infantryman at the time. Puckle's patent describes it as "A portable gun or machine called a Defence, that discharges so often and so many bullets, and can be so quickly loaded as renders it next to impossible to carry any ship by boarding." In other words, the weapon was initially designed for shipboard use, to discourage enemies from boarding British vessels.

In fact, Puckle even demonstrated two versions of his basic Defence Gun design. The first, designed to be used against Christian enemies, fired conventional round bullets. The second, intended for use against Muslim Turks, fired square bullets. The square bullets were supposed to inflict more damage and according to Puckle's patent, would convince the Turks of the "benefits of Christian civilisation."

Unfortunately for Puckle and his efforts, the square bullets convinced no one: their odd shape resulted in such unpredictable flight patterns that the square bullets were eventually discontinued. What's more, the Puckle gun failed to attract investors, mass production, or introduction to the British armed forces—partly because British gunsmiths could not produce the gun's complicated components. As such, a British newspaper once reportedly observed that the Defence Gun "only wounded those who hold shares therein."

Nonetheless, the Puckle's rapid-fire weapon laid the groundwork for the machine gun, a weapon that changed the way war is waged.

EXHIBIT 17



WEAPONS
of the
LEWIS & CLARK
EXPEDITION

JIM GARRY

ALSO BY JIM GARRY

This Ol' Drought Ain't Broke Us Yet (But We're All Bent Pretty Bad): Stories of the American West (New York, 1992)

The First Liar Never Has a Chance: Curly, Jack, and Bill (and Other Characters of the Hills, Brush, and Plains) (New York, 1994)

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CHAPTER 6

Air Rifle

The image that leaps to mind for most people when they hear the term “air rifle” is a Daisy BB gun, which leads to thinking that Meriwether Lewis had brought a toy along to impress the Indians. It did impress the Indians, but not as a toy. At the beginning of the nineteenth century there were many people who were not happy with gunpowder and the firearms it produced. These were not antigun people. They were gun designers and manufacturers who were displeased with many of the characteristics of gunpowder, such as cost, the fouling problems associated with dirty burning, the fact that powder often varied from batch to batch, and the fact that it might not work at all in wet or even damp weather. Then there was the fact that gunpowder produced so much smoke when a weapon was fired that the shooter’s vision was often obscured too much to see whether he had hit his mark. Some of these people thought compressed air offered a viable alternative.

As the eighteenth century gave way to the nineteenth, there were many gunsmiths in Europe producing compressed air weapons powerful enough to use for big game hunting or as military weapons. Air rifles had a number of advantages. Though not silent, they were much quieter than firearms. The noise they produced was a low-frequency pop that was hard to recognize or to pinpoint if one couldn’t see the shooter. And compressed air doesn’t smoke when an air gun is fired. Armies of the day fought at close range with massed troops. After the first couple of volleys the field was so obscured that aiming was difficult at best.

A musket had to be reloaded—powder, ball, and priming—for each shot. That added up to about four shots a minute. An air rifle with 750 pounds-per-square-inch of air pressure in its air cylinder could be discharged twenty to forty times before losing power.

It did take some time and effort to pump up a cylinder. With a hand pump, up to 1,500 strokes might be required to fully charge a cylinder; not a problem for a hunter, but potentially a problem for a soldier. Armies solved this problem by using larger multicylinder cart pumps and by supplying air riflemen with several air cylinders. The Austrian army equipped its air rifle companies with enough air cylinders and balls for four to five hundred shots per soldier, this at a time when most armies issued twenty to a hundred rounds per man.¹

Why didn't armies convert from firearms to air rifles? Some accounts point to the Napoleonic Wars between 1796 and 1815. The French, so the stories go, didn't have the manufacturing technology to produce air rifles. Napoleon, on the other hand, was facing Austrian troops armed with high-quality repeating air rifles. These troops had a much higher rate of fire, and sans smoke it was more accurate. There are stories that Napoleon had captured air riflemen shot as terrorists, making it hard to recruit men for the air rifle companies. Research and development therefore slowed, and the weapons became very exclusive, expensive, and therefore limited in manufacture and in use. In the meantime, firearm technology improved throughout the nineteenth century, ending with the metallic cartridge and smokeless powder. So the firearm won the competition.

There is some evidence to support the above-mentioned stories. In 1802, during a lull in the Napoleonic Wars, Col. Thomas Thornton traveled in France and spent some time with Gen. Edouard Mortier, the future *maréchal* of France. Thornton wrote:

One day in particular, General Mortier, in speaking of air guns, recalled to the recollection of some officers in the company a circumstance which happened after the retreat of the enemy, but where I cannot precisely call to mind. He said, "do you remember when I

¹Wolff, *Air Guns*, 29.

had ordered the cannon to cease firing that an orderly sergeant who was standing close to us leaped up very high into the air and then fell down? We supposed, at first, that he was in a fit, and we were greatly astonished to find him dead, as nothing had been heard to injure him. On his being undressed, however, a ball was found to have struck him, which must have been shot from an air-gun in the adjoining field and aimed at us." "Yes," replied one of the officers, "I remember it well, and I think we had a fortunate escape." They then stated, that on account of this treachery they hung all of that corps that fell into their hands, considering them not as soldiers but as assassins, and never after gave any quarter. They acknowledged, at the same time, that they lost many fine men by that corps of Austrians, which they stated consist of about five hundred men.²

Thornton's book may well be the origin of the tales of the Austrians' inability to recruit or keep men in air rifle companies, resulting in the guns going out of service. Some other sources, in particular Fred Baer, point to the delicacy of air rifle mechanisms and the difficulty of building air cylinders that could stand up to the high pressures needed as more likely reasons for most armies not using them. The Austrians did use repeating air rifles against both the Turks and the French, but Baer indicates only the numbers used, the trouble the army had acquiring enough air cylinders, apparently due to the difficulty of constructing reliable ones, and their final resting places in magazines and arsenals as troops were equipped with flintlocks.³

W.H.B. Smith, who quotes Thornton extensively, goes on to state that a Hauptman Halla wrote in 1890:

The fact that this remarkable weapon nevertheless did not remain in use and was removed as expendable supply to the fortress of Olmutz in 1815 was due not only to the changed tactical principles, but chiefly to the circumstance that there were no adequately trained rifleshooters available to take care of the delicate component parts of the locks and valves, and therefore the percentage of unusable air rifles shown in the reports was frighteningly high.⁴

²From Thomas Thornton, *A Sporting Tour Through France in the Year 1802*, 2:59. Quoted in Smith's *Gas, Air and Spring Guns of the World*, 25.

³Fred Barer, "Napoleon Was Not Afraid of It," in Held, *Arms and Armor Annual*, 1:250.

⁴[first name not given] Halla, *Bulletins of the Military Archives for the Year 1890*. Quoted in Smith, *Gas, Air and Spring Guns of the World*, 30.

This would suggest that the air rifles were considered good and viable weapons and not retired from service until they had been in use for twenty-five years. There is the added fact that in 1815 the Napoleonic Wars ended at Waterloo and the Austrian army was in a position to give up some of its arms as part of the army was discharged. Smith goes on to write:

The Austrians treated the development as a real secret weapon. A special shop was set up for Girandoni and workers were specially selected and sworn to secrecy about equivalent to that required for an H-Bomb "Q" clearance today.

It should be mentioned in passing that the Girandoni pattern was produced by other makers on contract. Then, even as now, Austria was a hotbed of small gunmakers who were good at duplication.⁵

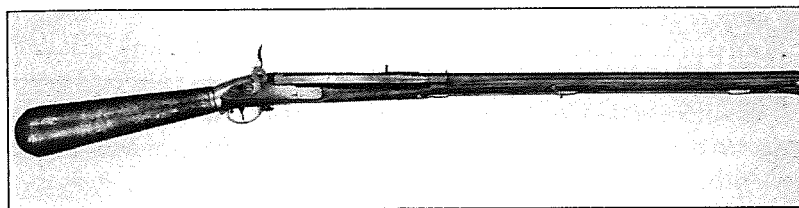
Smith seems to contradict himself in the above paragraphs. Austria wasn't going to keep a weapon secret by giving the design to a number of different manufacturing firms, most of which were in foreign countries. The Girandoni design was consciously spread to various German principalities and to Switzerland and England by the Austrian government. That strongly suggests that there was no attempt to keep the weapon secret. From any of those countries the design and quite possibly a weapon itself could easily have found its way to the United States.

The Girandoni air rifles represented a technology that teased generals and sportsmen alike. Lewis was one of the teased. For an expedition such as the one on which he was embarking, an air rifle such as a Girandoni would serve well as a way to impress the various tribes with the power of the United States. A rifle that needed no gunpowder was likely to impress tribes who had to trade for expensive and scarce gunpowder. And the weapon could serve as a backup if the Corps lost its gunpowder. So Meriwether Lewis, somehow, somewhere, acquired one.

Lewis's air rifle enters the Expedition journals on the day Lewis began recording the journey.

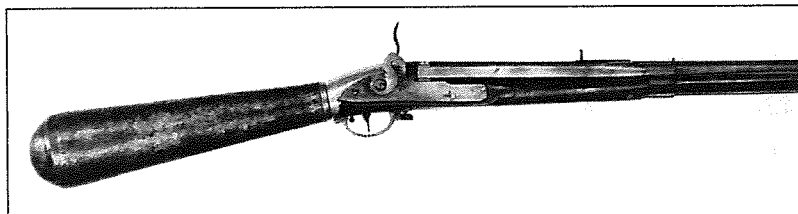
went on shore and being invited on by some of the gentlemen present to try my *airgun* which I purchased brought it on shore charged it

⁵Smith, *Gas, Air and Spring Guns of the World*, 30.



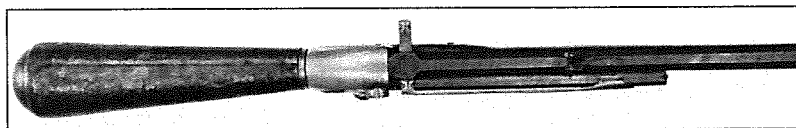
GIRANDONI AIR RIFLE (RIGHT SIDE VIEW)

Notice that there is no frizzen and pan in front of the hammer. The hammer sets the air charge for the trigger to release; there is no need for spark of fire. Also note that the butt stock is metal; it is the air cylinder for the weapon, holding air compressed to about 750 psi. *Courtesy Michael F. Carrick.*



GIRANDONI AIR RIFLE (RIGHT SIDE CLOSE-UP)

This view shows the metal butt stock and the tubal magazine in front of the hammer more clearly. *Courtesy Michael F. Carrick.*



GIRANDONI AIR RIFLE (TOP VIEW)

In this view one can see the magazine tube on the right, in front of the hammer. The breech block sticks out on the left. *Courtesy Michael F. Carrick.*

and fired myself seven times fifty five yards with pretty good success; after which a Mr. Blaze Cenas being unacquainted with the management of the gun suffered her to discharge herself accidentally the ball passed through the hat of a woman about 40 yards distant cutting her temple about the fourth of the diameter of the ball; shee feel instantly and the blood gusing from her temple we were all in the greatest consternation supposed she was dead by [but] in a minute she revived to our enespressable satisfaction, and by examination we found the wound by no means mortal or even dangerous.

*Lewis, August 30, 1803*⁶

There is an obvious question. How did Lewis find a man west of Pittsburgh who was “unacquainted with the management of the gun?” In 1803, guns were a part of life that far west. One possible answer is that Lewis’s air gun was somehow different from the guns to which men along the Ohio River were accustomed. The Corps of Discovery’s journals aren’t much help. The next time the air gun is mentioned is almost a year later, when, on August 3, 1804, an entry makes a typical allusion to the air gun, saying simply that Lewis had fired it “a few times” for the Otos with whom they were visiting.

On his way down the Ohio, Lewis wrote that he spent some time with Col. Thomas Rodney, on his way from Delaware to the lower Mississippi. On September 8, 1803, Rodney wrote a bit more about the meeting:

Visited Captain Lewess barge. He shewed us his air gun which fired 22 times at one charge. He shewed us the mode of charging her and then loaded with 12 balls which he intended to fire one at a time; but she by some means lost the whole charge of air at the first fire. He charged her again and then she fired twice. He then found the cause and in some measure prevented the airs escaping, and then she fired seven times; but when in perfect order she fires 22 times in a minute. All the balls are put at once into a short side barrel and are then dropped into the chamber of the gun one at a time by moving a spring; and when the trigger is pulled just so much air escapes out of the bag which forms the britch [breech] of the gun serves for one ball. It is a curious piece of workmanship not easily discribed and therefore I omit attempting it.⁷

⁶Moulton, *Journals of the Lewis and Clark Expedition*, 2:65.

⁷Rodney, *A Journey through the West*, 50, 62.

This helps to visualize Lewis's air rifle but also presents a problem. It contradicts all we knew about that particular air gun before Michael Carrick published the above passage in "Meriwether Lewis's Air Gun," his paper on Rodney's description of Lewis's air gun, in 2002. Will Rogers once said that it wasn't what we don't know that gets us in trouble, "it's all the things we know that just ain't so." For the last quarter century, historians looking into Lewis's air gun have all fallen into the trap of circular reasoning.⁸

The loop of misunderstanding began in 1977, when Henry M. Stewart, Jr., published a paper revealing that he'd found, in Isaiah Lukens's estate papers, evidence of the disposition of Lewis's air rifle. Lukens, a Philadelphia clockmaker and gunsmith, died in 1846. In January of 1847 his estate was auctioned off. Item 95 in the auction catalogue states: "1 large do [air gun] made for and used by Messrs Lewis & Clark in their exploring expedition. *A great curiosity.*"⁹

There is no record of who purchased item 95, so the trail turns cold from there and the circular reasoning begins.

Lukens, perhaps best known in his own day as a clock maker (he made the clock for the tower of Independence Hall), was also a maker of air guns. He had perfected a valve for air guns that solved their greatest problem, decreased air pressure after each shot. His guns were considered some of the finest of the period. And he moved in the same Philadelphia circles Lewis was moving in during the spring and summer of 1803. So, the logic said, since Lukens had the air gun in 1846 and since the estate sale said it was "made for" Lewis and Clark, it must have been one of his that Lewis had bought and either returned to him after the expedition or that Lukens reacquired after Lewis's death. Suddenly, the older question of what the air gun was seemed to be solved. The logic worked; everyone was satisfied. The gun must have been made by Lukens.

⁸The author pleads guilty to this as well. The original of this chapter, written before Carrick's article, is currently in the circular file.

⁹"A Great Curiosity," *Discovering Lewis and Clark*, <http://lewis-clark.org/content/content-article.asp?ArticleID=1826>.

Various researchers have suggested that Lukens made eight air guns during the period leading up to Lewis's time in Philadelphia. Four, perhaps five, of them are still extant. So, after Stewart found that Lewis's air gun still existed in 1846, and everyone interested settled on the gun being a Lukens, experts began to examine the possible guns. And there the journals enter the story again. On June 10, 1805 Lewis wrote, "The day being fair and fine we dried all our baggage and merchandize. Shields renewed the main Spring of my air gun."¹⁰ Experts examined the surviving Lukens air guns, looking for nonoriginal parts. And they found them.

The Virginia Military Institute (VMI) has a good collection of air guns, two of which are Lukens air guns from the late eighteenth or early nineteenth century. All of the known Lukens air guns are, as one would expect from a maker of fine clocks, elegant and refined, inside and out. They look like Pennsylvania rifles except that they have no pans and frizzens. The hammers are the beautiful serpentine design we associate with the Pennsylvania Rifles. All but one. That one, in the VMI collection, has a more robust, double-neck hammer of the type associated with military weapons. The mainspring too is crude, the kind of work a good blacksmith might do if he was working without a decent shop. Lewis had brought along a number of spare locks and parts from Harper's Ferry. Within a few months of Lewis's leaving there, the Harper's Ferry Arsenal was producing the Model 1803 Rifle with double-neck hammers. All the pieces fit. The VMI gun, it was assumed, must be the one Lewis took to the Pacific and back.

The puzzle was seemingly solved on the eve of the expedition's bicentennial. Then Michael Carrick published his paper on the Thomas Rodney description of Lewis's air rifle. The flaw in the train of logic was suddenly clear. Everyone had assumed that because Lukens ended up with the gun, he had made it. But if Lukens made the gun Thomas Rodney described, not only is it lost to us, it is radically different from any of the surviving Lukens air

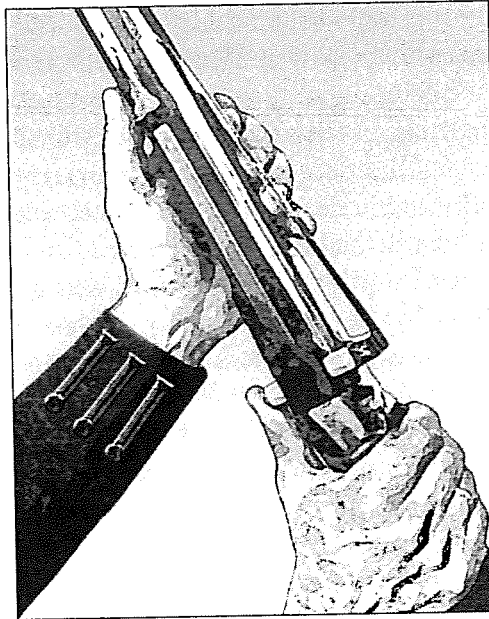
¹⁰Moulton, *Journals of the Lewis and Clark Expedition*, 4:275.

guns. All of his that remain are single-shot muzzle loaders. Rodney describes a repeating weapon. There were a number of designs for repeating air guns at the beginning of the nineteenth century. But Rodney's account strongly suggests the type designed by G. C. Girandoni (a.k.a. Girardoni or Girardony) for the Austrian army.

Europe was not politically stable during the eighteenth and early nineteenth centuries. Austria fought wars against the Ottoman Empire, the Holy Roman Empire (and following its demise, Prussia), various powers in Italy and the Low Countries, and a whole series with France following the French Revolution and the rise of Napoleon. One result of all those wars was a large and well-financed military. Girandoni designed weapons for the Austrian military during the last quarter of the eighteenth century. His experiments with a repeating flintlock resulted in the loss of his left hand when a malfunction caused a test weapon to explode while he was firing it. He had better luck when he adapted the system to a repeating air rifle in the late 1770s. The result was the Model 1780. That weapon was improved, and the Model 1799 was the weapon that supposedly so upset Napoleon. It is unclear whether Girandoni was the lead manufacturer once he finished the design work. The fact that there were clearly many makers in Austria, Russia, Switzerland, England, and various German principalities using his design points to him as primarily an innovator that others then manufactured.¹¹

A few of Girandoni's repeating air rifles have survived, and they are striking-looking weapons, with full-length forearms, very high, prominent hammers, and leather-covered metal stocks. On a Girandoni, as on many air guns of the time, the stock is the gun's air reservoir and detaches from the breech so it can be pumped up. It took five hundred to a thousand strokes of a hand pump to fill the air chamber to about 750 psi, but the gun can then be fired twenty to forty times. (The Austrian army supplied a larger pump mounted on a cart to facilitate refilling the air reservoirs.) Along the right side of the gun barrel, immediately

¹¹Smith, *Gas, Air and Spring Guns of the World*, 28–30.



LOADING THE
GIRANDONI AIR RIFLE

This shows a soldier loading the rifle by pushing the breech block to the right with his thumb. This must be done while holding the rifle vertically, as the balls feed down the magazine by gravity. *Courtesy Michael F. Carrick.*

in front of the hammer, is a tube about a foot long and about a half inch in diameter, capable of holding about twenty rifle balls. The front of the tube is gated, and a leaf spring, attached just behind the gate, runs slightly more than the length of the tube along its right side. There is a sliding breech block that sticks out on both sides of the weapon. The right side of the block closes the back of the tube magazine, its right edge in contact with the magazine's leaf spring. The left side projects from the weapon roughly an inch and a half to two inches.

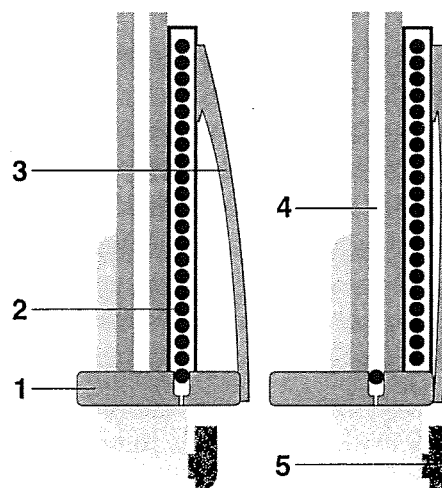
When the rifleman pushes that block to the right, it moves against the spring and places a funnel-shaped hole in the block over the end of the magazine. The hole is large enough in the front for a ball to enter and too small in the back for the ball to fall through—but large enough for air to pass. By holding the rifle muzzle up the shooter allows gravity to drop a ball into the breechblock's hole. When the block is then released from the

AIR RIFLE

IOI

SCHEMATIC OF THE GIRANDONI AIR RIFLE

(1) breech block; (2) magazine (filled with balls); (3) leaf spring; (4) barrel; (5) hammer. By pushing the breech block to the right while holding the rifle in a barrel-up position, the leaf spring is displaced to the right and a ball falls into the breechblock. Releasing the block, the leaf spring pushes the block back, positioning the ball in line with the barrel and the air cylinder to the rear. *Courtesy Michael F. Carrick.*



left, the leaf spring forces the block back to the left and the hole containing the ball is moved back in line with the rifle barrel. The shooter then cocks the hammer and air is released from the reservoir into a chamber between the stock and the breech block until the pressure in the two chambers is equalized. Then the reservoir valve closes. (The failure of this valve from something as insignificant as a bit of dirt could easily explain the problem of the weapon when Lewis was demonstrating it to Thomas Rodney.) Pulling the trigger then opens the valve at the front of the forward air chamber, and the air pressure sends the ball down the barrel at a speed of several hundred feet per second.

Lewis's first journal entry does state that he had purchased the air gun, but neither that or any evidence has surfaced to explain exactly where or when he acquired it. There is no other good evidence for Girandoni-style air rifles having made it to the United States by the beginning of the nineteenth century. Since so many different manufacturers in so many different countries were producing the weapons, it is easy to imagine them being

traded widely and without great comment during the more than twenty years from the weapon's introduction in 1780 until Lewis headed west. Interestingly enough, Lewis's penultimate journal entry also mentions the air rifle and another shooting accident as well. On that day, after being shot by Cruzatte, Lewis assumed that he and Cruzatte had been attacked by a party of Indians, and he called out to Cruzatte, who failed to respond. He made his way back to the river and called to his men to aid him in his attempt to save Cruzatte from the supposed Indian attack. The ball that wounded Lewis had passed through both cheeks of his buttocks, and Lewis found:

my wounds became so painfull and my thye so stiff that I could scarcely get on; in short I was compelled to halt and ordered the men to proceed and if they found themselves overpowered by numbers to retreat in order keeping up a fire. I now got back to the perogue as well as I could and prepared myself with a pistol my rifle and air-gun being determined as retreat was impracticable to sell my life as deerly as possible.

*Lewis, August 11, 1806*¹²

If Lewis's air gun was capable of firing twenty shots in a minute, his defense would likely have been as effective as it was heroic. As events unfolded, the men returned with Cruzatte, who at least pretended bafflement, claiming he had never fired his rifle. Lewis had the ball that wounded him, one of the same caliber as the short rifle Cruzatte carried. Lewis was sure he had been shot accidentally by his one-eyed, nearsighted companion, but, somewhat uncharacteristically, he dropped the matter.

In between those incidents of April 1803 and August 1806, the air rifle is mentioned twenty times. In sixteen of those instances the air rifle was shot as a demonstration to impress various tribes. Since not every journalist mentions these performances on the same days, it seems reasonable to assume the weapon might have been fired more often than that. It may be that it became such a routine piece of equipment to the Corps that the writers didn't

¹²Moulton, *Journals of the Lewis and Clark Expedition*, 8:155.

deem it necessary to note its every use. For instance, neither Sergeant Gass nor Private Whitehouse ever mentions it. The various tribes all seem to have had the same reaction to the air rifle. Most of the journals describe the tribes as astonished or surprised. On January 24, 1806, Lewis wrote his longest report on the Indians' reaction to the air gun. "My Air-gun also astonishes them very much, they cannot comprehend it's shooting so often and without powder; and think that it is *great medicine* which comprehends every thing that is to them incomprehensible."¹³ The line "shooting so often" seems to support the idea that Lewis had a repeating air rifle such as a Girandoni type.

The final mention of the air rifle in the journals is undated. After returning to St. Louis, some of Clark's notes refer to the air rifle being boxed for shipment back East.¹⁴ Then, as the trackers say, the trail goes cold. But rather than turn away, it is useful to look at one last piece of evidence. Isaiah Lukens's estate papers say that the air gun was not only carried by Lewis but made for him as well. By whom? Based on whose design? Did Lewis acquire the designs for a Girandoni and take them to Pennsylvania and have one made for the trip? Did Lukens, after all, make Lewis's air gun, but not from his standard model? Or did the writer of the estate sale brochure make a small literary error and add "made for" to "used"? Had Lukens only acquired it after Lewis's death? Did he want it because of where it had been or because he wanted to study the unusual design? Or . . . ?

The Corps of Discovery's expedition was one of the best documented of the period, but there are many questions about it that are probably unanswerable two hundred years later. What exactly Lewis's air gun was may well be one of those questions. But historians should be wary of the word "never."

¹³Ibid., 6:233.

¹⁴Ibid., 8:419.

EXHIBIT 18

THE HISTORY OF SNIPING AND SHARPSHOOTING



00387

Exhibit 18

Major John L. Plaster, USAR (Ret.)

Also by John L. Plaster:

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Air Rifle Sharpshooters

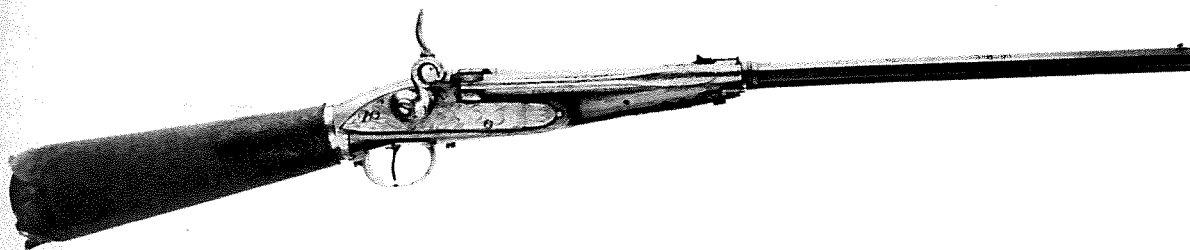
When French General Edouard-Adolphe-Casimir-Joseph Mortier paused during an 1800 battle in Austria, he was surprised to see "an orderly sergeant who was standing close to us leap up very high into the air and then fall down. We supposed, at first," he recalled, "that he was in a fit, and we were greatly astonished to find him dead, as nothing had been heard or seen to injure him. On his being undressed, however, a ball was found to have struck him, which must have been shot from an air-gun in the adjoining field. . . . [We] lost many fine men by that corps of Austrians."

"That corps of Austrians" Mortier cited were specially trained Tyrolean sharpshooters, armed with the most novel secret weapon of the 18th century, the Austrian Model 1779 *Repetierwindbuchse* (repeater wind rifle). Think of it—*smokeless, almost silent, yet lethal at 100 yards*. "On account of this treachery," reported General Mortier, his troops "hung all that corps that fell into their hands, considering them not as soldiers but assassins, and never gave them any quarter."

This amazing sharpshooter's air rifle had come to the attention of Austrian Emperor Joseph II in 1779, who had it tested by Field Marshal Franz Moritz. Convinced of the air rifle's superiority, the emperor summoned its inventor, Italian gunmaker Bartholomeo Girandoni, to Vienna to produce it under the utmost secrecy.

Instead of a tiny pellet, Girandoni's air rifle fired an 11.5mm ball, approximately .45 caliber, with sufficient power to penetrate a 1-inch board at 100 yards. At a time when the only repeating firearms were double-barrels, and even smoothbores fired just two to three rounds per minute, the Girandoni rifle could get off 20 shots in a half minute without reloading. Some 49 inches long and weighing nearly 10 pounds, it was similar in size and weight to a conventional musket. Its 32-inch wrought-iron barrel's rifling rotated the ball once in 26.25 inches.

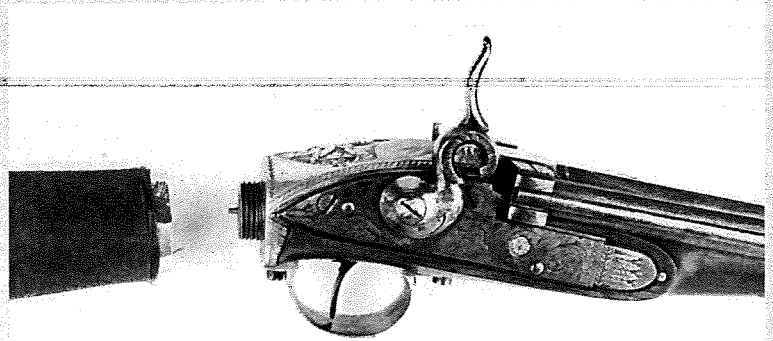
The rifle's compressed air was contained in its detachable stock, actually a leather-covered metal reservoir or flask, which held air sufficient for about 30 shots. Using a small hand pump, the sharpshooter could refill his flask, with 600 pumps achieving a pressure of 60 atmospheres and projectile velocity of perhaps 500 feet per second. Considerably more pressure was yielded from a wagon-mounted compressor, capable of 150 atmospheres and generating a more lethal 900 feet per second. (At this higher pressure, however, the flasks occasionally burst, sometimes causing serious injuries.) Under ideal conditions,



The remarkable Girandoni air rifle, an Austrian sharpshooter's weapon and an arm for the Lewis and Clark Expedition. (Courtesy of the West Point Museum.)

each air rifle sharpshooter had two or three flasks, with runners bringing him reloads from the nearby wagon, which held 2,000 preloaded flasks. The sharpshooter carried reload lead balls in 20-round tubular speedloaders.

A few years ago, the dean of American airguns, Dr. Robert D. Beeman, fired tests with a custom replica Girandoni air rifle and found that its 210-grain ball attained a muzzle velocity of 750 feet per second. Ballistically, this is comparable to a modern .38 Special or .45 Colt Auto pistol projectile—which is, indeed, potentially lethal at 100 yards. An 18th-century test of a similar air rifle firing 120-grain balls yielded an even faster 900 feet per second. Running this data through my Sierra Exterior Ballistics software, I found that the bullet drop at 100 yards exceeded 2 feet—meaning, as Beeman had concluded and 18th-century literature suggested, the maximum range was no more than perhaps 100 yards.



The Girandoni's leather-covered butt contained a detachable flask filled with compressed air. (Courtesy of the West Point Museum.)

Despite its limited range, the Girandoni air rifle was originally issued only to select riflemen from Austria's fusilier regiment, but rough handling and improper maintenance caused frequent malfunctions. Thus, Emperor Joseph had his secret weapons redistributed to specially trained Tyrolean sharpshooters who better understood how to care for these rather delicate instruments.

During Austria's 1788–89 War against Turkey and a 1790 fight with Prussia, the Girandoni air rifle was used extensively and proved itself in combat, offering a high rate of fire, reasonable accuracy, and lethality, without generating gun smoke or muzzle blast. One Tyrolean sharpshooter report noted, "These weapons were really accurate and effective."

Despite these benefits, however, the air rifles could not stand up to field use, with the repeater feed breaking down and leather seals failing. In 1801, the Tyrolean sharpshooters' commander complained that of his 500 air rifles, only 101 were usable. Soon afterward, the worn-out airguns were withdrawn and replaced by conventional rifles.

A few Girandoni air rifles made their way to America, where one ended up in the hands of Captain Meriwether Lewis. He carried it westward with his Corps of Discovery in 1803–05 and fired a number of demonstrations for Indians along the way, never failing to amaze them when he pumped off 20 lethal lead balls in just 30 seconds.

Captain William Clark wrote in his *Field Notes* that the Girandoni demonstrations "astonished [the Sioux Indians] very much," while the Snake Indians were "surprised and astonished." Perhaps, as Dr. Beeman has suggested, these firepower demonstrations deterred the Indians from attacking the Lewis and Clark Expedition. Dr. Beeman today owns an authentic Girandoni air rifle tentatively identified as being the very one Captain Lewis fired those many years ago.

EXHIBIT 19

Exhibit 19
00391



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Exhibit 19
00392

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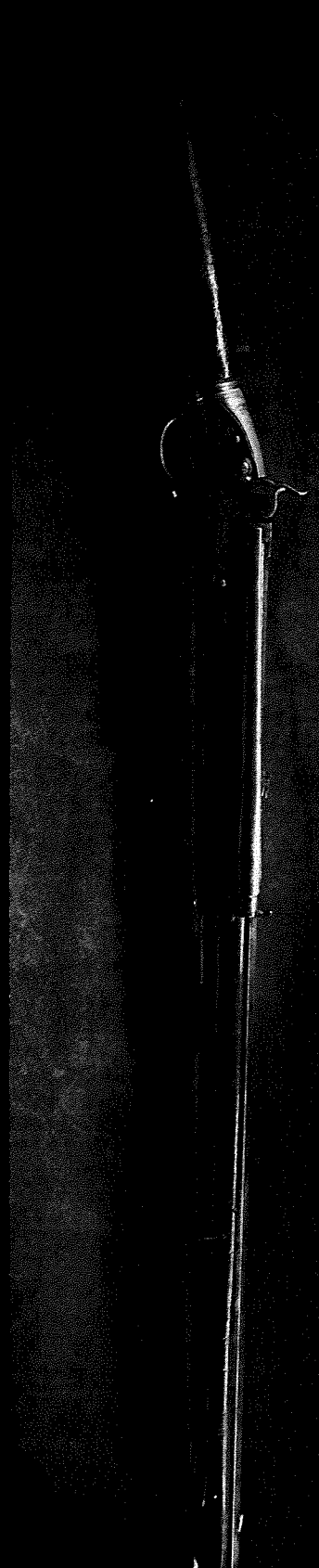
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Girandoni Repeating Air Rifle, as carried by Lewis and Clark - .49 caliber - circa 1795 - 22-shot repeating air rifle, built by Bartolomeo Girandoni, who originally supplied similar air rifles to the Austrian army around 1790. As originally issued, each Girandoni air rifle had three detachable air reservoirs, each requiring about 1,500 strokes of a separate pump to completely pressurize the reservoir. Once filled to operating pressure (about 800 psi), the air rifle could fire up to 70 shots before the reservoir needed to be replaced. A hollow metal tube on the side of the barrel held up to 22 lead balls that could be fed one at a time to the firing chamber by a simple sideways push of a plunger. At a distance of 50 feet, this rifle is capable of placing 10 shots into a group the size of a quarter, and could penetrate a 1-inch wood plank or bring down an elk. *Donated by Michael Carrick*



Painting: *Lewis and Clark on the Lower Columbia* (28 x 24 in (71.1 x 61 cm)) by Charles Marion Russell 1905.