

EXHIBIT 53

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UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
SOUTHERN DIVISION

STEVEN RUPP, et al.,

Plaintiffs,

vs.

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

Defendant.

Case No.: 8:17-cv-00746-JLS-JDE

**EXPERT WITNESS REBUTTAL
REPORT OF MARK HANISH**

1 1. I am a firearm industry senior executive with over two decades of
2 experience building indoor shooting ranges, running domestic and international sales
3 and marketing departments for firearms, ammunition, and accessory companies,
4 along with designing products with various engineering departments for the
5 commercial, law enforcement, and military markets. I have also spent over 25 years
6 as a professional shooter, holding several world, national and state level titles, using
7 the firearms technologies that are relevant to this case.

8 2. I have been retained by the Plaintiffs in this matter to provide a
9 response with an industry perspective on firearms technology and the marketplace,
10 specifically as it relates to semi-automatic firearms with detachable magazines that
11 are capable of holding over ten rounds. This report was prepared at the Plaintiffs'
12 request for *Rupp v. Bonta*, Case No 8:17-cv-00746-JLS-JDE. I have been retained to
13 write a report at the rate of \$300/hour.

14 **Background and Qualifications**

15 3. I have spent the last twenty years as a firearms, ammunition, and
16 defense industry executive. In addition to my role in the firearms industry, I have
17 also been a professional shooter, competing in domestic and international matches in
18 practical pistol and 3-gun for over 25 years.¹ I have a Bachelor of Science Degree in
19 Entrepreneurship and Business Management from the W.P. Carey School of
20 Business at Arizona State University. Through the Barrett Honors College, I wrote
21 an Honor's Thesis for the basis of my first firearms training and supply business,
22 whose growth led to the conceptualization of a luxury indoor shooting range. My
23 partners and I founded the Scottsdale Gun Club, which at the time of the facility
24 opening (2004) was the world's largest and most luxurious public indoor range,
25 creating a new market segment.

27 ¹ 3 Gun is a speed and accuracy sport, where the athlete uses the three platforms
28 of semi-automatic firearms – rifles, pistols, and shotguns – all with what were
considered large capacity magazines.

1 4. While developing the Scottsdale Gun Club, my partners and I operated
2 The Armory gun store, which focused on self-defense and tactical products and
3 training. My position was Founder and Vice President of Sales and Marketing for
4 the Scottsdale Gun Club and at the time we created an entirely new model of high-
5 end shooting and retail facilities. In addition to my sales and marketing roles, I was
6 responsible for our product selection and purchasing. The Scottsdale Gun Club
7 retained its tactical firearms and training roots and was nationally known as the
8 leader in that category. We were doing such high volume in those categories we
9 started a firearms and ammunition distribution business to resell products to other
10 gun stores. Prominent firearms manufacturers would consult with me on their
11 expansions into AR-15s and tactical market segments. Notably, we also launched a
12 manufacturing brand, U.S. PALM, that developed and produced a line of high-tech
13 polymer 30rd magazines for AK pattern rifles. These magazines are still
14 manufactured and distributed nationwide.

15 5. In 2010, I transitioned from the dealer and distributor side of the
16 industry into sales for FNH USA, LLC (later becoming FN America, LLC), which is
17 a subsidiary of Fabrique Nationale out of Herstal, Belgium. In the South Carolina
18 manufacturing facility FN has produced a multitude of arms for the US Military to
19 include the M4, M16, M249, M240, and MK19. FN also began developing a robust
20 commercial presence of which I was a part. Over six years, I rose to the position of
21 Senior Director of Commercial Sales. I also was on the FNH USA professional
22 shooting team. During my tenure at FN, I contributed to many aspects of the
23 commercial business for US operations, including sales, product management,
24 production forecasting, and marketing. At FN America we produced and marketed
25 both pistol and rifle lines, almost all were sold with “large capacity” magazines as
26 the standard offering. I have first-hand knowledge of the changes within the firearms
27 industry market over the past several decades and I have been able to create
28 consistent growth of the core business even in unstable market conditions. I worked

1 closely with the production and engineering side of the company. With those
2 departments, I principally directed the design for most models in the FN15 line,
3 working to define the market position and models for the consumer, which included
4 both Law Enforcement and Commercial markets. The FN15 is the company's AR-
5 15 style line of rifles. Additionally, I conceptualized and worked with the team to
6 design a high-end collector line of firearms, known as the Military Collector Series.
7 These firearms included semi-automatic versions of American military issue
8 firearms: the M4, the M16, and the M249 which generated over \$10million in
9 revenue the first year of production.

10 6. In 2016, I became the Vice President of Sales and Marketing for
11 Surefire, LLC, a company that specializes in tactical illumination devices, firearm
12 suppressors, and "large capacity" magazines for AR-15 style rifles for the civilian,
13 law enforcement, and military markets. At Surefire, I managed US commercial and
14 law enforcement business. Internationally, I managed commercial, law enforcement
15 and military markets. In 2019, I became the President of Global Sales and Marketing
16 for Ammo Inc. and in just over 3 years sales increased from \$4M to \$240M. I was
17 responsible for all sales, marketing, and product development activities including the
18 design and development of specialty cartridges for US Special Operations
19 Command. I successfully competed for and won several government contracts in a
20 short period of time. AMMO acquired GunBroker.com, the largest internet
21 marketplace for the firearms industry in 2021. In 2022, I joined the team at Timney
22 Triggers as their Vice President of Sales, thanks in large part to my rich and well-
23 rounded knowledge of the firearms industry. Due to my high-profile positions in a
24 range of companies that directly impact the conversation about firearms technology
25 available to the public and the military, as well as the ammunition side of the
26 market, I am uniquely qualified to discuss this matter.

27 7. As I have previously stated, not only is my experience in the industry as
28 an executive, but as a shooter and collector. I have personal experience purchasing

1 and using “large capacity magazines” prior to 1994 and continuing throughout the
2 entire 10 years of the federal ban and beyond. I also have an extensive background
3 of practical application of semi-automatic rifles, pistols, and shotguns as a
4 professional shooter. I have held multiple world, national, and state shooting titles
5 across disciplines for over 25 years. Notably, I was a part of the 3 Gun National Pro
6 Tour for six years, as a regular finalist and 2012 overall runner up. 3 Gun Nation
7 was a television show that aired on NBC Sports and Sportsman Channel promoting
8 the practical shooting use of semi-automatic rifles, pistols, and shotguns with “large
9 capacity” magazines.

10 8. Due to my professional background within the firearms industry, I have
11 served on the Board of the American Suppressor Association and have regularly
12 appeared as an on-camera expert for the National Shooting Sports Foundation, the
13 Outdoor Channel’s Gun Stories with Joe Mantegna, and Gallery of Guns TV. I have
14 also been an industry guest speaker for college students at institutions such as the
15 School of the Art Institute of Chicago and the W.P. Carey School of Business’ MBA
16 Program. Previously, I have provided expert witness testimony in *Duncan v. Bonta*,
17 Case No. 3:17-c-v-01017-BEN-JLB, *Washington v. Federal Way Discount Guns*,
18 *LLC.*, King County Superior Court, Case No.: 22-2-20064-2, and *Oregon Firearms*
19 *Federation, Inc. et al v. Brown et al*, Case No. 22-CV-01815-IM and *Eyre et al v.*
20 *Rosenblum et al*, Case No. 22-cv-01862-IM.

21 **Scope of Work**

22 9. In this document, I will provide a general statement on the popularity of
23 AR-15 style and similar rifles and their standard features and use in the firearms
24 market in regard to the California’s Assault Weapons Control Act (AWCA). I will
25 then discuss the importance of particular features to the fundamental operation of a
26 semi-automatic firearm, as well as address their extensive use before and after 1994
27 when they were first regulated federally, and the ways in which manufacturers have
28 responded to the changing in legislation. I will conclude on a discussion surrounding

1 the 1911 style semi-automatic pistol and its waning popularity in a defensive
2 handgun market in favor of smaller caliber and higher capacity pistols that are far
3 superior for the broadest spectrum of self-defense uses.

4 **AR-15 and Civilian Popularity**

5 10. AR-15 style rifles are one of the most common rifles sold and used by
6 law abiding consumers today. The demand for AR-15s and similar rifles grew
7 steadily since their inception and continued through the 1994-2004 federal “Assault
8 Weapons Ban” (AWB). The Colt AR-15 first became available on the commercial
9 market in 1964. In addition to the domestic production, throughout the 1970s and
10 1980s, semi-automatic rifles similar in style and function, were imported into the
11 United States for sale to the commercial market. These comparable rifles followed
12 an overarching trend in firearms design towards smaller calibers with detachable
13 magazines. A few notable examples of these were manufactured by Beretta,
14 Daewoo, FN, HK, IMI, SIG, STEYR, as well as several AK pattern rifles. The
15 importation of these foreign made rifles however was restricted in 1989. Domestic
16 manufacturers such as Colt, Bushmaster, Olympic Arms, Pac-West Arms, Eagle
17 Arms / Armalite, and DPMS that were previously building AR-15 style rifles
18 continued, for the most part, with production of slightly modified rifles to comply
19 with the new federal regulations. These rifles increased exponentially in popularity
20 as more consumers became aware of them, as they have many benefits for a
21 multitude of applications including personal defense, target shooting, competition,
22 and hunting. The AR-15 style of rifle is lightweight, has low recoil, is relatively easy
23 to learn how to use, can be customized by the consumer, and is easily adjustable to
24 fit most users of varying sizes and physical abilities. During the AWB period, many
25 companies were discouraged from investing in production capacity to enter the AR-
26 15 style rifle market due to legislative uncertainty. In the years following the sunset
27 of the AWB more recognizable brands such as Smith & Wesson, Ruger, Sig Sauer,
28 FN, and Remington were willing to invest the capital and enter the market. These

1 well-known and trusted brands responded to market demand for AR-15 style rifles
2 manufactured by established companies.

3 11. Today the AR-15 style rifle is one of the most popular rifles in
4 America. However, that popularity was not just engineered by the firearms industry,
5 who have limited advertising channels. Rather, the popularity of this firearm has
6 more to do with the design's features, benefits, and adaptability to be well suited for
7 a wide array of legitimate uses. These rifles are commonly used for lawful purposes,
8 including target and sport shooting, and equipped with their standard features they
9 are also an excellent choice for use in self-defense situations.² This is thanks in part
10 to either owners already being familiar with the platform, or to the relative ease at
11 which new shooters can learn how to effectively use the rifle successfully for self-
12 defense. For a great many people the AR-15 is a much better choice as a home
13 defense firearm than a pistol or shotgun. To quantify the acceptance and widespread
14 adoption of these rifles, it is of note that according to the 2021 National Firearms
15 Survey (expanded May 2022) about 24.6 million people, have owned an AR-15 or
16 similarly styled rifle, and up to 44 million such rifles have been owned nationally.
17 In California, 37.5% of gun owners have indicated they have owned an AR-15
18 styled rifle.³

19 12. Many of the semiautomatic centerfire rifle characteristics identified in
20 the California's Assault Weapons Control Act (AWCA) in California Penal Code
21 section 30515(a) were features originally incorporated directly into the firearm's
22 design. It is disingenuous for any credible expert to claim a firearm operates as
23 designed after altering, restricting, or removing a design feature. Most of these rifles
24 were designed with a pistol grip due to the overall architecture of the rifle. The pistol
25

26 ² Declaration of Ryan Busse, ¶ 12

27 ³ English, William, 2021 National Firearms Survey: Updated Analysis Including
28 Types of Firearms Owned (May 13, 2022). Georgetown McDonough School of
Business Research Paper No. 4109494, Available at
SSRN: <https://ssrn.com/abstract=4109494> or <http://dx.doi.org/10.2139/ssrn.4109494>

1 grip provides for proper ergonomics allowing a person to hold, aim, and manipulate
2 the rifle efficiently and accurately. The rifles are more comfortable to shoot,
3 facilitating greater accuracy and control. Increased control and accuracy results in a
4 safer firearm in a lawful self-defense situation, reducing the chance of errant rounds
5 missing the intended target and causing unnecessary damage or injury. Asserting the
6 existence of suboptimal, albeit functional alternative solutions created solely to
7 comply with a law as proof the original design is “not integral to the basic
8 operation”⁴ is absurd. This is akin to putting Toyota Prius passenger car tires on a
9 John Deere farm tractor and proclaiming the tractor can operate as designed merely
10 because the ability to perform the base level function of rolling is satisfied.

11 13. Affected centerfire rifles were and are made utilizing telescoping,
12 folding, fixed, and thumbhole stocks as part of their design. The use of a telescoping
13 stock allows the rifle to be easily adjustable to fit most users of varying sizes and
14 physical abilities. Telescoping and folding stocks are also convenient for storage
15 and transportation. A thumbhole stock has been employed over the years on rifles
16 either for additional support in sporting applications or to comply with regulations
17 on pistol grips while mostly maintaining overall function.

18 14. The overall length less than 30 inches is another dimension defined as a
19 prohibited characteristic by the AWCA. Overall centerfire rifle length of 26 inches
20 and barrel length of 18 inches was first federally regulated by the National Firearms
21 Act (NFA) in 1934.⁵ The arbitrary minimum length of a centerfire rifle barrel
22 governed by the NFA was changed to 16 inches in the 1950s after the US
23 Government sold over 1 million military surplus M1 carbines to citizens with barrels
24 shorter than 18 inches. The concept of collapsible or folding stock designs was
25 available in 1934 when the NFA was enacted. Busse also declares “the AWCA’s
26

27 ⁴ Declaration of Ryan Busse, ¶ 12

28 ⁵ <https://www.atf.gov/rules-and-regulations/national-firearms-act>

1 regulations on collapsible and folding stocks and short barrels are merely addressing
2 the same and historically accepted regulation on rifle length as the NFA”⁶, which is
3 incorrect in several aspects. First, the NFA does not directly regulate collapsible or
4 folding stocks as a feature, and secondly the NFA regulates rifles with an overall
5 length less than 26 inches while the AWCA specifies 30 inches as minimum length.

6 15. Flash suppressors are incredibly useful on self-defense rifles. This is
7 particularly beneficial inside a home and/or at night as a .223 Remington cartridge
8 fired from a 16 inch barrel without a flash suppressor creates a significant muzzle
9 flash. After firing a round, this muzzle flash can greatly impair a person’s ability to
10 see the assailant(s) and gather additional visual information to determine the next
11 course of action. It is in the best interest of everyone’s safety to use a flash
12 suppressor on the rifle to retain as much night adapted vision as possible for positive
13 identification. It is unclear as to the benefit gained by mandating a person be at a
14 disadvantage after firing in defense of themselves. The point is also raised that flash
15 hiders are not required on pistols or shotguns. In addition to pistols burning far less
16 gunpowder at lower pressure than a rifle, pistol ammunition designed for self-
17 defense more effectively utilizes flash retardant gunpowder to minimize flash and
18 temporary night blindness. Some rifle powders include this flash retardant as well,
19 but it is not nearly as effective in a rifle platform, generating more flash than either a
20 pistol or shotgun.

21 **“Large Capacity Magazines” and the Firearms Market**

22 16. As an initial matter, detachable-magazine capacity is irrelevant in
23 analyzing the AWCA; whether a rifle has a 3-round magazine or a 1—round
24 magazine inserted into it’s magazine well (or no magazine at all) does not change
25 where it is an “assault weapon” or not under the AWCA. That said, I address some
26 points raised by Busse in his report about magazine capacity to show that his
27 opinions are based on erroneous information and lack credibility.

28 ⁶ Declaration of Ryan Busse, ¶ 21

17. Busse's declaration asserts that "large capacity magazines" (LCM) are only recently popular⁷, which is a specious argument. In 1993, the year prior to the 1994 federal ban, semi-automatic pistols accounted for 80% of handguns produced in the US.⁸ According to Christopher S. Koper in his 2004 Updated Assessment of the Federal Assault Weapons Ban: Impacts on Gun Markets and Gun Violence, 1994-2003 report "*Approximately 40 percent of the semiautomatic handgun models and a majority of the semiautomatic rifle models being manufactured and advertised prior to the ban were sold with LCMs or had a variation that was sold with an LCM*".⁹ This study clearly illustrates the significance of large capacity magazines on the market even before the Federal Assault Weapons Ban. This is further corroborated by the fact that there were enough LCMs in circulation prior to the AWB to sustain their availability in the national marketplace for 10 years. LCMs were available for consumers to purchase throughout the entirety of the federal ban, though their market price rose as new supply was restricted. Today, that trend of most pistols and rifles being sold with LCMs continues to grow. The vast majority of popular handguns today come standard with 15-20+ round magazines, and semi-automatic AR-15 style rifles are sold with 30-round magazines as standard. The 2021 National Firearms Survey (expanded May 2022) reported:

**Nationally 48.0% of gun owners, about 39 million people, have owned magazines that hold over 10 rounds, and up to 542 million such magazines have been owned.
In California 53.8% of gun owners have owned magazines that hold over 10rds.¹⁰**

20. Magazine fed firearms are systems with many parts that must function together in order to operate properly, and the ammunition feeding device is critical

⁷ Declaration of Ryan Busse, ¶ 20

⁸ (Zawitz, 1995, p. 3). PDF attachment

⁹ <https://www.ojp.gov/pdffiles1/nij/grants/204431.pdf>

¹⁰ English, William, 2021 National Firearms Survey: Updated Analysis Including Types of Firearms Owned (May 13, 2022). Georgetown McDonough School of Business Research Paper No. 4109494, Available at SSRN: <https://ssrn.com/abstract=4109494> or <http://dx.doi.org/10.2139/ssrn.4109494>

1 to the overall performance and success of the firearm. To this day, especially in
2 modern handguns, the magazine is often the cornerstone of the pistol design. Unless
3 designing a new pistol to utilize an existing magazine, engineers will start a new
4 pistol project with designing the magazine first. The ammunition feeding device
5 must be optimized to reliably deliver cartridges into the operating system. The
6 engineers must consider the dimensions of the cartridge, with specific attention to
7 the cartridge case being either a straight wall or a tapered case, and angles at which
8 the magazine presents cartridges to the action. The manner in which the magazine
9 and action interface is critical. The remainder of the firearm design builds upon the
10 foundation laid by the magazine's form. Many, if not most, modern pistols are built
11 around a magazine designed to hold more than 10 rounds. Pistols designed for
12 defensive use balance maximizing the number of rounds carried for personal
13 protection within a size constraint of the pistol to perform its intended function.
14 Even though subcompact pistols are designed primarily for concealment and safety
15 while carrying, designers also attempt to maximize magazine capacity as well.
16 Pistols designed for recreation, sport, and competition are usually designed to
17 maximize capacity, accuracy, and reliability with few constraints on size.

18 21. As an integral part of the firearm, magazines are required for proper
19 function. While firearms are one of the few consumer items designed for several
20 lifetimes of service, their magazines are an item that can degrade with use. In
21 addition to the routine maintenance of replacing springs and worn followers, feed
22 lips of magazines which hold the next round in position to be presented to the action,
23 may both wear and crack from the cycling of the action. Magazines and their feed
24 lips are also susceptible to bending, cracking, denting, or deforming and being
25 rendered unserviceable when dropped during normal use. This is not uncommon,
26 and therefore, not an exceptionally rare occurrence that would only affect high
27 volume shooters. Shooters run the risk of damaging a magazine every time they
28 practice a reload and eject a magazine onto the ground.

22. A prudent firearms owner will purchase enough magazines to sustain the use of their firearm as intended over the remainder of their lifetime, accounting for damaged and worn-out magazines along the way. Many handguns and rifles have proprietary magazines that are specific to the manufacturer, product family, and many times the specific model. Replacement magazines may not be available in the future as there is no guarantee the manufacturer will be in business to support the platform, and there is no guarantee that an aftermarket company will produce that specific magazine. A firearm without a functional magazine is of little use to an owner, and of little value to another consumer. There is less risk for consumers that possess firearms capable of accepting a magazine with a somewhat standardized interface. These firearms are generally older legacy designs that were used in rifles and pistols adopted by militaries. Magazines for the AR-15 style rifles and model 1911 pistols fall into this category. Busse uses only these two limited examples to proclaim magazines as a universal accessory.¹¹ He fails to address hundreds of popular models of handguns and rifles that use proprietary magazines. Previously owned proprietary magazines that become damaged during use, may be refurbished by the consumer through the replacement of damaged parts. During the 1994-2004 AWB period, individual manufacturers would not sell consumers all the magazine components required to build a new magazine. Some would designate a single component of the magazine as their control item and refuse to sell that item to consumers. Any consumer needing to repair a legally owned pre-ban magazine was out of luck if they had broken or damaged the restricted part.

Consumer Demand and Defensive Pistol Selection

23. In Busse's declaration he focuses on the 1911 design as the foundational basis to claim 7 or 8 rounds of ammunition is more than adequate for a defensive pistol. This limited perspective is understandable given his career at one of the larger manufacturers of 1911 style pistols. However, there are a multitude of

¹¹ Declaration of Ryan Busse ¶ 9, *Duncan v. Bonta*, Case No. 3:17-cv-01017-BEN-JLB

1 shortcomings with the anecdotal statements employed to support this position. There
2 are exponentially greater numbers of pistols more effective for self-defense while
3 offering a superior balance of reliability, affordability, and capacity. It is widely
4 understood that most of the less expensive models of 1911s, and even many of the
5 mid-level price point pistols in the \$1000-\$1500 range from companies like Colt and
6 Kimber may require an additional investment in gunsmithing services to make them
7 suitably reliable for defensive use. Many people cannot afford one of the higher
8 priced 1911 pistols that are generally suitable for defense from the manufacturer, nor
9 can everyone handle the recoil of the .45 ACP and have the confidence to defend
10 themselves with the 7 or 8 rounds available. Persons of a smaller stature and/or
11 having reduced strength may select a 1911 design pistol in 9mm for its reduced
12 recoil, but in turn they are accepting the accompanying risk of using single stack
13 9mm magazines which are inherently less reliable due to the tapered case of the
14 9mm cartridge. The 1911 design is also less intuitive and requires more familiarity
15 and training for novice shooters to master. For these and many other reasons, many
16 of the leading firearms trainers in the country recommend a multitude of superior
17 modern design pistol options for self-defense firearms.

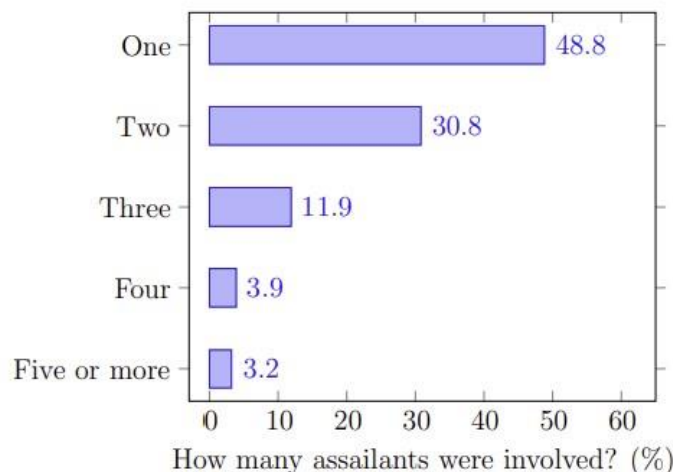
18 24. In comparing aggregated data on broad categories of self-defense
19 pistols, the BATF&E's 2020 Annual Firearms Manufacturing and Export Report
20 does not give specific model information, but rather we can make inferences from
21 the pistol category, which is broken down into caliber ranges. We find there were
22 just shy of 3.9 million 9mm and .380 pistols manufactured in 2020, and in
23 comparison, just over 705,000 pistols comprise the up to .50 caliber category.¹² This
24 category includes all pistols chambered in .45 ACP, not just 1911s, as well as
25 additional designs and calibers such as the .40 S&W, making the 1911 production
26 somewhere below that ceiling. With further examination of the manufacturer's
27 individual reporting data, it is evident the market clearly indicates significantly

28 ¹² 2022.06.10_afmer_2020_cover_sheet_508 (1) PDF Attached

1 higher demand for modern pistols in smaller calibers and higher capacity than .45
2 ACP pistols.

3 25. The 2021 National Firearms Survey (expanded May 2022) provides
4 pertinent information regarding the carry and use of firearms for self-defense.
5 Information and graph from the Survey:

6 31.1% of gun owners, or approximately 25.3 million adult Americans,
7 have used a gun in self-defense. Gun owners engage in approximately
8 1.67 million defensive uses of firearms per year. Handguns are the
9 firearm most commonly used in defensive incidents (65.9%) The
10 majority of defensive gun uses take place outside of the home (74.8%).
11 About half of defensive gun uses involve more than one assailant
12 (51.2%).



13 26. Conclusions drawn in the survey state that “presumably, it would be
14 advantageous to have a firearm with a larger capacity magazine if one needed to
15 engage more than one assailant, which these responses suggest is indeed common.
16 Although in most defensive gun uses the gun was not fired (81.9%), we can further
17 analyze the subset of incidents in which a gun was fired. In 67.8% of these cases in
18 which a gun was fired in self-defense, multiple rounds were fired.”¹³ A law abiding
19

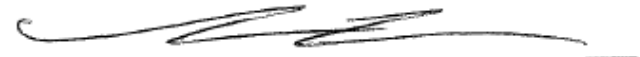
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27 ¹³ English, William, 2021 National Firearms Survey: Updated Analysis Including
28 Types of Firearms Owned (May 13, 2022). Georgetown McDonough School of
Business Research Paper No. 4109494, Available at
SSRN: <https://ssrn.com/abstract=4109494> or <http://dx.doi.org/10.2139/ssrn.4109494>

1 person that carries a firearm for defense of themselves and their loved ones, does not
2 have the luxury of knowing when and where they will be forced to react to an attack.
3 Large capacity magazines afford responsible citizens a similar advantage extended
4 to first responders to prevail and return home safely. A person in a life-or-death
5 self-defense situation has enough challenges to overcome, without an arbitrary
6 restriction on the number of rounds in the magazine available to them in that
7 moment of their greatest need.

8 **Conclusion**

9 27. It is my findings, as an industry expert with a range of backgrounds in
10 the tactical firearms market and culture, the rifles restricted under the AWCA are a
11 superb choice for personal defense, target shooting, competition, and hunting for the
12 broadest spectrum of lawful users of all sizes and abilities.

13
14 I declare under penalty of perjury that the foregoing is true and correct.
15 Executed within the United States on February 3, 2023.

16
17 
18 Mark Hanish

CERTIFICATE OF SERVICE
IN THE UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
SOUTHERN DIVISION

Case Name: *Rupp, et al. v. Becerra*
Case No.: 8:17-cv-00746-JLS-JDE

IT IS HEREBY CERTIFIED THAT:

I, the undersigned, am a citizen of the United States and am at least eighteen years of age. My business address is 180 East Ocean Boulevard, Suite 200, Long Beach, California 90802.

I am not a party to the above-entitled action. I have caused service of:

EXPERT WITNESS REBUTTAL REPORT OF MARK HANISH

on the following party by electronic mail.

Xavier Becerra
Attorney General of California
Anna Ferrari
Deputy Attorney General
Email: anna.ferrari@doj.ca.gov
455 Golden Gate Ave., Suite 11000
San Francisco, CA 94102

I declare under penalty of perjury that the foregoing is true and correct.

Executed February 3, 2023.

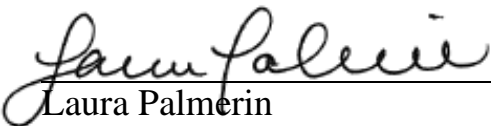

Laura Palmerin

EXHIBIT 54

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UNITED STATES DISTRICT COURT
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STEVEN RUPP, et al.,

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

Defendant.

Case No.: 8:17-cv-00746-JLS-JDE

**EXPERT WITNESS REBUTTAL
REPORT OF J. BUFORD BOONE
III**

1 **ASSIGNMENT**

2 I have been asked by counsel for the plaintiffs in the above described matter to
3 provide my opinion on statements made concerning “assault weapons” and features
4 that California uses to define same in the supplemental expert report and declaration
5 of Colonel (Ret.) Craig Tucker.

6 **COMPENSATION**

7 I am being compensated for my time in this case at the rate of \$700 per hour.
8 My compensation is not contingent on the results of my analysis or the substance of
9 my testimony.

10 **BACKGROUND AND QUALIFICATIONS**

11 I am currently the sole member of Boone Ballistics, LLC and a retired
12 Supervisory Special Agent (SSA) of the Federal Bureau of Investigation (FBI). I
13 was the primary SSA with oversight of the FBI Ballistic Research Facility (BRF)
14 from April 15, 1997 – August 31, 2012.

15 As the Member of Boone Ballistics, LLC, I have been employed as an expert
16 witness in civil and criminal cases. Additionally, I have been employed as a
17 consultant in civil and criminal cases. I teach internal, external and terminal
18 ballistics, including selection of ammunition and weapons for efficiently
19 incapacitating an aggressive human adversary. I have lectured on the applicability
20 of the Hague Convention of 1899 to the selection of ammunition for use by the U.S.
21 Military. I conduct time of flight testing to better document small arms projectile
22 flight as it applies to the use of a Ballistic Coefficient to predict projectile impact at
23 long distances.

24 Prior to my first full-time law enforcement employment, I served as a reserve
25 police officer or Deputy Sheriff with Tuscaloosa County, Alabama, Upson County,
26 Georgia, Las Animas County, Colorado and Trinidad Colorado.

1 Approximately May of 1988 I was hired as a Police Officer with the Tuscaloosa,
2 Alabama, Police Department. I was subsequently offered a position as a Special
3 Agent of the Federal Bureau of Investigation (FBI) in July of 1988. I began
4 employment with the FBI on 07/25/1988. I was graduated from the FBI Academy on
5 10/21/1988. My first duty station was New Haven, Connecticut.

6 I have maintained an interest in firearms all my adult life. I have shot
7 competitively. My firearms scores at the FBI Academy were sufficiently high to
8 allow me to attempt the "Possible" Club. I was successful on my first attempt. To
9 shoot a "Possible", Agents must fire a perfect score on a very difficult course.
10 Though there were in excess of 10,000 Agents in 1988, my "Possible" was
11 approximately number 1,198 in FBI history.

12 Upon arrival in New Haven, I was assigned to the Reactive Squad conducting
13 background, bank robbery and fugitive investigations. I later served as the Fugitive
14 Coordinator for the New Haven Division. I was named "Detective of the Month" by
15 the Bronx Homicide Task Force for the capture of an America's Most Wanted
16 fugitive.

17 I successfully completed FBI Firearms Instructor School in July of 1989. This
18 qualified me to teach firearms to Field Agents.

19 I was transferred to the Organized Crime/Narcotics Squad in July of 1990. I
20 primarily participated in investigations of drug gangs. These investigations
21 typically involved significant amounts of surveillance, electronic monitoring and the
22 service of multiple search warrants. I also participated in organized crime
23 investigations. I have participated in multiple arrests in urban and suburban areas.

24 I was named the Principal Firearms Instructor (PFI) of the New Haven
25 Division of the FBI in November of 1992. I maintained that position until I
26 transferred to the Firearms Training Unit at the FBI Academy, Quantico, Virginia.

27 As PFI, I oversaw all firearm and defensive tactics training of the 90+ Agents
28 in the New Haven Division of the FBI. I coordinated training sessions for all

1 firearms issued to general Agents. This included revolvers, pistols, carbines and
2 shotguns. It also included coordination of deadly force training with the Principal
3 Legal Advisor. During my time as the PFI, the FBI transitioned from revolvers to
4 semi-automatic pistols. The training for this transition was my responsibility for
5 New Haven Division Agents.

6 In September of 1989 I was admitted to the FBI New Haven Special Weapons
7 and Tactics (SWAT) Team as a Sniper/Observer. I successfully passed both the two
8 week Sniper/Observer and the two week Basic SWAT courses at the FBI Academy.
9 I served operationally on the New Haven SWAT Team until my transfer to the FBI
10 Firearms Training Unit at the FBI Academy, Quantico, Virginia.

11 In March of 1996, I was promoted to a position as a Term GS-14 Firearms
12 Instructor at the Firearms Training Unit (FTU), FBI Academy, Quantico, Va.
13 During this assignment, I performed line and PFI instruction of Agent trainees. I
14 provided or oversaw line and combat instruction in handguns, carbines and
15 shotguns. I also provided judgmental instruction utilizing Firearms Training
16 Simulator (FATS) equipment. The FATS training was used primarily to teach
17 Agents when the use of deadly force was appropriate, and when it was not.

18 I was transferred to the Ballistic Research Facility (BRF) of the FTU on April
19 15, 1997. I maintained my position at the BRF for more than 15 years, retiring on
20 August 31, 2012. I received a permanent promotion to Supervisory Special Agent in
21 September of 1997.

22 The BRF has responsibility for testing and evaluating all ammunition used
23 operationally by the FBI. The BRF was created following a 1986 shootout wherein
24 a subject was fatally injured by FBI projectiles but continued fighting and ultimately
25 killing two Agents after receiving the "fatal" wound. A thorough investigation
26 revealed the primary cause of the failure to rapidly incapacitate was the projectiles
27 lack of sufficient penetration in the subject's body. It stopped short of the heart.
28

1 This investigation spawned research into the mechanics of wound ballistics.
2 Ultimately, the research led to the creation of a scientifically repeatable method of
3 comparing the potential effectiveness of individual cartridges. The resultant test has
4 been referred to as the "FBI Method". The BRF published test findings available
5 upon official request of Law Enforcement and Military agencies. The BRF became
6 the most trusted source of ballistic information in the Law Enforcement and Military
7 community.

8 As SSA of the BRF, my responsibility was to oversee all aspects of the
9 research. I was the only full-time person at the BRF until a support person (non-
10 Agent) was assigned as an Engineering Technician, Ballistics (ETB), in the last
11 quarter of 1998. I was the Supervisor and rating official of the ETB.

12 As SSA, I performed or directed all functions of the BRF. I hand loaded
13 cartridges, put test firearms together, hand-fired firearms for testing, built tissue
14 simulant blocks, conducted penetration testing and reported on same. I created a
15 relational database to store data and report test results. I operated sophisticated
16 ballistic testing and photographic equipment. I was frequently sought out to train
17 others in the use of this equipment.

18 I was the primary author of specifications for ammunition procurements for
19 the FBI. This included ammunition used for training as well as for operational use,
20 commonly referred to as "Service" ammunition.

21 I was the primary author of the FBI Body Armor Test Protocol at its inception.

22 I directed the creation of a procurement of 5.56mm NATO ammunition using
23 piezoelectric conformal transducers for pressure testing.

24 The BRF served as the primary source of ballistic information regarding
25 ammunition and firearms for all FBI Agents. Field Agents routinely referred local
26 and state partners to me for ballistic information and advice.

27 During my service at the BRF, a strong liaison was formed with the
28 Department of Defense (DOD). The BRF performed testing for and consultation

1 with the DOD on many occasions. My expertise has been, and continues to be,
2 sought out and relied upon by the Special Operations Community. During my
3 service at the BRF, the Department of Defense Law of War Chair established
4 protocol that all new DOD small arms munitions required testing and evaluation by
5 the FBI BRF prior to legal authorization being granted for their use.

6 I have been a participant in a number of government sponsored Integrated
7 Product Teams researching ballistics, including:

8 Joint Services Wound Ballistics
9 Lead Free Ammunition
10 Protective Armor
Armor Piercing Ammunition development

11 In 2002, I traveled to Darligen, Switzerland, at the specific request of the
12 Department of State, to represent the United States in discussions of wound
13 ballistics.

14 I have provided numerous live-fire terminal ballistic demonstrations to local,
15 state and federal law enforcement officers as well as to all branches of the United
16 States Military.

17 I have conducted international presentations on wound ballistics, ammunition
18 selection, weapon selection, sniper operations and body armor.

19 I have briefed the Secretary of the Army and provided, at his request, my
20 professional opinion of a 5.56mm NATO cartridge intended to replace the M855.

21 I have functioned (and continue to) as the primary instructor of 57 Basic Law
22 Enforcement Sniper/Observer schools. Approximately 1,091 students have
23 successfully completed this course under my instruction.

24 I consistently received high performance ratings in the FBI. I received the
25 highest possible, "Outstanding", each of the last 4 years of my service. I have
26 received numerous letters of commendation and performance awards.

27 I was the 2008 recipient of the National Defense Industrial Association Joint
28 Armaments Committee's Gunnery Sergeant Carlos Hathcock Award.

1 Publications I authored during my FBI employment and restricted to official
2 law enforcement or government request:

3 Review of Accuracy 1st Training
4 Weapon Selection – Revision III
5 Ammunition Selection 2007
6 TSWG MURG Briefing Accuracy Expectations
7 AIM III TSWG Briefing 3/16/2010
8 Wound Ballistics
9 B2 Sniper Rifle Cleaning Method

10 Publication I authored during my FBI employment that is publicly available:

11 FBI Body Armor Test Protocol

12 Publication that I have co-authored that is publicly available:

13 Terminal Ballistics: The Science of Ballistic Projectile Wounding

14 I currently teach a two-hour basic wound ballistics class for recruits at the
15 Law Enforcement Academy-Tuscaloosa, a branch of the Alabama Peace Officers
16 Standards & Training Commission. I also teach an annual eight hour wound
17 ballistics and ammunition selection class at the Tuscaloosa Police Department,
18 Tuscaloosa, Alabama.

19 **OPINIONS AND ANALYSIS**

20 It is my opinion that Colonel (Ret.) Tucker's report is plagued by inaccuracies
21 and opinions that are contradicted by fact.

22 His claim that a single small arms projectile is capable of "severing the upper
23 body from the lower body, or decapitation" is so ridiculous that it should, and
24 actually does, cast doubt on his qualifications as an expert in the field of firearms,
25 particularly as it relates to wound ballistics.

26 Additionally, there is an inconsistency in his opinion in that, at one point, he
27 states that stabilizing attributes (pistol grips) are inappropriate for self-defense while
28 in the next point he says an attribute (folding stock) is inappropriate for self-defense
because it is destabilizing.

1 Examples and explanations supportive of my opinion follow. For clarity, I
2 have placed Colonel (Ret) Tucker's words in italics.

3 It is important to define and understand the words "Caliber", "Cartridge",
4 "Round" and "Yaw". Appropriate definitions can be found in the Glossary on the
5 website of the Sporting Arms and Ammunition Manufacturer's Institute (SAAMI):
6 <https://saami.org>

7 **Caliber**

- 8 1. A term used to designate the specific cartridge(s) for which a firearm is
9 chambered.
- 10 2. Firearms: The approximate diameter of the circle formed by the tops of
11 the lands of a rifled barrel, often expressed in hundredths of an inch
12 (".38 caliber") or millimeters ("7mm Caliber).
- 13 3. Ammunition: A numerical term included in a cartridge name to
14 indicate a rough approximation of the bullet diameter.

15
16 **Cartridge** – A single round of ammunition consisting of the case, primer and
17 propellant with or without one or more projectiles. Also applies to a shotshell.

18
19 **Round** – One complete small arms cartridge.

20
21 **Yaw** – The angle between the longitudinal axis of a projectile and a line
22 tangent to the trajectory through the center of gravity.

23
24 Page 5, line 18 – *The AR-15 and M4 are both designed to fire a .223 round...*

25 This statement is inaccurate inasmuch as AR-15 type rifles and pistols have
26 been manufactured in a multitude of calibers, to include .223 Remington (.223).
27 Additionally, the M4, is not chambered for .223 but for the similar 5.56x45mm
28 NATO (5.56mm NATO).

1 Page 5, Line 18 - ...*that tumbles upon hitting flesh and rips thru the human*
2 *body.*

3 The projectile is the only portion of a “Round” that is expelled significantly
4 forward of the firearm upon firing. Those components not consumed by the
5 discharge are ejected out the side of the AR-15/M4. I proceed under the assumption
6 that Colonel (Ret.) Tucker’s opinions on the terminal performance of a “round” are
7 actually referring to the projectile as opposed to the entire cartridge.

8 In my opinion, it is factually inaccurate and misleading to state or imply that
9 either the AR-15 or the M4 have been designed solely to fire any singular type of
10 projectile.

11 Cartridges typically are manufactured with varying types of projectiles. For
12 example, I have consulted with the U.S. Military (including the USMC) on the
13 effectiveness of at least the following 5.56mm NATO cartridges which contain
14 different projectiles:

15 M193 – A 2-part projectile consisting of a copper jacket and a lead
16 slug.

17 M855 – A 3-part projectile consisting of a copper jacket, a lead slug
18 and a steel penetrator.

19 M855 A1 – A 3-part projectile consisting of a copper jacket, a non-
20 lead slug and a steel penetrator.

21 MK318 Mod-1 SOST – A 2-part projectile containing a copper jacket
22 and a non-lead slug.

23 MK 262 Mod-1 – A 2-part projectile consisting of a copper jacket and
24 a lead slug.

25 Inasmuch as it is inaccurate to state that either of the discussed firearms was
26 designed specifically to fire a single type of projectile, it is similarly inaccurate to
27 state that they were designed to fire a projectile “that tumbles upon hitting flesh and
28 rips thru the human body”.

1 The firearms community has traditionally used the term “Tumble” to indicate
2 a projectile overturning when in contact with tissue. The more correct word is
3 “Yaw”.

4 When using “Tumble”, it is easy to envision a projectile turning end over end,
5 similar to a gymnast “tumbling” across a gymnasium floor. This is misleading as I
6 have witnessed very few projectiles that actually make a complete revolution of
7 point forward - base forward – point forward in tissue simulant or animal tissue.

8 It is quite common for a projectile to yaw or turn in tissue. This yaw can
9 continue until the projectile base is traveling forward.

10 In my training and experience, projectiles can deform, expand, fragment
11 and/or a combination of all three. Yaw is typically seen most while a projectile
12 remains intact. It can contribute to expansion and fragmentation.

13 Page 5, line 19 - *A single round is capable of severing the upper body from*
14 *the lower body, or decapitation.*

15 As previously pointed out, the statement is unsupported by any reference and
16 is so ridiculous as to bring discredit to the entire opinion.

17 In almost 26 years of professional involvement in the field of wound
18 ballistics, I have never heard, even anecdotally, of an incident wherein a person was
19 decapitated or their upper body was severed from their lower body as a result of
20 being shot by a single projectile fired from any small arm. It is notable that the
21 .223/5.56 is on the lower end of terminal performance potential of the vast calibers
22 available in centerfire rifles. In fact, the .223/5.56 is below the allowable minimum
23 cartridges for deer hunting in some states.

24 Additionally, since reading Colonel (Ret.) Tucker’s supplemental report, I
25 have shared that statement with many associates in the firearms field. All have
26 questioned the credentials of an “expert” that would make such a claim.

27 It is my opinion that no examples have been provided because such
28 performance has never been witnessed.

1 Page 5, line 20 - *The round is designed to kill, not wound...*

2 The vast majority of cartridges or projectiles can reasonably be described as
3 “designed to kill”. Other than specialized cartridges, typically marketed as “Less
4 than Lethal”, I am unaware of any cartridge or projectile that is “designed to
5 wound”.

6 Page 5, Line 21 - *...both the AR-15 and M4 contain barrel rifling to make the*
7 *round tumble upon impact and cause more severe injury.*

8 The aforementioned Glossary of the SAAMI defines “Rifling” as:

9 Any type of spiral internal bore feature of the barrel wall that imparts
10 spin on the projectile for the purpose of stabilizing it in flight. This
11 may be a series of lands and grooves, polygonal, hexagonal, or other
configurations.

12 It defines “Twist” as:

13 The distance required for one complete turn of rifling usually
14 expressed as a ratio, e.g., 1 in 10 inches.

15 The AR-15 was originally manufactured with a 1:14 twist rate but has also
16 been offered with faster twist rates (I am aware of more than 5 others). To my
17 knowledge, the M4 has only been offered with a 1:7 twist rate (twice as fast as 1:14).

18 Inasmuch as it is inaccurate to refer to the “rifling” as a static feature of “Both
19 the AR-15 and M4”, it is similarly inaccurate to state that they “contain barrel rifling
20 to make the round tumble upon impact and cause more severe injury.” As the
21 aforementioned definition states, the rifling exists for the purpose of stabilizing the
22 anticipated projectiles fired while they are in flight, an aspect of external ballistics.
23 Faster twist, as seen in the 1:7 rate of the M4 vs. the 1:14 twist of the original AR-
24 15, results in greater stability and increased resistance to yaw.

25 Page 5, Line 25 – *Automatic rifles, like the M-16 and its more modern carbine*
26 *variant M4, are functionally similar to semiautomatic rifles regulated under*
27 *California’s AWCA and often are equipped with the very same features, like pistol*
28 *grips and adjustable stocks. It is my opinion, based on my military service, that*

1 *these features, individually and in combination, make semiautomatic rifles more*
2 *lethal and most useful in combat settings, as described in more detail below.*

3 Pistol grips and adjustable stocks help increase the ability of a shooter to
4 control a firearm. Firearms, by their very nature, are dangerous weapons. They are
5 capable of launching projectiles which have the potential to seriously injure and
6 potentially kill. Increasing the ability to control a dangerous device is not a benefit
7 solely limited to combat. It is something that should be sought for all firearms in all
8 contexts. There is no legitimate reason to inhibit any model of firearm's accuracy or
9 controllability.

10 Page 6, Line 9 – *Changing magazines during intense combat is the most*
11 *important individual skill taught to Marines.*

12 Though I have never served in the military, all training that I have received
13 says that the ability to hit the target (Marksmanship) is a more important skill than
14 “changing magazines during intense combat” or in my case, use of a firearm in
15 defense of myself or others.

16 Page 6, Line 13 - *In a civilian self-defense context, by contrast, an individual*
17 *would not have a need for such a high rate of fire.*

18 First, Colonel (Ret.) Tucker conflates volume of projectiles fired with rate of
19 projectiles fired. The rate he quotes, 45 rounds/minute, is equivalent to
20 approximately 1 round in 1.3333 seconds. Time is of the essence in situations
21 wherein one's life is in danger. It is certainly reasonable to believe that a person in a
22 self-defense situation would have a need to fire 1 round every 1.3333 seconds (e.g.,
23 3 rounds in about 4 seconds). In any event, Col. (Ret.) Tucker's point is irrelevant
24 because none of the features that can qualify a semiautomatic, centerfire rifle with a
25 non-fixed magazine as an “assault weapon” (pistol grip, flash suppressor,
26 adjustable/folding stock) affects the rifle's rate of fire or its capacity for ammunition.
27 A civilian can have the same “rate of fire” or ammunition capacity regardless of
28 whether the rifle is an “assault weapon.”

1 Page 6, line 18 – *The pistol grip beneath the action of an automatic rifle*
2 *serves only two purposes. First, the pistol grip allows the rifleman to pull the rifle*
3 *into her (sic) shoulder with each shot, an action which increases stock weld, reduces*
4 *semi-automatic/automatic recoil, and reduces barrel rise.*

5 I do not disagree with Colonel (Ret.) Tucker’s opinion on two of the
6 advantages of a pistol grip beneath the action. However, there are other advantages
7 as well, which I’ll address later. Increasing stock weld, reducing recoil and
8 reducing barrel rise all lead to improved control of the firearm and accuracy. The
9 disagreement is only to Col. (Ret.) Tucker’s value of that purpose. As previously
10 stated, improving control of any firearm is a desirable endeavor for both combat and
11 self-defense, not a negative feature.

12 Practically all shoulder-fired weapons have a “pistol grip”. Some are more
13 horizontal than others. For purposes of this discussion, I will assume that Colonel
14 (Ret.) Tucker is referring to pistol grips that are more vertical, such as those
15 typically found on the AR-15 and M4 firearms as issued to the U.S. Military.

16 Ergonomics is the primary purpose of the pistol grip. The use of a near-
17 vertical pistol grip far predates the AR-15 series of rifles. For example, the
18 Thompson Sub Machine Gun had a near-vertical rear pistol grip. Some versions
19 also had a near-vertical forward pistol grip.

20 The vertical pistol grip design is easier to operate with one hand than less-
21 pronounced pistol grips, such as those found on the M1 Garand. This is because it
22 places the hand in a location where the user can manipulate the rifle’s primary
23 controls, including the trigger and selector (safety). This can also be of particular
24 benefit when needing to use one hand to hold a flashlight or call 911.

25 This would certainly be a desirable attribute of a firearm used for self-defense.
26 Anything that decreased ergonomics could lead to a failure to defend oneself.

1 Page 6, line 24 - *Absent any pistol grip, a semi-automatic rifle would be*
2 *difficult to operate when fired rapidly, as the rifle barrel would seesaw up and down*
3 *with each shot fired in succession.*

4 The above statement, combined with a prohibition on vertical pistol grips on
5 civilian-owned semi-automatic rifles, appears to infer that any semi-automatic rifle
6 suitable for self-defense should be difficult to operate, or at least at certain rates of
7 fire. That is counterintuitive and finds no support in any training materials I have
8 ever reviewed.

9 Additionally, the statement can be proven false simply by pointing out that the
10 M1 Carbine, M1 Garand, M14 and BAR rifles were all used by the USMC, with
11 great effectiveness, despite not possessing a vertical pistol grip. Indeed, the infamous
12 Lieutenant General George S. Patton, Jr. described the M-1 Garand as “the greatest
13 battle implement ever devised.” That rifle has no vertical pistol grip, no flash
14 suppressor, no adjustable/folding stock, and its magazine is fixed as far as California
15 law is considered.

16 Page 7, line 3 – *The forward pistol grip provides leverage to tighten a stock*
17 *weld on short-barrel automatic weapons and reduces recoil and barrel rise on*
18 *short-barrel automatic rifles. Forward pistol grips were added to the M4 to*
19 *increase the M4 killing efficiency.*

20 The statement specifically refers to “short barrel automatic rifles” a class of
21 firearms not contemplated under California’s Assault Weapon Control Act.

22 Furthermore, I am unaware of any evidence that this statement is true. As
23 previously mentioned, pistol grips are used for ergonomics and control. A forward
24 pistol grip is similarly used to enhance control.

25 Although Colonel (Ret.) Tucker mentions the forward pistol grip’s ability to
26 “increase the M4 killing efficiency”, most Thompson Submachine Guns exhibiting
27 this trait were civilian weapons. The M1 Thompson most commonly issued to the
28 U.S. Military did not have a vertical pistol grip. The U.S. Military, prior to WWII,

1 purchased the 1928A1 model Thompson, lacking a forward pistol grip. During
2 WWII, the Thompson was modified into the M1 and M1A1 models, both lacking a
3 forward pistol grip.

4 Page 7, Line 7 –*A folding stock causes weapon instability.*

5 Not all folding stocks are the same. There are numerous examples of folding
6 stocks that are stable when deployed. Additionally, the M4, as issued, has a
7 telescoping stock, not a folding stock. There are aftermarket accessories that will
8 allow for a folding stock on an M4 but, in my experience, they are the exception on
9 AR-15/M4 rifles/carbines. The folding adapters for typical AR-15/M4 series of rifle
10 are not capable of semi or full automatic fire with the stock folded.

11 Page 7, line 12 - *Outside of the military context, folding stocks that are not*
12 *properly locked in place can cause significant safety risks to the shooter due to*
13 *recoil.*

14 I am unaware of any reports, even anecdotally, of recoil injuries received by
15 any shooter of a .223 or 5.56mm NATO chambered pistol or rifle fired with an
16 unlocked folding stock.

17 A telescoping/adjustable stock enables the length of pull of a firearm to be
18 quickly adjusted to fit people of different sizes. It is well understood that a stock
19 fitted to a tall person would likely be too long for a short person. The
20 aforementioned SAAMI Glossary defines length of pull as:

21 The distance from the center of the trigger to the center of the
22 buttplate or recoil pad.

23 Additionally, because it allows for a more compact overall size, it enhances
24 the user's ability to maneuver in the tight spaces of a home.

25 Page 7, Line 23 – *The purpose of the flash suppressor is to reduce combat*
26 *signature by cooling and disbursing burning gases. This makes it more difficult for*
27 *the enemy to pinpoint a rifleman's location, especially in low light conditions. The*
28 *flash suppressor facilitates night combat operations by reducing muzzle flash and*

1 *mitigating muzzle flash impact on night vision goggles. This accessory serves*
2 *specific combat-oriented purposes and is not needed for self-defense.*

3 Flash suppressors dissipate the bright light created by the burning of residual
4 propellant once the projectile exits the muzzle. This dissipation of light reduces the
5 level of light exposure experienced by the shooter and can shorten the recovery time
6 of vision in a dark environment. This shorter recovery time enables a more rapid
7 evaluation of the remaining threat and need, or lack thereof, to continue the
8 application of force. It is my opinion that any device which can shorten the recovery
9 time of vision in a dark environment is useful for self-defense.

10 The definition of “Flash Suppressor”, according to 11 CCR § 5471(r), says
11 nothing about hiding flash from those in the direct line of fire :

12 Any device attached to the end of the barrel, that is designed,
13 intended, or functions to perceptibly reduce or redirect muzzle flash
from the shooter’s field of vision.

14 Page 8, Line 5 – *Any increase to magazine capacity increases the killing*
15 *efficiency of the automatic rifle.*

16 California’s Assault Weapon Control Act only limits magazine capacity on
17 rifles with fixed magazines. Therefore, Colonel (Ret.) Tucker’s statement is
18 irrelevant.

19 Page 8, line 10 - *As noted above in connection with detachable magazines, an*
20 *individual using a rifle in self-defense would not need such a high, continuous rate*
21 *of fire.*

22 Once again, Colonel (Ret.) Tucker conflates rate of fire with volume of fire.
23 No explanation is provided as to why the appropriate number of cartridges for self-
24 defense use of a fixed magazine rifle has been determined to be 10 or less.

25 Page 8, Line 13 – *The AR-15 is an offensive combat weapon no different in*
26 *function or purpose than an M4.*

27 This contradicts his previous statement that the AR-15 and M4 differ in
28 function (automatic vs. semi-automatic fire).

1 The ability to use the AR-15, or any weapon, for offensive purposes does not
2 negate that it can also be used for defensive purposes, just like a handgun. Colonel
3 (Ret.) Tucker has not identified any military that employs the AR-15. Its use as a
4 combat tool thus has not been established. In my experience as a law enforcement
5 officer and trainer, the AR-15 is a preferred tool for defense of officers and
6 individuals.

7 Page 8, Line 14 – *In my opinion, both weapons are designed to kill as many*
8 *people as possible, as efficiently as possible, and serve no legitimate sporting or*
9 *self-defense purpose.*

10 In my opinion, the AR-15 was not designed to “kill as many people as
11 possible, as efficiently as possible”. The intent of the design was to be effective in
12 all anticipated use, including law enforcement and self-defense.

13 In any event, Colonel (Ret.) Tucker fails to explain why a weapon “designed
14 to kill as many people as possible, as efficiently as possible” could “serve no
15 legitimate sporting or self-defense purpose”.

16 Hunting, target shooting or self-defense cannot be considered to be
17 illegitimate simply by the choice of a particular type of firearm. It is the abuse or
18 misuse of any firearm that is illegitimate. I have personally provided training to FBI
19 Agents and other law enforcement officers in the use of the types of firearms being
20 discussed here. As I’ve stated in previous opinions, all legal law enforcement use of
21 firearms is defensive in nature.

22 Page 8, Line 19 – *Defensive combat is generally up close and very personal.*
23 *At that range, it is very difficult to use a rifle as a defensive weapon, except as a*
24 *blunt force instrument.*

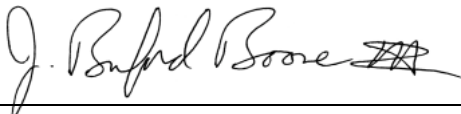
25 Defensive combat is not “generally up close and very personal”, though it
26 certainly can be. Soldiers attacked by long-range rifle fire who then respond with
27 fire of their own are certainly engaged in defensive combat.

1 A term common to both law enforcement and the military is “Close Quarters
2 Combat” (CQB). Although pistols can and have been employed for CQB purposes,
3 the use of an M4-style carbine is very common in both law enforcement and the
4 military. Over the past 20 years, there has been news coverage of U.S. Marines
5 engaged in or on their way to potentially engage in CQB. The vast majority of those
6 Marines were armed with M4 or M16 style carbines/rifles and/or squad automatic
7 weapons.

8 Page 8, Line 23 – *The features identified in California Penal Code § 30515(a)*
9 *enhance the lethality of both semiautomatic and automatic rifles and are most*
10 *appropriate for combat applications when used in conjunction with those types of*
11 *weapons systems.*

12 Despite a failure to define “enhance the lethality”, there is no explanation as to
13 why these features are most appropriate for combat and less appropriate for self-
14 defense.

15
16 I declare under penalty of perjury that the foregoing is true and correct.
17 Executed within the United States on February 3, 2023.

18 
19

20 J. Buford Boone III
21 Boone Ballistics, LLC
22 Member
23 P.O. Box 2370
24 Tuscaloosa, Al 35403
25
26
27
28

CERTIFICATE OF SERVICE
IN THE UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
SOUTHERN DIVISION

Case Name: *Rupp, et al. v. Becerra*
Case No.: 8:17-cv-00746-JLS-JDE

IT IS HEREBY CERTIFIED THAT:

I, the undersigned, am a citizen of the United States and am at least eighteen years of age. My business address is 180 East Ocean Boulevard, Suite 200, Long Beach, California 90802.

I am not a party to the above-entitled action. I have caused service of:

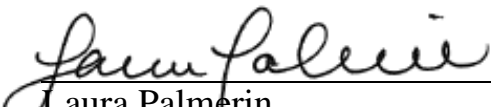
EXPERT WITNESS REBUTTAL REPORT OF J. BUFORD BOONE III

on the following party by electronic mail.

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I declare under penalty of perjury that the foregoing is true and correct.

Executed February 3, 2023.



Laura Palmerin

EXHIBIT 55

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Attorneys for Plaintiffs

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
SOUTHERN DIVISION

STEVEN RUPP, et al.,

Plaintiffs,

vs.

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

Defendant.

Case No.: 8:17-cv-00746-JLS-JDE

**EXPERT WITNESS REBUTTAL
REPORT OF GARY KLECK**

1 **My Qualifications**

2 1. I am an emeritus Professor of Criminology and Criminal Justice at
3 Florida State University. I received my doctorate in Sociology from the University
4 of Illinois in 1979, where I received the University of Illinois Foundation Fellowship
5 in Sociology. I was, at the time of my retirement in May, 2016, the David J. Bordua
6 Professor of Criminology at Florida State University, where I served on the faculty
7 from 1978 to 2016. My research has focused on the impact of firearms and gun
8 control on violence, and I have been called "the dominant social scientist in the field
9 of guns and crime" (Vizzard, 2000, p. 183).

10 2. I have published the most comprehensive reviews of evidence
11 concerning guns and violence in the scholarly literature, which informs and serves as
12 part of the basis of my opinions. I am the author of Point Blank: Guns and Violence
13 in America, which won the 1993 Michael J. Hindelang Award of the American
14 Society of Criminology, awarded to the book of the previous several years which
15 "made the most outstanding contribution to criminology." I also authored Targeting
16 Guns (1997) and, with Don B. Kates, Jr., The Great American Gun Debate (1997)
17 and Armed (2001) – books that likewise addressed the topic of guns and violence.

18 3. I have also published scholarly research articles in virtually all of the
19 leading professional journals in my field. Specifically, my articles have been
20 published in the American Sociological Review, American Journal of Sociology,
21 Social Forces, Social Problems, Criminology, Journal of Criminal Law and
22 Criminology, Law & Society Review, Journal of Research in Crime and
23 Delinquency, Journal of Quantitative Criminology, Law & Contemporary Problems,
24 Law and Human Behavior, Law & Policy Quarterly, Violence and Victims, Journal
25 of the American Medical Association, and many other scholarly journals.

26 4. I have testified before Congress and state legislatures on gun control
27 issues, and worked as a consultant to the National Research Council, National
28 Academy of Sciences Panel on the Understanding and Prevention of Violence, as a

1 member of the U.S. Sentencing Commission's Drugs-Violence Task Force, and as a
2 member of the Institute of Medicine and National Research Council Committee on
3 Priorities for a Public Health Research Agenda to Reduce the Threat of Firearm-
4 Related Violence. I am a referee for over a dozen professional journals, and serve as
5 a grants consultant to the National Science Foundation.

6 5. Finally, I have taught doctoral students how to do research and evaluate
7 the quality of research evidence, and have taught graduate courses on research
8 design and causal inference, statistical techniques, and survey research methodology.
9 My current curriculum vitae is attached as Exhibit 1.

10 6. I am being compensated for my work at the rate of \$400 per hour.

11 **Response to Lucy Allen Supplementary Expert Report**

12 ***Few Mass Shootings Involve Large-Capacity Magazines (LCMs)***

13 7. Allen claims that there is substantial benefit to banning LCMs because
14 a large share of mass shooting involve the use of LCMs (defined herein as
15 magazines holding more than 10 rounds). She is only able to sustain this claim by
16 limiting her analysis to a trivially tiny and unrepresentative subset of mass
17 shootings, *public* mass shootings. She claims she did this because “it is my
18 understanding that the state of California is concerned about public mass shootings
19 and enacted the challenged laws, in part, to address the problem of public mass
20 shootings” (p. 4). Her “understanding” is both subjective and unsupported by any
21 evidence pertaining to legislative intent behind enactment of California’s ban on
22 LCMs and assault weapons (AWs). Indeed, defense expert Louis Klarevas’
23 description of California’s legislative intent (Klarevas 2023, p. 23) indicates that
24 concern about mass shootings was *not* limited to those occurring in public places.
25 The fact that the State of California is concerned about public mass shootings does
26 not mean it is not concerned with all the other shootings that do not fall into this
27 narrow category. Further, Allen’s own statement concedes that California’s assault
28 weapons ban (AWB) was enacted only “in part” to address these kinds of shootings,

1 and thus must have also been based on concerns about other kinds of gun violence.
2 Thus, her proffered explanation does not justify her narrow focus. It will be shown
3 later that the narrowness of her focus produces some highly misleading results.

4 8. First, it should be made clear just how narrow her focus is. Less than
5 1% of all U.S. murder victims are killed in *any* kind of a mass shooting, regardless
6 of location or other attributes. A Congressional Research Service (CRS) study
7 covering 1999-2013 found that 1,554 victims were killed in all mass shootings
8 (Krouse and Richardson 2015, p. 14), a period for which FBI data indicated that
9 there were 237,524 persons murdered (U.S. FBI 2013). Thus, only 2/3rds of one
10 percent of murders were part of a mass shooting of any kind
11 ($1,554/237,524=0.0065$). Second, even within this tiny subset of killings, only
12 20.8% of mass shooting incidents were public mass shootings (Krouse and
13 Richardson 2015, p. 29). The 446 victims killed in public mass shootings therefore
14 accounted for 0.00188 of U.S. murder victims, or just 1 in 533 victims. Thus, public
15 mass shootings contribute an even tinier share of firearms violence than mass
16 shootings as a whole. Allen's focus on this set of killings likewise cannot be
17 justified on the basis of their constituting a significant share of America's violence.

18 9. The main consequence of this extremely narrow focus is that it allows
19 Allen to make the misleading claim that a large share of killings involve use of
20 LCMs. LCMs are of little or no significance in ordinary gun crimes with few
21 victims and few shots fired (Kleck 1997, pp. 121-128; 2016), so advocates of LCM
22 restrictions claim that their benefit is most likely to lie within the set of mass
23 shootings, where many shots are fired and LCMs supposedly increase the casualty
24 count. However, even within this subset of violent crimes – mass shootings as a
25 whole - LCMs are rarely involved (Kleck 2016). The Violence Policy Center
26 (2023), which advocates bans on LCMs, was able to identify only 29 incidents with
27 four or more dead (excluding the shooter) over the 9 year period from 2014 through
28 2022 that involved LCMs – about 3 per year in the entire United States (note that

1 this organization inflated their numbers somewhat by including incidents involving
2 only three dead victims besides the shooter and by counting shooters in their
3 victims-killed totals; they been excluded here).

4 10. Over the 38 year period from 1980 through 2017, VPC-identified
5 incidents with four or more dead victims accounted for 534 murdered victims, or
6 about 14 per year. Over this same period, the FBI (2017) reports a total of 704,651
7 murders (assuming the same number of murders in 2017 as in 2016). Thus, mass
8 shootings (4+ dead) known to involve LCMs accounted for just 0.000758 of murder
9 victims, or 1/13th of one percent (Kleck 2016).

10 11. *Public* mass shootings account for an even tinier fraction of U.S.
11 homicide deaths, and are far more likely to involve “assault weapons” or LCMs.
12 The Congressional Research Service found that only 9.78% of all mass shootings in
13 1999-2013 involved “assault weapons,” but in the minority of incidents that were
14 *public* mass shootings, 27.3% (18 or 66) involved use of “assault weapons” (Krouse
15 and Richardson 2015, p. 29). In sum, it is only within the tiny subset of *public* mass
16 shootings that a nonnegligible share involve use of LCMs. Thus, arbitrarily limiting
17 her analysis to these extremely rare and unrepresentative public mass shootings
18 thereby allowed Allen to report misleadingly high shares of the incidents as
19 involving AWs or LCMs.

20 12. LCM use is even less relevant to the vast majority of criminal violence
21 that does not involve large numbers of victims. Criminals rarely fire large numbers
22 of rounds in a given gun crime incident, so possession of magazines capable of
23 holding more than ten rounds of ammunition merely provides, in the typical violent
24 gun crime, surplus rounds that are not fired and thus cannot injure additional
25 victims. A study of Jersey City, NJ, found that offenders did not even fire a single
26 shot in over two-thirds of crimes in which the offender was armed with a handgun
27 (Reedy and Koper 2003, p. 153). Of all violent crimes in which handguns *were*
28 fired, only 2.5-3.0% involved more than 10 rounds being fired by the offender (p.

1 154). Even if we consider only incidents in which semi-automatic pistols *were* fired,
2 only 3.6-4.2% of the incidents involved over 10 rounds being fired, which is in turn
3 only 1.7-2.0% of *all* handgun violent crimes (whether the gun was fired or not). The
4 average number of rounds fired was 3.23-3.68 in semi-automatic pistol incidents in
5 which the gun was fired, and 2.30-2.58 in revolver incidents in which the gun was
6 fired. Likewise, a study of gun homicides in Philadelphia found even fewer shots
7 fired per incident than in the Jersey City study – only 2.7 shots per semi-automatic
8 pistol killing in 1990 (McGonigal et al. 1993).

9 13. The only kind of shootings in which large numbers of rounds are
10 commonly fired are mass shootings, incidents that involve many victims.
11 Notwithstanding the massive news media attention paid to them, mass shootings are
12 rare in absolute terms. For the most recent year for which we have complete data,
13 2022, there were 36 known incidents with or more four persons killed (Gun
14 Violence Archive 2023).

15 ***Mass Shooters Do Not Need LCMs to Inflict Large Numbers of Casualties***

16 14. Even in the extremely rare mass shootings in which large numbers of
17 victims were shot, and the shooters used LCMs, they virtually never needed LCMs
18 to injure or kill as many victims as they did, because they either (a) possessed
19 multiple guns, (b) possessed multiple magazines, or (c) had ample time and
20 opportunity to reload, using smaller-capacity magazines (Kleck 2016). Therefore,
21 even the hypothetical potential for reducing harm or improving the public's safety
22 by limiting magazine capacity to no more than 10 rounds can be fairly described as
23 being limited to a tiny number of extremely rare events.

24 15. One earlier study of 15 mass shootings with more than six victims
25 wounded or killed that occurred in the United States over a ten year period (1984-
26 1993 inclusive) found that offenders possessed multiple guns in thirteen of the
27 fifteen incidents (about 87%). The killers in these mass shootings did not need
28 LCMs to quickly fire large numbers of rounds or wound large numbers of victims –

1 they either just switched loaded guns or reloaded their guns without interference
2 from bystanders (Kleck 1997, pp. 124-126, 144).

3 16. A more recent study of incidents with more than 6 victims were killed
4 or wounded, covering 1994-2013, found that in *every single case*, the shooters
5 possessed either multiple guns or multiple magazines (Kleck 2016). Thus, they
6 could continue firing with no significant pause for reloading, either by switching
7 guns or reloading detachable magazines, which takes only 3-4 seconds (Kleck
8 2019).

9 17. Setting aside Allen's focus on a tiny unrepresentative subset of mass
10 shootings, what share *all* mass shootings involve use of LCMs? The most
11 comprehensive listing of such incidents has been compiled by the Violence Policy
12 Center (VPC), an advocacy organization that favors strong gun control laws and
13 specifically supports bans on LCMs. Thus, VPC staff are well-motivated to locate
14 every mass shooting involving the use of an LCM. VPC bases their data on news
15 media reports, so the only LCM-involved mass shootings they are likely to miss
16 would be those that every single news outlet they searched failed to note LCM
17 involvement. The most comprehensive listing of *all* mass shootings (regardless of
18 LCM involvement) can be found in the Gun Violence Archive (2023). Based on
19 these two sources, the following table displays (1) the total number of incidents in
20 which 4 or more victims were killed, and (2) the number of these incidents in which
21 an LCM was known to have been used. The data cover the most recent years for
22 which data are available, a period when, according to defense expert Louis Klarevas,
23 LCM-involved mass shootings were at their most frequent.

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Table 1. The Share of Mass Shootings in Which LCMs Were Used, 2014-2022

Year	Total Mass Shootings	LCM-involved Mass Shootings
2014	16	0
2015	21	4
2016	25	4
2017	18	4
2018	15	3
2019	30	4
2020	19	0
2021	22	5
2022	35	5
2014-2022	201	29

18. Thus, even in the period when mass shootings and LCM-use was at its highest, only 14% ($29/201=0.14$) of all mass shootings involved use of LCMs – a far cry from Allen’s 63% (p. 25). It would be more accurate to say that mass shooters *rarely* use LCMs.

19. One circumstance in which use of an LCM might affect the number of casualties, even if the shooter possessed multiple guns or multiple magazines, is one in which there were bystanders willing to tackle the shooter during his attempt to change magazines or firearms. The use of an LCM prior to that time could affect the number of victims shot, since the killer would have fired more rounds before needing to reload or switch guns, and before being tackled. There is, however, just one LCM-involved mass shooting in the past 25 years in which intervenors tackled the shooter while he *may* have been reloading a semiautomatic gun – the incident in Tucson, AZ in which a man tried to kill Representative Gabrielle Gifford.

20. Even regarding this unique incident, however, key details are in dispute, making it unclear whether bystanders intervened while the shooter was reloading, as opposed to dealing with a jammed gun resulting from a defective magazine. The shooter was indeed tackled by bystanders, but law enforcement examination of the shooter’s magazines indicated that a spring in one of his magazines had broken (*New York Times* January 10, 2011, p. A1). Thus, the shooter may have been struggling

1 with a jam caused by the defective magazine when he was tackled, rather than
2 reloading. The distinction is critical because magazines of any size can malfunction,
3 and this sort of opportunity for bystander intervention therefore could occur
4 regardless of the capacity of magazines used by mass shooters and regardless of
5 whether LCMs were banned. I know of no other mass shootings in the past 25 years
6 in which the shooter was disrupted by bystanders while the shooter was attempting
7 to reload or switch guns. Other cases in which it was claimed that a mass shooter
8 using semi-automatic firearms was tackled by bystanders while reloading turn out to
9 instead involve shooters struggling with a jammed gun.

10 21. It might also be speculated that, if mass shooters were denied LCMs,
11 and consequently had to reload more often, this would slow the shooter's average
12 rate of fire and extend the time the killer was not shooting, allowing some
13 prospective victims additional time to escape. While this speculation has some *a*
14 *priori* plausibility, it is nevertheless inconsistent with the rates of fire sustained in
15 actual mass shootings. A change of the box-type magazines used in semi-automatic
16 pistols and rifles takes no more than 3-4 seconds, and possibly even less, depending
17 on the shooter's skill. Virtually all mass shooters, however, fire their guns at an
18 average rate no faster than one round every 2 seconds, and usually fire at even
19 slower rates. That is, the time interval that shooters need to change magazines is
20 shorter than the interval between shots fired by actual mass shooters even when they
21 are *not* reloading (Kleck 2016). Thus the need to switch magazines would almost
22 never slow the rate of fire maintained by mass shooters, and would therefore almost
23 never give victims additional time to escape during pauses in the shooting.

24 22. Kleck (2016, Table 3) summarized data on all 25 known LCM-involved
25 mass shootings in the U.S. during 1994-2013 for which news media accounts
26 provided information on both the number of shots fired and the time span in which
27 shots were fired, thereby allowing reasonable estimates of rates of fire. Only 3
28 shooters of the 21 total took less than 2 seconds per shot fired, and only 6 took under

1 4 seconds. Even with this handful of incidents with unusually rapid fire, however,
2 the difference between (a) the 1.4 or 1.6 seconds average interval between shots
3 observed in the two incidents with the fastest rates of fire, and (b) the 3-4 seconds
4 that it takes to change a detachable magazine is not likely to even be perceptible to
5 would-be intervenors. That is, they would be unlikely to even be aware of the very
6 slight slowing of the killer's rate of fire necessitated by his changing of magazines.
7 In sum, even if LCM bans forced some mass shooters to use smaller capacity
8 magazines and therefore change magazines earlier and/or more often, it is highly
9 unlikely that it would perceptibly reduce those offenders' rate of fire and thereby
10 allow victims to take additional evasive actions that they otherwise would not have
11 been able to take.

12 23. While limits on magazine capacity are not likely to affect mass
13 shooters, they could impair the ability of some citizens to engage in lawful self-
14 defense, in those crime incidents necessitating that the victim fire many rounds in
15 order to stop the aggressive actions of offenders. In contrast to mass shooters,
16 victims of crimes generally cannot plan for or anticipate crimes to occur at a specific
17 time and place since these things are within their control. Therefore, they ordinarily
18 cannot plan, as mass shooters do, to have many loaded guns and/or numerous
19 magazines with them at the times and places in which particular crimes against them
20 might occur. Victims who wish to defend themselves with firearms – especially if
21 they were carrying their gun in a public place - usually have to make do with a
22 single available gun and its ammunition capacity. Consequently, if their one gun or
23 magazine's capacity was limited to 10 or fewer rounds, this means they could not
24 fire more than 10 rounds at offenders attempting to harm them. Further, persons
25 who are law-abiding would be unlikely to simply violate the law and acquire banned
26 LCMs, as criminals do.

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28 ///

The Number of Defensive Gun Uses with Over 10 rounds Fired is Far Greater than the Number of Crimes in Which LCM Use by the Offender Increased the Number of Casualties

24. Some defensive gun uses (DGUs) are likely to require large numbers of rounds being fired because (a) some crime victims face multiple offender adversaries who will not stop their aggression unless shot or fired upon, and because (b) typical crime victims will, under the stressful conditions of a crime victimization, miss with most of their shots. Regarding the first point, the 2008 U.S. Department of Justice's National Crime Victimization survey indicated that 17.4% of violent crimes in the United States involved two or more offenders, and that nearly 800,000 violent crimes occurred in 2008 in which the victim faced multiple offenders. Some of the victims in these 800,000 multiple-offender crimes would need to fire larger numbers of rounds to protect themselves because they would face multiple criminal adversaries.

25. As to how often victims can hit their intended criminal adversaries, a reasonable upper limit estimate of the marksmanship of crime victims can be inferred from a review of the many detailed studies that have been done of shootings by police officers in which the officers were trying to shoot criminal adversaries. In many of these shootings, the officers fired large numbers of rounds. Yet, in 63% of the incidents, the officers failed to hit even a single offender with even a single round (Geller and Scott 1993), implying a 37% "hit rate." "Hit rate" here means the percent of *incidents* in which the police officer achieved at least one hit on a criminal, not the percent of *shots fired* that hit a criminal. Since some incidents involved multiple shots being fired, the fraction of shots that hit the criminal would necessarily be even lower than the fraction of incidents in which the shooter achieved at least one hit, i.e. under 37%. Police officers are more likely than civilians to have the experience, training, and temperament to handle stressful, dangerous situations, so marksmanship among civilians using guns for self-protection is likely to be even poorer than that of police officers. Certainly there is no reliable empirical evidence

1 that civilian marksmanship in such situations is better than that of police officers, so
2 civilians are likely to wound a criminal with less than 37% of their shots. Thus,
3 these data indicate that the typical crime victim would have to fire at least three
4 rounds in order to successfully wound each offender they tried to shoot. Crime
5 victims facing four offenders, for example, would therefore need, on average, at
6 least 12 rounds or more to wound all four of them. A ban on magazines with more
7 than 10 rounds would make it impossible to fire this many rounds using a single
8 magazine.

9 26. Lucy Allen nevertheless claims (p. 6) that virtually no defensive gun
10 uses (DGUs) involve more than 10 rounds being fired. This claim, however, is
11 based on two unreliable sources that use samples known to be biased and
12 unrepresentative of DGUs in general. Her first source is the incidents reported in a
13 National Rifle Association magazine, *The American Rifleman*. Allen concludes that
14 “it is rare for a person, when using a firearm in self-defense, to fire more than ten
15 rounds.” She does not confine this conclusion to persons whose defensive gun use
16 (DGU) was reported in the *American Rifleman*, but clearly intends it to apply to
17 American DGUs in general. The NRA’s database of “armed citizen” stories is not a
18 representative sample of DGUs, nor does the NRA even claim it to be so. Allen
19 herself does not claim that the NRA sample is representative of all DGUs. Indeed,
20 her own remarks indicate the opposite—she acknowledges the possibility of bias in
21 selecting cases “in favor of stories that put use of guns in self-defense in the best
22 possible light.” Therefore, there is no formal basis for generalizing the results of any
23 analysis of this sample to any larger population of DGUs.

24 27. The NRA sample of DGUs, however, is even worse than merely being
25 unrepresentative of DGUs in a general way. More specifically, there is strong reason
26 to believe that the sample will largely exclude DGU incidents in which the defender
27 fired more than 10 rounds. NRA staff nonrandomly select these incidents from news
28 media-reported cases of DGU, most of them submitted by readers of the “Armed

1 Citizen” feature of *American Rifleman*. Based on the content of these stories
2 published in the magazine, it is clear that they are selected to convey the impression
3 that DGU is an extremely legitimate and successful activity, engaged in by law-
4 abiding persons, for clearly legally justifiable purposes, carried out in clearly lawful
5 ways. The reality of the full array of DGUs is considerably more diverse, but the
6 NRA has a political agenda to portray DGU in as positive a light as possible.

7 28. Allen is quite right to note that the selection practices of NRA staff are
8 likely to favor inclusion of DGU stories that put DGU “in the best possible light.”
9 She does not, however, appear to understand how this bias would work regarding
10 stories in which defenders fired large numbers of rounds. It could not serve the
11 NRA’s purposes to disseminate accounts of DGUs in which the defenders appeared
12 to indiscriminately “fling lead,” firing arguably excessive numbers of rounds at their
13 adversaries. The more seemingly excessive the defender’s use of force appears to be,
14 the less likely it is that his actions would appear to a reader to be justifiable. Instead,
15 NRA staff would better serve their political ends by selecting stories of DGUs in
16 which the defenders faced serious threats, but used the minimum amount of force
17 needed to defend themselves, firing the fewest rounds needed to serve that purpose.
18 This would bias the sample of NRA-selected DGUs in the direction of excluding
19 cases in which many rounds were fired.

20 29. Even though the NRA sample is not representative of DGUs in general,
21 Allen’s analysis of the NRA sample does nevertheless establish one thing: DGUs in
22 which more than 10 rounds are fired do occur. Her analysis of the NRA sample of
23 identified two incidents in which over 10 rounds were fired, comprising 0.3% of the
24 defensive incidents - a frequency that Allen characterized as “rare.” This is indeed
25 rare in absolute terms, but mass shootings in which the use of a LCM conceivably
26 increased the casualty count are even rarer. Detailed examination of the way mass
27 shootings actually occur indicates that the number of incidents in which use of
28 LCMs is likely to have increased the number of victims killed or injured in a typical

1 year may well be zero (Kleck 2016).

2 30. Allen's second source of information on number of rounds fired in
3 DGUs shares the same fatal bias as her NRA-selected sample – it is likely to exclude
4 cases in which many rounds were fired by a defender. The second source was a set
5 of news-media reported incidents that Allen or her staff identified using an online
6 search of the Factiva database (Allen 2023, pp. 10-11). For a case to be uncovered
7 via this method, it would have to be one covered by a news outlet. News outlets,
8 however, would generally only know about cases known to the police, and DGUs
9 are only likely to become known to the police if the victim/defender chose to report
10 the incident to police. These defenders therefore face the same dilemma that NRA
11 staff selecting cases for the Armed Citizen column faced – DGUs in which large
12 numbers of rounds are fired are likely to look less legitimate, appearing to involve
13 excessive use of force by the defender. Defenders who fired over 10 rounds in self-
14 defense have good reason to anticipate police asking them why they fired so many
15 rounds, and thus good reason to refrain from reporting the incident to the police. In
16 sum, Allen's sample of Factiva-discovered DGUs would tend to omit cases with
17 many rounds fired, just as the NRA-selected sample did.

18 31. It is nevertheless worth considering the implications, for example, if
19 just 0.3% of all DGUs really did involve over 10 rounds being fired, as Allen's
20 results indicated. National surveys that have specifically asked about DGUs have
21 consistently indicated that 0.5-3.5 million DGUs occur per year in the U.S., so it
22 would be reasonable to assume an annual average of around 2 million DGUs (Kleck
23 2021). At least 21 professionally conducted national surveys have yielded estimates
24 of the national total of DGUs in this range (Kleck 2021). (Extant criticism of survey
25 estimates of DGU frequency has been uniformly uninformative due to critics'
26 exclusively one-sided focus on survey flaws that purportedly make the estimates too
27 large, while ignoring well-established problems in surveys that have the opposite
28 effect. More comprehensive consideration of the known flaws and limitations of

1 survey methods indicates that the vast majority of known problems would tend to
2 make DGU estimates too low [Kleck 2018]).

3 32. If the annual number of all DGUs was indeed 2 million, a 0.3% share
4 would imply a number of DGU incidents with over 10 rounds fired that was huge in
5 absolute terms—about 6,000 per year. The share of incidents with over 10 rounds
6 fired does not have to be very large in order for it to imply a huge absolute number
7 of such incidents – one that greatly exceeds the number of crimes in which LCM use
8 increased the harm inflicted on victims. In short, Allen’s own results from the
9 “Armed Citizen” analysis, taken at face value, imply that there are far more DGUs
10 each year in which the defender fired over 10 rounds than there are crimes
11 committed in which LCM use increased the harms inflicted.

12 33. Given current data limitations, no one, including Lucy Allen, really
13 knows the percent of DGUs by crime victims that involved use of LCMs or the
14 firing of more than 10 rounds, but the number is almost certain to be far larger than
15 the number of crimes in which LCM use caused a larger number of victims to be
16 injured or killed, simply because the latter number is close to zero. Table 1 herein
17 showed that from 2014 through 2022, there were only 29 mass shootings (4 or more
18 victims killed) in which an LCM was even used, whether or not its use increased the
19 casualty count. Thus, there were an average of just 3.2 mass shootings per year
20 ($29/9=3.2$) in the entire U.S. in which it was even theoretically possible that LCM
21 use increased the casualty count. The number in which this effect actually occurred,
22 however, was even lower. Only a single mass shooting with LCM use (the Giffords
23 incident) *may* have involved bystander intervention due to the shooter’s need to
24 reload, potentially supporting the theory that the casualty counts in mass shootings
25 would be lower if shooters denied LCMs would be stopped because they were
26 tackled by bystanders while they tried to reload.

27 34. In sum, even a tiny number of DGUs requiring an LCM for effective
28 self-defense would far outnumber criminal uses in which LCM use affected the

1 number of victims killed or injured.

2 35. Allen's report ignores the implications of differing rates of compliance
3 between criminals and noncriminal crime victims. By definition, criminals obey
4 laws at a lower rate than non-criminals, so violation of legal limits on magazine
5 capacity are likely to occur at a higher rate among criminals than among non-
6 criminals. Thus, a law like California's ban on LCMs will reduce possession of
7 LCMs more among non-criminal victims and prospective victims than among
8 criminal offenders. That is, a law like this will reduce DGUs by victims who needed
9 to fire large numbers of rounds to effectively defend themselves more than it will
10 reduce the number of crimes in which offender use of LCMs caused larger numbers
11 of victims to be killed or injured.

12 36. Victim DGU is generally effective (Tark and Kleck 2004). That is, it
13 makes it less likely the victim will be injured or lose property, and it does so to a
14 greater degree than other methods of victim self-protection. Analyses of data
15 generated by the U.S. Census Bureau's National Crime Victimization Survey
16 (NCVS) indicate that crime victims who use guns for self-protection are less likely
17 to be injured or lose property than victims who do not (Kleck 1988; Kleck and
18 DeLone 1993; Southwick 2000; Kleck 2001, Chapter 7; Tark and Kleck 2004).
19 More specifically, DGU is more effective in preventing serious injury than any other
20 victim self-protection strategy, among the 16 strategies covered in the NCVS (Tark
21 and Kleck 2004, pp. 891-894).

22 37. Consequently, a law such as California's ban on "assault weapons" and
23 LCMs not only reduces the number of DGUs that required an LCM to be effective,
24 but also reduces the average effectiveness of victim self-protection by forcing crime
25 victims who needed LCMs for effective self-protection to substitute some less
26 effective non-firearms defensive strategy once they expended the ammunition of
27 their lower-capacity firearm. This would in turn increase the likelihood of the
28 victims suffering injury or property loss.

1 38. These facts in combination logically lead to the conclusion that a law
2 limiting magazine capacity to no more than ten rounds will do more harm than good,
3 because it will reduce (a) the harm-*preventing* effects of victim DGU more than it
4 will reduce (b) the extremely rare harm-*causing* effects of offender use of LCMs.

5 39. This conclusion is also supported by actual experience with the federal
6 ban on LCMs (defined as holding over 10 rounds) that was in effect nationwide from
7 1994 to 2004. A U.S. Department of Justice-funded evaluation found that there was
8 “no discernible reduction in the lethality or injuriousness of gun violence during” the
9 period when the ban was in effect (Koper 2013, p. 165; see also Koper 2004, p. 96).

10 ***Allen Cannot Know if Use of AWs or LCMs Causes Higher Casualty Counts***

11 40. Allen accurately notes that casualty counts tend to be higher in
12 incidents in which AWs or LCMs are used by the offenders. In the absence of any
13 caveats, this is likely to suggest to unwary readers that AW/LCM use caused the
14 higher number of victims hurt. Certainly, Allen’s discussion (pp. 24-28) leaves that
15 impression, even though she does not explicitly assert a causal effect. The problem
16 is that one would expect higher casualty counts in incidents with AW or LCM use
17 even if use of such weapons had no actual causal effect of its own. Offenders more
18 intent on hurting many people would be more likely to do so (lethal intentions cause
19 lethal outcomes) but are also more likely to use weaponry they believe – correctly or
20 not – will help them achieve this goal (lethal intentions cause use of purportedly
21 more lethal weaponry. Unless the analyst controls for offender lethality, it is
22 impossible to establish that the association between AW/LCM use and casualty
23 counts is anything other than a spurious, noncausal correlation. Allen did not do
24 this, and thus has no basis for ruling out the possibility that there is no causal effect.

25 41. Details about how mass shootings occur support the proposition that
26 LCM use has no causal effect of its own, since there is no known mechanism by
27 which such a causal effect could operate that is supported by information on how
28 mass shootings occur. Allen herself offered no explanation of how or why use of

1 LCMs cause higher casualty counts. She just presented the crude bivariate
2 association between the two and let readers “draw their own conclusions.”

3 42. Some advocates of LCM bans, on the other hand have offered theories
4 of how LCM use could affect casualty counts (Kleck 2016). They have proposed
5 two potential mechanisms by which a causal effect could occur. First, they argue
6 that because use of LCMs allows shooters to fire many rounds before they have to
7 reload, this means that there are fewer opportunities for bystanders to tackle a
8 shooter who was using a gun equipped with a LCM. Conversely, if an LCM ban
9 like California’s actually blocked a would-be mass shooter from obtaining an LCM
10 and he had to attack without one, bystanders would have more chances to tackle the
11 shooter, and might do so earlier because the shooter would have to reload earlier.
12 This proposed mechanism is plausible only to the extent that mass shootings are
13 actually stopped by bystanders tackling the shooter while he is reloading.
14 Unfortunately, this virtually never happens in U.S. mass shootings. In the past 25
15 years, there are no mass shootings in which bystanders clearly tackled the shooter
16 while he was reloading, as distinct from struggling to clear a jammed gun, plus a
17 single ambiguous case where it is possible this happened (Kleck 2016).

18 43. The second causal mechanism proposed by advocates of LCM bans
19 also involves pauses to reloads, but is supposed to be due to the time it takes to
20 reload. Advocates argue that additional potential victims could escape or hide due to
21 the time the shooter devotes to reloading. Any harm prevention due to this
22 mechanism is thus a function of how long a reload takes and how much additional
23 time becomes available for victim evasive action, above and beyond what would
24 otherwise be available. Virtually all mass shootings involve pauses in firing, when
25 victims might take evasive action, even when the shooter is not reloading. The
26 relevant question is whether reloading creates *additional time*, beyond pauses not
27 due to reloading, which is sufficient for prospective victims to (a) realize that the
28 shooter is reloading, (b) appreciate that this means it is relatively safer to take

1 evasive action, and (c) then escape or hide.

2 44. Unfortunately, changing a detachable magazine of the type used with
3 semi-automatic firearms takes only 3-4 seconds (Kleck 2019), too brief a span for
4 these things to happen (Kleck 2016). A 3-4 second reload does not even slightly
5 slow shooters from the pace of shooting that mass shooters usually maintain. They
6 typically take well over 4 seconds between rounds even when not reloading, so a 3-
7 4-second reload would not extend the take available for victim evasive action,
8 beyond what would have been available anyway in the absence of reloading. Kleck
9 (2016) identified 25 mass shootings in which it was possible to determine the
10 shooter's rate of fire and found that only six averaged under 4 seconds per shot,
11 usually only slightly under. It is unlikely that prospective victims would even be
12 able to perceive a slowing of the rate of fire from, say, 2 seconds between shots to 4
13 seconds between shots while the shooter reloaded.

14 45. Advocates of LCM bans have, to my knowledge, only cited a single
15 mass shooting in which they assert that additional victims escaped or hid while the
16 shooter reloaded, and that citation turns out to be erroneous. The December 14,
17 2012 Sandy Hook elementary school shooting involved a pause during which
18 several students escaped, and an early report in the Hartford Courant cited an
19 unnamed police officer who speculated that these escapes occurred while the shooter
20 was reloading. A later article from the same newspaper (Hartford Courant 4-10-13),
21 however, revised this and reported that the shooter paused "either because the
22 Bushmaster jammed or he made an error reloading it." Thus, even in this single
23 supposedly supportive case, it is unclear whether additional victims escaped due to
24 the shooter reloading.

25 46. In sum, few mass shooters use LCMs, and in the few LCM-involved
26 mass shootings (which occurred only 3.2 times per year in the entire U.S. in 2014-
27 2022 – see Table 1) there is no affirmative evidence that any casualties were
28 prevented because of shooters reloading.

Response to Klarevas Supplemental Expert Report

47. Louis Klarevas addresses the violence-related effects of “assault weapons” (AWs) as well as the effects of LCM use. He is not nearly as cautious as Lucy Allen in making unsupportable claims about the causal effect of LCM or AW use in violence, or the effect of LCM bans on the frequency and deadliness of mass shootings. He also makes extraordinary claims about the magnitude of the effect of mass shootings on the safety of Americans.

Mass Shootings Do Not Constitute the Most Serious Threat to the Safety of Americans

48. Klarevas makes the remarkable claim (p. 5) that “mass shootings presently pose the deadliest threat to the safety of American society in the post 9/11 era.” His own data indicate otherwise. He documented 113 “gun massacres” (which he defines as incidents involving 6 or more dead), in which 1,009 people were killed, over the period from 1968 through September 2017. This is a period of 49 and $\frac{3}{4}$ years, so his own figures imply that an average of 20.3 Americans have been killed in “gun massacres” per year ($1009/49.75=20.28$). To put this number in perspective, 17,250 Americans were killed in criminal homicides of all types in 2016 (FBI 2017). Thus, only 1/10th of 1% of all murder victims are killed in “gun massacres.”

49. Alternatively, we can state the seriousness of the threat to the safety of American by computing the fraction who will be killed in a “gun massacre” in a given year. Since there were about 323,127,513 Americans in 2016, the annual average of 20.3 deaths implies that the probability of an American dying in a “gun massacre” is about 0.000000063, or 0.0063 per 100,000 population—about 1 in 15.9 million. As a point of comparison, defense expert Lucy Allen calculated (for an expert report in a previous case) that the risk of Americans dying because they were struck by lightning is 0.09 per 100,000 population (Allen 2017, p. 16). Thus, the risk of an American being killed in a “gun massacre” is less than 1/14th of the risk of

1 being killed by a bolt of lightning—itself a freakishly rare event. However horrific
2 individual mass shootings may be, it is absurd to describe their threat to the safety of
3 Americans as “the greatest threat ... to the ... safety of American society in the
4 present era.” This sort of overheated rhetoric is appropriate to propagandists, not to
5 serious scholars.

6 ***Mass Shootings are not a Growing Threat to Americans’ Safety***

7 50. Klarevas claims that the level of threat from mass shootings is growing
8 (p. 6). There actually is no clear trend in recent years in the frequency of mass
9 shootings. Table 1 in this report shows that the national total of mass shootings (4 or
10 more victims killed) increased from 2014 to 2016, but decreased from 2016 to 2018.
11 It then increased from 2018 to 2019, but declined from 2019 to 2020, followed by an
12 increase from 2020 to 2022. It would be foolhardy to describe this up-and-down
13 pattern as reflecting any clear upward trend. Indeed it shows no meaningful trend of
14 any kind.

15 51. Klarevas, however, creates an appearance of an upward trend by
16 narrowing his focus to just a tiny subset of mass shootings – cases in which 10 or
17 more victims were killed. There was indeed an upward trend in this subset, but the
18 numbers involved are so small that any statements about trends are trivial and not
19 indicative of any increase in the aggregate level of threat to Americans’ safety. His
20 Table 5 documents just 538 deaths over a period of 74 years, averaging just 7.3
21 deaths in “double-digit” mass shootings per year.

22 52. Even regarding this tiny subset of killings, Klarevas’ claim of an
23 upward trend is dubious regarding recent years, since it is almost entirely due to a
24 brief increase from one such killing in 2016 to four in 2018. Since 2018 his own
25 data show either no trend or a downward trend, from 4 in 2018 to 1 in 2019, 0 in
26 2020, 1 in 2021, and 2 in 2022. Making claims about trends in events this rare is,
27 however, foolhardy regardless of the numbers. One could, with equal validity, claim
28 that double-digit mass shootings declined by 50% from the 4 in 2018 to the 2 in

2022, but this would be no more meaningful than Klarevas’ claims of an upward trend.

How Often AWs Are Used to Stop Mass Shootings is Irrelevant to the Debate about the Merits of Restrictions on AWs

53. Klarevas believes that it is an “important” unanswered question how often AWs are used to stop a mass shooting (p. 21). Prior to reading Klarevas’ expert report I had never heard of any expert on firearms and violence who considered this an important issue. Certainly Klarevas does not cite any. This may well be why no one has answered the question – no one thought it was worth answering. To be sure, the issue of people using guns *in general* to disrupt crimes *in general* is certainly an important question, but whether AWs in particular are used to disrupt the tiny share of crimes that are mass shootings in particular is not. The numbers of mass shootings in which AWs are used, by either offenders or victims, are just too small for the issue to be important. Many Americans use guns to prevent injury in ordinary violent crimes, so this is where the benefit of defensive gun use lies, not in connection with mass shootings. A focus on the latter is simply a red herring that serves to distract from where the actual defensive benefit lies.

Use of Assault Weapons is Not Known to Be a Major Causal Factor in the Supposed Increase in Mass Shootings

54. Klarevas claims (pp. 12-16) that the growing use of AWs is a major factor in the supposed increase in mass shootings, especially “high fatality” mass shootings. His only evidence for this claim, however, is the increasing share of mass shootings that involve AWs and the ambiguous fact that death counts are higher in AW-involved shootings. As to the former, Klarevas presents no relevant evidence that increased AW use by mass shooters is any greater than one would expect based on the increasing popularity of semi-automatic firearms (some that would qualify as AWs under California law) in the general, noncriminal population (more on this point later). Thus, he provides no basis for an assertion of a greater preference for

1 using AWs among mass shooters than among noncriminal gun owners.

2 55. This is not to say he did not *try* to support this claim. His p. 12
3 discussion purports to be a comparison of mass shooter use of AWs with the
4 prevalence of AWs in the population as a whole. Unfortunately, none of the sources
5 he cites allow one to establish the latter. Given the way that California and other
6 states define AWs, to establish numbers of guns that are AWs one would need data
7 on numbers of guns by specific makes and models, as well as even more specific
8 data on numbers of guns with features that can (in combination with other attributes)
9 qualify a semi-automatic firearm for status as an AW, such as foldable stocks, flash
10 suppressors, thumb-holes in the stocks, and so on. No such data exist, either for
11 California or the U.S. as a whole. No such data are contained in any of the sources
12 cited by Klarevas, including the data from the National Shooting Sports Foundation
13 and from the Bureau of Alcohol, Tobacco, Firearms, and Explosives cited in his fn.
14 6. Consequently, Klarevas has no evidentiary foundation for any claims about the
15 prevalence or trends in the general population's ownership of AWs as defined under
16 California law, and consequently no foundation for a claim that use of AWs by mass
17 shooters were any more common than one would expect based on the popularity of
18 semi-automatic firearms by members of the general public.

19 56. Klarevas' claims on this point rely on tricky apples-and-oranges
20 comparisons. Regarding mass shooter use of AWs, he applies his definition of AWs
21 that apparently corresponds to the definition specified in California statutes. In
22 sharp contrast, when he cites data on "all firearms in circulation in American
23 society" (p. 12), he shifts to numbers of "modern sporting rifles" (MSRs), a set of
24 firearms that does not correspond to the set of AWs at all. Establishing that the
25 share of mass shooter guns that are AWs is greater than the share of general public
26 guns that are MSRs would not in any way establish that a disproportionately large
27 share of mass shooter guns are AWs.

28 57. Defense expert Lucy Allen's own data (Allen 2023, Exhibit C) indicate

1 that mass shooters usually use semi-automatic *pistols* rather than rifles, while
2 Klarevas' claims about the supposed relative rarity of AWs in the general population
3 actually apply only to *rifles*, and a subset of rifles at that. None of his figures
4 compare the prevalence of semi-auto *pistols* in the general public with the
5 prevalence of semi-auto *pistols* among mass shooter guns. The comparisons he
6 does make are meaningless apples-and-oranges comparisons that do not establish a
7 disproportionate preference of mass shooters for using AWs.

8 58. Klarevas also suggests that the rise in mass shooter use of AWs
9 corresponds in time to the growing popularity of AWs or similar semi-automatic
10 firearms (pp. 17-20). This is false. While we have no reliable data on trends in
11 production or ownership of AWs in particular, we do know that the growth in
12 popularity of semi-automatic firearms as a whole began long before the increase in
13 double-digit mass shootings that Klarevas cites, certainly long before the post-1993
14 increases. Industry data indicate that in 1978 just 25% of handguns produced by
15 U.S. manufacturers were semi-automatic pistols, but that by 1993 this share had
16 risen to 80%. After 1993 there was no further increase in the relative popularity of
17 semi-automatic pistols. Their share of the total handguns manufactured remained
18 around 80% thereafter – 75% in 2000, 75% in 2005, 80% in 2010, and 80% in 2015
19 (Kleck 1997, p. 118; BATFE 2020, Exhibit 1). In sum the rising popularity of
20 semi-auto firearms began way back in the 1970s and had ended by 1993. In
21 contrast, Klarevas' Table 5 indicates that in the 31-year period from 1976 through
22 2006, there just 7 double-digit mass shootings, or 0.23 per year, but that this rose to
23 20 such incidents in the 17-year period from 2007 through 2022, or 1.18 per year. In
24 short, the rise in double-digit mass shootings did not occur until after 2007, long
25 after the increase in popularity of semi-auto firearms had ended. Klarevas'
26 suggested assertion that the rise in double-digit mass shootings corresponded in time
27 to the rising popularity or availability of semi-auto guns is wrong.

28 ///

1 ***Klarevas Does Not establish that the Use of AWs Causes an Increase in the***
2 ***Casualty Counts of Mass Shootings.***

3 59. Klarevas accurately notes the higher casualty counts in mass shootings
4 committed with AWs, but presents no other evidence that AW use actually *causes*
5 the higher casualty counts. He leaves the impression that merely citing this crude
6 bivariate association is sufficient to establish a causal effect. It is not. This does not
7 meet professional or scientific standards for establishing a causal effect. As with
8 Lucy Allen’s work on the same topic, the association he reports may be entirely due
9 to the common effect of the lethality of offender intentions on both the number of
10 people the offender shoots and the choice of using a gun type or magazine perceived
11 (accurately or not) to be especially useful for hurting large numbers of people.

12 60. There is in fact no sound scientific basis for the claim that there are
13 features AWs that actually cause more deaths in mass shootings – or any other kinds
14 of violence. More specifically, (1) Klarevas provides no evidence that AWs are
15 more accurate than other kinds of guns and thus more likely to deliver bullets to an
16 intended victim (nor am I aware of any such evidence). (2) Klarevas provides no
17 evidence that an average round fired from an AW is more likely to inflict a fatal
18 wound than a round fired from other guns (nor am I aware of any such evidence). In
19 fact, the most common ammunition used in so-called “assault rifles” are .223 caliber
20 and .556 millimeter rounds – both very narrow bullets that create correspondingly
21 narrow wound cavities in the victim. Consequently, such rounds are *less* likely to
22 cause the victim’s death than the ammunition used in civilian-style hunting rifles.
23 Likewise, (3) Klarevas provides no evidence that a shooter can fire an AW any faster
24 than semiauto firearms not banned under AW restrictions like those of California
25 (nor am I aware of any such evidence). In sum, there is no credible evidence that the
26 kinds of firearms banned by California as AWs are any more accurate, lethal, or
27 rapid-firing than their unbanned semi-automatic counterparts (see evidence reviewed
28 in Kleck 1997, pp. 121-126).

1 61. In the absence of such evidence of any causal mechanism by which AW
2 use could affect the death count in attacks, there is no scientific basis for Klarevas’
3 claims that use of AWs *causes* higher death counts in mass shootings, as distinct
4 from being nothing more than a spurious correlate.

5 ***Klarevas’ Research Does not Provide Any Serious Evidence that Bans on LCMs***
6 ***Reduce the Incidence of Mass Shootings***

7 62. Klarevas cites an article that he co-authored (Klarevas, Connor, and
8 Hemenway 2019) that concerned the effect of LCM bans on the “frequency and
9 lethality of high-fatality mass shootings in the United States.” Unlike Lucy Allen,
10 Klarevas makes explicit and strong claims that his research estimated the *causal*
11 *effect* of LCM bans, rather than just establishing a possibly spurious association.
12 The cited study does not come anywhere near meeting the scientific standards
13 needed to establish causation.

14 63. The main task that a person conducting nonexperimental research must
15 carry out in order to estimate a causal effect is to somehow control for confounding
16 variables – other factors whose effects might be confused with the effect of the
17 variable on which the researcher is focusing. In this case, confounding variables
18 would be antecedent variables that possess both of two properties: (1) they affect the
19 frequency or lethality of high-fatality mass shootings, and (2) they are correlated
20 with the presence/absence of laws banning LCMs. The authors of this article plainly
21 made no serious effort to control for confounding variables and thus had no basis for
22 interpreting their association between LCM bans and the frequency of mass
23 shootings as anything but spurious. The association is spurious if there are
24 antecedent factors that affect both (1) legislators enacting LCM bans and (2) the rate
25 of mass shootings. One likely antecedent factor is the average level of disapproval
26 of violence in the population – where it is higher there will be more support for anti-
27 violence legislation (such as LCM bans) and also less violence (such as mass
28 shootings). Klarevas et al. appear to believe that controlling for any old variables is

1 sufficient to separate out the effect of LCM bans from other factors, boasting that
2 they controlled for “10 independent variables” (p. 1754). At no point do the authors
3 show any awareness of the need to control specifically for confounders, or even
4 understand what a confounder is. The word does not appear in the article and the
5 concept is not discussed. In fact, controlling for variables that are not confounders
6 does absolutely nothing to help isolate the causal effect of LCM bans or to rule out
7 the possibility that the association is totally spurious. None of the 10 independent
8 variables controlled by Klarevas et al. were confounders.

9 64. We know for certain that Klarevas et al. completely failed to control for
10 any confounding factors because their own results reported in their Tables 3 and 4
11 indicate that none of their control variables were significantly related to either the
12 number of high-fatality MS incidents or the number of MS fatalities, with the single
13 dubious exception of % age 25-34 in one of their 4 models. This single result is
14 dubious because it indicated that this variable had a negative association with the
15 number of mass shootings, indicating that places with more people of the ages
16 typical of mass shooters have *fewer* mass shootings. All the other control variables
17 showed no statistically significant association with either the number of incidents or
18 number of deaths and thus were not confounders. Even regarding this one
19 significant control variable, however, the authors do not present any evidence that %
20 age 25-34 is correlated with the presence or absence of LCM bans, so there is no
21 evidence that it possessed the second property needed to qualify as a confounder.
22 Thus, the authors did not control for even a single known confounder. They could
23 scarcely have done a poorer job in controlling for known confounders, but this did
24 not prevent Klarevas from boasting about the quality of his work by citing (p. 3 of
25 his report) the opinion of two amateurs that it was “the perfect gun policy study.”

26 65. The only rationale the authors offered for their disastrously poor
27 selection of control variables was that their list was “consistent with the suggestions
28 and practices of the literature on firearm homicides and mass shootings,” citing in

1 support a haphazard selection of poor quality prior studies that also used one or more
2 of the same badly chosen control variables (p. 12). They did not even bother to
3 claim that any of these variables significantly affected rates of MS or MS-related
4 deaths, or that they were known to be correlated with the presence of LCM bans.
5 They seemed to think that it is sufficient reason to include them in their analysis that
6 others had done so..

7 66. The authors insisted that “LCMs are indeed more effective at killing
8 many people” because LCMs “facilitate the ability to fire many rounds without
9 having to stop to reload” (p. 1759), even though had read the Kleck (2016) article
10 (see their source 29), which demonstrated precisely the opposite - that the necessity
11 of reloading does *not* lead to either bystanders tackling the shooter during reloading
12 or increasing the time for prospective victims to hide or escape. The authors did not
13 refute any of the evidence presented in that article or even try to do so, but
14 nevertheless insisted that pauses to reload “provide opportunities for people to
15 intervene and disrupt a shooting” and that “they provide individuals in harm’s way
16 with a chance to flee or hide” (pp. 1754-1755). They simply ignored the contrary
17 evidence and clung to their preferred belief that the need to reload results in
18 bystander disruptions of shooters and increased time for victims to escape or hide.

19 67. Klarevas tried to buttress his claim that LCM bans reduce mass
20 shootings by noting that the frequency of these shootings increased after the federal
21 ban on LCMs (and AWs) expired in 2004. Changes in virtually any violence-related
22 factor might have accounted for this increase, but Klarevas chose to arbitrarily
23 attribute it to the end of the LCM ban. This is highly implausible in light of the
24 results of detailed research on the impact of this law on violence while it was in
25 effect. The most extensive and detailed analysis done to date was conducted by
26 Christopher Koper (2004). That study concluded (p. 165) that there was “no
27 discernable reduction in the lethality or injuriousness of gun violence” while the ban
28 was in effect. If the ban had no impact on violence while it was in effect, it is

1 illogical to assert that its removal would cause an increase in violence.

2 ***Klarevas Did Not Provide Any Reliable Evidence that Double-digit Mass***
3 ***Shootings are Limited to the Post-WWII Period***

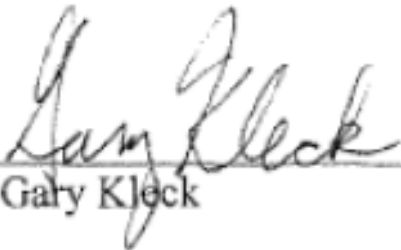
4 68. Klarevas asserted (p. 17) that mass shootings with high fatality counts
5 are unique in American history to the post-WWII period, a pattern he attributes to
6 the growing availability of AWs and LCMs. He even believes that he used a sound
7 body of evidence to establish trends in such killings going back as far as 1776.
8 There is no such source of evidence. Klarevas did not count up the number of such
9 crimes tha occurred each year, but rather counted up the number of such crimes in
10 each year that *were reported in newspaper stories* about such crimes, as recorded in
11 an archive of newspaper stories. The problem with this source is that the number of
12 newspaper stories about mass shooters would increase as newspaper coverage of the
13 nation's events increased, even if the number of mass shootings remained constant.
14 The coverage of newspapers certainly did increase over most of U.S. history,
15 especially prior to WWII. Thus, Klarevas' source can tell us nothing about trends in
16 mass killings during most of U.S. history, especially the 1776-1941 period, and
17 therefore cannot be relied upon for comparing post-WWII periods with pre-WWII
18 periods.

19 69. Klarevas claimed that mass shootings were nonexistent prior to WWII
20 but rendered this claim trivial by the way he limited which mass shootings qualified
21 to be counted. Buried in his footnote 17, Klarevas states that he did not count
22 killings of large numbers of victims if they were connected with "large-scale, inter-
23 group violence such as mob violence, rioting, combat or battle skirmishes, and
24 attacks initiated by authorities acting in their official capacity." This limitation
25 conveniently eliminates mass killings of Native Americans by members of the U.S.
26 cavalry (combat violence), employer-initiated violence by state militias against
27 strikers (violence initiated by authorities acting in their official capacity), and white
28 mob violence aimed at African Americans such as the 1863 draft riots in New York

1 City, among other mass killings. The exclusions thereby create the false impression
2 that there were no mass shootings prior to WWII. Klarevas offers no justification
3 for these exclusions other than the fact that other, unspecified, analyses also applied
4 them (footnote 17, p. 17). Consequently, Klarevas' claim amounts to saying "there
5 were no mass shootings in the U.S. prior to WWII, except the many mass shootings
6 that did occur prior to WWII." The historical reality is that there were many mass
7 shootings in the U.S. long before either AWs or LCMs were available (for historical
8 overviews, see Graham and Gurr 1969).

9
10 I declare under penalty of perjury that the foregoing is true and correct.
11 Executed within the United States on February 3, 2023.

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Gary Kleck

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2 Capacity Ammunition Magazines. Washington, D.C.: Violence Policy Center.
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4 Control. NY: Rowman & Littlefield.

5 Zimring, Franklin E. 1972. "The medium is the message: firearm caliber as a determi-
nant of death from assault." Journal of Legal Studies 1:97-123.

EXHIBIT 1

CURRICULUM VITAE

GARY KLECK

(Updated December 2, 2022)

PERSONAL

Place of Birth: Lombard, Illinois

Date of Birth: March 2, 1951

Address: College of Criminology and Criminal Justice

The Florida State University
314B Eppes Hall
112 S. Copeland Street
Tallahassee, FL 32306-1273

Telephone Number: Home: (850) 894-1628

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CURRENT POSITION

David J. Bordua Emeritus Professor of Criminology, Florida State University

COURTESY APPOINTMENT

Professor, College of Law, Florida State University

PROFESSIONAL MEMBERSHIPS

American Society of Criminology

Academy of Criminal Justice Sciences

EDUCATION

A.B. 1973 - University of Illinois, with High Honors and with Distinction
in Sociology

A.M. 1975 - University of Illinois at Urbana, in Sociology

Ph.D. 1979 - University of Illinois at Urbana, in Sociology

ACADEMIC HONORS

National Merit Scholar, 1969

Freshman James Scholar, University of Illinois, 1969

Graduated from University of Illinois with High Honors and with Distinction in
Sociology, 1973

University of Illinois Foundation Fellowship in Sociology, 1975-76

1993 Winner of the Michael J. Hindelang Award of the American Society of
Criminology, for the book that made "the most outstanding contribution to
criminology" (for Point Blank: Guns and Violence in America).

Awarded Named Professorship, Florida State University, 2012.

Nominated for University Teaching Award, Florida State University, 2014.

TEACHING POSITIONS

May 2016 to present Emeritus Professor, College of Criminology and Criminal
Justice, Florida State University

Fall, 1991 to Professor, College of Criminology and Criminal Justice,
May 2016 Florida State University

Fall, 1984 to	Associate Professor, School of Criminology,
Spring, 1991	Florida State University.
Fall, 1979	Assistant Professor, School of Criminology,
to Spring, 1984	Florida State University.
Fall, 1978 to	Instructor, School of Criminology,
Spring, 1979	Florida State University.

COURSES TAUGHT

Criminology, Applied Statistics, Regression, Introduction to Research Methods, Law Enforcement, Research Methods in Criminology, Guns and Violence, Violence Theory

Seminar, Crime Control, Assessing Evidence, Survey Research, Research Design and Causal Inference.

DISSERTATION

Homicide, Capital Punishment, and Gun Ownership: An Aggregate Analysis of U.S. Homicide Trends from 1947 to 1976. Department of Sociology, University of Illinois, Urbana. 1979.

PUBLICATIONS (sole author unless otherwise noted)

BOOKS

1991, Point Blank: Guns and Violence in America. Hawthorne, N.Y.: Aldine de

2005 Gruyter. Winner of the 1993 Michael J. Hindelang award of the American Society of Criminology. Republished in 2005 in paperback by Transaction Publishers.

Reviewed in Contemporary Sociology, American Journal of Sociology, Social Forces, Journal of Criminal Law and Criminology, The Criminologist, The Public Interest, Criminal Law Forum, Social Science Review, Criminal Justice Abstracts, Crime, Criminal Justice and Law Enforcement, Newsletter of Public Policy Currents, Commonweal, Choice, and others.

1997 Targeting Guns: Firearms and their Control. Hawthorne, N.Y.: Aldine de Gruyter.

1997 The Great American Gun Debate: Essays on Firearms and Violence (with Don B.

Kates, Jr.). San Francisco: Pacific Research Institute for Public Policy.

2001 (with Don B. Kates) Armed: New Perspectives on Gun Control. N.Y.: Prometheus Books.

Selected to Choice: Current Reviews for Academic Libraries' 39th annual "Outstanding Academic Title List," awarded for "excellence in scholarship and presentation, the significance of their contribution to their field, and their value

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an important treatment of their topic.” Awarded to less than one percent of books.

2017 (with Brion Sever) Punishment and Crime. NY: Routledge. In press.

RESEARCH MONOGRAPH

1979 Bordua, David J., Alan J. Lizotte, and Gary Kleck. Patterns of Firearms Ownership, Use and Regulation in Illinois. A Report to the Illinois Law Enforcement Commission, Springfield, Illinois.

ARTICLES IN PEER-REVIEWED JOURNALS

- 1979 "Capital punishment, gun ownership, and homicide." American Journal of Sociology 84(4):882-910.
- 1981 "Racial discrimination in criminal sentencing: A critical evaluation of the evidence with additional evidence on the death penalty." American Sociological Review 46(6):783-804.
- 1982 "On the use of self-report data to determine the class distribution of criminal behavior." American Sociological Review 47(3):427-33.
- 1983 (with David Bordua) "The factual foundation for certain key assumptions of

gun

control." Law and Policy Quarterly 5(3):271-298.

1985 "Life support for ailing hypotheses: modes of summarizing the evidence on racial discrimination in criminal sentencing." Law and Human Behavior 9(3):271-285.

1986 "Evidence that 'Saturday Night Specials' not very important for crime." Sociology and Social Research 70(4):303-307.

1987 "American's foreign wars and the legitimation of domestic violence." Sociological Inquiry 57(3):237-250.

1988 "Crime control through the private use of armed force." Social Problems 35(1):1-21.

1988 "Miscounting suicides." Suicide and Life-Threatening Behavior 18(3):219-236.

1990 (with Susan Sayles) "Rape and resistance." Social Problems 37(2):149-162.

1991 (with Karen McElrath) "The effects of weaponry on human violence." Social Forces 69(3):669-92.

1993 (with Miriam DeLone) "Victim resistance and offender weapon effects in robbery." Journal of Quantitative Criminology 9(1):55-82.

1993 (with E. Britt Patterson) "The impact of gun control and gun ownership levels on violence rates." Journal of Quantitative Criminology 9(3):249-287.

1993 "Bad data and the 'Evil Empire': interpreting poll data on gun control."

Violence

and Victims 8(4):367-376.

1995 "Guns and violence: an interpretive review of the field." Social Pathology
1(1):12-47.

1995 "Using speculation to meet evidence." Journal of Quantitative Criminology
11(4):411-424.

1995 (with Marc Gertz) "Armed resistance to crime: the prevalence and nature of
self-
defense with a gun." Journal of Criminal Law & Criminology 86(1):150-
187.

1996 "Crime, culture conflict and sources of support for gun control: a multi-level
application of the General Social Surveys." American Behavioral Scientist
39(4):387-404.

1996 (with Chester Britt III and David J. Bordua) "A reassessment of the D.C. gun
law:
some cautionary notes on the use of interrupted time series designs for policy
impact assessment." Law & Society Review 30(2):361-380.

1996 (with Chester Britt III and David J. Bordua) "Avoidance and
misunderstanding."
Law & Society Review 30(2):393-397.

- 1997 (with Marc Gertz) "The illegitimacy of one-sided speculation: getting the defensive gun use estimate down." Journal of Criminal Law and Criminology 87(4):1446-1461.
- 1997 (with Tomislav Kovandzic and Marc Gertz) "Defensive gun use: vengeful vigilante imagery vs. reality: results from the National Self-Defense Survey." Journal of Criminal Justice 26(3):251-258.
- 1998 (with Marc Gertz) "Carrying guns for protection: results from the National Self-Defense Survey." Journal of Research in Crime and Delinquency 35(2):193-224.
- 1998 "What are the risks and benefits of keeping a gun in the home?" Journal of the American Medical Association 280(5):473-475.
- 1998 (with Charles Crawford and Ted Chiricos) "Race, racial threat, and sentencing of habitual offenders." Criminology 36(3):481-511.
- 1999 (with Michael Hogan) "A national case-control study of homicide offending and gun ownership." Social Problems 46(2):275-293.
- 1999 "BATF gun trace data and the role of organized gun trafficking in supplying guns to criminals." St. Louis University Public Law Review 18(1):23-45.

- 2001 “Can owning a gun really triple the owner's chances of being murdered?”
Homicide Studies 5:64-77.
- 2002 (with Theodore Chiricos) "Unemployment and property crime: a target-specific
assessment of opportunity and motivation as mediating factors." Criminology
40(3):649-680.
- 2004 “Measures of gun ownership levels for macro-level crime and violence
research.”
Journal of Research in Crime and Delinquency 41(1):3-36.
- 2004 (with Jongyeon Tark) “Resisting crime: the effects of victim action on the
outcomes of crimes.” Criminology 42(4):861-909.
- 2005 (with Brion Sever, Spencer Li, and Marc Gertz) “The missing link in general
deterrence research.” Criminology 43(3):623-660.
- 2006 (with Jongyeon Tark and Jon J. Bellows) “What methods are most frequently
used in research in criminology and criminal justice?” Journal of Criminal
Justice
34(2):147-152.
- 2007 “Are police officers more likely to kill African-American suspects?”
Psychological Reports 100(1):31-34.
- 2007 (with Shun-Yung Wang and Jongyeon Tark) “Article productivity among the
faculty of criminology and criminal justice doctoral programs, 2000-2005.”

Journal of Criminal Justice Education 18(3):385-405.

2008 (with Jongyeon Tark, Laura Bedard, and Dominique Roe-Sepowitz) “Crime victimization and divorce.” International Review of Victimology 15(1):1-17.

2009 “The worst possible case for gun control: mass shootings in schools.” American Behavioral Scientist 52(10):1447-1464.

2009 (with Shun-Yung Wang) “The myth of big-time gun trafficking and the overinterpretation of gun tracing data.” UCLA Law Review 56(5):1233-1294.

2009 (with Tomislav Kovandzic) “City-level characteristics and individual handgun

ownership: effects of collective security and homicide.” Journal of

Contemporary

Criminal Justice 25(1):45-66.

2009 (with Marc Gertz and Jason Bratton) “Why do people support gun control?” Journal of Criminal Justice 37(5):496-504.

2011 (with James C. Barnes) “Article productivity among the faculty of criminology

and criminal justice doctoral programs, 2005-2009.” Journal of Criminal

Justice

Education 22(1):43-66.

2011 (with Tomislav Kovandzic, Mark Saber, and Will Hauser). “The effect of perceived risk and victimization on plans to purchase a gun for self-

protection.” Journal of Criminal Justice 39(4):312-319.

2013 (with Will Hauser) “Guns and fear: a one-way street?” Crime and Delinquency

59:271-291.

2013 “Gun control after Heller and McDonald: what cannot be done and what ought to

be done.” Fordham Urban Law Journal 39(5):1383-1420.

2013 (with J. C. Barnes) “Deterrence and macro-level perceptions of punishment risks: is there a “collective wisdom?” Crime and Delinquency 59(7):1006-1035.

2013 (with Tomislav Kovandzic and Mark Schaffer) “Estimating the causal effect of gun prevalence on homicide rates: A local average treatment effect approach.” Journal of Quantitative Criminology 28(4):477-541.

2014 (with Jongyeon Tark) “Resisting rape: the effects of victim self-protection on rape completion and injury.” Violence Against Women 23(3): 270-292.

2014 (with J. C. Barnes) "Do more police generate more crime deterrence?" Crime and Delinquency 60(5):716-738.

2015 “The impact of gun ownership rates on crime rates: a methodological review of the evidence.” Journal of Criminal Justice 43(1):40-48.

2016 (with Tom Kovandzic and Jon Bellows) “Does gun control reduce violent

crime? Criminal Justice Review 41:488-513.

2016 "Objective risks and individual perceptions of those risks." Criminology & Public Policy 15:767-775.

2016 (with Dylan Jackson) "Adult unemployment and serious property crime: A national case-control study." Journal of Quantitative Criminology 32:489-513.

2016 "The effect of large-capacity magazines on the casualty count of mass shootings." Justice Research and Policy 17:28-47.

2016 (with Will Hauser) "Confidence in the police and fear of crime: do police force

size and productivity matter?" American Journal of Criminal Justice.

Published online 2-12-16.

2016 (with Bethany Mims) "Article productivity among the faculty of criminology and

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2016 (with Dylan Jackson) "Does crime cause punitiveness?" Crime & Delinquency.

Published online 3-27-16.

OTHER PUBLISHED ARTICLES

1985 "Policy lessons from recent gun control research." Law and Contemporary Problems 49(1):35-62.

1992 "Assault weapons aren't the problem." New York Times September 1, 1992, p.

A15. Invited Op-Ed page article.

1993 "The incidence of violence among young people." The Public Perspective 4:3-

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Invited article.

1994 "Guns and self-protection." Journal of the Medical Association of Georgia

83:42.

Invited editorial.

1998 "Using speculation to meet evidence: reply to Alba and Messner." Journal on

Firearms and Public Policy 9:13-49.

1998 "Has the gun deterrence hypothesis been discredited?" Journal on Firearms

and Public Policy 10:65-75.

1999 "There are no lessons to be learned from Littleton." Criminal Justice Ethics

18(1):2, 61-63. Invited commentary.

1999 "Risks and benefits of gun ownership - reply." Journal of the American

Medical

Association 282(2):136-136.

1999 "The misfire that wounded Colt's." New York Times October 23, 1999.

Invited

Op-Ed page article.

1999 "Degrading scientific standards to get the defensive gun use estimate down."

Journal on Firearms and Public Policy 11:77-137.

2000 "Guns aren't ready to be smart." New York Times March 11, 2000. Invited

Op-Ed page article.

2000 (with Chester Britt III and David J. Bordua) "The emperor has no clothes:

Using

interrupted time series designs to evaluate social policy impact." Journal on

Firearms and Public Policy 12:197-247.

2001 "School lesson: armed self-defense works." Wall Street Journal March 27,

2001. Invited opinion article.

2001 "Impossible policy evaluations and impossible conclusions: a comment on

Koper

and Roth." Journal of Quantitative Criminology 17(1):75-80.

2001 "Absolutist politics in a moderate package: prohibitionist intentions of the gun

control movement." Journal on Firearms and Public Policy 13:1-43.

2002 "Research agenda on guns, violence, and gun control." Journal on Firearms

and

Public Policy 14:51-72.

2006 "Off target." New York Sun January 5, 2006. Invited opinion article.

2009 "How not to study the effect of gun levels on violence rates." Journal on

Firearms

and Public Policy 21:65-93.

- 2011 “Mass killings aren't the real gun problem --- how to tailor gun-control measures to common crimes, not aberrant catastrophes.” Wall Street Journal, January 15, 2011. Invited opinion article.
- 2011 “The myth of big-time gun trafficking.” Wall Street Journal May 21, 2011. Invited opinion article.
- 2015 "Defensive gun ownership is not a myth: why my critics still have it wrong." Politico Magazine, February 17, 2015. Online at Politico.Com.
- 2016 Kleck, Gary. “The impact on crime of state laws allowing concealed weapon carrying among 18-20 Year-olds.” To appear in the Journal on Firearms and Public Policy.

BOOK CHAPTERS

- 1984 (with David Bordua) "The assumptions of gun control." Pp. 23-48 in Don B. Kates, Jr. (ed.) Firearms and Violence: Issues of Regulation. Cambridge, Mass.: Ballinger.
- (Also appeared in Federal Regulation of Firearms, report prepared by the Congressional Research Service, Library of Congress, for the Committee on the Judiciary, United States Senate, 1982).
- 1984 "The relationship between gun ownership levels and rates of violence in the

U.S." Pp. 99-135 in Kates, above.

1984 "Handgun-only gun control: a policy disaster in the making." Pp. 167-199 in Kates, above.

1996 "Racial discrimination in criminal sentencing." Pp. 339-344 in Crime and Society, Volume III – Readings: Criminal Justice, edited by George Bridges, Robert D. Crutchfield, and Joseph G. Weis. Thousand Oaks, Calif.: Pine Forge Press.

1996 "Gun buy-back programs: nothing succeeds like failure." Pp. 29-53 in Under Fire: Gun Buy-Backs, Exchanges and Amnesty Programs, edited by Martha R. Plotkin. Washington, D.C.: Police Executive Research Forum.

2000 "Firearms and crime." Pp. 230-234 in the Encyclopedia of Criminology and Deviant Behavior, edited by Clifton D. Bryant. Philadelphia: Taylor & Francis, Inc.

2001 (with Leroy Gould and Marc Gertz) "Crime as social interaction." Pp. 101-114 in
What is Crime?: Controversy over the Nature of Crime and What to Do About It, edited by Stuart Henry and Mark M. Lanier. Lanham, Md.: Rowman and Littlefield.

2003 "Constricted rationality and the limits of general deterrence." Chapter 13 in Punishment and Social Control: Enlarged Second Edition, edited by Thomas G.

Blomberg. New York: Aldine de Gruyter.

- 2004 “The great American gun debate: what research has to say.” Pp. 470-487 in The Criminal Justice System: Politics and Policies, 9th edition, edited by George F. Cole, Marc Gertz, and Amy Bunger. Belmont, CA: Wadsworth-Thomson.
- 2008 “Gun control.” Article in The Encyclopedia of Social Problems, edited by Vincent N. Parrillo. Thousand Oaks, CA: Sage.
- 2009 “Guns and crime.” Invited chapter. Pp. 85-92 in 21st Century Criminology: A Reference Handbook, edited by J. Mitchell Miller. Thousand Oaks, CA: Sage.
- 2012 Kovandzic, Tomislav, Mark E. Schaffer, and Gary Kleck. “Gun prevalence, homicide rates and causality: A GMM approach to endogeneity bias.” Chapter 6, pp. 76-92 in The Sage Handbook of Criminological Research Methods, edited by David Gadd, Susanne Karstedt, and Steven F. Messner. Thousand Oaks, CA: Sage.
- 2012 (with Kelly Roberts) “What survey modes are most effective in eliciting self-reports of criminal or delinquent behavior?” Pp. 415-439 in Handbook of Survey Methodology, edited by Lior Gideon. NY: Springer.
- 2013 “An overview of gun control policy in the United States.” Pp. 562-579 in The

Criminal Justice System, 10th edition, Edited by George F. Cole and Marc G. Gertz. Wadsworth.

2014 “Deterrence: actual vs. perceived risk of punishment. Article in Encyclopedia of

Criminology and Criminal Justice. Berlin: Springer Verlag.

BOOK REVIEWS

1978 Review of Murder in Space City: A Cultural Analysis of Houston Homicide Patterns, by Henry Lundsgaarde. Contemporary Sociology 7:291-293.

1984 Review of Under the Gun, by James Wright et al. Contemporary Sociology 13:294-296.

1984 Review of Social Control, ed. by Jack Gibbs. Social Forces 63: 579-581.

1985 Review of Armed and Considered Dangerous, by James Wright and Peter Rossi,
Social Forces 66:1139-1140.

1988 Review of The Citizen's Guide to Gun Control, by Franklin Zimring and Gordon
Hawkins, Contemporary Sociology 17:363-364.

1989 Review of Sociological Justice, by Donald Black, Contemporary Sociology 19:261-3.

1991 Review of Equal Justice and the Death Penalty, by David C. Baldus, George G. Woodworth, and Charles A. Pulaski, Jr. Contemporary Sociology 20:598-9.

- 1999 Review of Crime is Not the Problem, by Franklin E. Zimring and Gordon Hawkins. American Journal of Sociology 104(5):1543-1544.
- 2001 Review of Gun Violence: the Real Costs, by Philip J. Cook and Jens Ludwig. Criminal Law Bulletin 37(5):544-547.
- 2010 Review of Homicide and Gun Control: The Brady Handgun Violence Prevention Act and Homicide Rates, by J. D. Monroe. Criminal Justice Review 35(1):118-120.

LETTERS PUBLISHED IN SCHOLARLY JOURNALS

- 1987 "Accidental firearm fatalities." American Journal of Public Health 77:513.
- 1992 "Suicide in the home in relation to gun ownership." The New England Journal of Medicine 327:1878.
- 1993 "Gun ownership and crime." Canadian Medical Association Journal 149:1773-1774.
- 1999 "Risks and benefits of gun ownership." Journal of the American Medical Association 282:136.
- 2000 (with Thomas Marvell) "Impact of the Brady Act on homicide and suicide rates." Journal of the American Medical Association 284:2718-2719.
- 2001 "Violence, drugs, guns (and Switzerland)." Scientific American 284(2):12.
- 2002 "Doubts about undercounts of gun accident deaths." Injury Prevention Online

(September 19, 2002). Published online at

<http://ip.bmjournals.com/cgi/eletters/8/3/252>.

2005 "Firearms, violence, and self-protection." Science 309:1674. September 9, 2005.

UNPUBLISHED REPORT

1987 Violence, Fear, and Guns at Florida State University: A Report to the President's

Committee on Student Safety and Welfare. Reports results of campus crime victimization survey and review of campus police statistics on gun violence (32 pages).

RESEARCH FUNDING

1994 "The Impact of Drug Enforcement on Urban Drug Use Levels and Crime Rates."

\$9,500 awarded by the U.S. Sentencing Commission.

1997 "Testing a Fundamental Assumption of Deterrence-Based Crime Control Policy."

\$80,590 awarded by the Charles E. Culpeper Foundation to study the link between actual and perceived punishment levels.

PRESENTED PAPERS

1976 "Firearms, homicide, and the death penalty: a simultaneous equations analysis."

Presented at the annual meetings of the Illinois Sociological Association, Chicago.

1979 "The assumptions of gun control." Presented at the Annual Meetings of the American Sociological Association, New York City.

1980 "Handgun-only gun control: A policy disaster in the making." Presented at the Annual Meetings of the American Society of Criminology, Washington, D.C.

1981 "Life support for ailing hypotheses: Modes of summarizing the evidence on racial discrimination." Presented at the Annual Meetings of the American Society of Criminology, Toronto.

1984 "Policy lessons from recent gun control research." Presented at the Duke University Law School Conference on Gun Control.

1985 "Policy lessons from recent gun control research." Presented at the Annual Meetings of the American Society of Criminology, San Diego.

1986 "Miscounting suicides." Presented at the Annual Meetings of the American Sociological Association, Chicago.

1987 (with Theodore G. Chiricos, Michael Hays, and Laura Myers) "Unemployment and crime: a comparison of motivation and opportunity effects." Annual

meetings of the American Society of Criminology, Montreal.

1988 "Suicide, guns and gun control." Presented at the Annual Meetings of the Popular Culture Association, New Orleans.

1988 (with Susan Sayles) "Rape and resistance." Presented at the Annual Meetings of

the American Society of Criminology, Chicago, Ill.

1989 (with Karen McElrath) "The impact of weaponry on human violence."

Presented at the

Annual Meetings of the American Sociological Association, San Francisco.

1990 (with Britt Patterson) "The impact of gun control and gun ownership levels on city violence rates." Presented at the Annual Meetings of the American

Society

of Criminology, Reno.

1991 "Guns and violence: a summary of the field." Presented at the Annual Meetings

of the American Political Science Association, Washington, D.C.

1992 "Interrupted time series designs: time for a re-evaluation." Presented at the Annual Meetings of the American Society of Criminology, New Orleans.

1993 (with Chester Britt III and David J. Bordua) "The emperor has no clothes: Using interrupted time series designs to evaluate social policy impact."

Presented at the Annual Meetings of the American Society of Criminology, Phoenix.

1993 "Crime, culture conflict and support for gun laws: a multi-level application of the

General Social Surveys." Presented at the Annual Meetings of the American Society of

Criminology, Phoenix.

1994 (with Marc Gertz) "Armed resistance to crime: the prevalence and nature of self-defense with a gun." Presented at the Annual Meetings of the American Society of Criminology, Miami.

1995 (with Tom Jordan) "The impact of drug enforcement and penalty levels on urban drug use levels and crime rates." Presented at the Annual Meetings of the American Society of Criminology, Boston.

1996 (with Michael Hogan) "A national case-control study of homicide offending and gun ownership." Presented at the Annual Meetings of the American Society of Criminology, Chicago.

1997 "Evaluating the Brady Act and increasing the utility of BATF tracing data." Presented at the annual meetings of the Homicide Research Working Group, Shepherdstown, West Virginia.

1997 "Crime, collective security, and gun ownership: a multi-level application of the General Social Surveys." Presented at the Annual Meetings of the American

Society of Criminology, San Diego.

- 1998 (with Brion Sever and Marc Gertz) "Testing a fundamental assumption of deterrence-based crime control policy." Presented at the Annual Meetings of the American Society of Criminology, Washington, D.C.
- 1998 "Measuring macro-level gun ownership levels." Presented at the Annual Meetings of the American Society of Criminology, Washington, D.C.
- 1999 "Can owning a gun really triple the owner's chances of being murdered?" Presented at the Annual Meetings of the American Society of Criminology, Toronto.
- 2000 "Absolutist politics in a moderate package: prohibitionist intentions of the gun control movement." Presented at the Annual Meetings of the American Society of Criminology, San Francisco.
- 2001 (with Tomislav V. Kovandzic) "The impact of gun laws and gun levels on crime rates." Presented at the Annual Meetings of the American Society of Criminology, Atlanta.
- 2001 "Measures of gun ownership levels for macro-level violence research." Presented at the Annual Meetings of the American Society of Criminology, Atlanta.
- 2001 "The effects of gun ownership levels and gun control laws on urban crime rates." Presented at the Annual Meetings of the American Society of Criminology, Chicago.

- 2003 (with Tomislav V. Kovandzic) "The effect of gun levels on violence rates depends on who has them." Presented at the Annual Meetings of the American Society of Criminology, Denver.
- 2003 (with Kyubeom Choi) "Filling in the gap in the causal link of deterrence." Presented at the Annual Meetings of the American Society of Criminology, Denver.
- 2004 (with Tomislav Kovandzic) "Do violent crime rates and police strength levels in the community influence whether individuals own guns?" Presented at the Annual Meetings of the American Society of Criminology, Nashville.
- 2004 (with Jongyeon Tark) "Resisting crime: the effects of victim action on the outcomes of crime." Presented at the Annual Meetings of the American Society of Criminology, Nashville.
- 2005 (with Jongyeon Tark) "The impact of self-protection on rape completion and injury." Presented at the Annual Meetings of the American Society of Criminology, Nashville.
- 2004 (with Kyubeom Choi) "The perceptual gap phenomenon and deterrence as psychological coercion." Presented at the Annual Meetings of the American Society of Criminology, Nashville.
- 2005 (with Jongyeon Tark) "Who resists crime?" Presented at the Annual Meetings of the American Society of Criminology, Toronto.

- 2005 (with Jongyeon Tark and Laura Bedard) “Crime and marriage.” Presented at the Annual Meetings of the American Society of Criminology, Toronto.
- 2006 (with Shun-Yang Kevin Wang) “Organized gun trafficking, ‘crime guns,’ and crime rates.” Presented at the Annual Meetings of the American Society of Criminology, Los Angeles.
- 2006 “Are police officers more likely to kill black suspects?” Presented at the Annual Meetings of the American Society of Criminology, Los Angeles.
- 2007 (with Shun-Yang Kevin Wang) “The myth of big-time gun trafficking.” Presented at the Annual Meetings of the American Society of Criminology, Atlanta.
- 2007 (with Marc Gertz and Jason Bratton) “Why do people support gun control?” Presented at the Annual Meetings of the American Society of Criminology, Atlanta.
- 2008 (with J.C. Barnes) “Deterrence and macro-level perceptions of punishment risks: Is there a “collective wisdom?” Presented at the Annual Meetings of the American Society of Criminology, St. Louis.
- 2009 “The myth of big-time gun trafficking.” Presented at UCLA Law Review Symposium, “The Second Amendment and the Right to Bear Arms After DC v. Heller.” January 23, 2009, Los Angeles.

- 2009 (with Shun-Yung Wang) “Employment and crime and delinquency of working youth: A longitudinal study of youth employment.” Presented at the Annual Meetings of the American Society of Criminology, November 6, 2009, Philadelphia, PA.
- 2009 (with J. C. Barnes) “Do more police generate more deterrence?” Presented at the Annual Meetings of the American Society of Criminology, November 4, 2009, Philadelphia, PA.
- 2010 (with J. C. Barnes) “Article productivity among the faculty of criminology and criminal justice doctoral programs, 2005-2009.” Presented at the annual Meetings of the American Society of Criminology, November 18, 2010, San Francisco, CA.
- 2010 (with Will Hauser) “Fear of crime and gun ownership.” Presented at the annual Meetings of the American Society of Criminology, November 18, 2010, San Francisco, CA.
- 2010 “Errors in survey estimates of defensive gun use frequency: results from national Internet survey experiments.” Presented at the annual Meetings of the American Society of Criminology, November 19, 2010, San Francisco, CA.

- 2010 (with Mark Faber and Tomislav Kovandzic) “Perceived risk, criminal victimization, and prospective gun ownership.” Presented at the annual Meetings of the American Society of Criminology, November 19, 2010, San Francisco, CA.
- 2011 (with Shun-young Wang) “The impact of job quality and career commitment on delinquency: conditional or universal?” Presented at the annual Meetings of the American Society of Criminology, November 17, 2011.
- 2011 (with Moonki Hong) “The short-term deterrent effect of executions on homicides in the United States, 1984-1998.” Presented at the annual Meetings of the American Society of Criminology, November 16, 2011.
- 2011 (with Kelly Roberts) “Which survey modes are most effective in getting people to admit illegal behaviors?” Presented at the annual Meetings of the American Society of Criminology, November 17, 2011.
- 2011 (with Will Hauser) “Pick on someone your own size: do health, fitness, and size influence victim selection?” Presented at the annual Meetings of the American Society of Criminology, November 18, 2011.

2011 (with Tomislav Kovandzic) “Is the macro-level crime/punishment association spurious?” Presented at the annual Meetings of the American Society of Criminology, November 18, 2011.

2012 (with Dylan Jackson) “Adult unemployment and serious property crime: a national case-control study.” Presented at the annual Meetings of the American Society of Criminology, November 15, 2012.

2013 (with Will Hauser) “Confidence in the Police and Fear of Crime: Do Police Force Size and Productivity Matter?” Presented at the annual Meetings of the American Society of Criminology, November 22, 2013.

2013. (with Dylan Jackson) “Adult unemployment and serious property crime: a national case-control study.” Presented at the annual Meetings of the American Society of Criminology, November 22, 2013.

2014 (with Dylan Jackson) "Does Crime Cause Punitiveness?" Presented at the annual Meetings of the American Society of Criminology, November 20, 2014.

2015 “The effect of large capacity magazines on the casualty counts in mass

shootings.” Presented at the annual Meetings of the American Society of Criminology, November 18, 2015.

2015 (with Bethany Mims) “Article productivity among the faculty of criminology and

criminal justice doctoral programs, 2010-2014.” Presented at the annual Meetings of the American Society of Criminology, November 20, 2015.

CHAIR

1983 Chair, session on Race and Crime. Annual meetings of the American Society of Criminology, Denver.

1989 Co-chair (with Merry Morash), roundtable session on problems in analyzing the National Crime Surveys. Annual meetings of the American Society of Criminology, Reno.

1994 Chair, session on Interrupted Time Series Designs. Annual meetings of the American Society of Criminology, New Orleans.

1993 Chair, session on Guns, Gun Control, and Violence. Annual meetings of the American Society of Criminology, Phoenix.

1995 Chair, session on International Drug Enforcement. Annual meetings of the American Society of Criminology, Boston.

1999 Chair, Author-Meets-Critics session, More Guns, Less Crime. Annual meetings of the American Society of Criminology, Toronto.

2000 Chair, session on Defensive Weapon and Gun Use. Annual Meetings of the

American Society of Criminology, San Francisco.

2002 Chair, session on the Causes of Gun Crime. Annual meetings of the American Society of Criminology, Chicago.

2004 Chair, session on Protecting the Victim. Annual meetings of the American Society of Criminology, Nashville.

DISCUSSANT

1981 Session on Gun Control Legislation, Annual Meetings of the American Society of Criminology, Washington, D.C.

1984 Session on Criminal Sentencing, Annual Meetings of the American Society of Criminology, Cincinnati.

1986 Session on Sentencing, Annual Meetings of the American Society of Criminology, Atlanta.

1988 Session on Gun Ownership and Self-protection, Annual Meetings of the Popular Culture Association, Montreal.

1991 Session on Gun Control, Annual Meetings of the American Statistical Association, Atlanta, Ga.

1995 Session on International Drug Enforcement, Annual Meetings of the American Society of Criminology, Boston.

2000 Session on Defensive Weapon and Gun Use, Annual Meetings of the American Society of Criminology, San Francisco.

- 2004 Author-Meets-Critic session on Guns, Violence, and Identity Among African-American and Latino Youth, by Deanna Wilkinson. Annual meetings of the American Society of Criminology, Nashville.
- 2007 Session on Deterrence and Perceptions, University of Maryland 2007 Crime & Population Dynamics Summer Workshop, Aspen Wye River Center, Queenstown MD, June 4, 2007.
- 2009 Session on Guns and Crime, at the DeVoe Moore Center Symposium On The Economics of Crime, March 26-28, 2009.
- 2012 Panel discussion of news media coverage of high profile crimes
Held at the Florida Supreme Court On September 24-25, 2012, sponsored by the Florida Bar Association as part of their 2012 Reporters' Workshop.

PROFESSIONAL SERVICE

Editorial consultant -

American Sociological Review

American Journal of Sociology

Social Forces

Social Problems

Law and Society Review

Journal of Research in Crime and Delinquency

Social Science Research

Criminology

Journal of Quantitative Criminology

Justice Quarterly

Journal of Criminal Justice

Violence and Victims

Violence Against Women

Journal of the American Medical Association

New England Journal of Medicine

American Journal of Public Health

Journal of Homicide Studies

Grants consultant, National Science Foundation, Sociology Program.

Member, Gene LeCarte Student Paper Committee, American Society of Criminology, 1990.

Area Chair, Methods Area, American Society of Criminology, annual meetings in Miami,

November, 1994.

Division Chair, Guns Division, American Society of Criminology, annual meetings in

Washington, D.C., November, 1998.

Dissertation evaluator, University of Capetown, Union of South Africa, 1998.

Division Chair, Guns Division, American Society of Criminology, annual meetings in

Washington, D.C., November, 1999.

Member of Academy of Criminal Justice Sciences selection committee for Editor of Justice

Quarterly, 2007.

Outside reviewer of Dr. J. Pete Blair for promotion to Full Professor in the School of Criminal Justice at Texas State University, San Marcos, 2014.

UNIVERSITY SERVICE

Member, Master's Comprehensive Examination Committee, School of Criminology, 1979-

1982.

Faculty Advisor, Lambda Alpha Epsilon (FSU chapter of American Criminal Justice Association), 1980-1988.

Faculty Senate Member, 1984-1992.

Carried out campus crime survey for President's Committee on Student Safety and Welfare,

1986.

Member, Strategic Planning and Budgeting Review Committee for Institute for Science and

Public Affairs, and Departments of Physics and Economics, 1986.

Chair, Committee on Ph.D. Comprehensive Examination in Research Methods,
School of

Criminology, Summer, 1986.

Member, Committee on Ph.D. Comprehensive Examination in Research Methods,
School of

Criminology, Summer, 1986 to present.

Chair, Committee on Graduate Assistantships, School of Criminology, Spring, 1987.

Chair, Ad Hoc Committee on Computers, School of Criminology, Fall, 1987.

Member, Recruitment Committee, School of Criminology, Spring, 1988; Spring,
1989; and

1989-90 academic year.

Member, Faculty Senate Committee on Computer-Related Curriculum, Spring, 1988
to Fall,

1989.

Chair, Ad Hoc Committee on Merit Salary Distribution, School of Criminology,
Spring,

1988.

Chair, Ad Hoc Committee on Enrollment Strains, Spring, 1989.

Member, Graduate Handbook Committee, School of Criminology, Spring, 1990.

Member, Internal Advisement Committee, School of Criminology Spring, 1990.

University Commencement Marshall, 1990 to 1993.

Member, School of Criminology and Criminal Justice Teaching Incentive Program award

committee.

Chair, Faculty Recruitment Committee, School of Criminology and Criminal Justice, 1994-

1995.

Chair, Committee on Ph.D. Comprehensive Examination in Research Methods, School of

Criminology and Criminal Justice, 1994-1995.

Member, University Computer and Information Resources Committee, 1995-1998.

Member, University Fellowship Committee, 1995 to present.

Member, University Library Committee, 1996 to 1999.

Chair, Electronic Access Subcommittee, University Library Committee, 1998 to 1999.

Member, Ad Hoc Committee on Merit Salary Increase Allocation, School of Criminology

and Criminal Justice, 1998-1999.

Member, Academic Committee, School of Criminology and Criminal Justice, 2000- .

Member, Recruiting Committee, School of Criminology and Criminal Justice, 2000- 2001.

Member, Promotion and Tenure Committee, School of Criminology and Criminal

Justice,

2000-.

Chair, Committee on Ph.D. Comprehensive Examination in Research Methods,
School of

Criminology and Criminal Justice, 2000-2002.

Chair, Promotion and Tenure Committee, School of Criminology and Criminal
Justice,

2001-2002.

Faculty Adviser, School of Criminology and Criminal Justice Graduate Student
Association, 2001-present.

Member, ad hoc committee on survey research, School of Criminology and Criminal
Justice, 2002.

Coordinator of Parts 2 and 4 of the School of Criminology and Criminal Justice Unit
Review, 2002.

Chair, Academic Committee, School of Criminology and Criminal Justice, 2002-
2003.

Director, Honors Programs, School of Criminology and Criminal Justice, 2002-
present.

Member, University Promotion and Tenure Committee, Fall, 2003 to present.

Member of University Graduate Policy Committee, Fall 2003 to .

Director of Graduate Studies, School (later College) of Criminology and Criminal

Justice,

April 2004 to May 2011.

Chair, Promotion and Tenure Committee, College of Criminology and Criminal

Justice,

2005-2006

Served as major professor on Area Paper by Christopher Rosbough, completed in 2012.

Served as member of dissertation committee of Kristen Lavin, dissertation completed in

2012.

Served as member of dissertation committee of Elizabeth Stupi, dissertation completed in

2013.

Served as outside member on two dissertation committees in 2014-2015: Brian Meehan

in the Department of Economics and Adam Weinstein in the English Department.

Both dissertations were completed.

Served as major professor on Area Paper on legalization of marijuana for Pedro Juan Matos Silva, Spring 2015. Paper completed.

Served as major professor for doctoral student Moonki Hong, who finished his

dissertation. .

PUBLIC SERVICE

Television, radio, newspaper, magazine, and Internet interviews concerning gun control,

racial bias in sentencing, crime statistics, and the death penalty. Interviews and other kinds of news media contacts include Newsweek, Time, U.S. News and World Report,

New York Times, Washington Post, Chicago Tribune, Los Angeles Times, USA Today,

Boston Globe, Wall Street Journal, Kansas City Star, Philadelphia Inquirer,

Philadelphia News, Atlanta Constitution, Atlanta Journal, Arizona Republican, San

Antonio Express-News, Dallas Morning News, Miami Herald, Tampa Tribune,

Jacksonville Times-Union, Womens' Day, Harper's Bazaar, Playboy, CBS-TV (60 Minutes; Street Stories) ABC-TV (World News Tonight; Nightline), NBC-TV (Nightly

News), Cable News Network, Canadian Broadcasting Company, National Public Radio,

Huffington Post, PolitiFact.com, and many others.

Resource person, Subcommittee on Crime and Justice, (Florida House) Speaker's

Advisory

Committee on the Future, February 6-7, 1986, Florida State Capitol.

Testimony before the U.S. Congress, House Select Committee on Children, Youth
and

Families, June 15, 1989.

Discussant, National Research Council/National Academy of Sciences Symposium
on the

Understanding and Control of Violent Behavior, April 1-4, 1990, Destin,
Florida.

Colloquium on manipulation of statistics relevant to public policy, Statistics
Department,

Florida State University, October, 1992.

Speech to faculty, students, and alumni at Silver Anniversary of Northeastern
University

College of Criminal Justice, May 15, 1993.

Speech to faculty and students at Department of Sociology, University of New
Mexico,

October, 1993.

Speech on the impact of gun control laws, annual meetings of the Justice Research
and

Statistics Association, October, 1993, Albuquerque, New Mexico.

Testimony before the Hawaii House Judiciary Committee, Honolulu, Hawaii, March 12,

1994.

Briefing of the National Executive Institute, FBI Academy, Quantico, Virginia, March 18,

1994.

Delivered the annual Nettler Lecture at the University of Alberta, Edmonton, Canada, March 21, 1994.

Member, Drugs-Violence Task Force, U.S. Sentencing Commission, 1994-1996.

Testimony before the Pennsylvania Senate Select Committee to Investigate the Use of

Automatic and Semiautomatic Firearms, Pittsburgh, Pennsylvania, August 16, 1994.

Delivered lectures in the annual Provost's Lecture Series, Bloomsburg University, Bloomsburg, Pa., September 19, 1994.

Briefing of the National Executive Institute, FBI Academy, Quantico, Virginia, June 29,

1995.

Speech to personnel in research branches of crime-related State of Florida agencies, Research and Statistics Conference, sponsored by the Office of the State Courts Administrator, October 19, 1995.

Speech to the Third Annual Legislative Workshop, sponsored by the James Madison Institute and the Foundation for Florida's Future, February 5, 1998.

Speech at the Florida Department of Law Enforcement on the state's criminal justice research agenda, December, 1998.

Briefing on news media coverage of guns and violence issues, to the Criminal Justice Journalists organization, at the American Society of Criminology annual meetings in Washington, D.C., November 12, 1998.

Briefing on gun control strategies to the Rand Corporation conference on "Effective Strategies for Reducing Gun Violence," Santa Monica, Calif., January 21, 2000.

Speech on deterrence to the faculty of the Florida State University School of Law, February 10, 2000.

Invited address on links between guns and violence to the National Research Council Committee on Improving Research Information and Data on Firearms, November 15-16, 2001, Irvine, California.

Invited address on research on guns and self-defense to the National Research Council

Committee on Improving Research Information and Data on Firearms, January 16-

17, 2002, Washington, D.C.

Invited address on gun control, Northern Illinois University, April 19, 2002.

Invited address to the faculty of the School of Public Health, University of Alabama, Birmingham, 2004.

Invited address to the faculty of the School of Public Health, University of Pennsylvania,

March 5, 2004.

Member of Justice Quarterly Editor Selection Committee, Academy of Criminal Justice

Sciences, Spring 2007

Testified before the Gubernatorial Task Force for University Campus Safety, Tallahassee,

Florida, May 3, 2007.

Gave public address, “Guns & Violence: Good Guys vs. Bad Guys,” Western Carolina

University, Cullowhee, North Carolina, March 5, 2012.

Invited panelist, Fordham Law School Symposium, “Gun Control and the Second Amendment,” New York City, March 9, 2012.

Invited panelist, community forum on “Students, Safety & the Second Amendment,” sponsored by the Tallahassee Democrat.

Invited address at University of West Florida, Department of Justice Studies, titled

“Guns,

Self-Defense, and the Public Interest,” April 12, 2013.

Member, National Research Council Committee on Priorities for a Public Health

Research Agenda to Reduce the Threat of Firearm-related Violence, May 2013.

Invited address at Davidson College, Davidson, NC, April 18, 2014. Invited by the

Department of Philosophy.

OTHER ITEMS

Listed in:

Marquis Who's Who

Marquis Who's Who in the South and Southwest

Who's Who of Emerging Leaders in America

Contemporary Authors

Directory of American Scholars

Writer's Directory

Participant in First National Workshop on the National Crime Survey, College Park, Maryland, July, 1987, co-sponsored by the Bureau of Justice Statistics and the American Statistical Association.

Participant in Second National Workshop on the National Crime Survey, Washington, D.C., July, 1988.

Participant, Seton Hall Law School Conference on Gun Control, March 3, 1989.

Debater in Intelligence Squared program, on the proposition “Guns Reduce Crime.” Rockefeller University, New York City, October 28, 2008. Podcast

distributed

through National Public Radio. Further details are available at

<http://www.intelligencesquaredus.org/Event.aspx?Event=36>.

Subject of cover story, “America Armed,” in Florida State University Research in Review, Winter/Spring 2009.

Grants reviewer, Social Sciences and Humanities Research Council of Canada, 2010.

Named one of “25 Top Criminal Justice Professors” in the U.S. by Forensics

Colleges

website (<http://www.forensicscolleges.com/>), 2014.

Expert Testimony in Past Five Years

Maryland Shall Issue v. Hagan. Maryland. Deposition 5-18-18.

Association of New Jersey Rifle and Pistol Clubs v. Grewel. New Jersey. Deposition 8-2-18.

Rupp v. Becerra, California. Deposition 12-12-18.

NRA v. Swearingen, Florida. Deposition via Zoom 8-13-20.

Maryland Shall Issue v. Anne Arundel County, Maryland. Deposition via Zoom 9-29-22.

OFF v. Brown, Oregon. Deposition via Zoom 1-25-23.

CERTIFICATE OF SERVICE
IN THE UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
SOUTHERN DIVISION

Case Name: *Rupp, et al. v. Becerra*
Case No.: 8:17-cv-00746-JLS-JDE

IT IS HEREBY CERTIFIED THAT:

I, the undersigned, am a citizen of the United States and am at least eighteen years of age. My business address is 180 East Ocean Boulevard, Suite 200, Long Beach, California 90802.

I am not a party to the above-entitled action. I have caused service of:

EXPERT WITNESS REBUTTAL REPORT OF GARY KLECK

on the following party by electronic mail.

Xavier Becerra
Attorney General of California
Anna Ferrari
Deputy Attorney General
Email: anna.ferrari@doj.ca.gov
455 Golden Gate Ave., Suite 11000
San Francisco, CA 94102

I declare under penalty of perjury that the foregoing is true and correct.

Executed February 3, 2023.


Laura Palmerin

EXHIBIT 56

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cmichel@michellawyers.com
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Facsimile: 562-216-4445

Attorneys for Plaintiffs

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
SOUTHERN DIVISION

STEVEN RUPP, et al.,

Plaintiffs,

vs.

ROB BONTA, in his official capacity as
Attorney General of the State of
California,

Defendant.

Case No.: 8:17-cv-00746-JLS-JDE

**EXPERT WITNESS REBUTTAL
REPORT OF CLAYTON
CRAMER**

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State v. Chandler, 5 La. Ann. Rep. 489, 490 (1850).....	18
State v. Jumel, 13 La. Ann. Rep. 399, 400 (1858).....	18
State v. Smith, 11 La. Ann. Rep. 638 (1856).....	18

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James H. Deering, comp., SUPPLEMENT TO THE CODES AND GENERAL LAWS OF THE STATE OF CALIFORNIA Act 889 §§ 3, 6 (San Francisco: Bancroft-Whitney Co., 1917).	14

Other Authorities

“REPORT of the Investigative Committee in the matter of Professor Michael Bellesiles,” Jul. 10, 2002, 18	2
“The Immigration and Nationality Act of 1952 (The McCarran-Walter Act),” U.S. Department of State,	13
“The insanity defense’ and Diminished Capacity,” https://www.law.cornell.edu/background/insane/insanity.html	44
22 Killed In Hotel Fire In San Francisco, [Santa Cruz, Cal.] Santa Cruz Sentinel, Mar. 29, 1944, 1.....	40
3 Teamsters Charged in San Juan Hotel Fire, Chicago Tribune, Feb. 4, 1988,.....	25, 42
A Decade On, Childers Remembers Hostel Fire Tragedy, Brisbane [Australia] Times, Jun. 23, 2010	41
A Triple Murder at Sleepy Hollow, Wilmington [N.C.] Journal, Jan. 14, 1870, 1.....	29
A Triple Murder, [Plymouth, Ind.] Marshall County Republican, Feb. 16, 1865, 1	29
A War in Wyoming, [Maysville, Ky.] Evening Bulletin, Apr. 13, 1892, 1.....	22

1	Allen D. Candler, comp., 19(part 2) The Colonial Records of the State of Georgia 348-56 (1911).	8
2	Annie Sciacca, "It was a bloodbath": Orinda Halloween shooting investigation reveals gang connections, San Jose Mercury-News, Nov. 17, 2019.....	25
4	<i>Attempt Made To Wreck Soo Locks</i> , EAST OREGONIAN, May 16, 1917, 1.....	21
6	Bernard E. Harcourt, From the Asylum to the Prison: Rethinking the Incarceration Revolution, 84 <i>Texas Law Review</i> 1766-75 (2006).	49
7	Black Hand Kills Four By Dynamite, Bluefield [W.Va.] Evening Leader, May 17, 1909, 1.....	34
9	Bomb Batters Wall Street; 31 Slain, 125 Hurt, The Sun and the New York Herald, Sep. 17, 1920, 1.	35
10	Bomb Survivors Tell Of Explosion, [Washington, D.C.] Evening Star, Jan. 12, 1930, 1	38
12	Bomb Wrecks Farmers Home Killing Three, [Salem, Ore.] Capital Journal, Nov. 19, 1920, 1.....	36
13	Boy Admits Fire Fatal To 95, Miami News, January 16, 1962, 1.....	41
14	Browne, Report of the Debates in the Convention of California, on the Formation of the State Constitution... 47 (1850).....	17
16	Burns Lodging House When Refused Room; 27 Homeless Men Died, [New York, N.Y.] Evening World, Dec. 3, 1913, 1.....	40
17	California Assembly Concurrent Resolution No. 42. https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=200920100ACR42	13
19	<i>California Digital Newspaper Collection</i>	16
20	Candace Sutton, Man Who Murdered 11 People in Nursing Home Fire 'Frothed At The Mouth' From Drugs And 'Put Nails In Tyres And Poured Paint' Over Boss's Car, Inquest Hears, [U.K.] Daily Mail, Sep. 8, 2014.	41
23	Centers for Disease Control and Prevention, National Center for Health Statistics. National Vital Statistics System, Mortality 1999-2020 on CDC WONDER Online Database	49
25	Chris Tami, <i>New York City Wills</i> 1-11 (Orem, Utah: Ancestry, Inc., 1998-99).....	3
26	Christine Sarteschi. (2015). Severe Mental Illness, Somatic Delusions, and Attempted Mass Murder. <i>Journal Of Forensic Sciences</i> . 61. 10.1111/1556-4029.12876.....	53
28	Clayton E. Cramer, <i>Concealed Weapon Laws Of The Early Republic:</i>	

1	Dueling, Southern Violence, And Moral Reform 52-62 (1999).	17
2	Clayton E. Cramer, Ethical Problems of Mass Murder Coverage in the Mass Media, 9:1 Journal of Mass Media Ethics 26-42 (Winter, 1993-94).....	26
3		
4	Clayton E. Cramer, Mental Illness and the Second Amendment. 46 Connecticut Law Review 1301-6 (May 2014):(.....	48
5	Clayton E. Cramer, My Brother Ron: A Personal and Social History of the Deinstitutionalization of the Mentally Ill (2012).....	48
6		
7	Colin M. MacLachlan, ANARCHISM AND THE MEXICAN REVOLUTION: THE POLITICAL TRIALS OF RICARD FLORES MAGON IN THE UNITED STATES 64 (1991).....	15
8		
9	Criminal Justice Research Center, <i>Homicide Among Adults in Colonial and Revolutionary New England, 1630-1797</i> , https://cjrc.osu.edu/research/interdisciplinary/hvd/united- states/colonial-revolutionary-new-england	21
10		
11	David Alan Johnson, FOUNDING THE FAR WEST: CALIFORNIA, OREGON, AND NEVADA, 1840-1890, 129 (1992)	19
12		
13	David M. Chalmers, HOODED AMERICANISM: THE HISTORY OF THE KU KLUX KLAN 124 (1981, 3 rd ed.).	13
14	Davis McEntire, RESIDENCE AND RACE: FINAL AND COMPREHENSIVE REPORT TO THE COMMISSION ON RACE AND HOUSING 269 (1960).	19
15		
16	Day of Joy is One of Sorrow, [Valley City, N.D.] Weekly Times- Record, January 1, 1914, 6.	43
17	<i>Draw Teeth of War Breeders</i> , LOS ANGELES TIMES, March 14, 1916, at 2:1	14
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19	<i>Draw Teeth of War Breeders</i> , LOS ANGELES TIMES, March 14, 1916, at 2:1, 2:2;	15
20	Drowned Her Six Children, Adams County News [Ritzville, Wash.] Feb. 27, 1901, 4	27
21		
22	Dynamite Kills Five In Spite Act, New-York Tribune, Nov. 16, 1914, 1.....	34
23	Dynamite Trial Opens Today in ‘Frisco; 10 Were Killed by Bomb, Bemidji [Minn.] Daily Pioneer, Jan. 3, 1917, 1;	35
24	E.B. Willis and P.K. Stockton, 1 DEBATES AND PROCEEDINGS OF THE CONSTITUTIONAL CONVENTION OF THE STATE OF CALIFORNIA... 285 (1880).....	20
25		
26	Eight Are Killed In Blasted Homes, [Washington, D.C.] Evening Star, May 06, 1925, 1	36
27		
28	Elisabeth Dias with Jim Down, The Horror Upstairs, Time, Jul. 1, 2013.....	42

1	Fate Saves Scores in Blast When Maniac's Plot Kills 43, [Washington, D.C.] Evening Star, May 19, 1927, 1.	37
2	FBI, Jack Gilbert Graham, https://www.fbi.gov/history/famous-	
3	cases/jack-gilbert-graham ,	38
4	FBI, <i>Serial Murder: Multidisciplinary Perspectives for Investigators</i> 8 (2008),	20
5	Five Killed, 11 Hurt As Explosion Razes 35th St. Tenement, New York Times, Oct. 9, 1927, 1.....	37
6		
7	Flowers And Flowers, Murders In The United States, 30-1	38
8	Flowers and Flowers, Murders in the United States, 56-7.....	39
9	<i>For the Safety of Los Angeles</i> , LOS ANGELES TIMES, March 16, 1916, at 2:4	15
10	Four Killed In Bomb Explosion In Tenement District Of New York, [Douglas, Ariz.] Douglas Daily Dispatch, Oct. 09, 1927, 1;.....	37
11		
12	Four People Wounded, Palestine [Tex.] Daily Herald, Feb. 4, 1909, 2	22
13	From California and Oregon, [Washington, D.C.] Evening Star, Mar. 21, 1860, 2.	45
14	George Washington, John C. Fitzpatrick, ed., 9 The Writings of George Washington, from the Original Manuscript Sources, 1745-1799 140-41 (1931-44)	8
15		
16	Gift Package Bomb Kills Woman; 5 Hurt, [Washington, D.C.] Evening Star, Jan. 01, 1930, 1;	38
17		
18	Gloria L. Main, "Many Things Forgotten: The Use of Probate Records in <i>Arming America</i> ," 59:1 William and Mary Quarterly 211-16 (Jan. 2002),	1
19		
20	H.R. McIlwaine, ed., <i>Journals of the Council of the State of Virginia</i> (1931), 1:30.....	6
21		
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10	8, 1909, 1	22

1 **I. Purpose**

2 This Expert Declaration and Report analyzes Prof. Roth's Supplemental
3 Expert Report concerning the "history of homicides and mass murders." There is
4 much merit in Prof. Roth's analysis of the history of murder in America. I take
5 exception primarily to his interpretation of the influence of firearms technology on
6 murder and mass murder in particular.

7 **II. Early American Murder Weapons**

8 **A. Gun Scarcity**

9 On p. 9: "Approximately 50 to 60 percent in the colonial and Founding eras
10 owned a working firearm..." The question of how widespread firearm ownership
11 was in the colonial era became an important question in 2000 because of Prof.
12 Michael Bellesiles' groundbreaking, and as it turned out, fraudulent work *Arming*
13 *America*. Prof. Bellesiles claimed that firearms ownership in the period 1765-1790
14 was in all regions less than 20% of probate inventories, and many of these were
15 listed as "broken or defective."¹

16 The defectiveness of these claims was thoroughly demonstrated in a William
17 and Mary Quarterly issue devoted to analysis of Bellesiles' claims. Gloria Main
18 showed that probate records of that period were often less than complete.² Another
19 paper demonstrated that that other probate inventory surveys show much higher
20 numbers than Bellesiles claimed, and that attempting to replicate his results from the
21 probate inventories he purported to have read showed wide discrepancies.³

22 Subsequent investigation revealed that Bellesiles had claimed to have visited
23 archives that had no record of his visits, where he claimed to have read probate

24 _____
25 ¹ Michael Bellesiles, *Arming America: The Origins of American Gun Culture* 13,
26 445 (2000).

27 ² Gloria L. Main, "Many Things Forgotten: The Use of Probate Records in
28 *Arming America*," 59:1 WILLIAM AND MARY QUARTERLY 2111-16 (Jan. 2002), .

³ James Lindgren and Justin L. Heather, "Counting Guns in Early America." 59:1
WILLIAM AND MARY QUARTERLY 1777-78 (Jan. 2002) .

1 inventories lost in the 1906 San Francisco earthquake and fires. He also read
2 probate inventories at a courthouse in Vermont in a county that does not and has
3 never existed.⁴

4 As the immensity and brazenness of Bellesiles' fraud became evident, Emory
5 University convened a panel of distinguished historians to evaluate the accusations.
6 Their report was damning. Along with criticizing use of non-existent sources, and
7 careless research methods, "Here is a clear admission of misrepresentation, since the
8 label on column one in Table One clearly says "1765-1790." If Professor Bellesiles
9 silently excluded data from the years 1774-1776, as he asserts, precisely because
10 they failed to show low numbers of guns, he has willingly misrepresented the
11 evidence."⁵

12 That said, is there any reason to doubt the validity of Prof. Roth's claim that
13 "50 to 60 percent of households" owned a working firearm, which is consistent with
14 non-Bellesiles probate inventories? First, there are no registration records from
15 which to gather such data. Probate inventories are the only practical method to
16 create such counts.

17 My own limited analysis of probate inventories from Connecticut for the years
18 1639 to 1663 found that 71 percent "explicitly list guns, or list 'armes an
19 ammunition,' for a total of 41 guns. (Excluded are William Whiting's 'two great
20 guns,' cannons on board his ship.)" Plymouth inventories

21 for the period 1628–1687 reveals similar results: 90 (66.7 percent)
22 included at least one firearm.⁶ There was an average of 1.48 guns per

23 ⁴ James Lindgren, "Fall from Grace: Arming America and the Bellesiles
24 Scandal," 111:8 YALE LAW JOURNAL 2195, 2211, 2210 (Jun. 2002), .

25 ⁵ "REPORT of the Investigative Committee in the matter of Professor Michael
26 Bellesiles," Jul. 10, 2002, 18,
https://www.emory.edu/central/NEWS/Releases/Final_Report.pdf, last accessed
January 17, 2023.

27 ⁶ See Patricia Scott Deetz, Christopher Fennell, and J. Eric Deetz, *The Plymouth*
28 *Colony Archive Project* "Analysis of Selected Probate Inventories," available at

1 inventory for all estates, or 2.22 guns per inventory among those estates
2 that listed at least one gun. The largest number of guns was 38,
3 belonging to Thomas Willett, a very wealthy man of some importance.
4 ⁷ The value of the firearms averaged £1:0:8, and like the Connecticut
5 probate inventories, because firearms were assessed together with other
6 goods, this represents a maximum value. Like Connecticut, guns are
7 more commonly associated with male probate inventories than female,
8 but two out of eight female probate inventories at Plymouth Colony
9 listed firearms—two firearms in each of these two estates.⁸

10 How common were guns in New York? A search for “gun,” “pistol,” and
11 “fowling piece” in a data base of New York City wills and estate inventories from
12 1665 through 1790 found hundreds of matches.⁹ The context demonstrates that guns
13 were personally owned, and that some people owned multiple guns. One such
14 example was Solomon Peters, a prosperous free black New York farmer at the close
15 of the seventeenth century.¹⁰ His 1694 will bequeathed his guns, swords, and pistols
16 to his sons.

17 Probate inventories necessarily are biased towards the elderly. Death,
18 unsurprisingly, is more an old people’s activity. Would elderly people be less likely
19 to own firearms? Almost every colony mandated that men of military age possess or

20 <http://etext.lib.virginia.edu/users/deetz/Plymouth/probates.html> for a list of selected
21 probate inventories. While I make no pretense that these inventories were randomly
22 selected, they were not selected by me, and there is no reason to assume that they are
23 unrepresentative with respect to the presence of guns.

24 ⁷ Thomas Willett, *Plymouth Colony Wills* 3:117-128, excerpted in Deetz, Fennell,
25 and Deetz, *The Plymouth Colony Archive Project*, available at
26 <http://etext.lib.virginia.edu/users/deetz/Plymouth/P231.htm>.

27 ⁸ Margaret Carpenter, *Plymouth Colony Wills* 3(2):37-38, excerpted in Deetz,
28 Fennell, and Deetz, *The Plymouth Colony Archive Project*, available at
29 <http://etext.lib.virginia.edu/users/deetz/Plymouth/P278.htm> and Alice Bradford,
30 *Plymouth Colony Wills* 3:3-5, excerpted in Deetz, Fennell, and Deetz, *The Plymouth*
31 *Colony Archive Project*, available at
32 <http://etext.lib.virginia.edu/users/deetz/Plymouth/P178.htm>.

33 ⁹ Chris Tami, *New York City Wills* 1-11 (Orem, Utah: Ancestry, Inc., 1998-99) on
34 <http://www.ancestry.com> under “New York City Wills.”

35 ¹⁰ Joyce Hansen and Gary McGowan, *Breaking Ground, Breaking Silence: The*
36 *Story of New York’s African Burial Ground* 51 (1998).

1 be provided by their employer or family with a musket for militia duty.¹¹ Men
2 appear to have often owned firearms for hunting.¹² Without the legal obligation to
3 possess firearm and with the ravages that age imposes, including declining eyesight
4 (in an era before optical sights existed for firearms) and the loss of stamina, it seems
5 likely that probate inventories understate the prevalence of firearms. How much do
6 they understate it? That is an interesting research question.

7 **B. Muzzle Loading Firearms**

8 Prof. Roth argues that many characteristics of muzzle loading firearms made
9 them less likely to be used for murder. His claims about these characteristics and
10 their impact on their use for murder bear careful inspection. On p. 10: “Fowling
11 pieces, like muskets, were muzzle-loading.” The single shot nature of a muzzle
12 loader certainly slowed down their use for mass murder, at least in a short period of
13 time. The relative scarcity of murders, public or private, in New England is just as
14 plausibly a product of a culture that put enormous stock in its religious values. It as
15 adequately explains the low murder rate both absolutely and relative to the
16 Chesapeake colonies as the state of firearms technology explains it.

17 If you intend to murder several people in a short period of time, an ax or a
18 knife remains a sufficient weapon. They are cheap and silent. They draw no
19 attention to your actions or provide warning to other potential victims.
20 But having raised the question of “[f]amily, household, and intimate partner
21 homicides,” examination of mass murders in the 17th and 18th century demonstrates
22

23 ¹¹ See “Militia Statutes,”
24 <https://claytoncramer.com/primary/primary.html#MilitiaLaws>, last accessed January
25 17, 2023, for a collection of such mandatory possession statutes for the following
26 colonies: Connecticut, Delaware, Georgia, Maryland, Massachusetts, New
27 Hampshire, New Haven, New Jersey, New York, North Carolina, Pennsylvania,
28 Plymouth, Rhode Island, South Carolina, and Virginia.

¹² Clayton E. Cramer, ARMED AMERICA 63-64, 68-75 (2006) (collecting surviving
anecdotal evidence of colonial era hunting).

1 that firearms were not at all necessary for mass murder. While some of these
2 incidents involve more than one murderer, several did not.

3 **Wethersfield, Conn. (1686)**

4 01/07/1686, the murderer killed two with an axe, and attempted murder of one other.
5 It appears that the killer, an Indian, felt “‘the derision of his own people’ for having
6 drawn a weapon at a trading post, a breach of protocol which made him
7 infamous...” among his own people.”¹³

8 **Washington, Conn. (1780)**

9 Feb. 3, 1780, an employee of Caleb Mallory and the employee’s brother robbed then
10 murdered Caleb and wife, and their three grandchildren. The weapons used: club,
11 arson.¹⁴

12 In the early 19th century, when muzzle loading flintlocks remained the only firearm
13 technology (matchlocks and wheellocks being antique by this point), mass murders
14 continued.

15 **Clarksburg, Virginia (1805)**

16 11/10/1805: A father murdered his wife and eight children with an ax. While found
17 guilty, there was substantial evidence of mental illness.¹⁵

18 **Hallowell, Me. (1806)**

19 07/09/1806, The father murdered his wife and seven of his eight children with an
20 axe or knife before killing himself with a knife.¹⁶

22 ¹³ Roth and Dayton, “Homicide among Adults: Connecticut homicides, 1630-
23 1710,” 124.

24 ¹⁴ Roth and Dayton, “Homicide among Adults: Connecticut homicides, 1771-
25 1797,” 68.

26 ¹⁵ “Trial of Abel Clements, “[Edinburgh, Scotland] *Caledonian Mercury*, Aug.
27 25, 1806, 4.

28 ¹⁶ Laurel Thatcher Ulrich, *A Midwife’s Tale: The Life of Martha Ballard, Based
on her Diary, 1785-1812*, (New York, Random House, 1990), 291-307; *Horrid
Murder! At an early hour on Wednesday morning last, the inhabitants of this town
were alarmed with the dreadful information...*, (Augusta, Me., 1806), 1.

1 Even when a firearm is in use, it is sometimes not the only weapon.

2 **Madison Co., Ind. (1824)**

3 03/22/1824, seven whites “decoyed” three Indians away from their women and
4 children, shot them, killing two, then returned to their camp, murdering ten women
5 and children. To cast possible blame on other Indians, “Their bodies were most
6 shockingly mangled.” After one of the boys who committed the murders turned
7 states’ evidence against the rest, they made “a full confession.” At least two were
8 shot; at least one baby killed “by taking it by the heels and beating its brains out
9 against a tree.”¹⁷

10 On p. 10: “Fowling pieces were manufactured specifically to hunt birds and
11 control vermin, so they were designed to fire shot, primarily, rather than ball, and
12 were of lighter construction than muskets.” The manufacturing intent in no way
13 affects the use to which it might be misused.

14 While shot was the intended projectile, fowling pieces were certainly capable
15 of firing ball for military use. Colonial and Revolutionary accounts repeatedly show
16 that fowling pieces were considered military arms. Near the end of Bacon’s
17 Rebellion, Governor Berkeley’s forces captured “four hundred English and Negroes
18 in arms” and confiscated about 500 muskets and fowling pieces.¹⁸ The Virginia
19 Committee of Safety on June 19, 1776 directed delivery of shot to “Captain
20 Washington of the fourth Battalion”¹⁹—which is what we would expect if large
21 numbers of militiamen were armed with fowling pieces, not muskets.

22 At the start of the Revolution, the backcountry North Carolina Regulators
23 sided with the Crown against what they perceived as their low country oppressors.
24 Governor Martin, writing from a Royal Navy warship off Cape Fear on January 12,

25 _____
26 ¹⁷ “Horrid Barbarity,” *Hillsborough [N.C.] Recorder*, Apr. 28, 1824, 3.

27 ¹⁸ Washburn, *Governor and the Rebel*, 88.

28 ¹⁹ H.R. McIlwaine, ed., *Journals of the Council of the State of Virginia* (1931),
1:30.

1 1776, informed the Earl of Dartmouth that between two and three thousand of the
2 former Regulators were ready to join the Loyalist cause, “although not half of them
3 are provided with arms....”²⁰ The Regulators were generally poor, and at least five
4 hundred had voluntarily turned in their arms in 1771. Yet somewhat less than half
5 of them were armed *before* the British government could supply them with weapons.
6 Governor Martin’s letter of March 21 to Lord George Germain claimed that two to
7 three thousand Regulators were now “well armed,” which would only be consistent
8 with his letter of January 12 if the British government had supplied guns to the more
9 than half that were unarmed.²¹

10 In early March, there is a description of the arms captured from these
11 Regulators. The report is ambiguous as to whether the captured arms were supplied
12 by the British government or were the personal property of the Regulators. The
13 Revolutionaries had “taken 350 guns and shot-bags; about 150 swords and dirks;
14 1,500 excellent rifles....” *Some* of the captured materials were almost certainly
15 supplied by the British to the Regulators. The rifles, however, and the description of
16 “shot-bags” (more appropriate to fowling pieces than military muskets) suggest that
17 the Regulators were armed for war with the traditional hunting weapons of the
18 American frontier.²²

19 Guns used by the Continental Army came in a bewildering array of calibers
20 and types, reflecting the diversity of privately owned hunting weapons. Baron von
21 Steuben (a German army officer whose noble title later turned out to be
22 rather...creatively acquired), attempting to drill Continentals at Valley Forge in
23
24

25 ²⁰ William L. Saunders, ed., 10 *The Colonial Records of North Carolina* 406
26 (1890).

27 ²¹ Governor Martin to Lord George Germain, William L. Saunders, ed., 10 *The*
Colonial Records of North Carolina 489 (1968).

28 ²² Saunders, 10 *The Colonial Records of North Carolina* 485-6 (1968).

1 1778, complained about the lack of uniformity of the firearms the soldiers carried:
2 “muskets, carbines, fowling pieces, and rifles were found in the same company.”²³
3 Washington indicated that there were many guns in private hands that, while not
4 well-suited to military use, were certainly functional: “It is to be wished, that every
5 Man could bring a good Musket and Bayonet into the field, but in times like the
6 present, we must make the best shift we can, and I wou’d therefore advise you to
7 exhort every Man to bring the best he has. A good fowling Piece will do execution
8 in the hands of a Marksman.”²⁴ The 1784 Georgia militia law required “those
9 liable” to appear “completely armed and furnished with one rifle musket, fowling-
10 piece or fusee fit for action” along with ammunition.²⁵

11 Even today, a shotgun can be a fearsome weapon of mass murder. The 2013
12 Navy Yard mass murderer used a Remington 870 shotgun. The surveillance photo
13 shows that he had installed the three-round magazine tube extension.²⁶ (I recognize
14 the gun and the magazine extension. I have one identical to it.) Even without the
15 extension, my experience is that I can reload a Remington 870 fast enough that the
16 magazine extension provides only limited improvement in speed of fire.

21 ²³ M.L. Brown, *Firearms in Colonial America: The Impact on History and*
22 *Technology 1492-1792* 306 (1980).

23 ²⁴ George Washington, John C. Fitzpatrick, ed., 9 THE WRITINGS OF GEORGE
24 WASHINGTON, FROM THE ORIGINAL MANUSCRIPT SOURCES, 1745-1799 (1931-44)
140-41; see also 7:123.

25 ²⁵ Allen D. Candler, comp., 19(part 2) THE COLONIAL RECORDS OF THE STATE OF
26 GEORGIA 348-56 (1911).

27 ²⁶ Peter Hermann and Ann E. Marimow, “Navy Yard shooter Aaron Alexis
28 driven by delusions,” WASHINGTON POST, Sep. 25, 2013,
https://www.washingtonpost.com/local/crime/fbi-police-detail-shooting-navy-yard-shooting/2013/09/25/ee321abe-2600-11e3-b3e9-d97fb087acd6_story.html, last
accessed January 17, 2023.

1 The 1988 mass murderer at ESL Inc. in Sunnyvale, California carried two pistols, a
2 .30-06 high-powered rifle and a 12-gauge shotgun. News reports tell us that he used
3 the shotgun to murder seven and injure four.²⁷

4 On p. 11: “And muzzle-loading guns were difficult to keep loaded for any
5 length of time, because black powder absorbed moisture and could corrode the barrel
6 or firing mechanism or make the charge liable to misfire.” Prof. Roth makes a
7 perfectly logical claim, but one that seems contrary to the practices of the time.
8 Massachusetts Governor Winthrop’s journal reports several accidental deaths or
9 injuries caused by colonists failing to follow this very logical action:

10 At a training at Watertown, a man of John Oldham's, having a musket,
11 which had been long charged with pistol bullets, not knowing of it, gave
12 fire, and shot three men, two into their bodies, and one into his hands;
13 but it was so far off, as the shot entered the skin and stayed there, and
14 they all recovered.²⁸

15 And:

16 Three men coming in a shallop from Braintree, the wind taking them
17 short at Castle Island, one of them stepping forward to hand the sail,
18 caused a fowling piece with a French lock, which lay in the boat, to go
19 off. The whole charge went through the thigh of one man within one
20 inch of his belly, yet missed the bone, then the shot (being goose shot)
21 scattered a little and struck the second man under his right side upon his
22 breast, so as above 40 shot entered his body, many into the capacity of
23 his breast.²⁹

24 And:

25 One Richard Sylvester, having three small children, he and his wife
26 going to the assembly, upon the Lord's day, left their children at home.
27 The eldest was without doors looking to some cattle ; the middle-most,
28 being a son about five years old, seeing his father's fowling piece, (being
a very great one,) stand in the chimney, took it and laid it upon a stool,

24 ²⁷ Jay Mathews, “Sudden Death in Sunnyvale,” WASHINGTON POST, Feb. 18,
25 1988, [https://www.washingtonpost.com/archive/politics/1988/02/18/sudden-death-](https://www.washingtonpost.com/archive/politics/1988/02/18/sudden-death-in-sunnyvale/4f50e5d7-0804-4a56-a2af-ced693c3b577/)
26 [in-sunnyvale/4f50e5d7-0804-4a56-a2af-ced693c3b577/](https://www.washingtonpost.com/archive/politics/1988/02/18/sudden-death-in-sunnyvale/4f50e5d7-0804-4a56-a2af-ced693c3b577/), last accessed January 17,
27 2023.

28 ²⁸ John Winthrop, James Kendall Hosmer, ed., 1 *Winthrop’s Journal: “History of
New England” 1630-1649* (1908), 83.

²⁹ Id. 2:55.

1 as he had seen his father do, and pulled up the cock, (the spring being
2 weak,) and put down the hammer, then went to the other end and blowed
3 in the mouth of the piece, as he had seen his father also do, and with
that stirring the piece, being charged, it went off, and shot the child into
the mouth and through his head.³⁰

4 And:

5 It is observable that this man had gathered some providences about such
6 as were against them, as that Mr. Winslow's horse died, as he came
7 riding to Boston; that his brother's son (a child of eight years old) had
8 killed his own sister (being ten years of age) with his father's piece, etc.,
and his great trouble was, least this providence which now befell him,
should be imputed to their cause.³¹

9 These four incidents of firearms kept loaded when not in active use resulting
10 in misadventure are in *one* book. How many of these loaded firearms sat quietly in
11 there place, refusing to fire?

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27 ³⁰ Id., 2:72.

28 ³¹ Id., 2:317.

1 Finally, one more evidence that Americans did not keep firearms unloaded
2 except when ready for use with any great regularity. In 1783, Massachusetts passed
3 a statute that shows firearms were kept loaded regularly enough to justify a law
4 regulating it:

5
6 An act in addition to the several acts already made for the
prudent storage of Gun powder within the town of Boston.
7 [Passed March 1, 1783.]

8 WHEREAS the depositing of loaded arms in the houses of the
9 town of Boston, is dangerous to the lives of those who are dis-
posed to exert themselves when a fire happens to break out in
10 said town.

11 [1] SEC. 1. *Be it enacted by the Senate and House of*
Representatives in General Court assembled and by the au-
12 *thority of the same, That if any person shall take into any*
dwelling house, stable, barn, out house, ware house, store,
13 shop or other building within the town of Boston, any cannon,
swivel, mortar, howitzer, cohorn, or fire arm, loaded with or
14 having gunpowder in the same, or shall receive into any dwel-
ling house, stable, barn, out house, store, ware house, shop, or
15 other building within said town, any bomb, grenade, or other
iron shell, charged with, or having gun powder in the same,
16 such person shall forfeit and pay the sum of *ten pounds*, to be
recovered at the suit of the Firewards, [*duties of Firewards*
17 *transferred to Engineers,*] of the said towns, in an action of
debt before any court proper to try the same; one moiety
18 thereof, to the use of said Firewards, and the other moiety to
the support of the poor of said town of Boston.

19
20 The preamble is clear: this is a fire safety statute. You were free to keep small
21 arms, cannon and a variety of other types of artillery, bombs, and grenades at home,
22 as long as they were unloaded. Why was their a need for such a law unless firearms
23 (and artillery) were at least occasionally left loaded?

24 On pp. 11-12: “Otherwise, however, colonists seldom went about with loaded
25 guns, except to hunt, control vermin, or muster for militia training.” Prof. Roth’s
26 argument seems to be that murders were rare because loaded firearms were not
27 immediately at hand during domestic disputes. This might be a persuasive argument
28

1 about murder in general, but mass murderers are seldom people who lose their
2 temper in a fit of rage and grab a gun from the closet. The recent era's mass murders
3 are almost always carefully planned, premeditated crimes.

4 **III. California's Gun Law History**

5 **A. The 1923 Law**

6 Prof. Roth discusses California's gun law history but seems unaware of its
7 racist origins. A variation of the Uniform Revolver Act passed in several American
8 states in the 1920s; the 1923 law enhanced the punishments for various crimes
9 committed with a handgun,³² made carrying a handgun without a permit evidence of
10 intention to commit a felony,³³ required a concealed weapon permit anywhere in the
11 state (not just in cities),³⁴ and also prohibited possession of concealable handguns by
12 anyone who was not a U.S. citizen.³⁵

13 What motivated passage of this law? Legislative documents are astonishingly
14 sparse on the reasons, but as is often the case, newspaper coverage is more
15 forthcoming. Governor Friend W. Richardson signed the law after R. T. McKissick,
16 "president of the Sacramento Rifle and Revolver Club," argued that this law
17 preserved the "rights of those using firearms for competition or hunting or for
18 protection in outing trips." McKissick was concerned that a more stringent gun
19 control law might be passed if Governor Richardson vetoed this one. McKissick
20 admitted that the provision prohibiting handgun ownership by non-citizens was of
21 questionable constitutionality, but that he believed that if it was upheld, it would
22 have a beneficial effect "in checking *tong* [gang] wars among the Chinese and
23 vendettas among our people who are Latin descent."³⁶

24 ³² Stats. 1923, ch. 339, § 3.

25 ³³ *Id.*

26 ³⁴ Stats. 1923, ch. 339, § 5.

27 ³⁵ Stats. 1923, ch. 339, § 2.

28 ³⁶ *New Firearms Law Effective on August 7*, SAN FRANCISCO CHRONICLE, July 15, 1923, at 3, col. 1.

1 Why did Richardson sign a law with racist intentions? When Richardson ran for
2 governor in 1922, he would not answer the question of whether he was a member of
3 the Ku Klux Klan—but the Klan enthusiastically endorsed Richardson.³⁷

4 With such blunt statements of racist intent, not surprisingly, the discriminatory
5 effect of the new law was immediately recognized. The Mexican consul in Los
6 Angeles protested the alien handgun ban, since “a large proportion of the foreigners
7 in California were of Mexican descent.”³⁸ Mexican immigrants, being white, could
8 at least apply for citizenship. Asian immigrants were ineligible for
9 naturalization³⁹—and therefore were breaking the law if they owned a handgun.
10 The California legislature has admitted the racism involved. “Among other things,
11 these laws denied the Chinese in California the right to own land or property, the
12 right to vote, and the right to marry a white person, denied children of Chinese
13 descent access to public schools, denied Chinese immigrants *the right to bear*
14 *arms*”⁴⁰ [emphasis added]

15 **B. The 1917 Law**

16 The 1923 law is bluntly racist. The 1917 law is more in the category of
17 suspicious. In 1917, California again passed a concealed weapon statute. Instead of
18 completely prohibiting concealed carry (as the 1863 law had done), this law made it
19 a misdemeanor to carry concealed firearms in cities without a license—and a felony
20 for those previously convicted of a felony. (It was still legal to carry concealed in
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22

23 ³⁷ David M. Chalmers, HOODED AMERICANISM: THE HISTORY OF THE KU KLUX
24 KLAN 124 (1981, 3rd ed.).

24 ³⁸ Ricardo Romo, EAST LOS ANGELES: HISTORY OF A BARRIO 157 (1983).

25 ³⁹ *The Immigration and Nationality Act of 1952 (The McCarran-Walter Act)*, U.S.
26 Department of State, <https://history.state.gov/milestones/1945-1952/immigration-act>,
last accessed January 17, 2023.

27 ⁴⁰ California Assembly Concurrent Resolution No. 42.
28 https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=200920100ACR42

unincorporated areas.)⁴¹ Also for the first time, California required registration of handgun sales, with a “Dealers’ Record of Sale” mailed to local law enforcement.⁴² What provoked the legislature to again pass a statewide law? I have spent a bit of time trying to find the reason, without finding completely persuasive evidence. What I have found, however, suggests that racism played a role. In the previous year, California experienced a burst of anti-Mexican sentiment as a result of Pancho Villa’s cross-border raid on Columbus, New Mexico. Even conservative Republican newspapers such as the *Los Angeles Times* (this was obviously a long time ago), which was far less prejudiced about race than most newspapers of the era, went off the deep end in their fear and hatred of Mexicans, many of whom were refugees from the Mexican Revolution.⁴³

In Los Angeles, Police Chief Snively feared that Mexicans sympathetic to Pancho Villa might take up arms, and gave orders that lacked any legal authority:

Acting under orders from Chief Snively, the police department yesterday took drastic action to prevent any local outburst on the part of Villa sympathizers. The cordon of officers thrown about the Mexican quarter was extended and reinforced and the embargo against the sale of arms and liquor to Mexicans amplified and made general....⁴⁴

The article described the measures taken as being

for the benefit of Mexicans who have become excited over the action of the Federal government against Villa and who have made threats of vengeance and violence...

No liquor will be sold to Mexicans showing the least sign of intoxication.

⁴¹ James H. Deering, comp., SUPPLEMENT TO THE CODES AND GENERAL LAWS OF THE STATE OF CALIFORNIA Act 889 §§ 3, 6 (San Francisco: Bancroft-Whitney Co., 1917).

⁴² *Id.*, Act 889 § 7.

⁴³ See Clayton E. Cramer, *Race and Reporting: The Los Angeles Times in Early 1916*, available at <http://www.claytoncramer.com/unpublished/LATimesAndRace.pdf> (for a detailed examination of changes in reporting as a result of the Villa raid).

⁴⁴ *Draw Teeth of War Breeders*, LOS ANGELES TIMES, March 14, 1916, at 2:1.

1 No guns can be sold to Mexicans and all dealers who have used guns
2 for window displays have been ordered to take them from the windows
3 and to show them to no Mexican until the embargo is lifted.⁴⁵

4 At least part of what might have provoked Chief Snively unlawful actions was that:

5 Three admitted anarchists, priding themselves upon being disciples of
6 the Magon brothers and all heavily armed, were taken into custody on
7 charges of carrying concealed weapons [contrary to city ordinance] and
8 were given sixty-day sentences by Police Judge White....⁴⁶

9 The Magon brothers had no connection to Villa. Quite the opposite, the
10 Magon brothers regarded Villa as “just another parasite” preventing a socialist
11 revolution in Mexico.⁴⁷ Chief Snively seems to have missed these distinctions.
12 Nonetheless, there were some significant political demonstrations of pro-Villa
13 support among Mexicans living in Los Angeles, and it appears that Mexicans
14 immigrants were buying guns in what appeared to be unusual numbers.

15 News accounts suggest that these purchases, primarily of “heavy revolvers,”
16 might have been for defensive purposes. The Villa raid had inflamed anti-Mexican
17 sentiment among Americans all along the border, and many Mexicans appeared to
18 be buying handguns because they were afraid of being attacked, not to be
19 aggressive.⁴⁸ Was the statewide concealed weapon permit law—and the handgun
20 registration requirement—driven by the somewhat understandable concern about
21 Pancho Villa supporters in California? It is an interesting question, and one that
22
23

24 ⁴⁵ *Id.*

25 ⁴⁶ *Id.*

26 ⁴⁷ Colin M. MacLachlan, ANARCHISM AND THE MEXICAN REVOLUTION: THE
27 POLITICAL TRIALS OF RICARD FLORES MAGON IN THE UNITED STATES 64 (1991).

28 ⁴⁸ *Draw Teeth of War Breeders*, LOS ANGELES TIMES, March 14, 1916, at 2:1,
2:2; *State Troops Ready for War*, LOS ANGELES TIMES, March 27, 1916, at 1:9; *For
the Safety of Los Angeles*, LOS ANGELES TIMES, March 16, 1916, at 2:4.

1 requires more research. A search of California newspapers from 1915 to 1917 for
2 “concealed handgun” or “concealed weapon” found no matches.⁴⁹

3 **C. The 1863 Law**

4 The 1863 concealed weapon ban has some history to it. A search of
5 newspapers of the period does show a *lot* of murders, gunfights, and knifings. I can
6 see why the California legislature felt that they had to do *something*. But what? The
7 legislature debated a ban on concealed carry throughout the 1850s. Even those who
8 supported such laws often had a narrow notion of who needed to be restricted. During
9 debates in February of 1856, the state senator who represented Nevada County (a
10 derringer-shaped county in California’s foothills) indicated that he was in support of a
11 bill to ban concealed carry if it were for the purpose of disarming “Greasers”⁵⁰ (a slang
12 term used throughout the nineteenth and early twentieth century for Mexicans).⁵¹

13 **D. California State Constitutional Conventions**

14 **i. The 1849 Convention**

15 California’s two state constitutional conventions are also interesting. When
16 delegates met at the 1849 Convention, they debated what individual rights should be
17 listed in the state constitution’s bill of rights. Delegate Ord proposed, “Every person
18 has a right to bear arms for the defence of himself and the State.” Delegate
19
20

21 ⁴⁹ *California Digital Newspaper Collection*, [http://cdnc.ucr.edu/cgi-](http://cdnc.ucr.edu/cgi-bin/cdnc?a=q&hs=1&r=1&results=1&txq=concealed+handgun&txf=txIN&ssnip=txt&o=20&dafdq=&dafmq=&dafyq=1915&datdq=&datmq=&datyq=1917&puq=&e=--1915---1917--en--20--1--txt-txIN-concealed+weapon-----)
22 [bin/cdnc?a=q&hs=1&r=1&results=1&txq=%22concealed+weapon%22&txf=txIN&](http://cdnc.ucr.edu/cgi-bin/cdnc?a=q&hs=1&r=1&results=1&txq=%22concealed+weapon%22&txf=txIN&ssnip=txt&o=20&dafdq=&dafmq=&dafyq=1915&datdq=&datmq=&datyq=1917&puq=&e=--1915---1917--en--20--1--txt-txIN-concealed+handgun-----)
23 [ssnip=txt&o=20&dafdq=&dafmq=&dafyq=1915&datdq=&datmq=&datyq=1917&puq=&e=--1915---1917--en--20--1--txt-txIN-concealed+handgun-----](http://cdnc.ucr.edu/cgi-bin/cdnc?a=q&hs=1&r=1&results=1&txq=%22concealed+weapon%22&txf=txIN&ssnip=txt&o=20&dafdq=&dafmq=&dafyq=1915&datdq=&datmq=&datyq=1917&puq=&e=--1915---1917--en--20--1--txt-txIN-concealed+handgun-----), and
24 [http://cdnc.ucr.edu/cgi-](http://cdnc.ucr.edu/cgi-bin/cdnc?a=q&hs=1&r=1&results=1&txq=%22concealed+weapon%22&txf=txIN&ssnip=txt&o=20&dafdq=&dafmq=&dafyq=1915&datdq=&datmq=&datyq=1917&puq=&e=--1915---1917--en--20--1--txt-txIN-concealed+handgun-----)
25 [bin/cdnc?a=q&hs=1&r=1&results=1&txq=%22concealed+weapon%22&txf=txIN&](http://cdnc.ucr.edu/cgi-bin/cdnc?a=q&hs=1&r=1&results=1&txq=%22concealed+weapon%22&txf=txIN&ssnip=txt&o=20&dafdq=&dafmq=&dafyq=1915&datdq=&datmq=&datyq=1917&puq=&e=--1915---1917--en--20--1--txt-txIN-concealed+handgun-----)
26 [ssnip=txt&o=20&dafdq=&dafmq=&dafyq=1915&datdq=&datmq=&datyq=1917&puq=&e=--1915---1917--en--20--1--txt-txIN-concealed+handgun-----](http://cdnc.ucr.edu/cgi-bin/cdnc?a=q&hs=1&r=1&results=1&txq=%22concealed+weapon%22&txf=txIN&ssnip=txt&o=20&dafdq=&dafmq=&dafyq=1915&datdq=&datmq=&datyq=1917&puq=&e=--1915---1917--en--20--1--txt-txIN-concealed+handgun-----), last accessed
27 April 7, 2015.

28 ⁵⁰ *Letter From Sacramento*, DAILY ALTA (SAN FRANCISCO) CALIFORNIA,
February 19, 1856, at 2.

⁵¹ Win Blevins, *DICTIONARY OF THE AMERICAN WEST* 166 (2001).

1 McCarver wanted to add, “provided that they are not concealed arms.”⁵² This is not
2 surprising; in the period before the Civil War, many states passed laws either
3 prohibiting or restricting the *concealed* carrying of deadly weapons. State
4 constitutional conventions often added such restrictions to existing arms guarantees
5 to make sure that the legislature could ban what was increasingly regarded as a
6 cowardly way of fighting—the use of “secret arms.”⁵³

7 Delegate McCarver, however, also believed that it would be best if there were
8 *no* provision preventing “the Legislature from regulating matters of this kind.” He
9 thought guaranteeing a right to bear arms was not “a proper subject for the
10 Constitution.” Other delegates agreed with McCarver that there should be no arms
11 provision in the state bill of rights—but not because the state should have the power
12 to regulate the carrying of weapons. Delegate Sherwood argued that denying an
13 individual the right to bear arms “would be null and void, inasmuch as it would be in
14 opposition to the Constitution of the United States,” and then quoted the Second
15 Amendment. Sherwood thought an arms guarantee was unnecessary because the
16 Second Amendment already protected such a right.⁵⁴

17 (This may seem a pretty astonishing claim, because only with the *McDonald*
18 *v. Chicago* (2010) decision did the U.S. Supreme Court hold that the Second
19 Amendment restricted the power of the states to regulate the keeping and bearing of
20 arms. And then only through incorporation of the Second Amendment via the 14th
21 Amendment. The 14th Amendment was ratified in 1868, almost twenty years after
22 the California constitutional delegates debated the applicability of the Second
23 Amendment to state law. However, the notion that states were bound by the Second

24 ⁵² J. Ross Browne, REPORT OF THE DEBATES IN THE CONVENTION OF
25 CALIFORNIA, ON THE FORMATION OF THE STATE CONSTITUTION... 47 (1850).

26 ⁵³ Clayton E. Cramer, CONCEALED WEAPON LAWS OF THE EARLY REPUBLIC:
27 DUELING, SOUTHERN VIOLENCE, AND MORAL REFORM 52-62 (1999).

28 ⁵⁴ Browne, Report of the Debates in the Convention of California, on the
Formation of the State CONSTITUTION... 47 (1850).

1 Amendment directly was a minority viewpoint endorsed by several state supreme
2 courts in the antebellum period, so this is not as anachronistic as it first sounds.⁵⁵)
3 Delegate Botts argued against adding the arms guarantee to the state constitution's
4 bill of rights because he feared that it might not be a strong enough protection; such
5 a guarantee belonged in the section that specified the powers of the legislature.
6 Even Delegate Sherwood was persuaded by this argument, admitting that the arms
7 provision "directly touches the rights of every citizen."⁵⁶ When the convention
8 voted on both Ord's proposal for a right to bear arms, and McCarver's amendment
9 that the right should not apply to concealed weapons, both proposals died—and with
10 it, any possibility of adding a right to keep and bear arms to the California
11 Constitution's bill of rights.

12 You cannot draw too strong a message from this series of back-and-forth
13 discussions, but it appears that some delegates argued that there was no need for an
14 individual right to keep and bear arms in California's Constitution, because the
15 Second Amendment already protected such a right; other delegates argued that the
16 right needed to be located elsewhere than in the bill of rights to be better protected.⁵⁷
17 The only delegate who clearly spoke against a right to bear arms was McCarver.
18 Today, he is most remembered for another proposal he made a few minutes later:

19 _____
20 ⁵⁵ Nunn. v. State, 1 Ga. 243, 250 (1846) (striking down a ban on open carrying of
21 horseman's pistols); State v. Chandler, 5 La. Ann. Rep. 489, 490 (1850) (upholding
22 a ban on concealed carry while observing that the "right to carry arms" is a "right
23 guaranteed by the Constitution of the United States."); State v. Smith, 11 La. Ann.
24 Rep. 638 (1856) (upholding a ban on concealed carry because that law "does not
25 contravene the second article of the amendments of the Constitution of the United
26 States. The arms there spoken of are such as are.. at least carried openly."); State v.
27 Jumel, 13 La. Ann. Rep. 399, 400 (1858) (rejecting a Second Amendment challenge
28 to a concealed weapon law because the laws prohibited "only a particular mode of
bearing arms...."); Cockrum v. State, 24 Tex. 394, 396, 401 (1859) (appears to have
accepted defendant's argument that the Second Amendment "is applicable to state
legislation.")

⁵⁶ Browne, REPORT OF THE DEBATES, 47.

⁵⁷ *Id.*

1 that blacks would be forever banned from living in California.⁵⁸ (Such provisions
2 were added to many other state constitutions of the period; McCarver even played a
3 part in Oregon adopting such a ban; he got around.⁵⁹) In spite of considerable
4 support from other delegates, this proposal did not pass.

5 **ii. The 1878 Convention**

6 California held another constitutional convention in 1878. The 1849
7 Constitution seemed increasingly inadequate because of questions about water rights
8 and the “Chinese problem.”⁶⁰ The 1878 convention seems not to have even
9 discussed the question of a right to keep and bear arms—except for one startling
10 provision. The convention was divided between a conservative, generally wealthy
11 group, and what became known as “the Workingmen,” who represented a populist
12 collection of white laborers, intent on driving Asian immigrants from California.
13 They had several proposals that are shocking in their racism today (but nevertheless
14 were made part of the 1879 California Constitution). Of most relevance to gun
15 control was the Workingmen’s demand that aliens who could not become citizens
16 would be prohibited from bearing arms.⁶¹ Delegate O’Donnell introduced this
17 request as a constitutional provision: “No alien who cannot become a citizen of the
18 United States shall be allowed to bear arms.” What sort of aliens could not become
19 citizens of the United States? Until 1952, no “Oriental” (as persons of East Asian
20 ancestry were then described) could become a naturalized citizen.⁶² If you were
21 born in the United States, you were a natural-born citizen, but an immigrant from the
22

23 ⁵⁸ *Id.*, 49-50.

24 ⁵⁹ David Alan Johnson, *FOUNDING THE FAR WEST: CALIFORNIA, OREGON, AND NEVADA, 1840-1890*, 129 (1992); Oregon, *JOURNAL OF THE CONSTITUTIONAL CONVENTION OF THE STATE OF OREGON: HELD AT SALEM* 125 (1882).

25 ⁶⁰ Samuel Charles Wiel, *2 WATER RIGHTS IN THE WESTERN STATES: THE LAW OF PRIOR APPROPRIATION* .. 1166 (3d ed. 1911) .

26 ⁶¹ Theodore H. Hittell, *4 HISTORY OF CALIFORNIA* 615-17 (1897).

27 ⁶² Davis McEntire, *RESIDENCE AND RACE: FINAL AND COMPREHENSIVE REPORT TO THE COMMISSION ON RACE AND HOUSING* 269 (1960).

1 Far East would always be an alien. O'Donnell's proposed was "Referred to
2 Committee on Chinese" where it seems to have silently died.⁶³

3 **IV. My Current Research Project**

4 **A. Defining Mass Murder**

5 Since 2019, I have been researching the history of mass murder in the United
6 States. The definition of mass murder does not have a universal definition. The
7 FBI's definition of mass murder is four or more dead (including the killer) in one
8 event, in one location.⁶⁴ Other agencies, such as the U.S. Secret Service use the term
9 "mass attacks" in which "three or more people are harmed."⁶⁵

10 For purposes of my research, I have adapted the Secret Service's definition.
11 For purposes of this research, I slightly extended the FBI definition to include at
12 least two murder victims committed in multiple locations within 24 hours and use
13 the Secret Service's "three or more people harmed." The suicide or lawful killing of
14 the mass murderer or murderers is not included in the total dead.

15 I have excluded multiday mass murders committed in riots, such as the New
16 York City Draft Riots of 1863, and many of the race riots of the 20th and 21st
17 centuries because they were not in one location. Determining when these murders
18 took place also precludes easy classification. I also have excluded crimes such as the
19 Colorado cannibalism murders in 1874, because it is unclear over what period the
20 victims were murdered.

21 There are deaths that might qualify as mass murder, but which have
22 circumstances that might also qualify as lawful self-defense and are thus not
23

24 ⁶³ E.B. Willis and P.K. Stockton, 1 DEBATES AND PROCEEDINGS OF THE
25 CONSTITUTIONAL CONVENTION OF THE STATE OF CALIFORNIA... 285 (1880).

26 ⁶⁴ FBI, *Serial Murder: Multidisciplinary Perspectives for Investigators* 8 (2008),
27 distinguishing mass murder from serial murderers. "Generally, mass murder was
described as a number of murders (four or more) occurring during the same incident,
with no distinctive time period between the murders."

28 ⁶⁵ U.S. Secret Service, *Mass Attacks in Public Spaces – 2019*, 6 (August, 2020).

1 included.⁶⁶ There are mass murders which appear to be gang-related; I have
2 excluded many of those because determining if they were defensive in nature or not
3 requires confidence in the integrity of the participants, who often have reason to lie.
4 Obviously, mass murder does not include acts of war. Mass murders committed by
5 governments as official policy are outside the legal definition of murder. Also
6 excluded are governmentally supported acts of mass murder committed outside the
7 rules of land warfare. The bombing of the Soo Locks on the Great Lakes shortly
8 after U.S. entry into World War I, which would otherwise meet the criteria of mass
9 murder, smells suspiciously like German sabotage and I therefore excluded it.⁶⁷ This
10 also excludes one of the earliest American mass murders: ten murdered by Lenape
11 Indians at a school in 1764 Greencastle, Pennsylvania,⁶⁸ as well as the many
12 thousands (at least) killed in various Indian wars (such as the hundreds killed during
13 the Dakota War of 1862).

14 I have excluded *most* mass murders of Indians by Indians because most were
15 outside the civil society of America, and the records of such crimes are thus
16 necessarily incomplete. The Criminal Justice Research Center's data on Colonial
17 and Revolutionary New England murders contains examples that meet this
18 definition.⁶⁹ I *have* included incidents where a mass murder (by white or Indian and
19 regardless of the victim's race) was clearly *not* a part of warfare, such as those
20 motivated by robbery or kidnapping with the goal of ransom.

22 ⁶⁶ Renewal of Mob Attacks Resulting in 3 Deaths and 13 Injured on Second Day
23 of Lawlessness Causes Governor to Act, GREAT FALLS [MONT.] DAILY TRIBUNE,
Aug. 7, 1920, at 1.

24 ⁶⁷ *Attempt Made To Wreck Soo Locks*, EAST OREGONIAN, May 16, 1917, 1.

25 ⁶⁸ Robert J. Ursano, Carol S. Fullerton, Lars Weisaeth, Beverley Raphael, ed.,
TEXTBOOK OF DISASTER PSYCHIATRY 204 (2nd ed. 2017).

26 ⁶⁹ Criminal Justice Research Center, *Homicide Among Adults in Colonial and*
27 *Revolutionary New England, 1630-1797*,
[https://cjrc.osu.edu/research/interdisciplinary/hvd/united-states/colonial-](https://cjrc.osu.edu/research/interdisciplinary/hvd/united-states/colonial-revolutionary-new-england)
28 [revolutionary-new-england](https://cjrc.osu.edu/research/interdisciplinary/hvd/united-states/colonial-revolutionary-new-england).

1 There are mass murders where the victim count includes people killed because
2 a felony was taking place. Because of the felony-murder rule, I have included
3 people killed lawfully in the course of a felony as mass murder victims, such as
4 happened in the Johnson County War.⁷⁰ I have excluded incidents in which all the
5 dead were felons.⁷¹

6 There are incidents which might be best categorized as mutual combat, where
7 armed groups attacked each other with great loss of life but determining who were
8 the victims and who were the murderers is not easy from surviving news coverage,
9 such as the struggle between Democratic and Republican campaign workers in
10 Clayhole Voting Precinct in 1922. The ensuing gunfight killed at least five people
11 and wounded ten to thirteen others.⁷²

12 I have excluded a small number of cases where trial found the killer not guilty
13 of what were clearly mass murders. Example: Miss Verna Ware opened fire in the
14 Gatesville courthouse in 1909, killing the man she accused of seducing her, two
15 others not involved in the case and wounding a fourth.⁷³

16 **B. Finding Mass Murders**

17 How do you find historical mass murders? The phrase “mass murder” is quite
18 rare in historical documents. Using the *ngram* tool in books.google.com for books
19 published 1600-2000 shows essentially zero matches until 1952,⁷⁴ and many of the
20 rare pre-1952 matches are actually abbreviations of Massachusetts such as “Mass.

21 ⁷⁰ *A War in Wyoming*, [Maysville, Ky.] EVENING BULLETIN, Apr. 13, 1892, 1.

22 ⁷¹ *Nevada Mining Boss Besieged in His Office*, KALISPELL BEE, Jan. 09, 1903, 1

23 ⁷² *Some Facts About Clayhole*, [Lancaster, Ky.] CENTRAL RECORD, Jul. 20, 1922,
24 1.

25 ⁷³ Woman to Face Murder Charge, WAXAHACHIE [Tex.] DAILY LIGHT, Feb. 8,
1909, 1; Four People Wounded, PALESTINE [Tex.] DAILY HERALD, Feb. 4, 1909, 2;
Jury Verdict Not Guilty, LIBERTY [TEX.] VINDICATOR, Feb. 11, 1910, 1.

26 ⁷⁴ https://books.google.com/ngrams/graph?content=%27mass+murder%27&year_start=1600&year_end=2000&corpus=17&smoothing=3&share=&direct_url=t1%3B%2C%27%20mass%20murder%20%27%3B%2Cc0, last accessed June 12, 2018.

1 Murder” or “Mass., murder.”⁷⁵ The abbreviation “Mass.” causes similar problems
2 when searching the Library of Congress’ collection of 1789-1963 newspapers for the
3 words “mass” and “murder” within five words of each other.⁷⁶ An additional
4 problem is the use of the phrase to describe governmentally sanctioned and indeed
5 government-operated warfare.⁷⁷

6 Searching the Library of Congress’ *Chronicling America* collection of
7 newspapers for the words “murders”, “murdered”, “killed”, “slain”, “dead” in
8 association with numbers found a sea of matches, most of which needed to be read
9 before discarding. In many cases, similar or identical news stories appeared in
10 multiple newspapers. If the same facts appeared repeatedly, and there were
11 hundreds of references to an event, I did not read every newspaper account of that
12 event.

13 There are several frustrating limitations of the *Chronicling America*
14 collection:

- 15 1. Copyright restrictions make post-1922 newspaper collections
16 incomplete.
- 17 2. Many of these mass murders, in addition to appearing in many
18 different newspapers, sometimes appear in only one or two

19 ⁷⁵ Examples: Michigan State Prison, BIENNIAL REPORT OF THE BOARD OF
20 CONTROL AND OFFICERS OF THE STATE HOUSE OF CORRECTION AND BRANCH PRISON
21 OF STATE PRISON IN UPPER PENINSULA... 22, 41, 65 (1916).; R.W. Bligh, comp.,
22 NEW YORK HERALD ALMANAC: FINANCIAL, COMMERCIAL AND POLITICAL REGISTER
1874 87 (1874).

23 ⁷⁶ <https://chroniclingamerica.loc.gov/search/pages/results/?state=&dateFilterType=yearRange&date1=1789&date2=1963&language=&ortext=&andtext=&phrasertext=&proxtext=mass+murder&proxdistance=5&rows=20&searchType=advanced>; Examples:
24 ‘Joe is a Good Boy,’ Declares Ettor’s Parents, [Chicago, Ill.] THE DAY BOOK, Oct.
25 25, 1912; 14; Queries Pour in on J. Frank Hickey, [Chicago, Ill.] THE DAY BOOK,
26 Dec. 4, 1912, 28; Written Authority to Walk in Your Own Town, [Chicago, Ill.] THE
DAY BOOK, Feb. 5, 1912.

27 ⁷⁷ Jos. Veltman, Do Workers Want War? [letter to the editor] [Chicago, Ill.] THE
28 DAY BOOK, Jan. 17, 1916, 23.

1 newspapers, far removed from the crime, both geographically and
2 temporally. One example is a mass murder of three in Tamworth,
3 N.H. in 1857 which appeared only in an 1858 summary of the
4 previous year's events, which was published in Pennsylvania.⁷⁸
5 This made it difficult to gather additional data on the crime.

- 6 3. Nineteenth century accounts often used the word "murders" rather
7 far afield from its legal meaning, or in reference to general social
8 problems such as alcohol. This produced so many thousands of
9 matches that I have often settled for detailed examination of the first
10 100 front page news stories. Newspapers in the nineteenth century
11 also published many foreign news accounts and fiction. Limiting
12 searches to the front pages thus reduced false positives which would
13 have to be laboriously examined for location and fiction status. (If
14 it didn't make the front page, it seems unlikely it could be either a
15 specific crime, or something as shocking as a mass murder.)

16 Defining a mass murder by the number of dead can understate mass murders,
17 if either police or civilian intervention interrupts the murderer. (There are some
18 examples in my list of mass murders cut short, although not short enough, by such
19 actions.) In addition, some of the events gathered here list crimes in which the
20 immediate coverage includes persons wounded so seriously that the coverage
21 describes them as "probably fatally."⁷⁹ Considering the nature of medical and
22 surgical care available until my lifetime, it seemed a good assumption that those
23 described as "probably fatally" wounded can be properly included among the dead.
24 Along with *Chronicling America*, I have made extensive use of the commercial site
25 *Newspapers.com* and a few secondary sources.

26 Another valuable source was the list of "Homicide among Adults in Colonial
27 and Revolutionary New England, 1630-1797," compiled by Randolph Roth and
28

26 ⁷⁸ Principal Events of General and Local Interest During the Year 1857,
27 LEWISTON [PENN.] GAZETTE, Jan. 21, 1858, 1.

28 ⁷⁹ Maniacal Unknown in Attempt to Exterminate Whole Family, BISBEE [ARIZ.]
DAILY REVIEW, Apr. 6, 1922, 1.

Cornelia Hughes Dayton.⁸⁰ While this is a list of *all* murders, not just mass murders, it provided an additional source of incidents.

C. Group Activity

The supposed distinction between modern individual mass murder and group mass murder of earlier centuries does not stand careful examination. Mass murder is *still* sometimes a group activity. Such happened at Littleton, Colo. on Apr. 20, 1999⁸¹ and the terrorist attacks of September 11, 2001. Other recent group mass murders include one on Oct. 31, 2019, in Orinda, Cal. A conflict between gangs led to a shooting in which the murderers shot to death five people and “several others were injured.”⁸² On Dec. 31, 1986, in San Juan, P.R. three Teamsters attempted to negotiate a better labor contract with their employer by setting a fire that murdered 97 people.⁸³

As this declaration later shows, individual mass murder is neither particularly modern nor dependent on technological advances.

D. Data Limitations

Prof. Roth on p. 5, n. 4: “It is also essential, in the opinion of historians and historical social scientists involved in the Historical Violence Database, to use capture-recapture mathematics, when multiple sources are available, to estimate the number of homicides where gaps or omissions exist in the historical record.” I have no dispute with this claim. Resampling or re-capturing as Prof. Roth calls it) is a

⁸⁰ Randolph Roth and Cornelia Hughes Dayton, comp., *Homicide among Adults in Colonial and Revolutionary New England, 1630-1797*, Oct. 2009, <https://cjrc.osu.edu/research/interdisciplinary/hvd/united-states/colonial-revolutionary-new-england>, last accessed June 12, 2018.

⁸¹ R. Barri Flowers and H. Loraine Flowers, *MURDERS IN THE UNITED STATES: CRIMES, KILLERS AND VICTIMS OF THE TWENTIETH CENTURY* 59 (2001).

⁸² Annie Sciacca, “It was a bloodbath”: Orinda Halloween shooting investigation reveals gang connections, *SAN JOSE MERCURY-NEWS*, Nov. 17, 2019.

⁸³ 3 Teamsters Charged in San Juan Hotel Fire, *CHICAGO TRIBUNE*, Feb. 4, 1988, <https://www.chicagotribune.com/news/ct-xpm-1988-02-04-8803270617-story.html>, last accessed November 24, 2018.

1 fundamental part of producing statistically valid results. One limitation of my
2 research project is that, as my father used to tell me, “Newspapers are the first draft
3 of history.” They may miss mass murders because of location, loss of newspapers
4 from the historical record, and sometimes intentional editorial refusal to cover
5 barbarous behavior (which has been demonstrated to promote copycat mass
6 murders, even to the choice of manufacturer of the weapon used).⁸⁴ I make no
7 claims that this project produces data of the precision as Prof. Roth’s work, but it
8 can provide that first sampling from which other researchers can use before
9 resampling. It does demonstrate some qualitative aspects of mass murder such as
10 widespread use of non-firearm mass murder weapons, and that certain proximate
11 causes of mass murder, such as mental illness are not rare.

12 It would be very useful to be able to extract data identifying which were group
13 mass murders and which were individual. When I started this project, this seemed
14 an unnecessary detail and so I did not gather it. While I cannot provide that level of
15 detail on group vs. individual mass murders, I can say with confidence that the mass
16 murders in my collection are primarily individual, although there are a number that
17 are group. How can I be so sure? Family mass murders are very common both
18 historically and in the present. They are usually by either the father or mother. I
19 cannot immediately recall an intra-family mass murder carried out by more than one
20 person. Even public mass murders were usually individual, or at least with
21 explosives, not *clearly* group actions.

22 Before 1960, the intra-family mass murders are 741 of 1796 incidents; 2,784
23 out of 12,730 dead. (To avoid giving fame to the infamous, which produces
24 Herostratic mass murders.⁸⁵ One example: An 1887 murder (although with only two
25

26 ⁸⁴ Clayton E. Cramer, Ethical Problems of Mass Murder Coverage in the Mass
27 Media, 9:1 JOURNAL OF MASS MEDIA ETHICS 26-42 (Winter, 1993-94).

28 ⁸⁵ Id.

1 victims) was unmistakably a copycat of a recently reported mass murder. A
2 mechanic read an article about a mass murder committed in part with Rough on
3 Rats, a poison,⁸⁶ to his wife:

4 His wife listened to the account of the... murder and then bade her
5 husband read it. He went over it a third time and then she took the paper
6 to the neighbors and had it read twice more. Thursday she sent her
7 mother for yeast, and took a heavy dose of Rough on Rats and forced a
8 dose of the poison down the throat of her babe.... The woman died in
9 great agony and her babe expired soon after.⁸⁷

10 For this reason, my synopses consistently exclude the murderer's name.)
11 When gathering this data, I only recorded if a particular weapon was used rather than
12 counting deaths by weapon. In older news accounts, there is almost never a
13 breakdown of deaths by weapon. In many cases, the state of forensic medicine
14 would make it impossible to determine if the ax to the head or the subsequent knife
15 to the throat was the fatal injury. It would make little difference which caused a
16 victim's death: the murderer's punishment would be the same.

17 A few examples of individual mass murders when firearms technology had
18 not advanced or was completely irrelevant:

19 **Uniontown, Wash. Feb. 25, 1901:** A woman threw her six children down a 30
20 foot deep well, "then jumped into the well, and, the belief is, held their heads under
21 water until all were drowned."⁸⁸ "She is violently insane. The woman's husband
22 died a year ago, and she has been supported by the county and charity of
23 neighbors."⁸⁹ Reporter interview supports evidence of insanity: "[S]he gave him
24 incoherent reasons for slaying her little ones.... [s]he had read of the Chinese war
25 and the terrible atrocities committed in the Orient, and had warning that the Chinese

26 ⁸⁶ "A Maniac Mother," *St. Paul Daily Globe*, Apr. 24, 1886, 1.

27 ⁸⁷ "Rough on Rats," *Austin Weekly Statesman*, Feb. 3, 1887, 7.

28 ⁸⁸ Drowned Her Six Children, ADAMS COUNTY NEWS [Ritzville, Wash.] Feb. 27,
1901, 4.

⁸⁹ WASHINGTON STANDARD [Olympia, Wash.], Mar. 1, 1901, 3.

1 were coming today to burn her house and slay her children... Mr. Rustemeyer...
2 was well acquainted with the family... He said... Mrs. Wurzer was never
3 considered just right in her mind, and thinks she should have been restrained of her
4 liberty long ago.” Weapon: drowning.⁹⁰

5 **Belvidere, N.J. (1843)**

6 Two (perhaps three) men murdered John Castner, his wife, one of their
7 children, “and an old bachelor brother-in-law.” The purpose was believed to be
8 either robbery or inheritance of the land by one of the murderers. Weapon: blunt
9 object⁹¹

10 Nonetheless, firearms mass murders were not rare, even with “primitive”
11 technology:

12 **Swan River, Minn. Terr. (1860)**

13 Early 1860 or late 1859: A very complex incident. One Chippewa warrior
14 (“A”) murdered another Chippewa (“B”). A few days later, B’s squaw (“C”) saw A,
15 and shot him. A’s brother (“D”) shot C. C’s brother (“E”) shot D.

16 Category: public

17 Suicide: no

18 Cause: revenge

19 Weapon: firearm⁹²

20 **Coldwater, Mich. (1865)**

21 Jan. 30, 1865: Young man becomes engaged to a woman in Lorain Co., Ohio.
22 This is a problem, because his wife in Coldwater, Mich., is about to give birth, so he
23 returns home, where his wife lives with the young man’s parents. In the midst of
24 giving birth, the young man murdered his wife. When the young man’s father and
25

26 ⁹⁰ Killed Her Children, COTTONWOOD [Ida.] REPORT, Mar. 1, 1901, 1.

27 ⁹¹ “The Warren Tragedy,” *American Republican and Baltimore Daily Clipper*,
Jan. 23, 1845. 1.

28 ⁹² Indian revenge, MUSCATINE [Iowa] WEEKLY JOURNAL, Jan. 27, 1860, 1.

1 mother showed up, he shot them to death. (Other accounts identify the town as
2 Woodstock, and that the murder of his wife and unborn child followed the murder of
3 his parents.) His behavior after arrest, as newspaper coverage described, “suggests
4 the charitable conjecture that the man is insane.” He confessed the crime and signed
5 autographs for the crowd around the jail that described himself as “murderer of his
6 wife, father and mother.” He invited his friends in Lorain County to visit him in jail
7 “where they would find him ‘playing checkers with his nose, on the jail windows.’”

8 Category: family

9 Suicide: no

10 Cause: mental illness

11 Weapon: firearm⁹³

12 **Sleepy Hollow, N.Y. (1870)**

13 Jan. 1, 1870: Farmer murdered his wife, and two of his neighbors, father and
14 son, who appear to have visited the murderer’s wife in his absence. The murderer
15 had a reputation for being too fond of rum.

16 Category: public

17 Suicide: no

18 Cause: jealousy?

19 Weapon: firearm⁹⁴

20 **Glenville, Minn. (1889)**

21 Feb. 15, 1889: Murderer, relative of the victims, shot to death, “Mary
22 Chemeieck, aged six, and her sister Rose, aged eleven...” Apparently, his niece,
23
24

25 _____
26 ⁹³ A Triple Murder, [Plymouth, Ind.] MARSHALL COUNTY REPUBLICAN, Feb. 16,
1865, 1.

27 ⁹⁴ A Triple Murder at Sleepy Hollow, WILMINGTON [N.C.] JOURNAL, Jan. 14,
1870, 1.

1 Rose, had spurned his advances. He then murdered their mother with a shotgun and
2 committed suicide. Weapon: pistol, shotgun⁹⁵

3 A mass murder that is *not* part of the database shows how “primitive” firearms
4 technology is not a barrier to school mass murder. A former teacher showed up at a
5 Bremen, Germany, Catholic school “armed with six loaded revolvers.” He killed
6 one teacher, two children, “three children were gravely injured and three other
7 children were slightly wounded.” The article described him as “demented.”⁹⁶
8 Depending on whether they were they were 5-shot, 6-shot, or 9-shot revolvers (all
9 still common today) he could have fired 30, 36, or 54 shots without reloading.

10 Of course, reloading a revolver with speedloaders can be done by a skilled
11 shooter in a second or two at most. Jerry Miculek has demonstrated his ability to
12 accurately fire 16 rounds in four seconds from an eight-round revolver using a
13 speedloader.⁹⁷ A mass murderer carrying four speedloaders could accurately fire
14 forty rounds in eight seconds. This is slower than a mass murderer with a semiauto
15 rifle and a 30-round magazine, but not by much.

16 Through 1960, there were 797 non-firearm mass murders: 3,781 dead: an
17 average of 4.74 dead per incident; 840 exclusively firearms mass murders, 3,653
18 dead: an average of 4.35 dead per incident.

19 Firearms become more common weapons by the 1920s. Axes and hatchets
20 declined as wood stoves became less common. While I have not categorized the
21 poison mass murders as precisely as I might do if I were starting from scratch,
22 “illuminating gas” and “Rough on Rats” (both commonly used to wipe out your
23 spouse and children) declined as automobile exhaust poisoning rose.

24
25 ⁹⁵ He was a Rejected Lover, ST. PAUL GLOBE, Feb. 17, 1889, 1.

26 ⁹⁶ Maniac Shot Many People, BARRE [Vt.] DAILY TIMES, Jun. 20, 1913, 1.

27 ⁹⁷ “Revolver Speed Reload! 16 rounds in four seconds on slo mo! S&W 929
28 Jerry Miculek,” <https://www.youtube.com/watch?v=0FbUMqoyjDw&t=7s>, last
accessed January 17, 2023.

1 This should be no surprise; mass murderers use what is available. This May
2 20, 1931, Mattoon, Ill. incident catches this improvisational nature well. A former
3 employee of her late husband attempted to burn to death the woman and her two
4 daughters with whom he had recently moved to Illinois. They escaped the burning
5 house. He then shot to death the mother, attempted to strangle the daughters, then
6 shot them and beat them to death with an automobile starter crank.⁹⁸ Similarly, May
7 30, 1840: The husband, murdered his mother-in-law and her five children. Cause:
8 robbery. Weapon: strangulation; stone; axe, rifle; knife. He confessed after the first
9 hanging failed.⁹⁹

10 Even today's gun mass murderers are not as narrowly focused as the popular
11 imagination sees them. May 24, 2014, Isla Vista, Cal.: College student, upset about
12 his sex life (or rather its absence) stabbed to death his three roommates, shot three
13 women at a sorority (two of whom died), shot another student, injured two bicyclists
14 by ramming them with his car, and shot and wounded four pedestrians.¹⁰⁰

15 For the following table, some of these weapon types require explanation.

16 UNKNOWN means the weapon type was not identified in the article.

17 AIRCRAFT is for murders committed with an airplane (not all of which took
18 place on Sep. 11, 2001). (Bombing of airplanes is in the EXPLOSIVE weapon
19 type.)

20 PERSONAL: hands (other than strangle), feet.

21 TRAIN involves intentional derailment of trains to cause loss of life. The
22 motivation for most of these crimes is uncertain. One was insurance fraud;

24 ⁹⁸ Woman Shot. Tots Choked, BROWNSVILLE HERALD, May 20, 1931, 1.

25 ⁹⁹ *Trial, Confession, and Execution of Robert M'Conaghy for the Murder of Mrs. Brown and her Five Children* 6-7, 9-10 (1841).

26 ¹⁰⁰ Shelby Lin Erdman and Greg Botelho, Timeline: A killer's rampage through a
27 California college town, CNN, May 27, 2014,
<https://www.cnn.com/2014/05/24/us/california-rampage-timeline/>, last accessed
28 November 27, 2018.

1 authorities alleged “that the men entered into the plot to get rid of their wives and at
2 the same time to collect damages from the railroad company.” One of the murderers
3 collected \$500 from the railroad for injuries to his wife.¹⁰¹ Another, on Dec. 27,
4 1934: Police charged three men with the intentional derailment of a train, in the
5 hopes that one of the train crew would lose his job, so that one of the three would get
6 that job. (This was the depths of the Depression.) The crash killed three employees
7 and injured 16 passengers.¹⁰²

8 Incident count by weapon type for mass murders before 1960 where only one
9 weapon type was used:

10	UNKNOWN	862
11	AX	646
12	HATCHET	135
13	KNIFE	588
14	OTHERSHARP	215
15	BLUNT	868
16	EXPLOSIVE	299
17	POISON	286
18	STRANGLE	109
19	DROWN	139
20	ARSON	708
21	HANG	284
22	OTHER	157
23	PERSONAL	21
24	FIREARM_UNKNOWN	2571
25	SHOTGUN	504
26	RIFLE	570
27	PISTOL	933
28	MACHINE_GUN	61
	AIRCRAFT	
	TRAIN	76

26 ¹⁰¹ Plot to Kill Their Wives, [Maysville, Ky.] EVENING BULLETIN, Mar. 26, 1896,
27 1.

28 ¹⁰² Trio Held In Wreck Accused Of Murder, [Washington, D.C.] EVENING STAR,
Mar. 10, 1935, 1.

1 When grouped by incidents where only non-firearms were used, 3,809 died.
2 For firearms only mass murders, 2,068 died.

3 **V. Killing People Without Modern Firearms Technology**

4 How do you kill lots of people without modern firearms technology?

5 **A. Explosives**

6 One popular method was explosives.

7 **Sells, Ark. (1900)**

8 Oct. 15, 1900: “[F]ather, mother, and four young children blown to atoms” by
9 dynamite explosion. “It is believed that a dispute over a homestead claim prompted
10 the outrage.”

11 Category: family non-resident

12 Suicide: no

13 Cause: greed

14 Weapon: explosives¹⁰³

15 **Cripple Creek, Colo. (1904)**

16 Jun. 5, 1904: Someone set off a bomb under a train station platform where
17 non-union men were waiting for a train during a strike. Twelve died “and a score or
18 more injured...” Subsequently, “Forty shots were fired in a crowd in the street. Two
19 men were killed and at least six persons wounded.” One of the dead “by blow from
20 revolver.” Then the National Guard troops showed up and attempted to restore
21 order.

22 Category: public

23 Suicide: no

24 Cause: labor

25 Weapon: explosives, firearm, blunt¹⁰⁴

26
27 ¹⁰³ Whole Family Murdered, [St. Genevieve, Mo.] FAIR PLAY, Oct. 20. 1900, 1.

28 ¹⁰⁴ Terrorism and Death Dominate Colorado, SAINT PAUL GLOBE, Jun. 7, 1904, 1.

Mullins, W.Va. (1909)

5/16/1909: The Black Hand used dynamite to blow up an Italian boarding house. One of the victims broke faith with the Black Hand. The explosion killed four and injured three.

Category: residential

Suicide: no

Cause: gang

Weapon: explosives¹⁰⁵

Mudlow, W.Va. (1912)

7/26/1912: Striking miners dynamited a machine gun operated by agents of the Baldwin detective agency, killing three miners and seven detectives.

Category: public

Suicide: no

Cause: labor

Weapon: explosives¹⁰⁶

Superior, Penn. (1914)

11/15/1914: Someone blew up the Kanaza general store, which was also the Kanaza residence, with two separate dynamite bombs, killing Kanaza's three children and two other men. Five others suffered injuries. Mr. Kanaza believed the motive was revenge for a lawsuit.

Category: family

Suicide: no

Cause: revenge

Weapon: explosives¹⁰⁷

¹⁰⁵ Black Hand Kills Four By Dynamite, BLUEFIELD [W.Va.] EVENING LEADER, May 17, 1909, 1.

¹⁰⁶ Seven Detectives and Three Miners Dead, SEATTLE STAR, Jul. 26, 1912, 1.

¹⁰⁷ Dynamite Kills Five In Spite Act, NEW-YORK TRIBUNE, Nov. 16, 1914, 1.

San Francisco, Cal. (1916)

7/22/1916: Someone set off a dynamite bomb during the “Preparedness Day Parade,” in preparation for World War I. While the identity of the murderer or murderers is uncertain (California Governor Culbert Olson many years later pardoned those originally convicted as evidence of perjury at the trial accumulated), circumstances suggests that it was the work of anarchists, hostile to U.S. involvement in the war.

Category: public

Suicide: no

Cause: terrorism

Weapon: dynamite¹⁰⁸

New York, N.Y. (1920)

09/16/1920: Anarchists set off a bomb in Wall Street, killing 31 and injuring 125 others.

Category: public

Suicide: No

Cause: terrorism

Weapon: TNT¹⁰⁹

Germantown, Md. (1920)

11/18/1920: Two neighbors had a longstanding feud. On Election Day, one shot the other in the neck. The farmer shot in the neck took revenge with 50 pounds of dynamite, killing his neighbor, the housekeeper and her two children.

Category: family non-resident

¹⁰⁸ Dynamite Trial Opens Today in ‘Frisco; 10 Were Killed by Bomb, BEMIDJI [Minn.] DAILY PIONEER, Jan. 3, 1917, 1; Preparedness Day Bombing, https://en.wikipedia.org/wiki/Preparedness_Day_Bombing#Later_investigations.

¹⁰⁹ Bomb Batters Wall Street; 31 Slain, 125 Hurt, THE SUN AND THE NEW YORK HERALD, Sep. 17, 1920, 1.

1 Suicide: no

2 Cause: revenge

3 Weapon: explosives¹¹⁰

4 **Pittsburgh, Penn. (1925)**

5 05/Jun. 1925: Two bombs destroyed three buildings, killing eight people
6 immediately, and fatally injuring two others. One of the buildings housed a grocer
7 who had been the victim of extortion threats by a Black Hand society.

8 Category: residential

9 Suicide: no

10 Cause: extortion

11 Weapon: explosive¹¹¹

12 **Bath, Michigan (1927)**

13 May 18, 1927: Treasurer of the local school board was angered by his
14 property tax increase to pay for a new school building that he had opposed. He
15 placed a dynamite bomb in the basement of the school, by which method he
16 murdered 37 children and six adults as well as seriously injuring 44 others. Only a
17 wiring mistake prevented other charges from taking down the rest of the building
18 which would have endangered 150 more students. The murderer had already beaten
19 his wife to death at their home before blowing up their house. He blew himself up in
20 his car in front of the school 30 minutes after the school explosion.

21 Category: public

22 Suicide: yes

23 Cause: revenge

24
25 _____
26 ¹¹⁰ Bomb Wrecks Farmers Home Killing Three, [Salem, Ore.] CAPITAL JOURNAL,
Nov. 19, 1920, 1.

27 ¹¹¹ Eight Are Killed In Blasted Homes, [Washington, D.C.] EVENING STAR, May
28 06, 1925, 1.

1 Weapon: explosive, blunt object¹¹²

2 **New York, N.Y. (1927)**

3 Oct. 8, 1927: Someone set off a dynamite bomb demolishing a four-story
4 apartment building, killing five and injuring eleven. Why did police assume a
5 dynamite bomb? “Finding of 20-Pound Unexploded Bomb Leads Police to Suspect
6 Infernal Machine.”

7 Category: public

8 Suicide: no

9 Cause: unknown

10 Weapon: explosive¹¹³

11 **Newton, Mass. (1928)**

12 01/31/1928: Someone used dynamite to destroy a building containing
13 “extensive liquor making apparatus in the basement.” Six people died.

14 Category: private

15 Suicide: no

16 Cause: gang?

17 Weapon: explosive¹¹⁴

18 **Seat Pleasant, Md. (1930)**

19 01/01/1930: A belated and misdelivered Christmas gift was dynamite and
20 exploded as the family unwrapped it. The explosion killed an expectant mother and
21 two siblings, her mother, and injured two other siblings. The family was new to the
22 community with no known enemies.

23

24 ¹¹² Fate Saves Scores in Blast When Maniac’s Plot Kills 43, [Washington, D.C.]
25 EVENING STAR, May 19, 1927, 1.

26 ¹¹³ Four Killed In Bomb Explosion In Tenement District Of New York, [Douglas,
27 Ariz.] DOUGLAS DAILY DISPATCH, Oct. 09, 1927, 1; Five Killed, 11 Hurt As
28 Explosion Razes 35th St. Tenement, NEW YORK TIMES, Oct. 9, 1927, 1.

¹¹⁴ Mystery Explosion Is Fatal To Six -Bodies Taken From Debris Of Two-Story,
BROWNSVILLE HERALD, Jan. 31, 1928, 1.

1 Category: family non-resident

2 Suicide: no

3 Cause: unknown

4 Weapon: explosives¹¹⁵

5 **Chesterton, Ind. (1933)**

6 10/10/1933: A bomb explosion in the cargo compartment aboard a United
7 Airlines flight ripped the plane apart, killing seven people. Motive remained
8 uncertain.

9 Category: public

10 Suicide: no

11 Cause: unknown

12 Weapon: explosive¹¹⁶

13 **Denver, Colo. (1955)**

14 11/1/1955: The 23-year-old son of passenger Daisy E. King eventually
15 confessed that he placed a 25-stick dynamite bomb in her luggage, blowing up her
16 airliner, killing 44 people. The murderer had taken out life insurance policies on his
17 mother and was expecting to receive a “substantial inheritance” upon her death.

18 Category: public

19 Suicide: no

20 Cause: greed

21 Weapon: explosives¹¹⁷

23 ¹¹⁵ Gift Package Bomb Kills Woman; 5 Hurt, [Washington, D.C.] EVENING STAR,
24 Jan. 01, 1930, 1; Bomb Survivors Tell Of Explosion, [Washington, D.C.] EVENING
25 STAR, Jan. 12, 1930, 1.

26 ¹¹⁶ Ill-Fated Plane Wrecked By Bomb US Prober Says, INDIANAPOLIS TIMES, Oct.
14, 1933, 1.

27 ¹¹⁷ Flowers And Flowers, MURDERS IN THE UNITED STATES, 30-1; FBI, Jack
28 Gilbert Graham, <https://www.fbi.gov/history/famous-cases/jack-gilbert-graham>, last
accessed October 5, 2022.

1 Since 1960, this technology, despite attempts to regulates explosives, remain a big
2 dead per incident killer. Using fertilizer, a murderer on Apr. 20, 1995, set off a truck
3 bomb in front of the Oklahoma City Federal Building killing 168 people and
4 injuring hundreds more.

5 Category: public

6 Suicide: no

7 Cause: terrorism

8 Weapon: explosives¹¹⁸

9 **B. Arson**

10 Arson is also a common and very low technology method to cause lots of
11 suffering.

12 **New York, N.Y. (1903)**

13 11/1/1903: Police and coroner believed that a tenement building fire that
14 killed 26 people was “of incendiary origin.”

15 Category: residential

16 Suicide: no

17 Cause: unknown

18 Weapon: arson¹¹⁹

19 **Boston, Mass. (1913)**

20 1Feb. 3/1913: A lodging house refused a man a room “for want of 15 cents.”
21 He lit the structure on fire, killing 27 lodgers in a dangerously renovated structure.

22 Category: residential

23 Suicide: no

24 Cause: revenge

25
26
27 ¹¹⁸ Flowers and Flowers, MURDERS IN THE UNITED STATES, 56-7.

28 ¹¹⁹ Tenement House Fire, [Maysville, Ky.] EVENING BULLETIN, Nov. 2, 1903, 4.

1 Weapon: arson¹²⁰

2 **San Francisco, Cal. (1944)**

3 03/27/1944: Over a period of four hours, five San Francisco skid row hotels
4 “burst into flames” following a previous weekend of 11 fires in Oakland hotels. The
5 New Amsterdam Hotel fire killed 22 and injured 27. “Authorities noted an odor of
6 kerosene or gasoline.” One tenant, 33, showed injuries from the fire and was held in
7 the “hospital psychopathic ward.”

8 Category: public

9 Suicide: no

10 Cause: mental illness

11 Weapon: arson¹²¹

12 **Tulsa, Okla. (1921)**

13 05/01/1921: The police arrested a young black man for what later appears to
14 have been an accidental touching of a white female elevator operator. Rumors
15 spread that police charged him with sexual assault. A lynch mob arrived at the
16 county jail. The sheriff and deputies prevented seizure of the young man. A group
17 of armed black men offered to help the sheriff defend the jail. This display of arms
18 by black men inflamed white public sentiment leading to the destruction of
19 Greenwood, the black section of Tulsa. More than one thousand homes were burned
20 and *at least* 36 dead. Newspapers and public officials removed news accounts and
21 official records about the riot from files. The Tulsa Race Riot Commission in 2001
22 “concluded that between 100 and 300 people were killed and more than 8,000
23 people made homeless over those 18 hours in 1921,” with many bodies buried in
24 unmarked mass graves.

25 _____
26 ¹²⁰ Burns Lodging House When Refused Room; 27 Homeless Men Died, [New
27 York, N.Y.] EVENING WORLD, Dec. 3, 1913, 1.

28 ¹²¹ 22 Killed In Hotel Fire In San Francisco, [Santa Cruz, Cal.] SANTA CRUZ
SENTINEL, Mar. 29, 1944, 1.

1 Category: public

2 Suicide: no

3 Cause: racism

4 Weapon: firearms, arson, unknown?¹²²

5 **Chicago, Ill. (1958)**

6 Dec. 1, 1958: Our Lady of the Angels school burned, killing 95.¹²³ Several
7 years later, a 13-year-old confessed while on a lie detector that he had started the
8 fire: “because he hated school, rebelled at the authority of teachers, liked to hear the
9 sound of fire sirens and to watch fire engines race along the street.”¹²⁴

10 After 1960, of course, there have been several arson mass murders with equal or
11 larger death counts, and this remains a common method of mass murder in other
12 nations. In Australia, an arsonist burned the Childers, Queensland’s Palace
13 Backpackers Hostel in 2000, killing 15.¹²⁵ The 2011 Quakers Hill Nursing Home
14 fire killed eleven, set by a nurse after police questioned him about drug abuse.¹²⁶
15 Japan had several arson mass murders in late 2021, killing 24, 17, and 33 in separate
16 incidents.¹²⁷ These required no advanced firearms technology or even firearms. The
17
18
19

20 ¹²² Tulsa Race Riots, [https://www.history.com/topics/roaring-twenties/tulsa-race-](https://www.history.com/topics/roaring-twenties/tulsa-race-massacre)
21 [massacre](https://www.history.com/topics/roaring-twenties/tulsa-race-massacre), last accessed July 5, 2021.

22 ¹²³ Our Lady of the Angels School fire,
https://en.wikipedia.org/wiki/Our_Lady_of_the_Angels_School_fire

23 ¹²⁴ Boy Admits Fire Fatal To 95, MIAMI NEWS, January 16, 1962, 1.

24 ¹²⁵ *A Decade On, Childers Remembers Hostel Fire Tragedy*, BRISBANE
25 [Australia] TIMES, Jun. 23, 2010.

26 ¹²⁶ Candace Sutton, *Man Who Murdered 11 People in Nursing Home Fire*
27 *'Frothed At The Mouth' From Drugs And 'Put Nails In Tyres And Poured Paint'*
28 *Over Boss's Car, Inquest Hears*, [U.K.] DAILY MAIL, Sep. 8, 2014.

¹²⁷ Makiko Inoue, Motoko Rich and Hikari Hida, 24 Dead in Suspected Arson at
Office Building in Japan, N.Y. TIMES, Dec. 16, 2021,
<https://www.nytimes.com/2021/12/16/world/asia/japan-fire-osaka.html>, last
accessed November 21, 2022.

1 previously mentioned San Juan, P.R. arson mass murder killed 97.¹²⁸ The March
2 25, 1990, Happyland Social Club fire killed 87 people, leaving three survivors.
3 Angry at his girlfriend, the murderer used \$1 of gasoline and a match to set fire to
4 her place of employment.¹²⁹

5 **New Orleans, La. (1973)**

6 Jun. 24/1973: The murderer took revenge for being expelled from the
7 UpStairs Lounge, a gay bar. He walked down the street and bought a bottle of
8 cigarette lighter fluid, killing 33 people.¹³⁰

9 **Chicago, Ill. (1976)**

10 01/30/1976: An employee of Wincrest Nursing Home with a mental illness
11 problem (pyromania) started a fire in a clothing wardrobe, which killed 22 residents.
12 The employee was charged with arson.¹³¹

13 **C. Brutal Misuse of Tools**

14 **Villisca, Ia. (1912)**

15 Sep. 9, 1912: It appears that a business competitor and member of the Iowa
16 State Senate murdered Joseph Moore, his wife Sarah, their four children and two
17 visiting children “with an ax.” An “itinerant minister” was charged. The Iowa
18 Attorney-General “sought to commit” the minister “to an insane asylum, a step that
19 would bar the prosecution of any other person suspected of the crime.”
20

21 ¹²⁸ 3 Teamsters Charged in San Juan Hotel Fire, CHICAGO TRIBUNE, Feb. 4, 1988,
22 <https://www.chicagotribune.com/news/ct-xpm-1988-02-04-8803270617-story.html>,
last accessed November 24, 2018.

23 ¹²⁹ Ralph Blumenthal, Fire in the Bronx; 87 Die in Blaze at Illegal Club; Police
24 Arrest Ejected Patron; Worst New York Fire Since 1911, NEW YORK TIMES, Mar.
26, 1990.

25 ¹³⁰ Elisabeth Dias with Jim Down, The Horror Upstairs, TIME, Jul. 1, 2013.

26 ¹³¹ National Fire Protection Association, *Preliminary Report NFPA Fire Analysis*
27 *Department Wincrest Nursing Home*, 1, 4,
<https://oac.cdlib.org/view?docId=hb9v19p0sd&doc.view=frames&chunk.id=div00008&toc.id=0>, last accessed November 27, 2022; Woman Indicted in Chicago Blaze,
28 NEW YORK TIMES, Feb. 4, 1976.

1 Relatives of the victims claimed that the Attorney-General blamed the wrong
2 person; in response, the Iowa legislature passed a law prohibiting public discussion
3 of the crime. This led to an “injunction against J.N. Wilkerson, a detective, whose
4 four years’ investigation of the murders cast suspicion on a prominent state senator.”
5 The public meeting by Villisca residents took place in Omaha, Neb., instead.

6 Category: greed

7 Suicide: no.

8 Cause: greed

9 Weapon: ax¹³²

10 **D. Panic**

11 **Calumet, Mich. (1913)**

12 Dec. 24, 1913: A man shouted, “Fire! Fire! Everybody rush!” in the Italian
13 Hall where striking miners and their families were meeting for a Christmas party.
14 (There was no fire.) As the crowd attempted to exit the hall through an inadequate
15 exit, seventy-four people (mostly children) were trampled to death.¹³³ One account
16 ascribed the false claim to “a drunken” man,¹³⁴ but considering the murder of
17 strikebreakers in Calumet a few weeks before in the middle of a fierce labor
18 dispute,¹³⁵ this seems unlikely as the cause.

19 Category: public

20 Suicide: no

21 Cause: labor

23 ¹³² Villisca Ax Murders to Be Discussed in Mass Meeting, OMAHA DAILY BEE,
24 Jul. 6, 1917, 1.

25 ¹³³ *Ore Miner Charged Eight-Seven Cents for Month’s Labor*, OMAHA DAILY
BEE, Feb. 12, 1914, 1.

26 ¹³⁴ *Day of Joy is One of Sorrow*, [Valley City, N.D.] WEEKLY TIMES-RECORD,
January 1, 1914, 6.

27 ¹³⁵ *Strike Breakers Taken to Mines at Point of Pistols*, OMAHA DAILY BEE, Jan.
28 11, 1914, 1 (based on U.S. Dept. of Labor report).

1 Weapon: mouth¹³⁶

2 **i. Causes**

3 The focus of the State on the *method* of mass murder might be better spent on
4 solving the problem by solving underlying causes.

5 The following table shows the proximate cause of all mass murders in my database
6 before 1960. (After 1960, the data is not yet complete.) A breakdown of these
7 abbreviations:

- 8 • **Rob** is a mass murder performed as part of a robbery or to
9 eliminate witnesses to the robbery.
- 10 • **MI** (Severe mental illness, primarily psychoses and other
11 illnesses that cut off the sufferer from reality) includes all crimes
12 where either contemporary accounts describe the murderer as
13 insane, or where the nature of the crime makes other explanations
14 implausible (this is necessarily a judgment call, on which my
15 experience with mentally ill relatives and friends informs my
16 opinion). The legal definition of mental illness is much narrower
17 than the medical definition. Through most of U.S. history, the
18 McNaughton Rule (sometimes spelled M'Naughten) defined
19 legal insanity as: "at the time of committing the act, the accused
20 was laboring under such a defect of reason, from disease of the
21 mind, as not to know the nature and quality of the act he was
22 doing or, if he did know it, that he did not know what he was
23 doing was wrong."¹³⁷ A person who did not know he was doing
24 wrong, was insane.
25 Persons who are medically mentally ill sometimes know that
26 they are doing wrong and try to escape arrest and conviction
27 (perhaps because the "aliens," or the CIA or KGB "agents" that
28 they have just murdered are still after them). Such persons are
legally sane, while in any conventional sense, they are as "mad
as hatters."
- **MI?** are persons whose sanity seems questionable but for which
contemporary accounts are less than persuasive.

136 *Ore Miner Charged Eight-Seven Cents for Month's Labor*, OMAHA DAILY BEE, Feb. 12, 1914, 1.

137 The insanity defense and Diminished Capacity,
<https://www.law.cornell.edu/background/insane/insanity.html>

- 1 • **PPD** (Postpartum Depression): Tragically, many of these
2 mentally ill or possibly mentally ill incidents are mass murders
3 by mothers with recently born babies. In cases where the
4 murders are by recent mothers and where news accounts provide
5 no other explanation, I have categorized these as **postpartum**
6 **depression**. Some news accounts identified the mother as
7 ‘temporarily insane’ with no previous history of mental illness.
8 In a few cases the news accounts report on previous mental
9 illness hospitalizations associated with previous births.
- 10 • Many cases I have listed as “**PPD?**” because this is a plausible
11 explanation when no other seems more likely.
- 12 • **Resist** is a criminal resisting arrest.
- 13 • **Unknown** describes a very large number of crimes where either
14 the motivation is unclear, or the newspaper coverage is silent;
15 this also includes some mass murders where the inability to
16 identify the murderer makes cause impossible to determine.
- 17 • **Religion** is mass murders committed as part of religious
18 persecution. (And yes, in America!)
- 19 • **Racism** is its frequent cousin. In some cases, these include
20 revenge or retribution against Indians for crimes not, or at least
21 not clearly committed by the victims.
- 22 • **Politics** are murders committed to advance a political cause.
- 23 • **Terror** are mass murders committed to cause mass fear for
24 purposes of political change outside elections. Example: 9/11.
- 25 • **Revenge** are mass murders committed to take revenge for real or
26 perceived injuries by the murderer, his family, or acquaintances.
- 27 • **Ind** are crimes between Indians and settlers that are not official
28 acts of war, but that might have been seen that way by the
murderers. I have classified all attacks against peaceful travelers,
settlers, and Indians in this cause. (In some cases, the killers
openly admitted that the victims were “peaceful,” but were
supplying guns to less friendly tribes.)¹³⁸

¹³⁸ From California and Oregon, [Washington, D.C.] EVENING STAR, Mar. 21, 1860, 2.

- 1 • **Financial** is a strange subclass of family murders committed
2 usually by a parent concerned their family is about to become
3 impoverished, who then “protect” them from that suffering by
4 mass murder. In some cases, this seems to be a form of mental
5 illness: at least one example involved a mass murderer who was
6 in no danger of impoverishment.
- 7 • **Labor** are crimes committed during labor disputes, sometimes
8 against strikebreakers, sometimes against labor unionists.
- 9 • **Quarrel** are incidents that start out as some relatively minor
10 dispute before escalating into disproportionate response.
- 11 • **Cult** refers to mass murders committed by oddball religious
12 cults; I was surprised how widespread these were in the early 20th
13 century (the Church of the Sacrifice slaughtered entire families,
14 often with the family’s own ax).
- 15 • **Rape** are mass murders committed to eliminate witnesses to a
16 rape.
- 17 • **Greed** are mass murders carried out to obtain wealth other than
18 by robbery, often by inheritance from the deceased.
- 19 • **Divorce** is an alternative form of **Revenge**; divorce has been or
20 is in the process and someone is seeking retribution. This
21 includes separated spouses attempting reconciliation.
- 22 • **Adultery**: a variant of **Revenge**.
- 23 • **Jealousy**: should be obvious.
- 24 • **Intoxication** are crimes attributed to alcohol or drug-induced
25 stupidity. The strong overlap between **mental illness** and
26 **substance abuse** (one often causing the other) makes some of
27 these hard to distinguish, especially 150 years after the crime.
- 28 • **Bullying** is a recent category, and one that I suspect reflects some
deeper mental illness.
- **Stalker**: someone did not get their attentions rewarded as they
saw fit.
- **Witnesses**: Eliminating witnesses to some crime other than rape
or robbery.

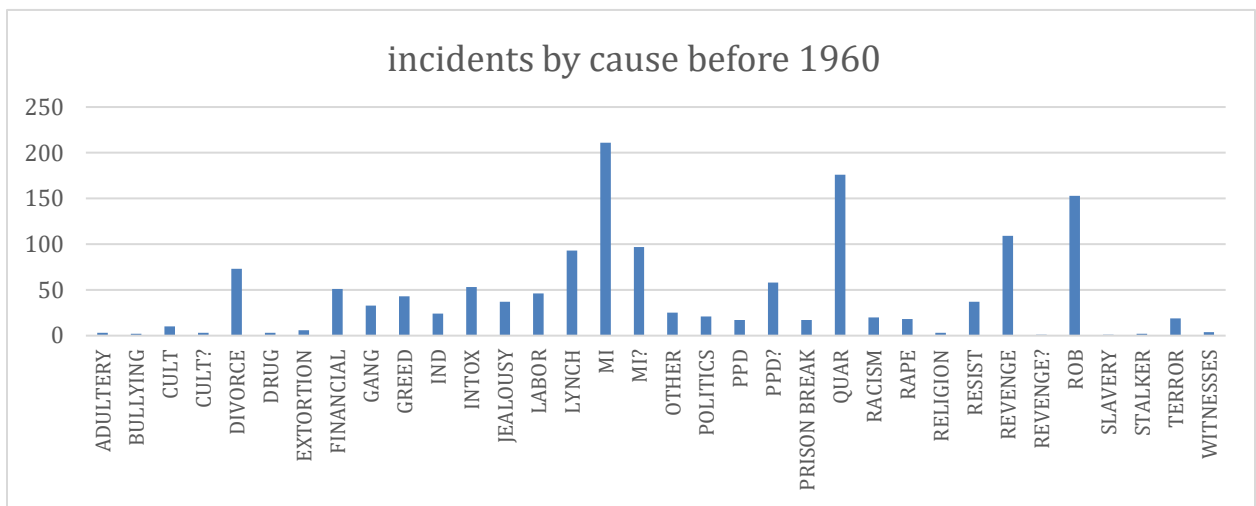
incidents by cause before 1960

Cause	incidents
ADULTERY	3
BULLYING	2
CULT	10
CULT?	3
DIVORCE	73
DRUG	3
EXTORTION	6
FINANCIAL	51
GANG	33
GREED	43
IND	24
INTOX	53
JEALOUSY	37
LABOR	46
LYNCH	93
MI	211
MI?	97
OTHER	25
POLITICS	21
PPD	17
PPD?	58
PRISON BREAK	17
QUAR	176
RACISM	20
RAPE	18
RELIGION	3
RESIST	37
REVENGE	109
REVENGE?	1
ROB	153

incidents by cause before 1960

Cause	incidents
SLAVERY	1
STALKER	2
TERROR	19
UNKNOWN	447
WITNESSES	4

Plotting the cause without UNKNOWN shows the high frequency causes:



It should surprise no one that mental illness and likely mental illness are a high frequency category. While most mentally ill people are primarily a hazard to themselves, severely mentally ill people are overrepresented in murder and other violent crimes.¹³⁹ Deinstitutionalization of the mentally ill starting with New York in 1964 and California in 1969 played significant roles in increased homelessness and violent crime rates.¹⁴⁰

¹³⁹ See Clayton E. Cramer, *Mental Illness and the Second Amendment*, 46 Connecticut Law Review 1301-6 (May 2014):(collecting studies).

¹⁴⁰ See Clayton E. Cramer, MY BROTHER RON: A PERSONAL AND SOCIAL HISTORY OF THE DEINSTITUTIONALIZATION OF THE MENTALLY ILL (2012) and Jean Isaac Rael and Virginia C. Armat, MADNESS IN THE STREETS: HOW PSYCHIATRY AND THE LAW

1 Professor Bernard E. Harcourt points out that the rise in murder rates in the
2 1960s, and their decline in the 1990s correlated with the change in the percentage of
3 the population that was institutionalized: those who were confined to either a mental
4 hospital or prison. According to Harcourt, sociologists examining the expansion of
5 imprisonment in the 1990s, the so-called “incarceration revolution,” missed the even
6 more important component of institutionalization: mental hospitals. When adding
7 mental hospital inmates to prisoners, Harcourt found an astonishingly strong
8 negative correlation between the institutionalization rate, and the murder rate: -0.78.
9 Harcourt found that even when adjusting for changes in unemployment and the
10 changing fraction of the population that was at their peak violent crime ages, the
11 negative correlation remained strong, and did a better job of predicting both the
12 1960s rise and the 1990s decline in murder rates than other models.¹⁴¹

13 Steven P. Segal of the University of California, Berkeley studied state-to-state
14 variations in murder rates and mental health care, controlling for socioeconomic,
15 demographic, and geographic data. He concluded that “[l]ess access to psychiatric
16 inpatient-beds and more poorly rated mental health systems were associated with
17 increases in the homicide rates of 1.08 and 0.26 per 100,000, respectively.” (Since
18 the national average homicide rate was 7.4 per 100,000 people for 2020,¹⁴² more
19 access to beds is clearly quite important in reducing homicide rates; “poorly rated
20 mental health systems” matter, but not as dramatically.)

21
22 ABANDONED THE MENTALLY ILL (1990) for how beautiful abstract theories and
23 fanaticism created the tragic urban landscape of modern America.

24 ¹⁴¹ Bernard E. Harcourt, From the Asylum to the Prison: Rethinking the
Incarceration Revolution, 84 *Texas Law Review* 1766-75 (2006).

25 ¹⁴² Centers for Disease Control and Prevention, National Center for Health
26 Statistics. National Vital Statistics System, Mortality 1999-2020 on CDC WONDER
27 Online Database, released in 2021. Data are from the Multiple Cause of Death Files,
28 1999-2020, as compiled from data provided by the 57 vital statistics jurisdictions
through the Vital Statistics Cooperative Program. Accessed at
<http://wonder.cdc.gov/ucd-icd10.html> on Nov 3, 2022 12:51:23 PM

1 Segal observed an even greater difference from the variation in involuntary
2 civil commitment (ICC) laws. “Broader ICC-criteria were associated with 1.42 less
3 homicides per 100,000” or bit more than one-fourth of the national homicide rate. In
4 short, states where involuntary commitment of the mentally ill was relatively easy
5 had significantly fewer murders than states where it was very hard.¹⁴³

6 A 2000 *New York Times* examination of mass murderers concluded:

7 The Times' study found that many of the rampage killers... suffered
8 from severe psychosis, were known by people in their circles as being
9 noticeably ill and needing help, and received insufficient or inconsistent
10 treatment from a mental health system that seemed incapable of helping
11 these especially intractable patients.

12 Only a small percentage of mentally ill people are violent, and many
13 advocates bristle at any link between mental illness and violence out of
14 concern that it will further stigmatize an already mistreated population.

15 However, the Times investigation of this particular style of violence --
16 public rampage killings -- turned up an extremely high association
17 between violence and mental illness. Forty-seven of the killers had a
18 history of mental health problems before they killed; 20 had been
19 hospitalized for psychiatric problems; 42 had been seen by mental
20 health professionals.¹⁴⁴

21 A few representative cases from the period before 1960:

22 **New Haven, Conn. (1930)**

23 Jun. 21, 1930: The father had been involuntarily committed to a mental
24 hospital. He escaped, threw his four children and wife from a 400-foot cliff, then
25 jumped.

26 Category: family

27 ¹⁴³ Steven P. Segal, Civil Commitment Law, Mental Health Services, and US
28 Homicide Rates, SOCIAL PSYCHIATRY AND PSYCHIATRIC EPIDEMIOLOGY, November
10, 2011, [https://web.archive.org/web/20170323153646/http://kendras-](https://web.archive.org/web/20170323153646/http://kendras-law.org/national-studies/commitmenthomiciderates.pdf)
law.org/national-studies/commitmenthomiciderates.pdf, last accessed August 19,
2022.

¹⁴⁴ Laurie Goodstein and William Glaberson, The Well-Marked Roads to
Homicidal Rage, NEW YORK TIMES, Apr. 10, 2000.

1 Suicide: yes

2 Cause: mental illness

3 Weapon: other¹⁴⁵

4 **New York, N.Y. (1953)**

5 Apr. 01, 1953: A college professor, 52, under psychiatric care, strangled his
6 wife and their two children, then stabbed himself to death.

7 Category: family

8 Suicide: yes

9 Cause: mental illness

10 Weapon: strangled¹⁴⁶

11 **Eleva, Wisc. (1909)**

12 Feb. 2. 1909: The father stabbed to death his four children, then “stabbed
13 himself and then jumped from the barn loft with a rope around his neck. At the
14 same time he hurled a fire brand into the stable, firing the barn.”

15 Category: family

16 Suicide: Yes.

17 Cause: “[Father] was recently released from an insane asylum.”

18 Weapon: knife¹⁴⁷

19 **ii. Summary**

20 Mass murder is not particularly new, nor is historical mass murder a
21 peculiarly group activity. Almost everything can be, and has been, used to commit
22 mass murder in America. The mass murder at Cleveland School in 1989 that started
23 California’s legislative focus on LCMs involved a mentally ill drifter with a history
24

25 ¹⁴⁵ Maniac Veteran Kills His Family, NEW BRITAIN HERALD, Jun. 23, 1930, 9.

26 ¹⁴⁶ Triple Murder, Suicide Apparent, [Parsons, Kansas] PARSONS SUN, Apr. 04,
1953, 7.

27 ¹⁴⁷ *Murders Whole Family and Then Kills Self*, [Pendleton, Ore.] EAST
28 OREGONIAN, Feb. 22, 1909, 8.

1 of involuntary commitment and a spotty record of outpatient treatment. As the
2 California Dept. of Justice's official report observed:

3 In an ideal world, ample resources would have been available to detect
4 his problems, identify them as potentially dangerous and likely to result
5 in his life being uselessly wasted, and to provide for a type of
6 intervention with a reasonable prospect of making a difference.
7 However, in a world in which government spending has to recognize
8 realistic limits set by the public, such resources will never be plentifully
9 available.¹⁴⁸

10 This is an especially painful paragraph for me. My smarter, older brother's
11 spiral down into schizophrenia resulted in brushes with the law, sometimes for
12 unprovoked attacks on strangers, but never with such a horrible ending. It was still a
13 life wasted by California's confused and irrational mental health policy. Has more
14 than 20 years of LCM laws, defenses of those laws, prison sentences for offenders,
15 and dealing with other mass murders (not all with guns) *really* been cheaper than
16 providing mental health care?

17 The focus of the State on the *method* of mass murder might be better spent on
18 solving the underlying *causes*. This abstract closes with a chilling sentence:

19 A case of an attempted mass shooting at a large psychiatric hospital in
20 the United States by a 30-year-old male with severe mental illness,
21 somatic delusions, and exceptional access to healthcare professionals is
22 reported. Six persons were shot, one died at the scene, and the shooter
23 was then killed by the police. Data were gathered from court documents
24 and media accounts. An analysis of the shooter's psychiatric history, his
25 interactions with healthcare professionals, and communications prior to
26 the shooting suggest a rare form of mass murder, a random attack by a
27 documented psychotic and delusional individual suffering with somatic
28 delusions. Despite his being psychotic, the killer planned the attack and
made a direct threat 1 month prior to the shootings. **This case highlights
problems with the healthcare system, indicating that it might be ill**

¹⁴⁸ Nelson Kempsey, *A Report to Attorney-General John K. Van de Kamp on
Patrick Edward Purdy and the Cleveland School Killings*, October, 1989, 19,
<https://schoolshooters.info/sites/default/files/Purdy%20-%20official%20report.pdf>,
last accessed November 26, 2022.

1 equipped to appropriately deal with severe mental illness.¹⁴⁹
2 [emphasis added]

3 Confronting the extent which a shortage of mental health services and the
4 difficult nature of involuntary mental health commitment in much of America would
5 be a more effective strategy. A severely mentally ill person without an LCM could
6 follow in the footsteps of previous generations and use less regulated weapons: ax,
7 hatchet, knife, poison, trail derailment.

8 **VI. Background and Qualifications**

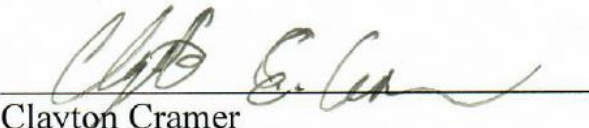
9 A copy of my *curriculum vitae* is attached to this Report as Exhibit 1.

10 I was retained at a rate of \$75/hour to prepare this declaration.

11 My compensation is not in any way dependent on the outcome of this or any
12 related proceeding, or on the substance of my opinion.

13
14 I declare under penalty of perjury that the foregoing is true and correct.

15 Executed within the United States on February 3, 2023.

16
17 
18 Clayton Cramer
19 Declarant
20
21
22
23
24
25

26 ¹⁴⁹ Christine Sarteschi. (2015). Severe Mental Illness, Somatic Delusions, and
27 Attempted Mass Murder. JOURNAL OF FORENSIC SCIENCES. 61. 10.1111/1556-
28 4029.12876.

EXHIBIT 1

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Horseshoe Bend, ID 83629
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<http://www.claytoncramer.com>

EDUCATION:

	Sonoma State University, Rohnert Park, California
June, 1998	M.A. in History <i>Master's Thesis:</i> "Concealed Weapon Laws of the Early Republic"
June, 1994	B.A. in History <i>Honors: cum laude</i> and With Distinction

AWARDS:

1993	Association for Education in Journalism and Mass Communication Ethics Prize First Place, Undergraduate Division
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TEACHING EXPERIENCE:

Fall, 2017 – present	<i>Adjunct Faculty:</i> College of Western Idaho, Nampa, teaching Western Civilization I, U.S. History I.
Fall, 2014 – Spring, 2017	Recovering from stroke
Spring, 2010 – Spring, 2014	<i>Adjunct Faculty:</i> College of Western Idaho, Nampa, teaching Western Civilization I, U.S. History I.
Fall, 2009 – Summer 2010	<i>Adjunct Faculty:</i> ITT Technical Institute, Boise, teaching State and Local Government and Introduction to Computers.
Fall, 2003	<i>Adjunct Faculty:</i> Boise State University, teaching U.S. Constitutional History and at George Fox University (Boise Center), teaching America and the World.

1996 **Teaching Assistant:** Assisted Professor Peter Mellini in his course “Twentieth Century World.” I graded quizzes, exams, and answered weekly written questions from students. I also prepared and lectured about the rise of totalitarianism in the period between the world wars.

BOOKS:

Lock, Stock, and Barrel: The Origins of America Gun Culture
Praeger Press, 2018

Social Conservatism in An Age of Revolution: Legislating Christian Morality in Revolutionary America
CreateSpace, 2016

Historical Evidence Concerning Climate Change: Archaeological and Historical Evidence That Man Is Not the Cause
CreateSpace, 2016

My Brother Ron: A Personal and Social History of the Deinstitutionalization of the Mentally Ill
CreateSpace, 2012

Armed America: The Remarkable Story of How and Why Guns Became as American as Apple Pie
Nelson Current, 2006

Concealed Weapon Laws of the Early Republic: Dueling, Southern Violence, and Moral Reform
Praeger Press, 1999

Black Demographic Data, 1790-1860: A Sourcebook
Greenwood Press, 1997

Firing Back: Defending Your Right to Keep and Bear Arms
Krause Publishing, 1995

For The Defense of Themselves and the State: The Original Intent and Judicial Interpretation of the Right to Keep and Bear Arms
Praeger Press, 1994

By The Dim and Flaring Lamps: The Civil War Diary of Samuel McIlvaine, editor
Library Research Associates, Inc., 1990

SELECTED PUBLICATIONS:

“Bellesiles’ Arming America Redux: Does the Gunning of America Rewrite American History to Suit Modern Sensibilities?” Southern Illinois University Law Journal Spring 2017 Forthcoming
“

“Assault Weapon Bans: Can They Survive Rational Basis Scrutiny?” *University of Akron ConLawNow* 8:1, article 1.

Co-authored with David B. Kopel and Joseph Olson, "Knives and the Second Amendment," *University of Michigan Journal of Legal Reform*, 47:1 167-215 (2013).

“Mental Illness and the Second Amendment,” 46 Conn. Law Review 4:1301 (2014).

Co-authored with David B. Kopel, “State Court Standards of Review for the Right to Keep and Bear Arms,” 50 *Santa Clara Law Review* 101-208 (2010).

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“Ethical Problems of Mass Murder Coverage in the Mass Media.” *Journal of Mass Media Ethics* 9:1 [Winter, 1993-94] 26-42.

A comprehensive list of popular magazine articles would run to many pages; for a complete list see <http://www.claytoncramer.com/popular/popularmagazines.htm> .

CONFERENCES & EXPERT TESTIMONY:

Ohio State Senate Judiciary Committee, March 22, 1995.

Michigan House of Representatives Judiciary Committee, December 5, 1995

American Society of Criminology, San Diego, Cal., November, 1997. “Fear And Loathing In Whitehall: Bolshevism And The Firearms Act Of 1920.”

American Society of Criminology, Chicago, Ill., November, 2002. “The Duty to be Armed in Colonial America.”

Assisted in research and writing of Respondent's Brief and Academics for the Second Amendment and Claremont Institute amicus briefs for *D.C. v. Heller* (2008).

Panelist on "Up in Arms: The Second Amendment in the Modern Republic" University of Connecticut School of Law, November 15, 2013.

WORKS CITED IN COURT DECISIONS:

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"Second Amendment Limitations and Criminological Considerations" cited in *U.S. v. Yancey*, 09-1138 (7th Cir. 2010); *U.S. v. Chester*, 628 F.3d 673 (4th Cir. 2010); *U.S. v. Skoien*, 587 F.3d 803 (7th Cir. 2009).

"What Did 'Bear Arms' Mean in the Second Amendment?", cited in *D.C. v. Heller* (2008). In addition, significant parts of Justice Scalia's opinion are derived from amicus briefs that I helped to research and write.

For the Defense of Themselves and the State, cited in *Mosby v. Devine*, 851 A.2d 1031, 1052 (RI 2004) (Flanders, J., dissenting); *U.S. v. Emerson*, 46 F.Supp.2d 598 (N.D.Texas 1999); *State v. Sieyes* 225 P. 3d 995 (Wash. 2010).

"A Tale of Three Cities," cited in *State v. Mendoza*, 920 P.2d 357, 360 n. 4 (Hawaii 1996).

Concealed Weapon Laws of the Early Republic, cited in *Senna v. Florimont*, 958 A.2d 427, 433 (N.J. 2008).

"Mental Illness and the Second Amendment," cited in *In Rec EC* (N.J.App. 2015).

A comprehensive and up to date list can be found at <http://claytoncramer.com/scholarly/journals.htm#citations>.

LANGUAGES:

Very basic reading competence in German.

OTHER SKILLS:

I have 35 years of experience as a computer software engineer, including embedded telecommunications equipment development, web page creation and maintenance. I also have an unusually detailed knowledge of the physical sciences (for an historian), a deep interest in the history of science and technology, and how both influence society.

CERTIFICATE OF SERVICE
IN THE UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
SOUTHERN DIVISION

Case Name: *Rupp, et al. v. Becerra*
Case No.: 8:17-cv-00746-JLS-JDE

IT IS HEREBY CERTIFIED THAT:

I, the undersigned, am a citizen of the United States and am at least eighteen years of age. My business address is 180 East Ocean Boulevard, Suite 200, Long Beach, California 90802.

I am not a party to the above-entitled action. I have caused service of:

EXPERT WITNESS REBUTTAL REPORT OF CLAYTON CRAMER

on the following party by electronic mail.

Xavier Becerra
Attorney General of California
Anna Ferrari
Deputy Attorney General
Email: anna.ferrari@doj.ca.gov
455 Golden Gate Ave., Suite 11000
San Francisco, CA 94102

I declare under penalty of perjury that the foregoing is true and correct.

Executed February 3, 2023.

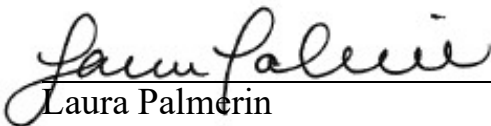

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Attorneys for Plaintiffs

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
SOUTHERN DIVISION

STEVEN RUPP, et al.,

Plaintiffs,

vs.

ROB BONTA, in his official capacity as
Attorney General of the State of
California,

Defendant.

Case No.: 8:17-cv-00746-JLS-JDE

**EXPERT WITNESS REBUTTAL
REPORT OF ASHLEY
HLEBINSKY**

1 1. I am a firearms historian, museum professional, and public educator,
2 specializing in material culture studies, as well as a firearms and ammunition-related
3 museum consultant, expert witness, freelance writer, and guest lecturer. Previously, I
4 served as the Robert W. Woodruff Curator-in-Charge of the Cody Firearms Museum
5 (henceforth to be known as the CFM), where I curated and managed a collection of
6 around 7,000 firearms from the 1200s through modern day, with over 20,000 related
7 artifacts, including ammunition, edged weapons, and accoutrements. I also served as
8 the Project Director on the museum's full-scale multimillion dollar renovation,
9 responsible for every aspect including but not limited to research, content,
10 exhibition, and installation, which reopened in 2019. In Summer 2022, I co-founded
11 the University of Wyoming College of Law's Firearms Research Center with
12 Second Amendment Scholar and University of Wyoming Law Professor, George
13 Mocsary.

14 2. I have been retained by the Plaintiff's in this matter to provide historical
15 testimony on firearms technology, regarding California Penal Code 30515(a), with
16 an emphasis on the history of technology in relation to specific features listed within
17 the Penal Code, including but not limited to repeaters and magazine-fed repeaters,
18 some with capacities greater than ten rounds, pistol grips, and thumbhole stocks. I
19 will also provide a brief look into general laws that existed at the time of the United
20 States' Founding (ca 1791) and Second Founding (ca 1868) Eras to provide context
21 and/or reference for any possible analogous comparisons as defined in the *New York*
22 *State Rifle and Pistol Association, Inc. v. Bruen* (henceforth to be referred to as
23 *Bruen*) ruling by the Supreme Court. This report was prepared for *Rupp v. Bonta*,
24 Central District case number 8:17-cv-00746-JLS-JDE. I have been retained to write
25 a report at the rate of \$450/hour.

26 **Background and Qualifications**

27 3. I have spent the last fifteen years immersed in the study of firearms
28 history, technology, and culture. I earned both bachelor's and master's degrees in

1 American History from the University of Delaware, during which I studied firearms
2 history and culture and instructed undergraduate students about military weaponry
3 throughout history. Much of my work since then focuses heavily on material culture
4 surrounding the macro-history of firearms and how their developments have affected
5 industry, culture, and society for centuries. I have been fortunate to work in some of
6 the largest collections in the United States, beginning my career as a researcher and
7 fellow in the Smithsonian Institution's National Firearms Collection housed in the
8 National Museum of American History.

9 4. Additionally, I spent a decade working with and running the only
10 accredited firearms museum in the United States, the CFM, a part of the Buffalo Bill
11 Center of the West, which receives approximately 200,000 visitors annually. Of the
12 200,000 people, it is estimated, based on initial survey data for the renovation, that
13 only 50% of those people admit to having a background or specified interest in
14 firearms. During my tenure, I also served as Project Director of the museum's full-
15 scale multimillion-dollar renovation. With the aid of my team, I was responsible for
16 all facets of the renovation including but not limited to concept, content, fundraising,
17 and collections management. Final content for the museum was reviewed internally
18 and by an external panel of experts, including academic historians, museum
19 professionals, teachers, public educators, gun collectors, and people unfamiliar with
20 firearms, as well as people with a range of different political views on guns. The
21 resulting museum, which reopened July 2019, provides a more interpretive space to
22 facilitate productive dialogue on firearms and their roles in history. Throughout this
23 museum, terminology and definitions play a significant role in educating both
24 visitors not familiar with firearms and those who consider themselves aficionados.
25 Because roughly half of the museum's audience is not familiar with firearms, we
26 dedicated an entire gallery at the front of the museum to understanding the basics of
27 firearms past and present, their features, ammunition, and safety. Since its opening,
28 the museum has received favorable reviews from the Wall Street Journal and

1 National Public Radio for its accessibility to diverse audiences and thoughtful
2 handling of what can be a sensitive topic. It has also been praised for its efforts to
3 educate on and impact firearms safety.¹

4 5. During my time at the CFM and through my consulting, I have become
5 nationally known for and sought after to provide a material culture perspective on
6 firearms history that is often lacking in much of modern, academic, and legislative
7 discussions on firearms. I guide museums as well other non- and for-profit
8 organizations and government entities on the interpretation and understanding of that
9 history. I have recently prepared declarations regarding the history of magazines and
10 repeaters for *Ocean State Tactical et al v Rhode Island*, *Virginia Duncan v Bonta*,
11 *State of Washington v Federal Way Discount Guns et al* and *Oregon Firearms*
12 *Federation et al v Oregon*. In May 2021, I testified in front of the Senate Judiciary
13 Subcommittee on the Constitution’s Hearing regarding “Ghost Guns,” for which I
14 researched and discussed the long history of privately made firearms and evolution
15 of arms technology from the colonies through the 1960s. Because I have worked in
16 several national collections that have upwards of 10,000 firearms each – collections
17 that range from the earliest through most recent technology – I have developed a
18 broad understanding of how firearms have evolved. Additionally, I have had the rare
19 opportunity to work with, see, study and handle many of the firearms referenced in
20 this report.

21 6. In addition to my historical scholarship, I also have played a role in
22 public education around firearms. I have been responsible for the education of tens
23 of thousands of students from elementary through college levels, teaching not only
24 firearms safety and basics, but the historical and technical evolution of the firearm.

25
26 ¹ Rothstein, Edward. “Handled With Care” *The Wall Street Journal*. September
27 27, 2019 <<https://www.wsj.com/articles/handled-with-care-11569601047>> Accessed
28 12/15/22. Kudelska, Kamila. “Firearms Museum Focuses on Gun Safety, History
& Culture.” *NPR*. August 25, 2019
<<https://www.npr.org/2019/08/25/753448348/firearms-museum-focuses-on-gun-safety-history-and-culture>> Accessed 12/15/22.

1 In 2017, I developed the first full-scale symposium in the United States dedicated to
2 the study of firearms as material culture, which reoccurs annually. These symposia
3 were organized to bring together firearms scholars from around the world to discuss
4 their collections but also to create metrics to analyze the quality of scholarship that
5 already has been done in the field. The study of firearms is a complicated one,
6 especially since much of the information about the objects themselves have
7 traditionally been conducted by well-known firearms researchers and collectors.
8 However, not all those people fall under traditional definitions of academic
9 scholarship. On the other side, because of limitations in the study of firearms,
10 academic research often has flaws in terms of a general understanding of the
11 firearms themselves.² We have worked to lessen that gap to create more balanced
12 scholarship. To continue that mission, I sit on the Editorial Board for the recently
13 revived, peer-reviewed arms journal, Armax, and I recently co-founded the
14 University of Wyoming College of Law's Firearms Research Center in 2022.
15 Despite its location in the College of Law, this new center intends to encourage
16 research of all types related to arms and ammunition.

17 7. Currently as a museum consultant, I am in the process of building
18 several museums with heavy emphasis on firearms collections. I also conduct
19 workshops on firearms, survey collections, and curate exhibitions at institutions such
20 as the Houston Museum of Natural Science, CM Russell Museum & Complex, and
21 the Mob Museum. I have served as a scholar and a panelist for the National Park
22 Service and the Organization of American Historians on a forthcoming Coltsville

23 _____
24 ² For example, in Dr. Vorenberg's declaration, he states multiple times when
25 trying to support his arguments that a Spencer rifle is a four-shot repeater, and a
26 Sharps rifle is a seven-shot repeater. However, the Spencer is a seven-shot repeater
27 and the Sharps rifle is, in fact, a single shot. I can only assume Dr. Vorenberg
28 confused the round count of the Spencer. In terms of the Sharps rifle, my assumption
would be that at some point in his studies he saw that there was a lesser known four-
barrel pepperbox pistol bearing the Sharps name, which was made through separate
companies than the rifle, and that he confused the two. However, he clearly believes
he is talking about a rifle that actually does not exist.

1 National Historic Site. I am also an expert witness, freelance writer, guest lecturer,
2 on-camera firearms historian, and television producer. A current copy of my
3 Curriculum Vitae summarizing my education and experience is attached at the end
4 of this document as **Exhibit 1**.

5 **Prior Expert Witness Testimony**

6 Oregon Firearms Federation et al v Oregon, December 2022
7 State of Washington v Federal Way Discount Guns et al, December 2022
8 Virginia Duncan et al v Bonta, November 2022
9 Ocean State Tactical et al v Rhode Island, October 2022
Senate Judiciary Subcommittee on the Constitution, Stop Gun Violence:
Ghost Guns, May 2021
Franklin Armory et al v Rob Bonta, February 2021
10 FN Herstal v Sturm, Ruger & Co, January 2021
11 Sturm, Ruger & Co. v American Outdoor Brands Corp., October 2020
12 Guedes v BATFE, June 2019
13 Miller v Becerra (Bonta), November 2019
Regina (Nova Scotia) v Clayton, January 2019
Garrison v Sturm, Ruger & Company, Inc. 2018

14 **Scope of Work**

15 8. This report will provide a brief look at firearms and their features
16 relevant to California Penal Code 30515(a). Firstly, the report will provide a
17 statement on the long history of the interconnectivity between military and civilian
18 arms. It will address how the advancement of technology often was driven by the
19 civilian market; the multi-purpose use of early arms for civilians and the military;
20 the private acquisition of firearms to be used on the battlefield; and the postwar
21 weapons surpluses that have flooded and continue to flood the civilian market.
22 Secondly, it will provide a brief history of features identified in the Penal Code. It
23 will conclude with a look at historically relevant laws through the end of the
24 nineteenth century in order of importance as defined in *Bruen*.

25 9. For this report, please note that I will, at one point, refer to the historical
26 and technical term, assault rifle. I use that term as defined by the Defense
27 Intelligence Agency (1970) to mean a machine gun that is single soldier portable,
28 selective fire (meaning it has both automatic and semi-automatic functions) and

1 chambers an intermediate cartridge from a detachable magazine. Rather than the
2 California definition which applies to strictly semi-automatic firearms. I will also
3 make a distinction between repeater and magazine-fed repeater. A magazine is a
4 vital part of the firearm; it is a container, detachable or fixed, that holds ammunition
5 while it feeds into a repeating firearm. In the periods being discussed, there are
6 repeating firearms that do not use magazines, such as revolvers, which use a rotating
7 cylinder that is as important and integral as a magazine is in order to fire a gun.
8 When I am discussing a repeater that has a magazine, I will qualify it as such.
9 Additionally, I will use capacity to refer specifically to the number of rounds of
10 ammunition that can be held within a firearm. When I am discussing magazine
11 capacity, I will qualify it as such.

12 **General Statement of the Interconnectivity of Sport and War**

13 10. The expression weapon of war is used a lot in modern and historical
14 discussions surrounding firearms. Today, it is used as an umbrella term to describe a
15 range of different firearms that people perceive as being useful to warfare, regardless
16 of whether they were actually used on or designed for the battlefield. How the
17 expression is used today implies a distinct line between firearms made for the
18 military and firearms made for the civilian market. However, that line for seven
19 hundred years has always been blurred.

20 11. Once firearms were developed, technology often advanced too quickly
21 for common battlefield use, finding popularity in the civilian market. Military
22 firearms in a general sense were limited by tactics, government bureaucracy, and
23 expense, while civilian arms until recently were predominantly limited by individual
24 budget. Additionally, civilian arms can be employed for far greater number of uses,
25 including hunting, self-defense, and target shooting. The earliest firearms technology
26 appeared on the battlefield by the thirteenth century. The hand cannon, or
27 handgonne, was little more than the name suggests, a cannon for your hands. The
28 user utilized a touchhole and external fire source to ignite powder and fire the gun.

1 This primitive technology may not have been designed for a sporting purpose, but
2 once it was designed, inventors pushed the boundaries, capabilities, and usages of
3 firearms into the future. And while the hand cannon specifically may not have been
4 used for sport, other military weapons of the time such as longbows and crossbows
5 were popularly used for target shooting competitions in fairs during the Middle
6 Ages.

7 12. The first true ignition system, the matchlock, was developed around
8 1400. This firearm, which utilized a burning match cord, was a popular military arm
9 used for centuries around the world. By the end of the 1400s, however, matchlocks
10 and subsequent ignition systems also began appearing in early target shooting
11 competitions.³ Another example of a firearm being adopted for civilian use dates a
12 century after the matchlock. In the first decade of the 1500s, a highly advanced
13 handgun was developed, the wheel-lock. This gun, developed for use on horseback,
14 was operated by the turning of a spring-loaded wheel. While it saw some battlefield
15 use, it was expensive and difficult to repair. As a result, it was used for specialized
16 purpose on the battlefield in Europe, but not as much in the colonies. However, the
17 technology was considered so advanced, some European countries made and used
18 wheel-locks for sport into the 1800s. Another example of superior technology being
19 used by civilians rather than military is rifling. Rifling, the boring out of the inside
20 of a barrel with spiral lands and grooves to spin a projectile, thus making it more
21 accurate, was developed at the turn of the sixteenth century and appeared
22 predominantly in civilian arms, with a few military exceptions from the American
23 Revolution, until just before the turn of the twentieth century when military tactics
24 finally caught up to the technology.⁴

25 _____
26 ³ Matchlocks and wheel-locks can be seen depicted in period imagery and in
medals for shooting competitions

27 ⁴ Examples of rifled matchlocks do exist. Rifled wheel-locks are far more
28 common as they were so often used for hunting. Halbrook, Stephen. *America's Rifle:
The Case for the AR-15*, pg. 101: "Around 1450, a German gunsmith cut spiral lands
and grooves inside a gun barrel...such guns were called riffeln"

13. Before the ability to mass manufacture firearms, guns often were privately made by gunsmiths. Although two armories did exist in the United States around the time of the Founding Era, many guns for the battlefield were made or assembled by individuals or received via foreign aid.⁵ It is estimated that 2,500-3,000 gunsmiths worked in the colonies alone.⁶ They, as private citizens, were responsible for making guns for both the military and civilians. While the standard infantry arm during the American Revolution was a smoothbore (no rifling) musket, there were some regiments during the War that used a common civilian firearm at the time, the American long rifle. The long rifle was a modified design from the German Jaeger (Hunting) Rifle that tended to have a longer barrel and a smaller caliber than its German counterpart. The rifle was the superior firearm in terms of accuracy compared to the inaccurate smoothbore musket. However, because of the type of projectile employed at the time – a round musket ball – the process to load was slower for rifles because the ball had to fit snugly within the lands and grooves of the rifling. There was a trade off in terms of effectiveness for specific purposes.⁷ However, there are examples of long rifles that were made with two barrels to compensate for that limitation.⁸ The long rifle in the colonies served as a multi-purpose tool. It was capable of being used for hunting, self-defense, and target

⁵ Springfield Armory was the first armory that began production in 1794 <<https://www.nps.gov/spar/learn/historyculture/index.htm>> Accessed 10/25/22. The second armory was Harpers Ferry Armory and Arsenal, which began construction in 1799 <<https://www.nps.gov/hafe/learn/historyculture/harpers-ferry-armory-and-arsenal.htm>> Accessed 10/25/22

⁶ Moller, George D. *American Military Shoulder Arms: Volume 1*. University of New Mexico Press, 2011. P.107

⁷ Until the development of a successful conically shaped bullet (rather than a round musket ball) by Claude Etienne Minie and modified by James Burton at Harpers Ferry, rifling was expensive and slow to load. For a round ball to effectively spin in rifling, it had to fit perfectly which slowed the loading process. However, it was perfect for target shooting as well as hunting and specialized military use. Since tactics by the military were still shoulder-to-shoulder fighting, accuracy was not of prime importance, so militaries used smoothbore (unrifled) barrels for their standard equipment.

⁸ Examples can be found in the Cody Firearms Museum.

1 shooting. Important to note though that unless being made for large-scale military
2 adoption, such as the smoothbore musket, and/or produced with the use of parts kits
3 ordered from overseas, many civilian arms were made at the behest of individuals or
4 in small runs.

5 14. Target shooting was a part of American culture before the formation of
6 the United States with colonists taking part in competitions known as “Rifle
7 Frolics.” In fact, David Ramsay in his “History of the American Revolution” (1789)
8 spoke about the Battle of Bunker Hill (1775). He wrote, “None of the provincials in
9 this engagement were riflemen, but they were all good marksmen. The whole of
10 their previous military knowledge had been derived from hunting, and the ordinary
11 amusements of sportsmen. The dexterity which by the long habit they had acquired
12 in hitting beasts, birds, and marks, was fatally applied to the destruction of the
13 British officers.”⁹ This tradition has continued throughout American history,
14 especially after the Civil War. For example, the National Rifle Association was
15 founded by Union officers in 1871, and its core purpose was “to promote and
16 encourage rifle shooting on a scientific basis.” What resulted was the proliferation of
17 international shooting competitions.¹⁰ Another example is the Olympic sport of
18 Biathlon, a sport which involves both skiing and target shooting, dating to 1767 in
19 Europe. It was initially created for government use in places like Norway. That
20 purpose persisted for centuries, even after becoming an international sport. In the
21 1930s, Finnish troops still used skis and rifles for patrol. Until recently, the firearms
22 used in Biathlon and other disciplines of the shooting sports, often used modified
23
24
25

26 ⁹ Halbrook, Stephen. *The Founders of the Second Amendment: Origins of the*
27 *Right to Bear Arms*. Pg. 96-97

28 ¹⁰ The National Rifle Association of America was founded after the National
Rifle Association in the United Kingdom (1859). <<https://home.nra.org/about-the-nra/>> Accessed 10/25/22

1 versions of center-fire NATO cartridge firearms.¹¹ By the nineteenth century,
2 progress on manufacturing processes allowed more firearms of more varieties to be
3 available to the US government as well as civilians. Many of the repeaters of all
4 sorts produced during this century came in specific models indicating sporting vs
5 military variants.¹²

6 15. The line between military and civilian arms was certainly blurred at the
7 founding of the country and thereafter, as was the role of the civilian and soldier. In
8 the colonies and in early America, certain citizens were required to serve in their
9 militias with firearm and ammunition requirements and some soldiers carried their
10 personal firearms into battle. By the American Civil War, it was not unheard of for
11 soldiers to privately purchase firearms that the US government had not adopted or
12 did not issue to them for use in battle. After the war, even issued weapons that were
13 used in war were often sold on the civilian market. After the Civil War, soldiers
14 could buy their firearms and many dealers and distributors sold the surplus in mass
15 in their catalogs or at stores for even lower prices. According to Springfield Armory
16 National Historic Site, “many thousands [of] cheap surplus weapons were released
17 into private hands through General Orders 101, providing rifles, pistols, carbines,
18 and muskets that found their ways into the hands of Americans in the decades
19 following the Civil War.”¹³ The tradition of selling military arms to civilians
20 continues today with firearms such as the Springfield Model 1903 bolt action rifle
21

22 ¹¹ An example of a centerfire modified firearm can be found in the Cody
23 Firearms Museum. Here is a succinct summary of the history of the biathlon
24 <<https://minnesotabiathlon.com/about-biathlon/the-history-of-biathlon/>> 10/25/22

25 ¹² Flayderman, Norm. *The Flayderman's Guide to Antique American*
26 *Firearms...and their Values*. 9th Ed (2019). This book is considered the gold
27 standard in the evaluation of antique American made firearms. It provides not only
28 firearms organized by manufacturer but also by type, such as repeater, sporting
military etc. Here is just one example: pgs. 694-695

¹³ Springfield Armory details this information here
<<https://www.nps.gov/spar/learn/historyculture/a-springfield-rifle-musket.htm>>
Accessed 10/24/22

1 and even with semi-automatics such as the M1 Garand rifle and the Model 1911
2 pistol.¹⁴

3 16. There has always been an ebb and flow of civilian and military firearms
4 for centuries, some with clearer lines than others. However, the assertion that
5 historically a gun could be completely understood as only for war in a time when
6 there was such interchangeability, is presentist at best.

7 **HISTORICAL REVIEW OF FIREARM FEATURES: CAL. PENAL CODE**
8 **§ 30515(a)**

9 17. There are many terms used to qualify rifles, pistols, and shotguns
10 regulated in California under this code. A few overarching categorical terms that
11 appear across the type of firearm are the terms: repeater, magazine (fixed or
12 detachable), centerfire, and semi-automatic.

13 ***Repeater***

14 18. It is important to note that while this report will acknowledge the
15 ceiling of ten rounds, it is unfair to assume that a person until recently would make a
16 clear distinction between capacities under and over ten rounds and is historically
17 arbitrary, particularly for the time frames being discussed.¹⁵

18 19. The concept of a repeating firearm dates to the earliest technology of
19 firearms. Hand cannons even came in repeating variations.¹⁶ While some repeaters
20 were employed or simply attempted on the battlefield, repeating technology would
21 not be widely popular for use in war until the late nineteenth century. That did not

22 ¹⁴ Today, postwar weapon surplus guns including several semi-automatic
23 firearms such as the M1 Garand are sold through the Civilian Marksmanship Unit
24 <<https://thecmp.org/sales-and-service/1911-information/>> <<https://thecmp.org/sales-and-service/services-for-the-m1-garand/>> Accessed 11/25/22

25 ¹⁵ The federal government itself did not make this distinction until the 1990s.
26 This date is referencing the Public Safety and Recreational Firearms Use Protection
27 Act (1994). There are many resources that showcase the number of repeaters and
28 their varied capacities available in this time frame in the United States, but the place
that aggregates them the best is Flayderman, Norm. *The Flayderman's Guide to
Antique American Firearms...and their Values*. 9th Ed.

¹⁶ An example can be found in the Cody Firearms Museum Collection

1 mean however that innovation in repeating technology was stymied. In fact, it was
2 quite the opposite. Without the confines of wartime tactics and budget, many
3 repeating firearms were commissioned by civilians who utilized them. The simplest
4 method of producing arms capable of firing more than one round at a time initially
5 was to fit a firearm with more than one barrel. However, due to weight limitations,
6 gunmakers began experimenting with other means of producing repeating arms
7 during the sixteenth century. One of the first methods attempted involved
8 superimposed loads, which were successive charges of powder and ball on top of
9 each other that were separated by wadding or the projectile itself in one barrel. They
10 were fitted with locks that either had multiple cocks and pans or a single lock that
11 could slide upon a rail. One such example was a sixteen-shot firearm made in
12 1580.¹⁷

13 20. By the 1630s, a Dutch gun making family, Kalthoff, began
14 experimenting with a design that allowed up to fifteen shots to be fired in rapid
15 succession. It utilized a tubular magazine located in a pistol's butt or a fowling
16 piece's stock to hold powder and balls.¹⁸ This system was so innovative it was
17 reproduced and modified for over 150 years. Also, by the mid-seventeenth century
18 in Italy, other magazine-fed repeaters were being developed. According to the Royal
19 Armouries (Leeds), the earliest example can be found at the Musée de l'Armée
20 which was made by Giacomo Berselli of Bologna in the late 1660s.¹⁹ However,
21 more well-known is Michele Lorenzoni of Florence. He developed a magazine-fed
22 repeater, in pistol and rifle form, known as the Lorenzoni system. This design was
23

24 ¹⁷ This firearm was on display at the National Firearms Museum's location in
25 Missouri. Winant, Lewis. "A 16-Shot Wheel Lock," *America's 1st Freedom* (2014).

26 ¹⁸ Some of this research was compiled by the late historian, Herbert G. Houze
27 and was featured in the Houston Museum of Natural Science's *The Art of the Hunt:
Decorated European Sporting Arms from 1500-1800* (2019).

28 ¹⁹ For more information, visit: <https://royalarmouries.org/stories/our-collection/the-christmas-connection-to-captain-souths-lorenzoni-pistol-our-collection/> Accessed 10/24/22

1 copied and modified by numerous designers after its invention with various
2 configurations and magazine capacities. One such firearm was designed by British
3 gunsmith, John Cookson in the late seventeenth century. A gunmaker in Boston, also
4 named John Cookson – it is not clear if this person was the same Cookson from
5 England, a relative, or a coincidence – published an ad in the *Boston Gazette*, in
6 1756, advertising a nine-shot repeating firearm. Around the same time a Cookson-
7 type twelve-shot repeater was made by gunmaker John Shaw.²⁰ Another example
8 from the 1750s in America is the Belton repeating fusil. This gun was invented by
9 Joseph Belton around 1758. Not a magazine repeater like the Lorenzoni, the Belton
10 utilized superimposed loads. Notably, he petitioned the Continental Congress during
11 the American Revolution to adopt his firearm. In 1776, he wrote Congress saying he
12 designed a firearm that could fire eight shots in three seconds. Benjamin Franklin
13 wrote to George Washington in support of the idea.²¹ Washington ordered one
14 hundred Belton firearms for use in the Continental Army. However, this order was
15 canceled because, as this report has previously stated, cost is often an impediment to
16 battlefield adoption. It is alleged that Belton then sold his firearms to the public.²² A
17 few decades later around 1779, the Girardoni (also spelled Girandoni) air rifle was
18

19 ²⁰ An example of this firearm can be found in the National Firearms Museum
20 <[https://www.nramuseum.org/the-museum/the-galleries/the-road-to-american-](https://www.nramuseum.org/the-museum/the-galleries/the-road-to-american-liberty/case-22-the-paper-cartridge/cookson-volitional-repeating-flintlock.aspx)
21 liberty/case-22-the-paper-cartridge/cookson-volitional-repeating-flintlock.aspx> It is
22 also discussed here: <[http://firearmshistory.blogspot.com/2014/02/the-cookson-](http://firearmshistory.blogspot.com/2014/02/the-cookson-repeater.html)
23 repeater.html> Accessed 10/24/22

24 ²¹ These letters can be found here:
25 <<https://founders.archives.gov/documents/Washington/03-05-02-0311>> Accessed
26 10/22/22

27 ²² What is believed to be the prototype of the Belton fusil is in the Smithsonian
28 Institution's National Firearms Collection:<
29 https://americanhistory.si.edu/collections/search/object/nmah_440031> Accessed
30 10/22/22. Additionally, Rock Island Auctions, who has sold recently several
31 reproduction Beltons provides an overview of this history
32 <[https://www.rockislandauction.com/riac-blog/assault-weapons-before-the-second-](https://www.rockislandauction.com/riac-blog/assault-weapons-before-the-second-amendment#:~:text=The%20Belton%20%22Roman%20candle%22%20fusil%20is%20the%20first,a%20chained%20charge%20much%20like%20a%20Roman%20candle)
33 amendment#:~:text=The%20Belton%20%22Roman%20candle%22%20fusil%20is
34 %20the%20first,a%20chained%20charge%20much%20like%20a%20Roman%20ca
35 ndle> Accessed 10/22/22

1 developed. It was a repeating arm that could fire twenty-two rounds from a tubular
2 magazine.²³ This design also was copied by gunmakers around the world.²⁴ The
3 actual Girardoni was used by Meriweather Lewis on the Lewis and Clark Expedition
4 (1804-1806). This air rifle had also been in service with the Austrian military, but
5 light weight examples were produced in sporting variations.²⁵

6 21. Around the ratification of the Second Amendment, other repeaters were
7 being developed throughout the world, including volley guns, such as the Nock
8 volley gun and Duck's Foot pistol.²⁶ There is also a surviving example of a firearm
9 commissioned by an individual during this same time frame. It is a fourteen-barrel
10 double Nock volley gun-style rifle. Each set of seven barrels has its own lockplate
11 and trigger. To better facilitate loading, the firearm came with a speed loader that
12 allowed the user to pour the charge into a small device that the user could then pour
13 down seven barrels simultaneously. This firearm was a sporting arm. To facilitate
14 accuracy at such a large size, it has a hand rest forward of trigger, under the barrels.

15
16 ²³ Kopel, David. "The History of Firearms Magazines and Magazine
Prohibitions." Albany Law Review, Vol. 88, 2015, pg. 853

17 ²⁴ An example of a Russian copy of a Girardoni Rifle can be found in the Cody
Firearms Museum

18 ²⁵ For more information on Lewis and Clark and the Girardoni, the most
comprehensive research on the Girardoni air rifle was done by scholar Michael
19 Carrick. His research is footnoted in this summary article of the Lewis and Clark
firearms that can be found here:

20 <http://www.westernexplorers.us/Firearms_of_Lewis_and_Clark.pdf> Accessed
21 10/22/22 Additionally, Ian McCollum, one of the foremost authorities on firearms
technology in the United States, has done several videos and articles about the
22 firearm. This is one article he wrote

23 <<https://www.forgottenweapons.com/rifles/girardoni-air-rifle/>> Accessed
10/22/2022. A surviving example of a Girardoni can be found:

24 <<https://www.nramuseum.org/guns/the-galleries/a-prospering-new-republic-1780-to-1860/case-8-romance-of-the-long-rifle/girardoni-air-rifle-as-used-by-lewis-and-clark.aspx>> Accessed 10/22/22 Rock Island sold a sporting variation in 2018:

25 <<https://www.rockislandauction.com/detail/75/3293/girandoni-system-repeating-air-gun>> Accessed 10/22/22

26 ²⁶ An example of the Duck's Foot Pistol can be found here:

27 <<https://www.recoilweb.com/ducks-foot-pistol-old-school-172784.html>> Accessed
28 1/31/23. An example of the Nock Volley Gun can be found here:

<<https://armourersbench.com/2020/01/12/nock-volley-gun/>> Accessed 1/31/23

1 In the event the user only wanted to use one set of seven barrels, he had a
2 replaceable stock made with one lockplate and trigger.²⁷ In America Joseph Gaston
3 Chambers devised a repeating musket that could fire, according to him, twenty
4 rounds a minute. He approached the U.S. War Department in 1792 with his
5 invention. The Secretary of War, Henry Knox, was interested in finding a firearm
6 that would supply more power and requested that one of Chambers' firearms be
7 acquired for testing. A demonstration was set up at Alexander Hamilton's "Seat" on
8 the Schuylkill.²⁸ Furthermore, Chambers petitioned Thomas Jefferson for help
9 spreading the word of his invention. To which Jefferson referred him to the US
10 Patent Office.²⁹ His invention was not adopted initially with concerns for structural
11 stability, but his repeating muskets, pistols and seven-barreled swivel guns were
12 adopted by the US Navy and Pennsylvania for the War of 1812. Between September
13 1813 and September 1814, Philadelphia based arms makers would produce at least
14 fifty-three seven-barreled swivel guns that could fire two-hundred bullets a piece,
15 two hundred repeating muskets, and one hundred repeating pistols. Outside of the
16 United States, European countries were also interested in his inventions.³⁰ Another
17 repeater designed in 1821 was known as the Jennings repeating flintlock. It was
18 capable of firing twelve rounds before having to reload.³¹

19 22. The above text serves merely as an example of the numerous types of
20 repeating firearms which existed leading up to, around, and directly after the time of
21

22 ²⁷ McCollum, Ian. Forgotten Weapons:

23 <<https://www.youtube.com/watch?v=ivdlcHUwaEw>> Accessed 1/31/23

24 ²⁸ Fagal, Andrew J.B. "The Promise of American Repeating Weapons, 1791-
25 1821. *Age of Revolutions*. As of the time of this article, Fagal was an assistant editor
26 at Princeton University's Papers of Thomas Jefferson.

27 <<https://ageofrevolutions.com/2016/10/20/the-promise-of-american-repeating-weapons-1791-1821/>> 1/31/23

28 ²⁹ Interactions can be found here:

29 <<https://founders.archives.gov/?q=Joseph%20chambers%20burst&s=1111311111&sa=&r=1&sr=>>> Accessed 1/31/23

30 Fagal

31 Flayderman, Pg 683

1 the ratification of the Second Amendment and in some cases had direct ties to
2 Founding Fathers. While some criticize these repeaters as “one-off examples,” it is
3 important to keep in mind that this was typical as they were often made by private
4 gunsmiths and sometimes individually commissioned. During the Founding Era and
5 after, firearms at large weren’t produced in volume as they would have been by the
6 late nineteenth century in an industrialized America. Another argument is that these
7 guns only predominantly existed in Europe. However, the existence of a technology
8 in one country does not preclude the knowledge of it elsewhere, which is evident
9 since surviving examples from America are sometimes styled after contemporary
10 European designs. Some also argue that individual models could be considered
11 unsuccessful by modern and/or historic standards. However, just because some
12 firearms designs had flaws, imperfections, or issues, does not mean the technology
13 ceases to exist or should be ignored. It is interesting to note that the reason we are
14 aware of these firearms, in most cases, is, in fact, that an example has survived. So
15 many artifacts are lost over time, that it is impressive that these individual or
16 limited-run firearms were deemed significant enough in their time of invention and
17 beyond to be preserved into the present.

18 23. Prior to the American Civil War, there were many makers and
19 manufacturers of repeating firearms, however, the tradition of individual gunmakers
20 was still prominent. As manufacturing processes advanced, these concepts evolved
21 into repeaters produced in greater and more standard quantities. The transition of
22 firearms being made by private gunmakers began shifting to factories by the mid-
23 nineteenth century. Inline manufacturing, interchangeable parts, and mass
24 production impacted not only the types of firearms that were available, but also
25 quantity and quality. While repeating firearms, magazine-fed or not, exceeded ten-
26 rounds centuries prior, the number of distinct types of repeaters by the middle of the
27 nineteenth century was staggering.

1 24. With these industrial changes, repeaters continued to evolve as they had
2 for centuries. Pepperbox pistols, a revolving pistol with multiple barrels that were
3 manually rotated on a central axis, were popular in the United States by the 1830s,
4 some were even taken out west with California gold miners. One maker of
5 pepperboxes alone, Ethan Allen, between the 1840s and 1850s made over forty
6 variations of this style of firearm.³² While many pepperbox pistols typically fired
7 four to six shots, some were capable of firing twelve, eighteen, or twenty-four
8 rounds.³³ It becomes difficult to quantify the number of repeaters on the market
9 though because makers were so plentiful. In 1836, a year before Samuel Colt's first
10 patent in England of his revolving mechanism, the patent process was standardized
11 through the United States Patent Act. That year, Samuel Colt took out two patents
12 for five or six-shot revolving rifles and pistols. As a result, he owned the legal right
13 to produce, essentially the revolver, until it expired in the mid-1850s. This Act
14 created a flurry of production, innovation, and design especially towards repeaters
15 and magazines to varying degrees of success. The fact though that so many people
16 were trying to design the next great repeater shows the desire to capitalize on this
17 technology.³⁴

18 25. It has been cited and challenged that the Winchester Model 1866 was
19 the first magazine-fed repeater that held more than ten rounds to achieve commercial
20 success.³⁵ The Winchester Model 1866 lever action rifle was the first firearm sold
21 using the Winchester name. Between 1866 and 1898, approximately 170,101 Model
22 1866s, in .44 Rimfire, were produced. Of that model alone, around ten variations
23

24 ³² Flayderman, pg. 56-61

25 ³³ Kopel, pg. 854. Additionally, pinfire pistols and long guns can be found in
26 museum collections with capacities greater than ten rounds

27 ³⁴ Examples of these patented repeaters include Volcanic lever actions, the Jarre
28 Harmonica pistol and rifle, Porter and Genhart turret rifles, Josselyn Chain
Revolvers etc. More successfully were revolvers and repeaters by Smith & Wesson,
Remington, Merwin & Hulbert, Henry, Winchester etc.

³⁵ Kopel, pg. 869

1 existed. It was hoped that the Winchester Model 1866 would see successful adoption
2 by the US military, however, it did not. Only a small percentage, roughly 1/3 of total
3 production, were made ultimately for use by foreign militaries.³⁶ According to
4 another statistic, between 1861 and 1877, a total of 164,466 Henry and all models of
5 Winchester were made, with approximately 56,000 going to foreign governments.³⁷
6 This number, even with the inclusion of other models, still is only 1/3 of all sales.
7 The Winchester factory records before 1900, show that only 3,835 musket
8 configurations of the Model 1866 were produced, beginning after serial number
9 124,995.³⁸ However, it should also be noted that while reference to this military
10 contract exists in secondary source material, primary source evidence of foreign
11 contracts are not well documented and in some cases, questionable.³⁹ In reference to
12 his Model 1866, Oliver Winchester referred to it as “one of [the company’s] best
13 sporting guns” in a letter, dating 1871, to prominent gunmaker R.S. Lawrence.⁴⁰ In

14 ³⁶ Flayderman’s also provides the number of Mexican contract firearms there
15 were. The records are not complete for the Model 1866. The Records can be found
16 in the Cody Firearms Museum’s Records Office. Here is a breakdown of what has
17 survived through the Winchester collector.

18 <https://winchestercollector.org/models/model-1866/> This article also provides a
19 breakdown of other military contracts. <

20 <https://www.americanrifleman.org/content/winchester-lever-actions-go-to-war/>>
21 Accessed 10/22/22

22 ³⁷ Michael Vorenberg Decl.

23 ³⁸ McCracken Research Library. Production Serial Number Ledgers, Series 23,
24 MS 20. Winchester Repeating Arms Company Archive Collection.

25 ³⁹ The Cody Firearms Museum is home to the Winchester factory records,
26 archives, and firearms collection and provides pertinent information about these
27 models, including when and where it left the factory. Many analyses of Winchesters
28 available have not originated in a study of the records. For example, in Dr.
Vorenberg’s declaration. He claims as little as 8,000 Winchesters were in circulation
in the post-Civil War South. However, this number is based on an order of 6,000
from Governor Scott for the South Carolina Militia, 1,000 for the Metropolitan
Police Force in Louisiana, and 1,000 potentially stolen firearms. It has been stated
though that the government was slow to adopt this technology, despite still being
produced into the hundreds of thousands. Therefore, it is misleading to infer these
orders would be the only way to measure the number of Winchesters in the South at
that time.

⁴⁰ Oliver F. Winchester’s letter to R.S. Lawrence, dated 10 February 1871.
McCracken Research Library, MS20, Box 51, Folder 6

1 a Winchester testimonial from 1865, W.C. Dodge, Late Examiner of the US Patent
2 Office, boasted that Winchester's "Magazine Rifle, with the recent improvement, is
3 superior to any other arm ever presented to the public."⁴¹ In the beginning,
4 Winchester did lean into its previous involvement with the Henry rifle as a
5 marketing tool because it was a known commodity, however, within a decade after
6 the company's founding, Winchester catalogs detailing their sporting models and
7 diverse product lines were interspersed with testimonies from hunters and civilians
8 about their love of the technology.⁴² The categories for their 1875 catalog reads:
9 "Winchester's Repeating Fire-Arms, Rifled Muskets, Carbines, Hunting and Target
10 Rifles, &c..."⁴³ One such testimonial was from famous performer, William F.
11 Cody, proclaimed, "I have tried and used nearly every kind of gun made in the
12 United States, and for general hunting or Indian fighting, I pronounce your improved
13 Winchester the *boss*."⁴⁴ While it is true that Cody owned and used a Springfield
14 Model 1866 Trapdoor that he named, *Lucretia Borgia*, he owned and used many
15 firearms during this time and throughout his life. Firearms are designed with
16 different purposes and needs in mind. The Springfield was chambered in .50-70, so
17 it was a good option when hunting bison.⁴⁵ This firearm was designed by Springfield
18 Armory's Erskine Allin and its first model was in 1866, the same year as
19 Winchester's *first* firearm. Within less than a decade, Cody's name would become
20 forever intertwined with Winchester. Despite the ways that Winchester chose to
21 frame and market their firearms though, it should be noted that while advertising can
22

23 ⁴¹ Dodge is most likely referencing the 1865 King's Patent Improvement which
24 incorporated a side loading gate to improve the speed of loading the firearm.
25 Winchester's Repeating Firearms Rifled Muskets, Carbines, Hunting, and Target
26 Rifles, &c...Metallic Cartridges of all Kinds, manufactured by the Winchester
Repeating Arms Company." Catalogues Vol. 1 (1865-1881). McCracken Research
Library TS 533.5.W5431991v1c2

27 ⁴² McCracken Research Library TS 533.5.W5431991v1c2

28 ⁴³ Ibid

⁴⁴ Ibid, pg. 28-29

⁴⁵ What is left of Lucretia Borgia is at the Buffalo Bill Center of the West

1 influence a consumer, a consumer also has agency to purchase and use the product
2 they want for their own purposes.

3 26. While Winchester would provide the United States smaller runs of their
4 firearms designs modified for military service around the turn of the twentieth
5 century, Winchester would not truly be seen as a military manufacturer until their
6 involvement in World War I when government owned armories could no longer
7 meet the demand for military arms. Winchester and other manufacturers such as
8 Remington stepped in initially producing firearms – sometimes not even associated
9 with their brands - invented by other designers, companies, and/or armories, such as
10 the British Pattern 1914 Enfield and the American version, the U.S. Model 1917.
11 These military contracts however would ultimately be the financial demise of the
12 company as it went into receivership in 1931.⁴⁶

13 27. Outside of those early small contracts, Winchester continued designing
14 guns for the civilian market. With millions produced during this time frame, it begs
15 the question of where those guns went since it wasn't military service. The
16 Winchester Model 1873 boasted a production of around 720,610 manufactured in at
17 least twelve variations, including almost 20,000 in .22 caliber rimfire – a caliber
18 used for target shooting and varmint hunting. Model 1873 rifles were chambered in
19 .32-20, .38-40, .44-40, and .22 caliber. The Model 1876 had a manufacturing run of
20 63,871 firearms with around fifteen variations. This Model was a larger version of
21 the Model 1873 and chambered in heavier calibers (.40-60, .45-60, .45-75, .50-95),
22 which made the firearm more desirable for hunters, including President Theodore
23 Roosevelt.⁴⁷ At one point, they produced an exclusive line of high-level sporting
24 arms of the Models 1873 and 1876 known as the “1 of 100” and “1 of 1,000”
25

26 ⁴⁶ This information can be found in pretty much any book about Winchester. The
27 author also knows this information for the decade she spent running the Cody
28 Firearms Museum, formerly known as the Winchester Museum, which is home to
Winchester's firearms collection as well as archives from the company

⁴⁷ Flayderman, pg 309

1 models. Between the start of the company until 1898, Winchester released fourteen
2 repeating models. Those models would eventually be produced in over one hundred
3 variations, chambered for around thirty different cartridges.⁴⁸ Winchester continued
4 mass producing repeating firearms throughout the rest of the nineteenth century and
5 beyond. Considering the diversity within models, variations and especially calibers,
6 these guns were developed for specific and sometimes divergent purposes and
7 cannot be reduced into one category of simply being a Winchester repeater.

8 28. In fact, while Winchester may be most recognized for their lever action,
9 they also made other repeaters, such as double barrel shotguns, straight pull and
10 standard bolt action rifles, slide action rifles and shotguns, semi-automatic rifles and
11 shotguns, and even machine guns. In terms of the handgun market, Winchester
12 attempted to make revolvers in the 1870s and during World War I received a
13 commission late in the war to make Model 1911 semi-automatic pistols. Winchester
14 even is credited of having designed what is considered one of the earliest if not the
15 earliest “assault rifles” per the Defense Intelligence Agency’s definition from
16 1970.⁴⁹ Winchester, in 1917, designed a selective fire (meaning capable of
17 switching between semi-automatic and automatic functions), single person portable
18 rifle with twin top-mounted twenty-round detachable magazines, chambered for an
19 intermediate cartridge. Not only did Winchester designer, Frank Burton, develop this
20 firearm, he also invented an accompanying intermediate cartridge, the .345 WSL
21 with a spitzer bullet.⁵⁰

22
23 ⁴⁸ Flayderman, pg 306-322

24 ⁴⁹ Not to be confused with assault weapons, according to the Defense Intelligence
25 Agency: “Assault rifles are short, compact, selective-fire weapons that fire a
26 cartridge intermediate in power between submachinegun and rifle cartridges.”
27 Johnson, Harold E. *Small Arms Identification and Operation Guide – Eurasian
28 Communist Countries*. An Army Intelligence Document. US Army Foreign Science
and Technology Center November 1970, pg. 68.

⁵⁰ While there are some texts on this firearm, including Forgotten Weapons:
<<https://www.forgottenweapons.com/burton-1917-light-machine-rifle/>> The only
known example is in the Cody Firearms Museum. It is accompanied by field testing

1 29. As plentiful as variations in Winchester firearms are though, the above
2 information does not take into account the gargantuan amount of ammunition
3 Winchester manufactured. In general, not enough is said about Winchester's
4 innovation in cartridge design and the fact that ammunition production was
5 responsible for much of the financial success of the company. According to David
6 Kowalski, author of the *Standard Catalog of Winchester: The Most Comprehensive*
7 *Price Guide Ever Published*, "cartridges played a larger role in the business
8 operations of the Winchester Repeating Arms Company (W.R.A. Co.) than most
9 collectors realize. Because ammunition is a high-volume, high profit product, it
10 literally carried the W.R.A. Co. for most of its existence."⁵¹ Their cartridge designs
11 were so popular that other companies, such as Colt, would offer variations of their
12 iconic firearms, such as the Colt Single Action Army revolver, to accommodate
13 Winchester developed cartridges, such as the .44-40. Ammunition production was so
14 vital to Winchester that the company who bought them out of receivership, the Olin
15 Corporation, was their ammunition competitor. Today, the only surviving thread of
16 the company is Olin's Winchester Ammunition. The various firearms brands that
17 bear the Winchester name, are produced by companies that license the name from
18 Olin.

19 30. Winchester wasn't the only manufacturer though of repeating firearms
20 in the mid to late 19th century. Other companies were producing competitive
21 repeaters, such as the Evans Repeating Rifle, which was made between 1873 and
22 1879. Approximately, 12,200 were made and they came in three variations, Sporting
23 (approximately 4,350 made), Military (approximately 3,200), and Carbine (not
24 specified as either sporting or military, approximately 4,700 made). The Evans held
25

26 _____
27 notes and ammunition, providing a more accurate picture of the rifle than what has
28 been previously published. Accessed 12/19/22

⁵¹ Kowalski, David D. Ed. *Standard Catalog of Winchester: The Most Comprehensive Price Guide Ever Published*. Krause Publications 2000, pg. 159.

1 magazine capacities at twenty-eight, thirty-four, and thirty-eight rounds.⁵² The
2 Evans as well as other companies such as the Spencer Repeating Rifle, Fogerty
3 Repeating Rifle, Adirondack Firearms, Bullard Repeating Arms, Burgess Gun, and
4 the Whitney Arms Companies were making repeaters. However, they are lesser
5 known, partially because Winchester realized the value in their designs and the
6 threat of them as a competitor, so they acquired the companies.⁵³ Other major
7 manufacturers, such as Marlin, quickly popped up as well by the 1880s as a direct
8 competitor to the Winchester lever action. Additionally, by the end of the 19th
9 century, major manufacturers were making fixed and detachable magazines in
10 quantities greater than ten that were not only lever actions rifles. In fact, between
11 1887 and 1904, Colt manufactured an estimated 186,185 Colt Lightning slide action
12 rifles, in small, medium, and large frames. While they came in several calibers, they
13 also had fixed tubular magazines greater than ten rounds.⁵⁴ In all, there were over
14 one hundred manufacturers or makers in the United States alone producing some
15 type of repeating firearm leading up to and decades after the Civil War.⁵⁵

16 *Magazines*

17 31. The report previously mentions magazine-fed repeaters such as the
18 Lorenzoni style and the Girardoni. By the time after the standardization of the patent
19 act, magazines also began to be patented. Even though tubular magazines existed
20 long before, the tubular magazine was first patented in the US in the 1840s, notably
21 with the Hunt Volitional Rifle, the oldest direct ancestor to the Winchester rifle.
22 Magazines came in many shapes and sizes and became prevalent around this time.

23
24 ⁵² Flayderman, pg. 694-695

25 ⁵³ An entire exhibit at the Cody Firearms Museum is dedicated to the many
26 repeating arms companies that Winchester acquired. Examples are archived in the
27 Winchester Arms Collection.

28 ⁵⁴ Flayderman, page 122-123

⁵⁵ Ibid, Chapters V: A-F pages 50-299; Chapter VII: A, B, C Pages 351-387;
Chapter VIII: A Pg458-524; Chapter XIII pages 691-697; Chapter XV: pages 709-
733

1 For example, not all tubular magazines are fixed to the firearm, some such as the
2 Spencer lever action repeating rifle which utilized a detachable tubular magazine
3 from the buttstock capable of holding seven rounds. A speed loader even existed for
4 that magazine. In the 1850s, the Genhart turret rifle had a detachable circular
5 magazine with an externally visible shot/round counter. Between 1859 and 1862, the
6 Jarre Harmonica Pistol and Rifle received several patents. This gun has a
7 horizontally seated magazine that slides after each round is fired like a typewriter. It
8 is also detachable.

9 32. In terms of box magazines specifically, early ones were patented by
10 designers including Rollin White in 1855.⁵⁶ A detachable version was patented in
11 1864 by Robert Wilson.⁵⁷ A vertically stacked box magazine was patented by James
12 Paris Lee in 1879 which was applied to several rifles including the Mannlicher
13 Model 1886 rifle.⁵⁸ In terms of early semi-automatic pistols, the Mauser C-96 had a
14 fixed magazine, and the Borchardt C-93 had a detachable one. Semi-automatic
15 models of Winchester utilized various types of magazines, including the Winchester
16 Model 1907, a centerfire rifle capable of firing up to twenty rounds from a box
17 magazine and the Winchester Model 1903 which could also be fixed with a lesser-
18 known Sabo ninety-six round detachable magazine. By the end of the nineteenth
19 century, the earliest versions of semi-automatic pistols such as the Borchardt C-93
20 contained eight rounds from a detachable magazine (1893) and the Mauser C-96 had
21 a ten-round magazine (1895) but also came in configurations as high as twenty
22 rounds.⁵⁹ Even certain Luger semi-automatic pistols in the early 1900s had the
23 option of thirty-two round snail drum magazines.⁶⁰

24
25 ⁵⁶ White, Rollin. US Patent No 12648 (1855)

26 ⁵⁷ Wilson, Robert. US Patent No 45105 (1864)

27 ⁵⁸ Lee, James Paris US Patent No 221328 (1879)

28 ⁵⁹ Kopel, 857 referencing *Standard Catalog of Firearms*. (2014), Gun Digest Books, pg. 708-709

⁶⁰ A version of this section on magazines and the following was initially completed by author for *Miller, et al. v. Bonta*

1 ***Centerfire***

2 33. The next major feature of this Penal Code is the term, centerfire. This
3 term refers specifically to the type of ammunition the gun fires. Centerfire refers to
4 the location of the priming compound. Self-contained cartridges typically consist of
5 a case, primer, powder, and projectile. Centerfire has a separate primer in the center
6 of the head of the cartridge case. This is to distinguish it from rimfire, which has an
7 integral primer in the rim of the cartridge case. Traditionally, people are most aware
8 of .22 caliber rimfires but there have been many larger calibers including the .44 Flat
9 Henry Rimfire cartridge. Centerfire cartridges started in the early 1800s. In 1808,
10 Jean Samuel Pauly invented an early form of centerfire cartridge and the true
11 centerfire was developed in 1829 by French inventor Clement Pottet and perfected
12 by the 1850s.

13 ***Semi-Automatic***

14 34. Finally, the term that this Penal Code addresses most of all is semi-
15 automatic. Semi-automatic operation involves pressing a trigger to fire one round,
16 eject a spent case, and load another to be fired on the next trigger pull. Today, a
17 majority of firearms are semi-automatic rifles, pistols, or shotguns. Semi-automatic
18 technology was developed in the 1880s around the same time as automatic
19 technology. Mannlicher is generally attributed to creating the first semi-automatic
20 rifle; handguns followed shortly after. The first mass produced semi-automatic pistol
21 was the Hugo Borchardt designed C-93 with detachable 8-round magazine. The
22 Mauser C-96 followed, as did the John Moses Browning's Model 1899/1900 pistol.
23 Often in the marketing of these pistols in the late 19th and 20th centuries, the
24 companies would refer to them as "Automatic" pistols. However, please note they
25 are still semi-automatic in function. According to the definitions of the Gun Control
26 Act of 1968, such firearms made before 1898 are not federally regulated firearms,
27 they are antiques. By that definition and regulation, some semi-automatic pistols and
28 rifles are so old, they are not legally firearms according to the federal government. In

1 the twentieth century, semi-automatic firearms used in conjunction with a variety of
2 the features listed above have been and continue to be made into thousands of
3 models by countless companies.

4 **The following is a list of additional features addressed in Penal Code § 30515:**

5 35. ***Pistol Grip:*** Pistol grips appear on long arms dating to at least the
6 1700s. Single shot flintlock and later percussion pistols sometimes would have the
7 feature of a detachable stock. When assembled these long guns would use the grip
8 from the pistol as a maneuverable device. This trend continued with repeating arms,
9 including several models of Colt revolvers, in the civilian and military market. The
10 Borchardt semi-automatic pistol of 1893 and the Mauser C96 also had a detachable
11 stock option. If a user didn't have one of these models, universal holsters to convert
12 a pistol to a rifle with a detachable stock existed. On firearms without detachable
13 stocks, pistol grips appear on all variances of firearms actions. Machine guns,
14 including the Colt Model 1895, French Chauchat (1907) and several Maxim models
15 had pistol grips. Submachine guns like the Thompson (1918) had them as well.
16 Pistol Grips not only appear in machine guns but also other guns, such as shotguns –
17 the Ithaca Auto & Burglar (1922), the Harrington & Richardson Handy-Gun (1921),
18 and the Marble Game Getter (1908) – as well as semi-automatic firearms including
19 the M1A1 Paratrooper Carbine designed with not only a pistol grip but folding stock.

20 36. ***Forward Grips:*** The aforementioned fourteen-barrel firearm (ca 1795)
21 has a forward grip. Additionally, another example is the French Magot rifle from the
22 1860s. Possibly one of the only copies of this gun is in the Cody Firearms Museum
23 as it was purchased by Winchester during their lawsuit with the company
24 Bannerman.

25 37. ***Thumbhole Stocks:*** While a traditional thumbhole stock is difficult to
26 historically trace, their regulation has a deep impact on sporting and Olympic
27 firearms in the modern era. The concept of a stabilizing entity to help with
28 maneuverability and accuracy dates to the earliest civilian sporting arms firearms.

1 For example, Schuetzenfest, dating from the 1600s through today, had elaborate
2 sporting rifles created with molded cheek pieces and places for the hand including
3 palm rests – while not technically a thumbhole, these provided the same stability for
4 which a thumbhole is used. German Frei pistol of the 19th and 20th centuries, used
5 handguns that were made specifically as a stabilizing placement custom for the
6 individual athlete. Certain Olympic rifles feature thumbhole stocks, including
7 several models of Winchester, dating to the 1950s. This type of concept or
8 technology is a very prominent shooting sports feature.

9 38. ***Folding or Telescoping Stock:*** The Cody Firearms Museum has a
10 folding stock snaphaunce blunderbuss that dates to around 1650-1700. With early
11 firearms, folding or adjustable stocks are not necessarily common because pieces in
12 the civilian world were made by artisans prior to mass production. However, the
13 appearance of detachable stocks – converting a pistol to a rifle/carbine – appear in
14 the 1700s on flintlocks and continue to be incorporated on percussion, revolver, and
15 semi-automatic guns. The Luger Model 1902 semi-automatic carbine has an added
16 stock to convert the pistol to a carbine. As guns begin to be mass produced on scale,
17 various models are often made, such as a Junior or Ladies rifle that provide a
18 different size option for the sport shooter. The flexibility of stock size is very strong
19 in the civilian market where comfort and having firearms suited for the individual
20 are preferable and feasible. In the early 1900s, and possibly earlier, Try Guns were
21 carried by salesmen to allow the consumer to adjust the stock to fit them to see what
22 size this person needed. Two examples in the Cody Firearms Museum collection are
23 the Winchester Model 12 and LC Smith Try Guns. This lays the foundation for a
24 consumer market interested in customizing and adjusting their stocks to fit them
25 appropriately. Folding stocks do make appearances in the military sphere with the
26 M1A1 Paratrooper Carbine model as well as several submachine guns.

27 39. ***30 Inches or Less:*** The idea behind a shorter rifle is known as a
28 carbine. While the definition can vary, it typically refers to a barrel less than 20

1 inches. Additionally, many pistols with detachable stocks fall under this category.
2 By adding a stock to a C-93, C-96 or Luger it converts a semi-automatic pistol into a
3 semi-automatic rifle.

4 40. **Flash Suppressor:** Flash suppressors appear on machine guns from
5 World War I and earlier including the Chauchat and Maxim but technically, any gun
6 affixed with a Silencer, invented in 1902, could be considered to have a flash
7 suppressor. Silencers were heavily marketed to the civilian population as target
8 accessories, so this would have been available for numerous firearms models. The
9 traditional flash hider on military arms, not classified as a machine gun, were used
10 during WWII on guns such as the Lee-Enfield “jungle carbine” and have appeared
11 on AR platform firearms, invented in the 1950s.

12 **Laws and Relevance**

13 41. In the colonial period, the bulk of firearms laws were centered on
14 restricting access to certain people rather than firearms themselves. Therefore, even
15 if a firearm or weapon was specifically mentioned in a law, the type of weapon is
16 not necessarily relevant, as other civilians were still permitted to own them even if
17 some people were restricted. Each colony developed their own policies. In 1640,
18 Virginia law stated, “that all such free Mulattoes, Negroes and Indians...shall appear
19 without arms.”⁶¹ South Carolina also had similar bans in 1712.⁶² It is generally
20
21
22

23 ⁶¹ One of the best resources to search all firearms laws is the Repository of
24 Historical Gun Laws, Duke University School of Law.
25 <<https://firearmslaw.duke.edu/>> Accessed 10/25/22. However, a concise summary
26 of these laws is also broken down by: Ekwall, Steve. *The Racist Origins of US Gun*
27 *Control*. <[https://www.sedgwickcounty.org/media/29093/the-racist-origins-of-us-](https://www.sedgwickcounty.org/media/29093/the-racist-origins-of-us-gun-control.pdf)
28 *gun-control.pdf*> Accessed 10/22/22 Here he references: 7 The Statues at Large;
Being a Collection of all the Laws of Virginia, from the First Session of the
Legislature, in the Year 1619, p. 95 (W.W. Henning ed. 1823) (GMU CR LJ, p. 67)
⁶² Eckwall, 7 Statutes at Large of South Carolina, p. 353-54 (D.J. McCord ed.
1836-1873). (GMU CR LJ, p. 70)

1 understood that, while intent is debated, early laws were largely categorized by
2 race.⁶³

3 42. The British government also used regulation to control the colonists
4 through access to gunpowder by seizing public powder houses, also referred to as
5 “magazines.” Although it is not to be confused or conflated with the mechanical
6 devices discussed throughout this report. They achieved this because, due to fire
7 hazard, large stocks of black powder were kept in a communal powder house, which
8 was a repository for both individuals and merchants to store their powder. It also
9 provided powder for people who were unable to afford it.⁶⁴ In one instance of
10 disarmament, Royal Governor Thomas Gage, in 1774, seized remaining powder in
11 Charleston, causing a flurry of responses, known as the Powder Alarm, from the
12 colonists that was considered preparation for the Battles of Lexington and
13 Concord.⁶⁵ Shortly thereafter, King George III enacted a restriction to “prohibit the
14 Exportation of Gunpowder.”⁶⁶ As a result, Revolutionary leaders, such as Paul
15 Revere, required possession of arms and ammunition by militiamen and many
16 required powder and projectiles in quantities greater than ten pounds and rounds
17 respectively.⁶⁷

18 43. While the ownership of gunpowder was outright encouraged, there
19 were still very real concerns about the instability of gunpowder. It is important to
20 note that modern gunpowder is far more stable than historic black powder. Even so,
21 it is still recommended to be stored separately from firearms in the home even
22

23 ⁶³ The abstract of Cramer, Clayton E. “Colonia Firearms Regulation” (April 6,
24 2016) puts it fairly succinctly: “Firearms regulation in Colonial America was
25 primarily focused on encouraging gun ownership for defense against external threats
(Indians, pirates, non-British European powers) and internal threats (slave
rebellions)”

26 ⁶⁴ Johnson et al. Firearms Law and Second Amendment Regulation, Rights, and
27 Policy (3rd ed. 2021), pg. 271

28 ⁶⁵ Ibid., pg. 271

⁶⁶ Ibid, pg. 272

⁶⁷ *Duncan v. Becerra*, 366 F. Supp. 3d 1131, 1150 (S.D. Cal. 2019)

1 today.⁶⁸ As a result of instability, fire prevention laws were enacted, not to disarm
2 individuals but to provide them a safe place to store their powder while also
3 reducing the potential for fire within communities. Philadelphia in 1725 enacted a
4 law “for the better securing of the city of Philadelphia from the Danger of
5 Gunpowder.” Under this Act, safety was also defined as the distance of beyond two
6 miles outside of town limits.⁶⁹ Similarly, Boston in 1783 also made a storage law
7 citing the instability of black powder. “In the houses of the town of Boston, [it] is
8 dangerous to the lives of those who are disposed to exert themselves when a fire
9 happens to break out in town.”⁷⁰ The idea of a required distance in which it was safe
10 to use black powder for firearms and also for fireworks, was echoed in these laws.
11 While in the above example it considered distance within town limits, some places
12 legislated a safe distance from the powder house itself. For example, in 1762, Rhode
13 Island enacted “that no person whatsoever shall fire a gun or other fireworks within
14 one hundred yards of the said powder house.”⁷¹ Additionally, Rhode Island in 1798,
15 provided guidance on how to safely store powder in the home. They also provided a
16 safe space to store anything over twenty-eight pounds⁷² These laws strongly
17

18 ⁶⁸ According to the Sporting Arms and Ammunition Manufacturer’s Institute,
19 “ammunition should be stored in a cool, dry location away from solvents and other
20 chemical heat sources, or open flames...ammunition should be stored separately
21 from firearms” < [https://saami.org/wp-](https://saami.org/wp-content/uploads/2018/01/SAAMI_AmmoStorage.pdf)
22 [content/uploads/2018/01/SAAMI_AmmoStorage.pdf](https://saami.org/wp-content/uploads/2018/01/SAAMI_AmmoStorage.pdf)> Accessed 10/25/22

21 ⁶⁹ 1725 Pa. Laws 31, An Act for the Better Securing of the City of Philadelphia
22 from the Danger of Gunpowder <[https://firearmslaw.duke.edu/laws/1725-pa-laws-](https://firearmslaw.duke.edu/laws/1725-pa-laws-31-an-act-for-the-better-securing-of-the-city-of-philadelphia-from-the-danger-of-gunpowder-%c2%a7-2/)
23 [31-an-act-for-the-better-securing-of-the-city-of-philadelphia-from-the-danger-of-](https://firearmslaw.duke.edu/laws/1725-pa-laws-31-an-act-for-the-better-securing-of-the-city-of-philadelphia-from-the-danger-of-gunpowder-%c2%a7-2/)
24 [gunpowder-%c2%a7-2/](https://firearmslaw.duke.edu/laws/1725-pa-laws-31-an-act-for-the-better-securing-of-the-city-of-philadelphia-from-the-danger-of-gunpowder-%c2%a7-2/)> Accessed 10/25/22

23 ⁷⁰ Thomas Wetmore, Commissioner, The Charter and Ordinances of the City of
24 Boston <[https://firearmslaw.duke.edu/laws/thomas-wetmore-commissioner-the-](https://firearmslaw.duke.edu/laws/thomas-wetmore-commissioner-the-charter-and-ordinances-of-the-city-of-boston-together-with-the-acts-of-the-legislature-relating-to-the-city-page-142-143-image-142-1834-available-at-the-making-of/)
25 [charter-and-ordinances-of-the-city-of-boston-together-with-the-acts-of-the-](https://firearmslaw.duke.edu/laws/thomas-wetmore-commissioner-the-charter-and-ordinances-of-the-city-of-boston-together-with-the-acts-of-the-legislature-relating-to-the-city-page-142-143-image-142-1834-available-at-the-making-of/)
26 [legislature-relating-to-the-city-page-142-143-image-142-1834-available-at-the-](https://firearmslaw.duke.edu/laws/thomas-wetmore-commissioner-the-charter-and-ordinances-of-the-city-of-boston-together-with-the-acts-of-the-legislature-relating-to-the-city-page-142-143-image-142-1834-available-at-the-making-of/)
27 [making-of/](https://firearmslaw.duke.edu/laws/thomas-wetmore-commissioner-the-charter-and-ordinances-of-the-city-of-boston-together-with-the-acts-of-the-legislature-relating-to-the-city-page-142-143-image-142-1834-available-at-the-making-of/)> Accessed 10/25/22

26 ⁷¹ 1762 R.I. Pub. Laws 132 <[https://firearmslaw.duke.edu/laws/1762-r-i-pub-](https://firearmslaw.duke.edu/laws/1762-r-i-pub-laws-132/)
27 [laws-132/](https://firearmslaw.duke.edu/laws/1762-r-i-pub-laws-132/)> Accessed 10/25/22

27 ⁷² 1798-1813 R.I. Pub Laws 85 < [https://firearmslaw.duke.edu/laws/1798-1813-r-](https://firearmslaw.duke.edu/laws/1798-1813-r-i-pub-laws-85-an-act-relative-to-the-keeping-gun-powder-in-the-town-of-providence-%c2%a72/)
28 [i-pub-laws-85-an-act-relative-to-the-keeping-gun-powder-in-the-town-of-](https://firearmslaw.duke.edu/laws/1798-1813-r-i-pub-laws-85-an-act-relative-to-the-keeping-gun-powder-in-the-town-of-providence-%c2%a72/)
29 [providence-%c2%a72/](https://firearmslaw.duke.edu/laws/1798-1813-r-i-pub-laws-85-an-act-relative-to-the-keeping-gun-powder-in-the-town-of-providence-%c2%a72/)> Accessed 10/25/22

1 focused on safety from a perspective of fire prevention rather than a position of
2 regulating the amount of powder one could have since powder houses were built for
3 large storage.

4 44. Racial firearm bans continued into the nineteenth century. States
5 including but not limited to Louisiana, South Carolina, Florida, Delaware, Maryland,
6 North Carolina, and Mississippi enacted race bans between ratification and the
7 American Civil War.⁷³ Some states, for a time, would permit African Americans to
8 carry guns with court approval, but they were eventually repealed.⁷⁴ Several laws
9 upheld their justification for race-based regulation on the fact that Black people were
10 not considered citizens, which was upheld in the 1857 case of Dred Scott v
11 Sandford.

12 45. During this period in between ratifications of the Second and the
13 Fourteenth Amendments, some laws emerged restricting carry by any person.
14 According to Professor of Sociology at Wake Forest University David Yamane, one
15 of the earliest examples was in Kentucky in 1813. The General Assembly of the
16 Commonwealth stated: “That any person in this commonwealth, who shall hereafter
17 wear a pocket pistol, dirk, large knife, or a sword cane, concealed as a
18 weapon...shall be fined in any sum, not less than one hundred dollars.” However,
19 nine years later in 1822, the Kentucky Supreme Court ruled that ban violated their
20 1792 Constitution.⁷⁵ Other states adopted similar carry regulations, some still only
21 for certain groups of people.

22
23
24 ⁷³ Ekwall

25 ⁷⁴ Ibid, referring to Act of Nov. 17, 1828, Sec. 9, 1828 Fla. Laws 174, 177; Act of
26 Jan. 12, 1828, Sec. 9, 1827 Fla. Laws 97, 100; Referring to Act of Jan. 1831, 1831,
27 Fla. Laws 30

28 ⁷⁵ Yamane, David. *Concealed Carry Revolution: Expanding the Right to Bear Arms in America*. A New Press (2021), pg. 17-18. David Yamane is a Sociology Professor at Wake Forest. This book was just a small portion of his larger research on gun culture that he calls, “Gun Culture 2.0.” More of his research can be found at gunculture2point0.com

46. Despite the abolition of slavery, discriminatory laws that included firearms regulation continued. One such way that could be legally achieved was through the Black Codes. While there were many aspects of discrimination in the various state “Codes,” many included challenges to Black Second Amendment rights. For example, Alabama in 1866 not only banned Blacks from owning firearms and other weapons, but also made it illegal to lend or sell to a black person.⁷⁶ The Civil Rights Act of 1866, the Fourteenth Amendment and the Second Freedmen’s Bureau Act in 1866 attempted to dispel a variety of these issues.⁷⁷ In February 1866, the House of Representatives amended the Second Freedmen’s Bureau Act to explicitly state that people had the “full and equal benefit of all laws and proceedings for the security of person and estate *including the constitutional right to bear arms.*”⁷⁸ Following the passage of these acts, however, southern states then passed laws, known as Army/Navy Laws, in which certain firearms, such as Colt Army and Navy model revolvers were permitted while cheaper versions were not legal.⁷⁹ Prohibiting the proliferation of inexpensive handguns on the market, whether intentionally or unintentionally imposed a classist restriction on those who could no longer afford to arm themselves— a trend that has continued well into the modern era.

47. The Enforcement Acts of 1870 and 1871 were meant to protect the rights of free men under the Fourteenth and Fifteenth Amendments. Yet these seemingly positive changes were short lived. During the 1872 election for Louisiana governor, President Ulysses S. Grant sent troops to support the Republican candidate. In response, a group of white supremacists began harassing Black and White Republicans. These tensions culminated in Black and White Republicans taking up defense in a local courthouse in Colfax, LA. In 1873, 150 white men

⁷⁶ Ekwall

⁷⁷ A detailed explanation of this can be found in: Johnson et. al pg. 465-471

⁷⁸ Ibid, pg. 466

⁷⁹ Eckwall

1 surrounded the courthouse and at one point, would fire a cannon at the building.
2 Note: White Republicans were given the opportunity to leave before the massacre
3 ensued. Black Republicans were left to fight with inferior weaponry. In the end, the
4 Black Republicans would surrender to the mob, led by a man named William
5 Cruikshank. After surrender, somewhere between sixty to one hundred and fifty
6 African Americans were killed.⁸⁰ Although Cruikshank and around ninety-six white
7 vigilantes were charged for violating the Enforcements, only a few were convicted.⁸¹
8 Even then, the Supreme Court, in *United States v Cruikshank* (1875), overturned the
9 conviction ruling that the federal government could prevent private citizens, in this
10 case KKK members, from disarming Blacks and that the matter must be relegated to
11 the states.⁸²

12 48. Another example concerning disarmament of a group of people
13 occurred leading up to the American Civil War. Violent confrontations broke out in
14 Kansas, known as Bleeding Kansas, between 1854 and 1859. At one point an anti-
15 slavery movement of “Free Soilers” decided to arm themselves with single-shot
16 Sharps rifles by smuggling them into the territory. However, the pro-slavery
17 segments, under the command of a deputy federal marshal, attempted to disarm
18 these settlers, most notably during the Sacking of Lawrence.⁸³ In response to the
19 situation in Kansas, abolitionist Charles Sumner gave his famous speech on the floor
20 of the United States Senate on May 19, 1856, “The Crime Against Kansas.” During
21 which, South Carolina Senator A.P. Butler, supposedly stated that the people of
22 Kansas should no longer possess their arms. During Sumner’s speech, he attacked
23 Butler and affirmed the right of individuals to bear arms:

24
25 ⁸⁰ Johnson et al, pg. 471

26 ⁸¹ Ibid, pg. 471 as well as summarized in
27 <<https://www.smithsonianmag.com/smart-news/1873-colfax-massacre-crippled-reconstruction-180958746/>> Accessed 10/25/22

28 ⁸² Ibid, pg. 471

⁸³ Ibid, pg. 456

1 “The rifle has ever been the companion of the pioneer and, under God,
2 his tutelary protector...Never was this efficient weapon [referring to
3 the single shot Sharps Rifle] more needed in self-defence, than now in
4 Kansas, and at least one article in our National Constitution must be
blotted out, before the complete right to it can in any way be
impeached...”⁸⁴

5 49. This speech culminated in violence against Sumner, who was beaten
6 with a cane on the Senate floor for advocating against disarmament. Yet, even after a
7 Civil War and thirty-five years later government disarmament would lead to the
8 largest mass murders in American history. On December 29, 1890, Colonel James
9 Forsyth, commander of the 7th Cavalry, ordered the Lakota to surrender their
10 firearms leading up to their removal from the land they inhabited. It is debated
11 exactly what happened to pull the trigger on the slaughter, but in the end, hundreds
12 of Lakota were killed.⁸⁵

13 50. After a long history of government related violence as well as private
14 vigilantism, Black people, particularly in the South, called for their personal
15 armament to protect themselves. Much research has been done focusing on violence
16 against people of color as a justification for firearms restrictions, however, less
17 explored is the fact that Black people used and relied on firearms for protection *from*
18 violence. These two ideologies conflict with one another. On one side, it is argued
19 that restrictive laws would reduce violence, specifically on marginalized
20 communities. On the other, it is argued that gun ownership allows those
21 communities the best ability to protect themselves. In this circumstance, a restriction
22 would take away rights of the latter, putting them again at risk of violence. This
23 desire to protect oneself with the best technology available was echoed amongst the
24 Black community in the late nineteenth century through prominent leaders. For
25 example, John R. Mitchell, Jr., Vice President of the National Colored Press
26

27 ⁸⁴ Johnson et al, pg. 456

28 ⁸⁵ Utley, Robert M. *The Last Days of the Sioux Nation*. 2nd Ed. Yale University
Press, pg. 211

1 Association, encouraged Black people to buy Winchesters to protect their families
2 from the ‘two-legged animals...growling around your home in the dead of the
3 night.’⁸⁶ Ida B Wells, an activist and journalist in the South, wrote in 1892, “that a
4 Winchester rifle should have a place of honor in every black home, and it should be
5 used for the protection which the law refuses to give.”⁸⁷ These activists also
6 encouraged Black Americans to move to Oklahoma where they formed self-defense
7 organizations. One Black journalist reported that in Oklahoma he “found in every
8 cabin [he] visited a modern Winchester oiled and ready for use.”⁸⁸

9 51. To summarize: in Kansas, pro-slavery government backed officials
10 sought to disarm Free Soilers of their high-quality single-shot Sharps rifles. Sumner
11 denounced this effort and started a fight with Senator Butler, who *himself* would
12 backtrack and claim he never supported disarmament. In the Colfax massacre, Black
13 Republicans were outgunned by a mob with superior weapons. The Wounded Knee
14 Massacre started because of a government sanctioned disarmament of the Lakota,
15 who had in some cases, superior weaponry. The firearms confiscated at Wounded
16 Knee included Winchester rifles, though it did not serve them any good considering
17 what transpired. And Black southerners particularly sought to have the best weapons
18 available for a government they believed was not there to protect them.

19 52. Some scholars argue that the passage, despite the repeal in many
20 instances, of state laws regulating the carry of specific types of weapons serve as
21 sufficient evidence to support a modern magazine ban. However, it is important to
22 reiterate that these regulations regarding specific types of weapons have occurred in
23 some cases to take away the rights of some but not others. For laws that did include
24 everyone, weapons typically on that list had some sort of larger counterpart, as in the

25 ⁸⁶ Johnson et al, p 521 referencing Giddings, Paula J. *Ida: A Sword Among Lions*
26 (2008), pg. 153-154

27 ⁸⁷ Johnson et al, pg. 521 referencing Wells, Ida B. *Southern Horrors*. N.Y. Age
28 June 25, 1892. Reprinted in Wells, Ida B. *The Light of Truth: Writings of an Anti-
Lynching Crusader*, pg. 84

⁸⁸ This quote is from: Johnson et. al, p 521 referencing Giddings, pg. 198

1 Army/Navy laws, which would have at least equal capacity or were still permitted
2 via licensure. Furthermore, these laws did not explicitly concern themselves with
3 capacity or magazines but more often the size and/or other criteria of concealment.
4 Other laws during this period, had more to do with whether or not the government
5 could protect you and your rights resulting in unfortunate outcomes. In the case of
6 disarmament and the need for defense, it seems that citizens often affected by these
7 tragedies were less concerned about a discourse on the morality of firearms
8 technology, but instead protecting themselves with the best technology available.

9 **Conclusion**

10 53. This report has provided an outline of the origins of the features listed
11 in the California Penal Code 30515(a) and their historical development and
12 proliferation to show that the features restricted by California have existed in some
13 form for centuries and yet have hardly, if at all, been regulated by government until
14 relatively recently.

15 I declare under penalty of perjury that the foregoing is true and correct.
16 Executed within the United States on February 3, 2023.

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19 Ashley Hlebinsky
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EXHIBIT 1

Ashley Hlebinsky Curriculum Vitae

Ashley Hlebinsky, President, The Gun Code, LLC
2124 E Kerry Lane, Phoenix, AZ 85024
Email: theguncode@gmail.com
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Education:

Master of Arts, American History, University of Delaware, 2013

Bachelor of Arts, American History, University of Delaware, 2011

Recent Honors/Awards:

Second Amendment Foundation's Defender of the Constitution, 2022

National Shooting Sports Foundation and Women's Outdoor Media Association's
Top Five Finalist, Top Woman of the Gun Industry, 2022

National Shooting Sports Foundation's SHOT Business's Top 40 under 40, 2020

Wyoming Business Report's Top 40 Under 40, 2017

National Shooting Sports Foundation & Professional Outdoor Media Association's Shooting Sports
Communicator of the Year Award, 2017

Wyoming's Non-Profit Woman of the Year Nominee, 2017

Selected Professional Experience:

Co-Founder and Senior Fellow, University of Wyoming College of Law's Firearms Research
Center, Laramie, WY, 2020 (Current)

Consulting Director, Craig Boddington Wildlife and Firearms Museum, Independence, KS, 2022
(Current)

Consulting Curator, LA Police Museum, Pasadena, 2021 (Current)

Senior Consulting Specialist. Cowan's Auctions, Cincinnati, OH, 2021 -2022

Consultant, National Museum of Law Enforcement and Organized Crime (Mob Museum), Las
Vegas, NV, 2016 (Current)

Guest Curator, C.M. Russell Museums and Complex, Great Falls, MT 2021 (Current)

Adjunct Scholar of Firearms History, Technology & Culture, Firearms Policy Coalition, 2020-2021

Curator Emerita & Senior Firearms Scholar, Cody Firearms Museum, Buffalo Bill Center of the
West, 2020 – 2021.

Robert W. Woodruff Curator, Cody Firearms Museum, Buffalo Bill Center of the West, Cody, WY, 2015-2020

Project Director, Cody Firearms Museum Renovation, Buffalo Bill Center of the West, Cody, WY, 2015-2019

Consulting Curator, Houston Museum of Natural Sciences, 2018

Consultant. Adirondack Experience. November 2019

Consultant. Winchester Mystery House, August 2019.

Consulting Scholar. National Park Service & Organization of American Historians, March 2019.

Consultant/Curator. Daniel Defense, Black Creek, Georgia. 2017

Associate & Acting Curator, Cody Firearms Museum, Buffalo Bill Center of the West, Cody, WY, 2015

Guest Curator. C.M. Russell Museums and Complex, 2015-2016

Guest Curator. Cody Firearms Experience, 2015

Assistant Curator, Cody Firearms Museum, Buffalo Bill Center of the West, Cody, WY, 2013-2014

Teaching Assistant, The Jewish Holocaust: 1933-1945, University of Delaware, 2013

Teaching Assistant, Introduction to Military History, University of Delaware, 2012

Teaching Assistant, History Education, University of Delaware, 2011

Researcher/Fellow, National Museum of American History, Smithsonian Institution, 2010-2013

Archival Assistant, University of Delaware Special Collection, 2010-2011

Firearm Intern, Soldiers and Sailors National Memorial Hall, 2008

Expert Witness Testimony:

Oregon Firearms Federation, Inc et al v Oregon Governor Kate Brown et al, December 2022

Washington State v Federal Way Discount Guns et al, December 2022

Virginia Duncan et al v Rob Bonta, November 2022

Ocean State Tactical et al v Rhode Island, October 2022

Senate Judiciary Subcommittee on the Constitution, Stop Gun Violence: Ghost Guns, May 2021

Franklin Armory et al v Bonta, February 2021

FN Herstal v Sturm, Ruger & Co, January 2021

Sturm, Ruger & Co. v American Outdoor Brands Corp., October 2020

Guedes v BATFE, June 2019

Miller v Becerra (Bonta), November 2019

Regina (Nova Scotia) v Clayton, January 2019

Garrison v Sturm, Ruger & Company, Inc. 2018

Selected Media Work:

Writer/Producer. *Mountain Men: Ultimate Marksman*. History Channel, May 2022 (Current)

Regular Contributor. *Our American Stories* Podcast, 2022 (Current)

Co-Host. History Unloaded Podcast. Various platforms with Wyoming Public Media, 2018-2022, 6 seasons (Current)

Producer & On Camera Expert. *Gun Stories with Joe Mantegna*, Outdoor Channel, 2015-2022, 8 seasons (Current)

Producer & On Camera Expert. *Man vs History*, History Channel & Matador Productions, 2020 (aired 2021)

Co-Host. *Master of Arms*, Discovery Channel & Matador Productions, 2018. 1 season

Consulting Producer. *Brothers in Arms*. History Channel, 2018. 1 season.

On Camera Expert. *Rob Riggle: Global Investigator*. Discovery Channel, 2020.

Recurring Expert. *Mysteries at the Museum*. Travel Channel. 2017-2019

Casting Consultant. *Gun Shop Project*, Vice Media & Cineflix Productions, 2020

On Camera Expert. *American Genius Colt V. Wesson*. National Geographic. 2015

Also appears on: Public Broadcasting Service, National Public Radio, Travel Channel, National Geographic, Popculture.com, Media, Entertainment, Arts, World Wide (MEAWW), Women's Outdoor News, Outdoor Life, Shooting USA, Gun Talk Media, National Shooting Sports Foundation, various firearms related podcasts.

Has been profiled by: *The Bourbon Review*, *Recoil Magazine*, *Outdoor Life Magazine*, *Guns.com*, *Blue Press Magazine*, and others

Selected Lectures/Panels:

Guest Speaker. Gun Rights Policy Conference, October 2022

Guest Speaker. Second Amendment Foundation Legal Scholars Forum, September 2022

Guest Lecturer and Panelist. AmmCon. Second Amendment Foundation, October 2021

Guest Lecturer. Armed for Revolution. Royal Armouries, September 2021

Guest Speaker. Preserving Firearms Heritage. Gun Rights Policy Coalition, 2020

Guest Lecturer. Art of Collecting. Nevada Museum of Art. January 2020

Panelist. Firearms and Museums in the 21st Century. National Council for Public History. March 2019.

Scholars Roundtable. Coltsville National Historic Site. Organization of American Historians & National Park Service, March 2019.

Forum Speaker. The Art of the Hunt: Embellished Sporting Arms in America. New Orleans Antique Forum, August 2018

Guest Lecturer. Unloading the Gun: Firearms, History, and Museums. Yakima Valley Museum, June 2018

Guest Lecturer. Perpetrators and Protectors: The Mob, The Law and Firearms, National Museum of Law Enforcement and Organized Crime (Mob Museum), September 2017

Organizer. Arsenals of History: Firearms and Museums in the 21st Century, Buffalo Bill Center of the West, July 2017

Lecturer. The Cody Firearms Museum, Arsenals of History Symposium, Buffalo Bill Center of the West, July 2017

Moderator. Addressing the Press: Firearms and the Media, Arsenals of History Symposium, Buffalo Bill Center of the West, July 2017

Moderator. Forming an Association: Legitimizing Firearms in Academic Study, Arsenals of History Symposium, Buffalo Bill Center of the West, July 2017

Guest Lecturer. Displaying the “Politically Incorrect,” C.M. Russell Museums and Complex, May 2017

Guest Lecturer. Displaying the “Politically Incorrect,” Blackhawk Museum, March 2017

Panelist. Curator Roundtable, Firearms and Common Law Symposium, Aspen Institute, September 2016

Guest Lecturer. Displaying the “Politically Incorrect,” Canadian Guild of Antique Arms Historians, April 2016

Guest Lecturer. The Cody Firearms Museum Renovation, American Society of Arms Collectors, September 2016

Guest Lecturer. From Protector to Perpetrator: Demystifying Firearms in History, Art Institute of Chicago, November 2015

Guest Lecturer. Winchester '73: The Illusion of Movie Making, Winchester Arms Collectors Association, July 2014

Guest Lecturer. Unloading the Six Shooter: Disassembling the Glamorization and Demonization of Firearms in the Arts, Buffalo Bill Center of the West, 2011

Selected Firearms Exhibitions:

Curator/Project Director. *Cody Firearms Museum Renovation*. Buffalo Bill Center of the West. 2019

Co-Curator. *The Art of the Hunt: Embellished Sporting Arms from 1500-1800*. Houston Museum of Natural Sciences. March 2019

Curator. *Glock Makes History: The Birth of the Polymer Handgun Market*. Buffalo Bill Center of the West. June 2016

Guest Curator. *Designing the American West: The Artist and the Inventor*. C.M. Russell Museum & Complex. February 2016

Curator. *The Greatest Gun Designer in History: John Moses Browning*. Buffalo Bill Center of the West. December 2015

Curator. *Journeying West: Distinctive Firearms from the Smithsonian Institution*. Buffalo Bill Center of the West. December 2015

Curator. *The Forgotten Winchester: Great Basin National Park*. Buffalo Bill Center of the West. June 2015

Curator. Western Firearms Gallery, including *Shoot for the Stars: The Tradition of Cowboy Action Shooting*. Buffalo Bill Center of the West. April 2015.

Curator. *Steel Sculptures: Engraving Individuality from Mass Production*. Buffalo Bill Center of the West. Winter 2014.

Certifications:

Certified Firearms Instructor, Basic Pistol, 2016

Certified Firearms Instructor, Personal Protection Inside the Home, 2016

Well Armed Woman Instructor Certification, 2016

Museum Studies Certification, University of Delaware, 2013

Grants:

National Endowment for the Humanities, 2017

Institute of Museum and Library Services, 2017

Gretchen Swanson Family Foundation, 2015, 2016, 2017, 2018, 2019, 2020

Kinnucan Arms Chair Grant, 2012

Fellowships:

Firearms Curatorial Resident, Buffalo Bill Center of the West, 2013

Edward Ezell Fellowship, University of Delaware, 2012

Buffalo Bill Resident Fellowship, Buffalo Bill Center of the West, 2011

Committees and Memberships:

Board Member – Walk the Talk America

Founding President – Association of Firearms History and Museums

- Academic association for the study of firearms history in United States

Founder – Arsenal of History Symposia Series

- First international symposia series on the academic study of firearms

Spokesperson – NSSF/AFSP Suicide Prevention and Project ChildSafe Programs
American Alliance of Museums – Member

American Society of Arms Collectors – Member

Winchester Arms Collectors Association – Honorary

Remington Society of Arms Collectors – Member

Weatherby Collector's Association –Life Member

Publication History

Editorial Board – Armax Journal

Selected Articles:

Author. "Guns and Mental Health." *Recoil Magazine*, Upcoming

Author. "Colt Single Actions and Safety." *Armax Journal*, October 2021

Author. "Guns and Partisan Politics." *Recoil Magazine*, January 2021

Author. "Feminism & Firearms." *Recoil Magazine*, Summer 2020

Author. "Burton Light Machine Rifle." *Recoil Magazine*. October, 2019

Founder/Editor/Author. *Arsenals of History Journal*, Annual Publication, 2018 - Present

Author. "It's Complicated: The Short Answer to Firearms, Museums and History. *Journal of the Early Republic – The Panorama*, September 2018.

Contributor. "Firearms Curator Roundtable" *Technology & Culture Journal*, August 2018

Author. "Displaying the 'Politically Incorrect.'" *CLOG X Guns*: Chicago, IL, September 2017

Author. "Does History Repeat Itself? The Smith & Wesson LadySmith." *CLOG X Guns*: Chicago, IL, September 2017

Author. "Renovating the Cody Firearms Museum." *International Committee of Museums and Collections of Arms and Military History Magazine*. Issue 17, May 2017. Pg. 38 - 41

Author. "Renovating the Cody Firearms Museum." *American Society of Arms Collectors Journal*. Fall 2016.

Author. "Glock Exhibit Opening." *Glock Magazine*. Bang Media. Annual 2017

Author. "The 28 Most Notable Guns from Remington's 200-Year History." *Outdoor Life Magazine*. Bonnier Corporation, 2016

Author. "Cassie Waters: Businesswoman of the Old West." *Guns of the Old West*. Harris Publications, Spring 2016

Author. "Making History: GLOCK Pistols at the Cody Firearms Museum" *Glock Magazine*. Harris Publications. Annual 2016

Author. "Pocket Pistols: 10 Seminal Guns from the Past 300 Years." *Pocket Pistols*. Harris Publications. 2016

Author. "The Gun that Won the Western and the Unforeseen Stars of Winchester '73" *Guns of the Old West*. Harris Publications.

Author. "Frontier Profile: Jedediah Strong Smith" *American Frontiersman*. Harris Publications

Author. "Frontier Legend John Johnston." *American Frontiersman*. Harris Publications

Author. "The Guns of John Johnston." *American Frontiersman*. Harris Publications

Author. “Annie Oakley VS Lillian Smith: A Female Sharpshooter Rivarly.” *Guns of the Old West*. Harris Publications, Spring 2015

Author. “Icons and Has-beens.” *American Handgunner*. FMG Publications, 2014

Author. “Triggering Memory: American Identity in *Cowboys and Aliens*.” *Points West*. Spring 2012

Author. “Unloading the Six-Shooter: Disassembling the Glamorization and Demonization of Firearms in the Arts.” *Points West*, Fall 2011.

Columns:

Author. Old School Series. *Recoil Magazine*

Author. Flashback. *Concealment Magazine*

Author/Brand Ambassador. *The Bourbon Review*.

Author. *American Association for State and Local History*. Summer 2019

Author. “Weird West: Fact or Fiction” *Guns of the Old West*. Athlon Outdoors (formerly Harris Publications)

1st Assault Rifle

Colt VS Winchester Revolver

Did Winchester Really Win the West?

Oliver Winchester’s Lever Action Shotgun

Remington Cane Gun

Author. “Cowboy Action Round Up.” SHOT Show New Products. *Guns of the Old West*. Athlon Outdoors (formerly Harris Publications). 2015, 2016, 2017

Reviews:

Reviewer: Edited by Jonathan Obert, Andrew Poe, and Austin Sarat. Oxford: Oxford University Press, 2018. *Journal of Technology & Culture*, Fall 2019

Author. “Everybody Loves an Outlaw: Taylor’s Outlaw Legacy Revolver Series.” *Guns of the Old West*. Harris Publications

Reviewer: Richard Rattenbury. *A Legacy in Arms: American Firearms Manufacture, Design and Artistry, 1800-1900*. *Chronicle of Oklahoma*, Spring 2016

Selected Blogs & Vlogs:

Recoil Magazine

Weekly video series beginning October 2017 to Present

Dillon Precision

Historical Videos on Ammunition (Upcoming)

Outdoor Life

Top 10 Guns in American History

Guns of the Old West: 10 Iconic Firearms and the Legendary Men (and Women)

Who Shot Them

13 of the Biggest Gun Fails in Recent Firearms History

Gun of the Week:

John Martz Luger

Apache Revolver

German Frei Pistol

King Louis XV Embellished Blunderbuss

Armalite AR-17 Shotgun

Getting the Christmas Goose with a Goose Rifle & Cutaway Suppressor

Mossberg Brownie

Wesson & Leavitt Belt Revolver

William Harnett and the Faithful Colt 1890

Winchester Model 1894 Lever Action Rifle

Ruger Semi-Automatic Pistol, 1 of 5,000

Herb Parson's Winchester Model 71 Lever Action Rifle

Lincoln Head Hammer Gun

American Trap Gun

Browning Brother's Single Shot Rifle Patent

Feltman Pneumatic Machine Gun

U.S. Springfield-Allin Conversion Model 1866 Trapdoor Rifle

Winchester Wetmore-Wood Revolver

Webley-Fosbery Automatic Revolver

Hopkins & Allen XL3 Double Action Revolver

DuBiel Modern Classic Rifle

Colt Model 1877 "Thunderer" Double Action Revolver

Tom Tobin's Colt Model 1878 Frontier Revolver

Walch 10-Shot Double Hammers Pocket Revolver

Winchester Model 1887, Serial No. 1

Deringer vs Derringer

The Forgotten Winchester 1873 of Great Basin National Park

Range 365

To the One Who Got Away

Gun Review: New Glock 19 Gen 5

Ain't She a Pistol? 10 Historic Gun Ads Featuring Women

National Shooting Sports Foundation

The Gun Vault:

Winchester 1873 Found in Great Basin National Park

Col. Jeff Cooper's Colt MK IV Series 80

500+ Year Old Firearms, Matchlocks, Flintlocks

U.S. Presidents Guns
Cross Dominance Shotgun
Herb Parson's Winchester Model 71 Rifle
Audie Murphy's Colt Bisley Revolver
4 Gauge Winchester Wildfowler
Pocket Pistols
Henry Ford's Winchester Model 1887 Lever Action Shotgun
Tom Knapp's First Gun
Buffalo Bill Cody's Winchester 1873
Colt Model 1861 Navy Serial No. 1
Cassie Waters' Hopkins & Allen XL3 Revolver
Glock 17

The Truth About Guns

Presidential Presentation Rifles
Factory Cut-Away M16A1
1854 Smith & Wesson Repeating Rifle (Serial Number 8)
Winchester World's Fair Model 1866 Deluxe Sporting Rifle
Raymond Wielgus Collection
Gastinne-Renette Muzzleloading Percussion Target Pistols
Oliver Winchester's Jennings Repeater
Henry Ford's Winchester Model 1887
Winchester Model 1866 Musket in .44 Rimfire
English Wheellock
Southern Belle American Longrifle
Annie Oakley's Model 1892 Smoothbore Rifle
Catherine the Great of Russia's Blunderbuss Gift to King Louis XV of France
Color Case-Hardened GLOCK 43: Merging the Old West with the New
Buffalo Bill Center of the West – Unloading the Myth
The Cody Firearms Museum – Yesterday, Today, and Tomorrow
Guns of the Week – Christmas List
Guns of the Week: December 15-19
Guns of the Week – The Cody Firearms Museum
Guns of the Week – German Firearms
Guns of the Week – Scheutzenfest
Guns of the Week – Air Guns
Guns of the Week – Early Firearms Law
Guns of the Week – October 13-17
Guns of the Week – Ingenious Engineering
Guns of the Week – Remington – Smoot
Guns of the Week – September 22-26; 15-19; 8-12
CSI: Firearms Museum Edition
Confessions of a Gun Historian
Art Guns: Aesthetics Over Function?
What Good's a Gun Without a Firing Pin?
Gun Installations, Trials & Tribulations
A True Test of Marital Trust and Love
Remembering Tom Knapp
Cody Firearms Museum Goes Hollywood

When Will My Firearms Go On Display
What's Your Cody Firearms Museum
To Vlog or Not to Vlog
We Don't Just Have Old Guns in Our Museum: SHOT Show 2014
Taking a Staba at Displaying More Guns
"Hi Yo Silver" Cook Away! Lone Ranger Display
The Shooting Wire
Winchester's 150th Anniversary Website
Remington's 200th Anniversary Website

CERTIFICATE OF SERVICE
IN THE UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
SOUTHERN DIVISION

Case Name: *Rupp, et al. v. Becerra*
Case No.: 8:17-cv-00746-JLS-JDE

IT IS HEREBY CERTIFIED THAT:

I, the undersigned, am a citizen of the United States and am at least eighteen years of age. My business address is 180 East Ocean Boulevard, Suite 200, Long Beach, California 90802.

I am not a party to the above-entitled action. I have caused service of:

EXPERT WITNESS REBUTTAL REPORT OF ASHLEY HLEBINSKY

on the following party by electronic mail.

Xavier Becerra
Attorney General of California
Anna Ferrari
Deputy Attorney General
Email: anna.ferrari@doj.ca.gov
455 Golden Gate Ave., Suite 11000
San Francisco, CA 94102

I declare under penalty of perjury that the foregoing is true and correct.

Executed February 3, 2023.

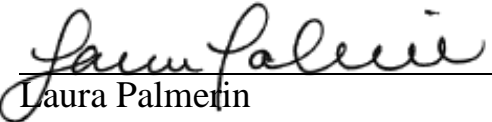

Laura Palmerin

EXHIBIT 58

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Attorney General of California
2 P. PATTY LI
Supervising Deputy Attorney General
3 ANNA FERRARI
Deputy Attorney General
4 State Bar No. 261579
JOHN D. ECHEVERRIA
5 Deputy Attorney General
State Bar No. 268843
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San Francisco, CA 94102-7004
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Fax: (415) 703-1234
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9 *Attorneys for Defendant Rob Bonta,*
*in his official capacity*¹

10
11 IN THE UNITED STATES DISTRICT COURT
12 FOR THE CENTRAL DISTRICT OF CALIFORNIA
13 WESTERN DIVISION
14

15 **STEVEN RUPP; STEVEN**
16 **DEMBER; CHERYL JOHNSON;**
17 **MICHAEL JONES;**
18 **CHRISTOPHER SEIFERT;**
19 **ALFONSO VALENCIA; TROY**
20 **WILLIS; and CALIFORNIA RIFLE**
21 **& PISTOL ASSOCIATION,**
22 **INCORPORATED,**

23 Plaintiffs,

24 v.

25 **ROB BONTA, in his official capacity**
26 **as Attorney General of the State of**
27 **California; and DOES 1-10,**

28 Defendants.

8:17-cv-00746-JLS-JDE

**CORRECTED SUPPLEMENTAL
SUR-REBUTTAL EXPERT
REPORT AND DECLARATION
OF RYAN BUSSE**

Courtroom: 8A
Judge: The Honorable Josephine
L. Staton

Action Filed: April 24, 2017

¹ Rob Bonta has succeeded former Attorney General Xavier Becerra as the Attorney General of the State of California. Pursuant to Federal Rule of Civil Procedure 25(d), Attorney General Bonta, in his official capacity, is substituted as the defendant in this case.

1 or AR-15s or AK-47s in their stores until the mid-2000s. Individuals in the shooting
2 industry were asked not to bring such guns to industry events or promote them
3 publicly. The National Shooting Sports Foundation (NSSF), which administers the
4 main industry trade show (SHOT show), also severely restricted the display of
5 military and tactical gear or weapons in its own trade show. This remained true as
6 late as 2006. It was not until very recently that the gun industry began to push AR-
7 15s and other assault weapons, leading to their increased proliferation today. The
8 following table of data compiled by the NSSF, which brands itself as “The Firearm
9 Industry Trade Association,” clearly illustrates that sales of such guns (so-called
10 “modern sporting rifles,” AR-15s and AK-47s) has dramatically increased since
11 1990, despite the fact that no federal, and few state, restrictions on such guns
12 existed in 1990. (74,000 units in 1990 versus 2,798,000 in 2020):¹⁹

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¹⁹ https://www.nssf.org/wp-content/uploads/2022/07/EstMSR1990_2020.pdf
(last visited Jan. 12, 2023).

Estimated Modern Sporting Rifles in the United States 1990 – 2020

Year	US Production less exports of MSR/AR platform	US Import less exports of MSR/AR, AK platform	ANNUAL TOTAL
1990	43,000	31,000	74,000
1991	46,000	69,000	115,000
1992	33,000	72,000	105,000
1993	62,000	226,000	288,000
1994	103,000	171,000	274,000
1995	54,000	77,000	131,000
1996	27,000	43,000	70,000
1997	44,000	81,000	125,000
1998	70,000	75,000	145,000
1999	113,000	119,000	232,000
2000	86,000	130,000	216,000
2001	60,000	119,000	179,000
2002	97,000	145,000	242,000
2003	118,000	262,000	380,000
2004	107,000	207,000	314,000
2005	141,000	170,000	311,000
2006	196,000	202,000	398,000
2007	269,000	229,000	498,000
2008	444,000	189,000	633,000
2009	692,000	314,000	1,006,000
2010	444,000	140,000	584,000
2011	653,000	163,000	816,000
2012	1,308,000	322,000	1,630,000
2013	1,882,000	393,000	2,275,000
2014	950,000	237,000	1,187,000
2015	1,360,000	245,000	1,605,000
2016	2,217,000	230,000	2,447,000
2017	1,406,000	158,000	1,564,000
2018	1,731,000	225,000	1,956,000
2019	1,679,000	169,000	1,848,000
2020	2,466,000	332,000	2,798,000
TOTALS	18,901,000	5,545,000	24,446,000

Source: ATF AFMER, US ITC, Industry estimates

25. It is my experience that this proliferation is the result of a direct and purposeful industry marketing effort. In 2009 as part of this effort, the firearms industry (encouraged by the NSSF), facilitated a public re-branding of assault weapons in an effort to make them more socially acceptable. As such, the NSSF broadly encouraged an industry-wide effort to rename such guns “Modern Sporting Rifles” or MSRs. Even though the guns themselves were steadily “improved” in many functional areas that impact lethality of a military assault weapon, industry members, including me, were then strongly encouraged to stop using the term

EXHIBIT 59



The Future of the Gun



THE FUTURE OF THE GUN

FRANK MINITER





The Future of the Gun



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Library of Congress Control Number: 2014942665

ISBN 978-1-62157-244-2

Published in the United States by
Regnery Publishing
A Salem Communications Company
300 New Jersey Ave NW
Washington, DC 20001
www.Regnery.com

10 9 8 7 6 5 4 3 2 1

Books are available in quantity for promotional or premium use. For information on discounts and terms, please visit our website: www.Regnery.com.

Distributed to the trade by
Perseus Distribution
250 West 57th Street
New York, NY 10107

Appendix photos credit: NRA Museums, NRAmuseums.com, except for the Remington R-51 photo, which is courtesy of Remington Arms.





The Future of the Gun



popular with civilians and law enforcement around the world because they're accurate, light, portable, and modular. Its design also allows it to be accessorized. A civilian can buy after-market sights, vertical forward grips, lighting systems, night-vision devices, laser-targeting devices, muzzle brakes/flash hiders, bipods, and more, making the AR the most versatile rifle platform. It's also easy to shoot and has little recoil, making it popular with women.

The AR-15 is so user-friendly that a group called "Disabled Americans for Firearms Rights," which has about twenty thousand members, says the AR-15 makes it possible for people who can't handle a bolt-action or other rifle type to shoot and protect themselves. Also, its .223 caliber makes it safer to use as a home-defense gun because this lighter caliber is less likely to travel through walls.

Phil adds, "Politicians who say the AR-15 is a 'weapon of war' that civilians shouldn't be allowed to own are ignorant of our history or are lying. Historically, Americans have always owned similar gun types to those used in the military. Besides, semiautomatic AR-15s for sale to civilians are internally different from the full-automatic M16. Sure they look similar, but their hammer and trigger mechanisms are different designs. The bolt carrier and internal lower receiver of semiautomatic versions are even milled differently so that their firing mechanisms can't be interchanged."

Phil leads me to the vault located beneath the National Firearms Museum and we handle American guns from every era. As he gives me this hands-on lesson, he says, "The mainstream media doesn't tell this important story about guns and our freedom. Sure, many of them don't know it—why would they, as it's not taught. But the thing is, they're also not curious enough to ask. This leads me to conclude they'd rather the American people didn't know this history. When people understand the gun's link to freedom they tend . . . [to cherish] their right to keep and bear arms, a freedom men and women fought and died for here and on foreign battlefields."

It's a freedom that's at risk today, even as gun technology continues to advance in ways that can benefit not only the U.S. military but the individual American citizen, as we'll see.

EXHIBIT 60



Criminal Justice Information Services Division [Feedback](#) | [Contact Us](#) | [Data Quality Guidelines](#) | [UCR Home](#)

[Home](#) [Offenses Known to Law Enforcement](#) [Violent Crime](#) [Property Crime](#) [Clearances](#) [Persons Arrested](#) [Police Employee Data](#)

Expanded Homicide Data Table 8

Murder Victims
by Weapon, 2015–2019

[Download Excel](#)

Weapons	2015	2016	2017	2018	2019
Total	13,847	15,355	15,206	14,446	13,927
Total firearms:	9,143	10,398	11,014	10,445	10,258
Handguns	6,194	6,778	7,052	6,683	6,368
Rifles	215	300	389	305	364
Shotguns	248	247	263	237	200
Other guns	152	172	178	164	45
Firearms, type not stated	2,334	2,901	3,132	3,056	3,281
Knives or cutting instruments	1,533	1,562	1,608	1,542	1,476
Blunt objects (clubs, hammers, etc.)	438	466	474	455	397
Personal weapons (hands, fists, feet, etc.) ¹	651	668	715	712	600
Poison	8	12	15	6	16
Explosives	1	1	0	4	3
Fire	63	78	93	76	81
Narcotics	70	119	112	102	93
Drowning	12	9	8	9	7
Strangulation	96	97	90	75	64
Asphyxiation	105	93	112	92	92
Other weapons or weapons not stated	1,727	1,852	965	928	840

- ¹ Pushed is included in personal weapons.
- NOTE: The Uniform Crime Reporting Technical Refresh enables updating of prior years' crime data; therefore, data presented in this table may not match previously published data.

Most Wanted

Ten Most Wanted

Fugitives

Terrorism

Kidnappings / Missing Persons

Seeking Information

Bank Robbers

ECAP

VICAP

About

Mission & Priorities

Leadership & Structure

Partnerships

Community Outreach

FAQs

News

Stories

Videos

Press Release

Speeches

Testimony

Podcasts and Radio

Photos

Español

Apps

Resources

Law Enforcement

Businesses

Victim Assistance

Reports & Publications

What We Investigate

Terrorism

Counterintelligence

Cyber Crime

Public Corruption

Civil Rights

Organized Crime

White-Collar Crime

Violent Crime

WMD

Contact Us

Field Offices

FBI Headquarters

Overseas Offices

Services

CJIS

CIRG

Laboratory Services

Training Academy

Operational Technology

Information Management

FBI Jobs

Submit a Tip

Crime Statistics

History

FOIPA

Scams & Safety

FBI Kids

FBI Tour

Additional Resources

Accessibility

eRulemaking

Freedom of Information / Privacy Act

Legal Notices

Legal Policies & Disclaimers

Privacy Policy

USA.gov

White House

No FEAR Act

Equal Opportunity



FBI FEDERAL BUREAU OF INVESTIGATION



FBI.gov Contact Center
Email updates

EXHIBIT 61

Expert Witness Rebuttal Report of J. Buford Boone III

Rupp, et al. v. Becerra

United States District Court

Central District of California, Southern Division

Case No.: 8:17-cv-00746-JLS-JDE

November 21, 2018

ASSIGNMENT

I have been asked by counsel for the plaintiffs in the above described matter to provide my opinion on statements made concerning the ballistics of “assault weapons” in the reports of three expert witnesses for the Defendant: Professor John Donohue, Dr. Christopher Colwell, M.D., and Detective Michael Mersereau. This rebuttal report sets forth my qualifications and foundation for my opinions. I offer these opinions to a reasonable degree of firearm, ballistic, law enforcement, and scientific certainty and am willing and able to testify consistently with the contents of this report.

COMPENSATION

I am being compensated for my time in this case at the rate of \$700 per hour. My compensation is not contingent on the results of my analysis or the substance of my testimony.

BACKGROUND AND QUALIFICATIONS

I am currently the sole member of Boone Ballistics, LLC and a retired Supervisory Special Agent (SSA) of the Federal Bureau of Investigation (FBI). I was the primary SSA with oversight of the FBI Ballistic Research Facility (BRF) from April 15, 1997 – August 31, 2012.

As the Member of Boone Ballistics, LLC, I have been employed as an expert witness in civil and criminal cases. Additionally, I have been employed as a consultant in civil and criminal cases. I teach internal, external and terminal ballistics, including selection of ammunition and weapons for efficiently incapacitating an aggressive human adversary. I have lectured on the applicability of the Hague Convention of 1899 to the selection of ammunition for use by the U.S. Military. I conduct time of flight testing to better document small arms projectile flight as it applies to the use of a Ballistic Coefficient to predict projectile impact at long distances.

Prior to my first full-time law enforcement employment, I served as a reserve police officer or Deputy Sheriff with Tuscaloosa County, Alabama, Upson County, Georgia, Las Animas County, Colorado and Trinidad Colorado.

Approximately May of 1988 I was hired as a Police Officer with the Tuscaloosa, Alabama, Police Department. I was subsequently offered a position as a Special Agent of the Federal Bureau of Investigation (FBI) in July of 1988. I began employment with the FBI on 07/25/1988. I was graduated from the FBI Academy on 10/21/1988. My first duty station was New Haven, Connecticut.

I have maintained an interest in firearms all my adult life. I have shot competitively. My

firearms scores at the FBI Academy were sufficiently high to allow me to attempt the "Possible" Club. I was successful on my first attempt. To shoot a "Possible", Agents must fire a perfect score on a very difficult course. Though there were in excess of 10,000 Agents in 1988, my "Possible" was approximately number 1,198 in FBI history.

Upon arrival in New Haven, I was assigned to the Reactive Squad conducting background, bank robbery and fugitive investigations. I later served as the Fugitive Coordinator for the New Haven Division. I was named "Detective of the Month" by the Bronx Homicide Task Force for the capture of an America's Most Wanted fugitive.

I successfully completed FBI Firearms Instructor School in July of 1989. This qualified me to teach firearms to Field Agents.

I was transferred to the Organized Crime/Narcotics Squad in July of 1990. I primarily participated in investigations of drug gangs. These investigations typically involved significant amounts of surveillance, electronic monitoring and the service of multiple search warrants. I also participated in organized crime investigations. I have participated in multiple arrests in urban and suburban areas.

I was named the Principal Firearms Instructor (PFI) of the New Haven Division in November of 1992. I maintained that position until I transferred to the Firearms Training Unit at the FBI Academy, Quantico, Virginia.

As PFI, I oversaw all firearm and defensive tactics training of the 90+ Agents in the New Haven Division of the FBI. I coordinated training sessions for all firearms issued to general Agents. This included revolvers, pistols, carbines and shotguns. It also included coordination of deadly force training with the Principal Legal Advisor. During my time as the PFI, the FBI transitioned from revolvers to semi-automatic pistols. The training for this transition was my responsibility for New Haven Division Agents.

In September of 1989 I was admitted to the FBI New Haven Special Weapons and Tactics (SWAT) Team as a Sniper/Observer. I successfully passed both the two week Sniper/Observer and the two week Basic SWAT courses at the FBI Academy. I served operationally on the New Haven SWAT Team until my transfer to the FBI Firearms Training Unit at the FBI Academy, Quantico, Virginia.

In March of 1996, I was promoted to a position as a Term GS-14 Firearms Instructor at the Firearms Training Unit (FTU), FBI Academy, Quantico, Va. During this assignment, I performed line and PFI instruction of Agent trainees. I provided or oversaw line and combat instruction in handguns, carbines and shotguns. I also provided judgmental instruction utilizing Firearms Training Simulator (FATS) equipment. The FATS training was used primarily to teach Agents when the use of deadly force was appropriate, and when it was not.

I was transferred to the Ballistic Research Facility (BRF) of the FTU on April 15, 1997. I maintained my position at the BRF for more than 15 years, retiring on August 31, 2012. I received a permanent promotion to Supervisory Special Agent in September of 1997.

The BRF has responsibility for testing and evaluating all ammunition used operationally by

the FBI. The BRF was created following a 1986 shootout wherein a subject was fatally injured by FBI projectiles but continued fighting and ultimately killing two Agents after receiving the “fatal” wound. A thorough investigation revealed the primary cause of the failure to rapidly incapacitate was the projectiles lack of sufficient penetration in the subject’s body. It stopped short of the heart.

This investigation spawned research into the mechanics of wound ballistics. Ultimately, the research led to the creation of a scientifically repeatable method of comparing the potential effectiveness of individual cartridges. The resultant test has been referred to as the “FBI Method”. The BRF published test findings available upon official request of Law Enforcement and Military agencies. The BRF became the most trusted source of ballistic information in the Law Enforcement and Military community.

As SSA of the BRF, my responsibility was to oversee all aspects of the research. I was the only full-time person at the BRF until a support person (non-Agent) was assigned as an Engineering Technician, Ballistics (ETB), in the last quarter of 1998. I was the Supervisor and rating official of the ETB.

As SSA, I performed or directed all functions of the BRF. I hand loaded cartridges, put test firearms together, hand-fired firearms for testing, built tissue simulant blocks, conducted penetration testing and reported on same. I created a relational database to store data and report test results. I operated sophisticated ballistic testing and photographic equipment. I was frequently sought out to train others in the use of this equipment.

I was the primary author of specifications for ammunition procurements for the FBI. This included ammunition used for training as well as for operational use, commonly referred to as “Service” ammunition.

I was the primary author of the FBI Body Armor Test Protocol.

I directed the creation of a procurement of 5.56mm NATO ammunition using piezoelectric conformal transducers for pressure testing.

The BRF served as the primary source of ballistic information regarding ammunition and firearms for all FBI Agents. Field Agents routinely referred local and state partners to me for ballistic information and advice.

During my service at the BRF, a strong liaison was formed with the Department of Defense (DOD). The BRF performed testing for and consultation with the DOD on many occasions. My expertise has been, and continues to be, sought out and relied upon by the Special Operations Community. During my service at the BRF, the Department of Defense Law of War Chair established protocol that all new DOD small arms munitions required testing and evaluation by the FBI BRF prior to legal authorization being granted for their use.

I have been a participant in a number of government sponsored Integrated Product Teams researching ballistics, including:

Joint Services Wound Ballistics

Lead Free Ammunition
Protective Armor
Armor Piercing Ammunition development

In 2002, I traveled to Darligen, Switzerland, at the specific request of the Department of State, to represent the United States in discussions of wound ballistics.

I have provided numerous live-fire terminal ballistic demonstrations to local, state and federal law enforcement officers as well as to all branches of the United States Military.

I have conducted international presentations on wound ballistics, ammunition selection, weapon selection, sniper operations and body armor.

I have briefed the Secretary of the Army and provided, at his request, my professional opinion of a 5.56mm NATO cartridge intended to replace the M855.

I have functioned as the primary instructor of 52 Basic Law Enforcement Sniper/Observer schools. Approximately 978 students have successfully completed this course under my instruction.

I consistently received high performance ratings in the FBI. I received the highest possible, "Outstanding", each of the last 4 years of my service. I have received numerous letters of commendation and performance awards.

I was the 2008 recipient of the National Defense Industrial Association Joint Armaments Committee's Gunnery Sergeant Carlos Hathcock Award.

Publications I authored during my FBI employment and restricted to official law enforcement or government request:

Review of Accuracy 1st Training
Weapon Selection – Revision III
Ammunition Selection 2007
TSWG MURG Briefing Accuracy Expectations
AIM III TSWG Briefing 3/16/2010
Wound Ballistics
B2 Sniper Rifle Cleaning Method

Publication I authored during my FBI employment that is publicly available:

FBI Body Armor Test Protocol

OPINIONS AND ANALYSIS

It is my opinion that the assertions from both Prof. Donohue and Dr. Colwell that "assault weapons" are ballistically different than non-"assault weapons" such that they necessarily cause more physical harm with the projectiles they fire is, as a matter of indisputable science, erroneous. With the exception of a firearm being used as a striking or impact weapon, injuries reported to have been inflicted by a firearm are actually inflicted by a projectile that the firearm

launched. Projectiles are unable to modify their ballistics according to factors other than barrel configuration (chamber, bore, length, rifling profile). Neither Prof. Donohue nor Dr. Colwell makes any claim as to the barrel configuration of “assault weapons” differing from non-“assault weapons”.

It is also my opinion that Detective Mersereau’s assertion that rifles meeting the definition of “assault weapon” are generally not suitable self-defense weapons is erroneous and contrary to well-vetted law enforcement training and practices.

Muzzle Velocity

In his report, Defendant’s expert Prof. Donohue, states that:

“Assault weapons, at least of the long gun variety, tend to have higher muzzle velocities than, for instance, handguns.”

(Page 22, paragraph 54).

Muzzle velocity is a calculation of the speed of a projectile at the firearm’s muzzle. This calculation is, normally, based on a measurement at some point in front of the muzzle. In my experience, the actual speed of a firearm’s muzzle has only been measured in an attempt to measure recoil.

Professor Donohue’s statement about “assault weapons” having particular muzzle velocities, therefore, does not make sense.

It would be reasonable to believe that Professor Donohue actually intended to speak to the velocity of projectiles launched by “assault weapons” as compared to the velocity of projectiles launched by “non-assault weapons”. This statement also would make no sense.

Such generalizations cannot be made with any degree of accuracy. The firearms Prof. Donohue references can be obtained in many different chamberings. This includes both rifle and pistol cartridges from the diminutive .22LR up to at least the .50 Beowulf and the .338 Lapua Magnum. The muzzle velocity of an “assault weapon” is mostly dependent on its barrel configuration and the cartridge fired.

“Assault Weapons”, as used in Professor Donohue’s report are defined by features that cannot have an effect on muzzle velocity. It is impossible for a pistol grip, flash suppressor, adjustable or folding stock, or the ability to accept a detachable magazine to affect muzzle velocity. While I have seen semiautomatic actions being given attribution for affecting muzzle velocity, the effect claimed is to reduce muzzle velocity – a direct contradiction of Professor Donohue’s claim.

A projectile fired from a non-“assault weapon” rifle would have substantially the same velocity as one fired from an “assault weapon” rifle, as long as the two rifles have similar barrels (and assuming the two projectiles came from identical cartridges).

It is true that projectiles fired from “assault weapon” rifles (which are “long guns”) tend to have higher muzzle velocities than those fired from handguns. But that is generally the case for projectiles fired from any rifle, whether an “assault weapon” or not. All other things being equal, muzzle velocity typically increases with barrel length, until the point of diminishing returns is reached. Because rifles generally have longer barrels than handguns, projectiles fired from rifles will generally have higher muzzle velocities than if identical cartridges were fired in both. However, if the rifle and handgun have the same barrel characteristics (chamber, bore and length), firing the cartridges will result in substantially the same muzzle velocity from both.

It cannot be disputed that the characteristics used in this matter to define an “assault weapon” have nothing to do with the velocity at which the weapon launches a projectile. As such, Prof. Donohue’s statement that “assault weapons” have certain muzzle velocities is purely erroneous.

For the same reason, the following statement from Defendant’s other expert, Dr. Christopher Colwell, M.D., in his report, is likewise erroneous:

“Gunshot wounds from assault rifles, such as AR-15s and AK-47s, tend to be higher in complexity with higher complication rates than such injuries from non-assault weapons, increasing the likelihood of morbidity in patients that present injuries from assault rifles. In my experience, assault rifles tend to cause far greater damage to the muscles, bones, soft tissue, and vital organs. They are too often shredded beyond repair. The greater complications are likely due to the higher muzzle velocity and higher caliber of rounds involved in assault rifle shootings.”

(Pp. 3-4).

Dr. Colwell makes a similar mistake to Prof. Donohue by attributing the projectile’s effect on the object it impacts to the firearm from which it is discharged, rather than the projectile itself. Nowhere in Dr. Colwell’s report does he claim to have been advised of the particular type of cartridge used in the shooting. Multiple types of cartridges are available to fit most chamberings. These cartridges can, and often do, exhibit varying terminal performance. As stated previously, except for the aforementioned barrel characteristics, the firearm does not alter muzzle velocity or what effect a projectile has on an object upon impact.

In laymen’s terms, the projectile making those wounds would have done the same damage whether discharged from an “assault weapon” or a non-“assault weapon,” as long as the two rifles had similar barrels.

Ammunition

Dr. Colwell makes an additional mistake by claiming that “assault rifles” use “higher caliber rounds.” This is not accurate. The Sporting Arms and Ammunition Manufacturer’s Association (SAAMI) online glossary defines “Caliber” as:

1. A term used to designate the specific cartridge(s) for which a firearm is chambered.

2. Firearms: The approximate diameter of the circle formed by the tops of the lands of a rifled barrel, often expressed in hundredths of an inch (".38 Caliber") or millimeters ("7mm Caliber").

3. Ammunition: A numerical term included in a cartridge name to indicate a rough approximation of the bullet diameter.

While there certainly are rifles meeting the "assault weapon" definition that fire higher caliber projectiles, it is not always the case. To the contrary, it is usually not the case. Likely the most popular cartridge for AR-15 platform rifles is the .223 or 5.56 NATO.¹ The .223 and 5.56 NATO have effectively the same caliber projectile as a .22LR, the cartridge popular for teaching new shooters, especially children, and small game (e.g., rabbit) hunting. Inasmuch as firearms commonly used as personal weapons range in bore diameter from .17" - .50", .22 caliber projectiles are near the extreme low end of caliber size.

Prof. Donohue likewise makes incorrect statements in his report about the nature of the ammunition used by some rifles meeting the "assault weapons" definition.

First, he says:

"They ["assault rifles"] also tend to utilize .223 rounds, which are designed to fragment and mushroom in a person's body." (Page 22, paragraph 54).

The statement is overly broad and misleading. There are numerous cartridges, of varying configuration, loaded as ".223". The salient characteristics of the projectile, the speed at which it is launched and its interaction with any intervening barriers determine its terminal ballistics. Additionally, not all .223 rounds are designed "to fragment and mushroom in a person's body." This has been recognized since at least 1899.

Due to the cartridge's use by the U.S. military, some very commonly encountered .223 or 5.56 rounds were, ostensibly, designed to conform to the Hague declaration of 1899, which states:

The Contracting Parties agree to abstain from the use of bullets which expand or flatten easily in the human body, such as bullets with a hard envelope which does not entirely cover the core, or is pierced with incisions.

(http://avalon.law.yale.edu/19th_century/dec99-03.asp)

Also, as explained above, while .223 is likely the most common round used in such rifles, it is not uncommon to find rifles meeting the "assault weapon" definition chambered for many rounds other than the .223.

Then Prof. Donohue says:

"unlike a shotgun filled with birdshot, which is far more likely to hit a target and not penetrate through walls than a bullet from an assault weapon, assault weapons are simply not well suited for defensive use in the home."

¹ The .223 and the 5.56 NATO cartridges, for purposes of this discussion, are considered to be the same.

(Pages 38-39, paragraph 96).

As an initial matter, “birdshot” is a vague and overly broad term. Spherical shot commonly loaded in shotguns ranges in diameter from .05” to .36”. Pellets in the range of .24” to .36” are typically considered to be “Buckshot.” I have witnessed shot as small as .09 “ fully perforate an exemplar wall constructed of two layers of sheetrock spaced 3.5” apart.

I am unaware of any modern law enforcement intentional issuance of “birdshot” for defense against human adversaries.

Shotgun pellets exit the barrel as a mass and spread as they travel forward. The rate of spread depends on many factors. This spread is generally believed to increase the probability of hitting a target. While this is true, once the spread is larger than your target, it also guarantees some pellets will miss. Those pellets retain their ability to wound and the shooter retains his responsibility for launching them.

In any event, Prof. Donohue’s conclusion that “assault weapons” are not well suited for defensive use in the home is contradicted by a report from the U.S. Bureau of Alcohol, Tobacco, Firearms, and Explosives (“ATF”) titled “Data Analysis of .223 Caliber Ammunition,” a copy of which is included herewith. This report relies heavily on data from the “FBI Weapons Selection” test that I authored. After comparing the terminal performance of the projectiles launched using typical service cartridges of handguns chambered in 9mm Luger and .40 S&W with those for rifles chambered in .223, the ATF report concludes that a shoulder-fired rifle chambered in .223 is the “weapon of choice.” Specifically included was including their usefulness inside structures and their threat level to innocent bystanders. The report explained that ballistic studies have shown that certain .223 rounds discharged from a rifle were *less* likely to over- penetrate barriers commonly found in structures than certain common rounds fired from handguns (9mm and .40S&W) AND more likely to provide the recommended level of 12”-18” of penetration.

Reasonable effective range

Detective Mersereau states:

“It is highly unlikely that citizens would face a situation where the threat is beyond the effective range of a handgun and certainly not with any great frequency. It is even less likely that the law would view such a distant perceived threat as justifying a use of force at all much less a use of lethal force delivered via a rifle”

Page 10, line14

This is especially curious, inasmuch as he, earlier, cited an incident known to have occurred at extended range:

According to reports that I have read, a single shooter firing from a 32nd floor hotel window located some distance from a crowded outdoor concert venue was able to shoot to death 58 concert goers and injuring hundreds of others.”

Page 9, line 3

Therefore, Detective Mersereau directly contradicted his assertion that because use of “deadly force is commonly understood to be a defense against an immediate and proximate threat of physical harm to one’s self or others” . . . “[t]his proximity requirement makes a rifle an inappropriate and unnecessary choice of weapon”. (P. 9, paragraph 23).

Interestingly enough, Detective Mersereau seems to imply that use of lethal force delivered via a rifle somehow requires more justification than lethal force delivered by any other method. This is absurd. Any citizen justified in defending themselves with a firearm is also justified in the use of any firearm available to them.

While he provides some other bases, Detective Mersereau’s assertion seems to be primarily based on the premise that “[t]he purpose of deploying a rifle as opposed to a handgun should be based on the fact that the target is beyond the reasonable effective range of a handgun.” (P. 10, paragraph 23). But, the ATF report shows that rifles meeting the definition of “assault weapon”, and using the proper cartridges are not only more accurate than handguns and cause more effective penetration in a human target, thereby making incapacitation of an attacker more likely, but they do so while being *less* likely to over-penetrate through intervening barriers, like the walls of a house. In other words, such rifles are extremely well suited for self-defense, including within confined areas like a home.

Dated: November 21, 2018

A handwritten signature in black ink, appearing to read "J. Buford Boone III". The signature is fluid and cursive, with a stylized "J" and a long, sweeping underline.

J. Buford Boone III
Boone Ballistics, LLC
Member
P.O. Box 2370
Tuscaloosa, AL 35403



Data Analysis of .223 Caliber Ammunition

Penetration Capabilities of Law Enforcement Ammunition

This presentation consists of data accumulated from the FBI's "Weapons Selection" test, San Diego County Sheriff's Department's "Structural Penetration Testing" and the Drug Enforcement Administration's "Construction Material Test" and is use with their permission



Purpose of ATF's Presentation

- ⇒ **Simplify data currently circulating in the Law Enforcement Community**
- ⇒ **Dispel myths about ammunition**
- ⇒ **Allow informed decisions of ammunition choice**
- ⇒ **Facts of Ballistic superiority**

Basic Terminology

- ⇒ **Ballistics**
- ⇒ **Terminal Ballistics**
- ⇒ **Effective Penetration**

Ballistics

⇒ The science dealing with the motion and impact of projectiles



Terminal Ballistics

- ⇒ **How the projectile reacts once it hits an object**
- ⇒ **The projectile's effect on the object**



Effective Penetration

- ⇒ 12 - 18 inches
- ⇒ Less than 12 inches, unlikely to reach vital organs from some angles
- ⇒ More than 18 inches, unlikely to damage additional vital organs



Consideration of Under Penetration

- ⇒ **Failure to incapacitate subject**
- ⇒ **Subject may cause injury to Agents and innocent parties**



Consideration of Over Penetration

- ⇒ Exits subject's body and wounds others
- ⇒ Some projectile's penetration can be increased as a result of penetrating through an intervening barrier (plywood, dry wall, steel)



Ammunition and Weapon Consideration

- ⇒ **Operational use**
- ⇒ **Ballistic Superiority**
- ⇒ **Threat to Innocent Parties**



Considerations for Operational Use

- ⇒ **A number of ATF arrests involved arrests take place in and around vehicles or making entry into residences**
- ⇒ **Vehicles provide cover and concealment for agents and suspects**
- ⇒ **Interior and exterior walls of a residence provide cover and concealment**
- ⇒ **There is an increasing number of suspects using body armor**



Ballistics Superiority

- ⇒ **Shotgun (slug) and rifle/carbines are always ballistically superior to other choices**
- ⇒ **Handguns and subguns have similar ballistics**
- ⇒ **Shoulder weapons are tactically superior**
- ⇒ **Use of shoulder weapons will increase hit probability**



Threat to Innocent Parties

- ⇒ Approximately 80% of rounds fired in Law Enforcement shootings miss the intended target according to FBI static's
- ⇒ All missed shots will eventually hit something
- ⇒ It is believed that the use of a shoulder weapon will increase hit probability
- ⇒ What happens next will depend on the projectile and what it hits



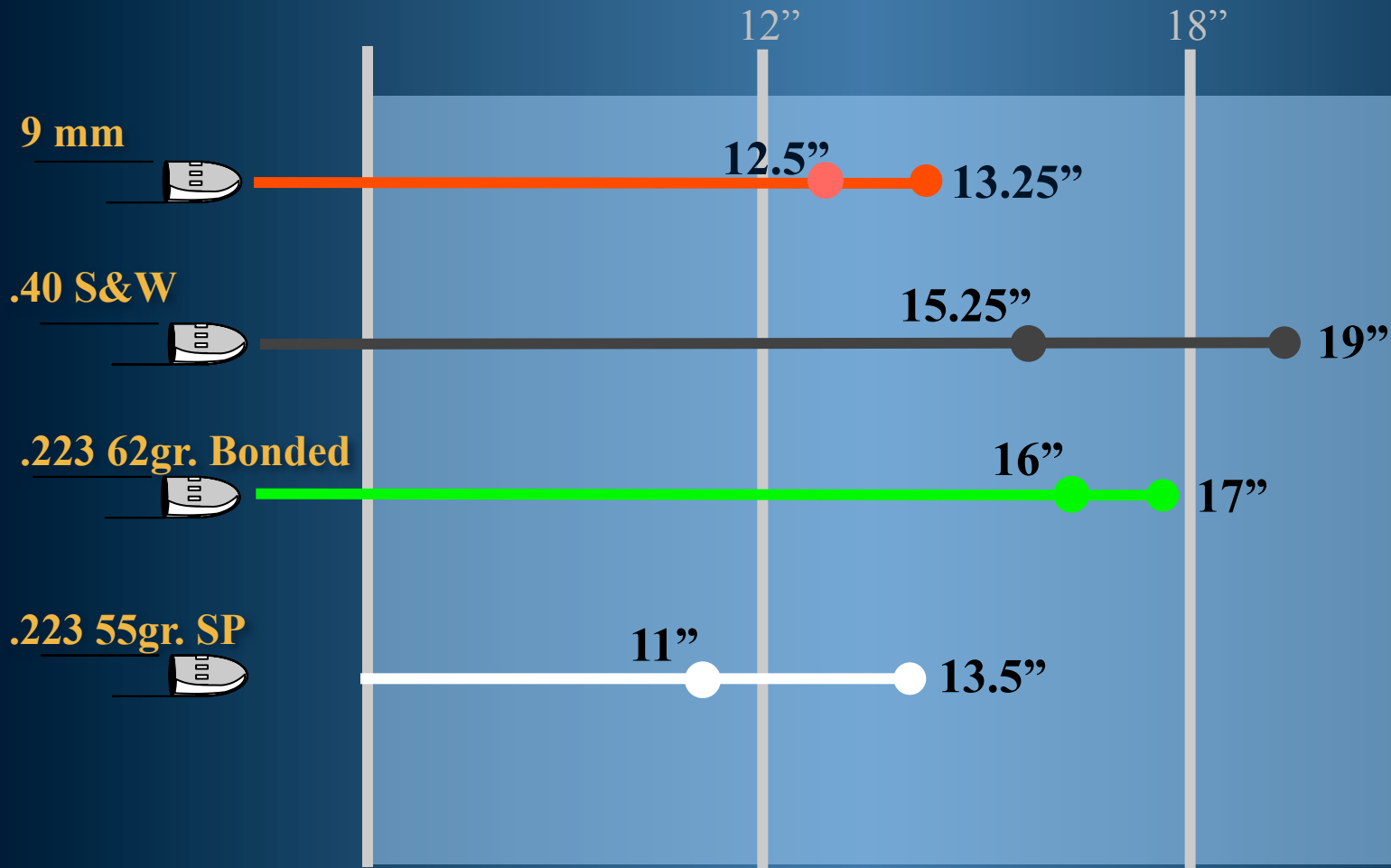
How far will a projectile travel before it falls 60 inches to the earth?

⇒ This calculation is based on the assumption that an average person would fire a weapon from a height of 60 inches, Center mass to a target at the same height.

- | | |
|----------------------------|-----------|
| – 870 Shotgun - 12ga. Slug | 200 yards |
| – MP5 - 9mm | 200 yards |
| – M-4 - .223cal. | 500 yards |



FBI Bare Gelatin Test





Penetration Tests

- ⇒ **FBI penetration test**
- ⇒ **San Diego penetration test**
- ⇒ **DEA penetration test**

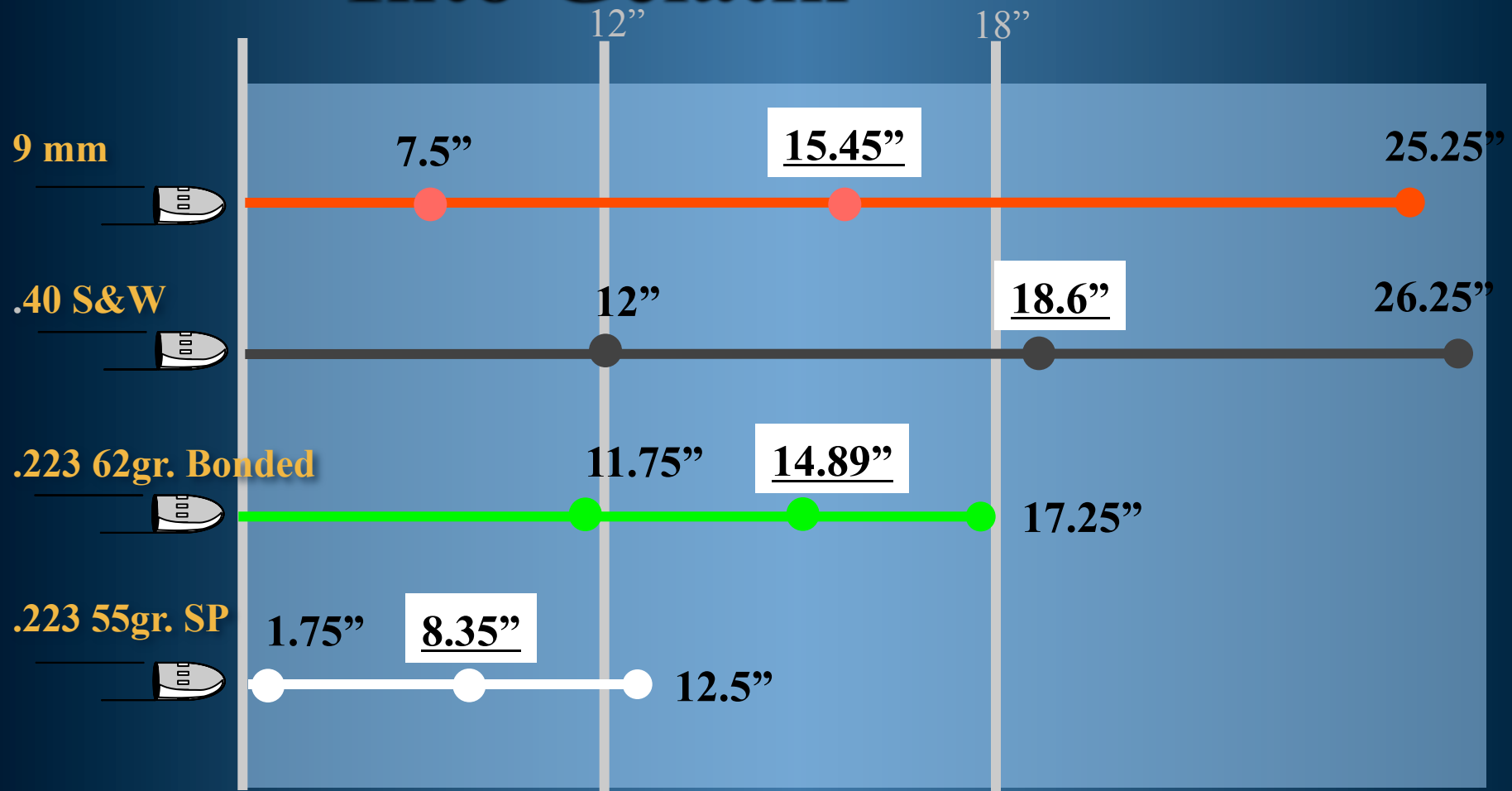


FBI Penetration Test

- ⇒ Consisted of firing through a variety of different material barriers into ballistic gelatin
- ⇒ Barrier Materials
 - Steel car door
 - Automobile glass
 - Plywood
 - Drywall
 - etc.

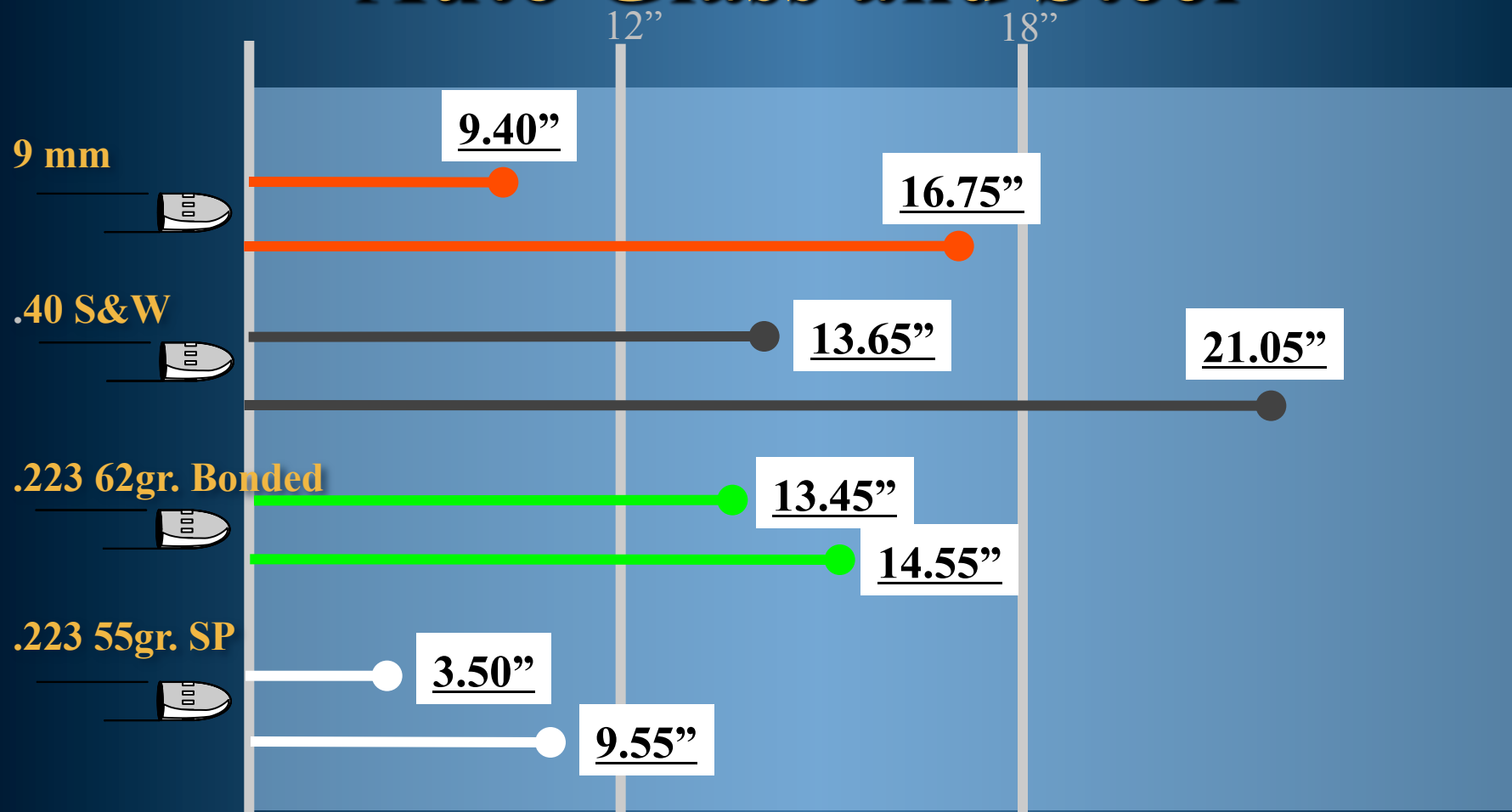


Combined Penetration Averages Through Medium Into Gelatin





Average Penetration Through Auto Glass and Steel





San Diego Wall Penetration Test

⇒ Consisted of firing rounds through 4 walls approximately 5 yards apart. The walls were constructed of various materials to include:

- 1/2” Wood Siding
- Stucco material
- Insulation
- 1/2” Gypsum
- Cinder block



Combined Wall Penetration Averages



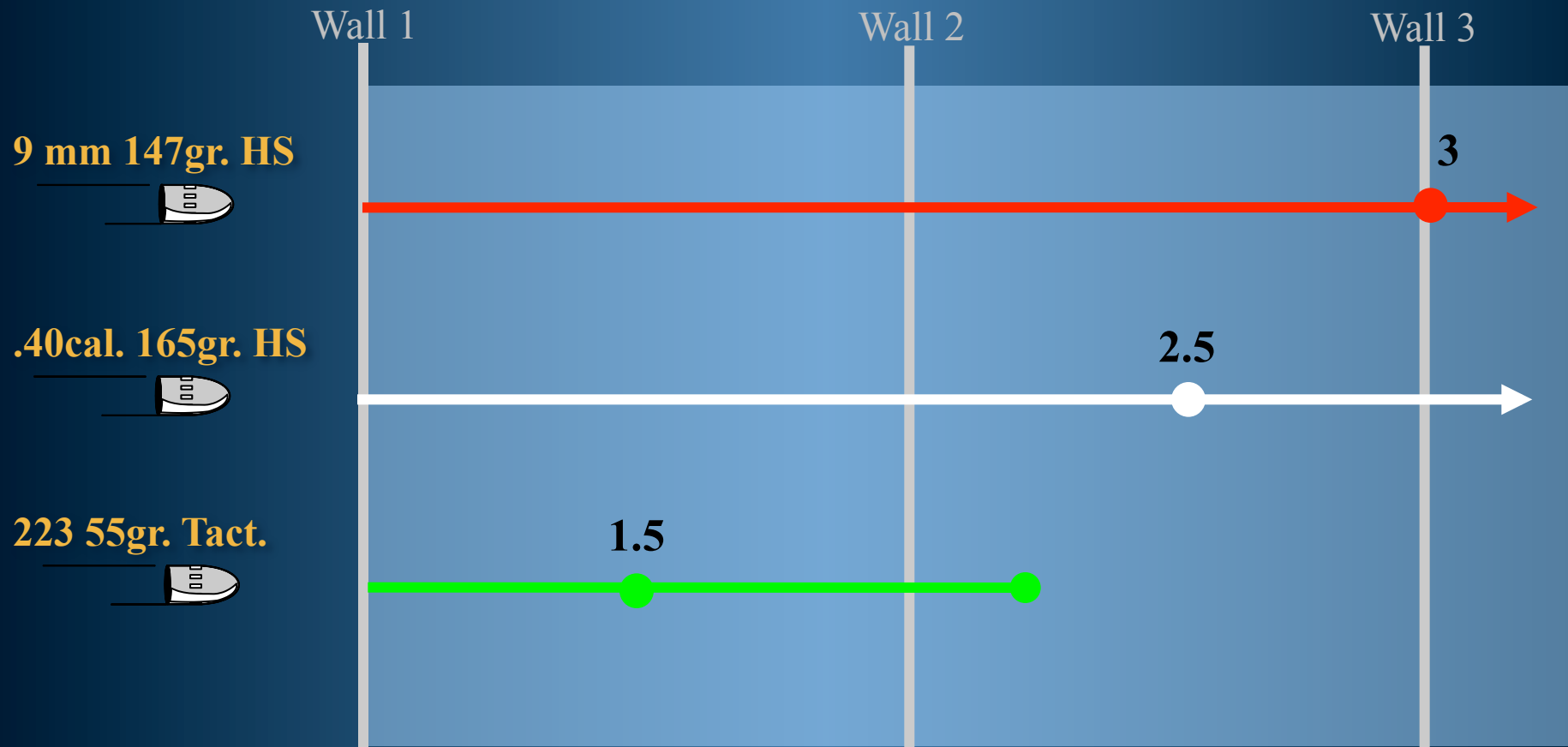


DEA Wall Penetration Test #1

- ⇒ Consisted of firing rounds through 3 walls approximately 2 yards apart.
- ⇒ Wall #1 was constructed of:
 - 1 sheet of 1/16” plastic siding
 - 2 sheets of 7/16” plywood
 - 1 sheet of 9/16” hard insulation
 - 2” of soft insulation
 - 1 sheet of 1/2” drywall
- ⇒ Walls # 2 and #3 were constructed of:
 - 2 sheets of 7/16” plywood
 - 2 sheets of 1/2” drywall
 - 2” of soft insulation



Combined Wall Penetration Averages





DEA Wall Penetration Test #2

- ⇒ Consisted of firing rounds through 9 walls approximately 4 yards apart.
- ⇒ Walls #1 - #8 were constructed of:
 - 2 sheets of 1/2" drywall, this simulates the construction of an interior wall of a residence
- ⇒ Wall # 9 was constructed of:
 - 1 sheet of 1/2" drywall
 - 1 sheet of 7/16" plywood
 - 3" soft insulation
 - 9/16" hard insulation
 - 1/16" plastic siding, this simulates the construction of an exterior wall of a residence



Wall Penetration Test

9mm & 40cal.

VS

.223cal. 55 & 62gr.

Wall 1 Wall 2 Wall 3 Wall 4 Wall 5 Wall 6 Wall 7 Wall 8 Wall 9

9 mm 147gr. HS



.40cal. 165gr. HS



M-16- 55gr.



M-16- 62gr.



M-4- 55gr.



M-4- 62gr.

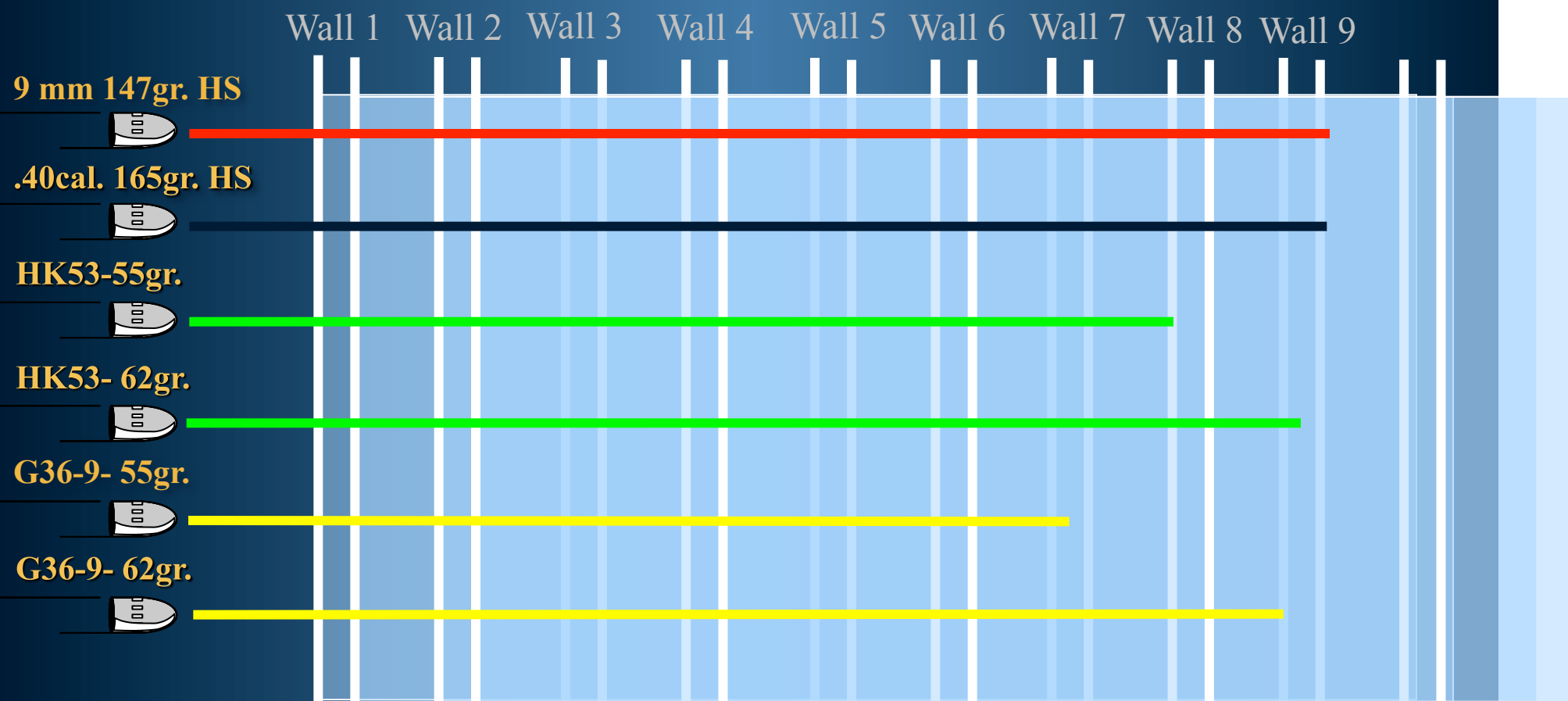


G36-12.5- 55gr.



G36-12.5- 62gr.







Results of Data for ATF's Mission

⇒ **Weapon of choice**

✓ **Colt M4**



EXHIBIT 62

Rebuttal Expert Witness Report of William English, PhD

Rupp, et al. v. Becerra

United States District Court

Central District of California, Southern Division

Case No.: 8:17-cv-00746-JLS-JDE

November 21, 2018

ASSIGNMENT

I have been asked by counsel for the plaintiffs in the above described matter to provide my opinion rebutting various opinions concerning “assault weapon” ownership in the United States and their use in mass shooting and other related matters, made in the report of Defendant’s expert witness, Professor John Donohue. This rebuttal report sets forth my qualifications and foundation for my opinions. I offer these opinions based on my experience and abilities as a scholar on empirical methods and am willing and able to testify consistently with the contents of this report.

COMPENSATION

I am not being compensated for my work on this case other than reimbursement for any reasonably necessary travel costs I might incur as a direct result of that work.

BACKGROUND AND QUALIFICATIONS

I am currently employed as an Assistant Professor of Strategy, Economics, Ethics, and Public Policy at the McDonough School of Business at Georgetown University, a position I have held since 2016. Prior to that I was employed at Harvard University for five years, first as a research fellow and later as the research director of the Edmond J Safra Center for Ethics. I also served as research associate with the Harvard Initiative for Learning and Teaching and as the executive director of The Abigail Adams Institute, an educational non-profit located in Cambridge, MA from 2014-2016. Before coming to Harvard I held a one-year postdoctoral research fellowship at Brown University with the Political Theory Project. I received my PhD in Political Science from Duke University in 2010 and an MSt in ethics from Oxford University in 2004. In 2003, I graduated Duke University with a Bachelors of Science in Economics and a Bachelors of Arts in Mathematics. For two summers I was employed as a laboratory technician with the Office of Law Enforcement Standards at the National Institute of Standards and Technology, where I assisted with the revision of standards for body armor and autoloading pistols for police officers issued by the National Institute of Justice. Throughout high school and college I was involved with competitive shooting sports and I have followed developments in the firearms industry and recreational shooting sports closely for over 20 years.

My scholarly research has focused on empirical methods in the social sciences, behavioral economics, and regulatory policy. I am in the process of conducting research on the impact of various firearms laws within the United States. I have authored or co-authored the following publications:

- “Varieties of Citizenship and the Moral Foundations of Politics” in *The Ethics of Citizenship in the 21st Century*, David Thunder (Eds): Springer International Publishing, 2017 DOI:10.1007/978-3-319-50415-5
- “Paying People to Make Healthy Choices” *eLS*, John Wiley & Sons Ltd, February, 2017.
- “Two Cheers for Nudging” *Georgetown Journal of Law and Public Policy*, Vol. 14, 2016: 829.
- “The Logic of Gift: Inspiring Behavior in Organizations Beyond the Limits of Duty and Exchange” *Business Ethics Quarterly*. April 2016: Vol 26 (2), 159180. (with Tomas Baviera and Manuel Guillen)
- “The Demographic Challenge to Entitlements: A Comment, Criticism, and Caveat” in *Science, Virtue, and the Future of Humanity*, Peter Augustine Lawler and Marc D. Guerra (Eds), Lexington Books: 2015.
- “Economic and Ideological Corruptions of the Regulatory State” *Society*, May/June, 2014: Volume 51, Issue 3.
- “Institutional Corruption and the Crisis of Liberal Democracy” Edmond J. Safra Working Papers, No. 15. June, 2013.
- “Locke, Hegel, and the Economy” *Society*, October, 2013: Volume 50, Issue 6.
- “Corruption in Bioethics” *Compendium of Global Bioethics*. Edited by ten-Have and Gordijn. Springer, 2013. (with Jennifer Miller).
- “Genopolitics and the Science of Genetics” *American Political Science Review*. April 2013: Vol 107 (2), 382-395. (with Evan Charney)
- “Why Genes Don’t Predict Voting Behavior: when it comes to complex behaviors, gene variants don’t count for much” *Scientific American*. Nov 2012 (with Evan Charney).
- “Candidate Genes and Political Behavior” *American Political Science Review*. February 2012: Vol 106(1), 1-34. (with Evan Charney)
- “Demystifying Trust: Experimental Evidence from Thailand and Cambodia.” *Journal of Theoretical Politics*. April 2012 vol. 24 no. 2 172-209.
- “The Ethics of Competition” in the Harvard Ethics Center Research in Action Blog. <http://ethics.harvard.edu/blog/william-english-ethics-competition> August, 2012.

- “Still Awaiting Redemption” review of Redeeming Economics: Rediscovering the Missing Element by John D. Mueller in *The Intercollegiate Review*, Spring 2011 (p.57-60).
- “Can Neuroscience Tell Us Anything About Virtue?” review of The Social Animal: The Hidden Sources of Love, Character, and Achievement by David Books in *Public Discourse*, Sept 23, 2011.
- “Unlocking the Secrets of Human Biology: Implications for Diplomacy, Security, and War” in Rose McDermott and Peter K. Hatemi, eds. H-Diplo ISSF Roundtable on “Biology and Security”, *H-Diplo ISSF Roundtable Reviews* Volume I, Number 2 (April 2010) (p. 6-34).
- “Illiberal Arguments” review of James Kalb's The Tyranny of Liberalism (part of a larger symposium) in *First Principles* May 13, 2009.
- “The Compartmentalization of Moral Inspiration,” Proceedings of the 36th St. Gallen Symposium, Switzerland: St. Gallen Press, 2006. (p. 103-107).

OPINION AND ANALYSIS

In his expert report, John J. Donohue suggests:

- 1) The percentage of households that own guns has declined considerably in the United States, from approximately 50% in the late 1970's to approximately 31-34% today.
- 2) Only a small minority of gun owners possess “assault weapons,” which is a sign that these firearms have little value, particularly for self defense.
- 3) The widespread availability of “assault weapons” is responsible for deadly mass shootings in the U.S., and a ban on assault weapons would prevent such shootings.
- 4) “Assault weapons” are uniquely destructive and pose a significant threat to public health and safety.

None of these claims are well supported and, in fact, many are contradicted by the best evidence that is currently available. In what follows, I rebut these four central claims of Donohue's report. My conclusions, in summary, are:

- 1) There are reasons to believe that gun ownership is underreported in many surveys, but the best and most recent suggest that about 43% of households own a gun and about half of non-gun owners could see themselves owning a gun in the future.
- 2) Evidence suggests that the proportion of gun owners who possess an “assault rifle” has risen dramatically in recent years, consistent with a standard diffusion model of consumer adoption. About one out of every two active hunters and shooters now owns a rifle meeting the definition of an “assault weapon,” and, by conservative estimates, about 7 million people likely own at least one such rifle.

- 3) Scholarly literature on the whole does not support the conclusion that assault weapon bans contribute significantly to public safety. Moreover, in the last decade, Europe has witnessed mass shootings on a scale similar to the United States, despite severe restrictions on “assault weapon” ownership, and restrictions on civilian firearm ownership generally.
- 4) In the US, deaths caused by “assault weapons” are extremely rare. More people die each year from falling out of bed, or a number of other “freak” accidents. And, although mass shootings command a great deal of public attention, more people are killed each year by common items such as lawnmowers or by falls involving ice-skates, skis, roller-skates or skateboards, according to the Centers for Disease Control and Prevention. Indeed, in the US you are more likely to be killed by lightning than by an “assault weapon” used in a mass shooting. An empirically informed assessment of the impact of assault weapons on public health and safety suggests that these weapons pose less risk than many common household items and recreational activities.

I. Gun Ownership Rates

Whether 50%, 40%, or 30% of American households own guns may, at first glance, seem to have little bearing on the underlying legal arguments of this case. However, Donohue’s suggestion that there has been “a persistent decline” in gun ownership and only “a relatively small minority” of Americans own “assault weapons,” reinforces a larger narrative that views the legal status of “assault weapons” as something that concerns only a small and shrinking minority of Americans. This conclusion is not, in fact, supported by the best data we have.

Generating precise estimates of firearms ownership is difficult for a number of reasons. Because there are no public records of ownership, we must rely on voluntary survey data. Getting individuals to respond to surveys and ensuring the representativeness of samples are both well-known challenges that can affect the validity of survey results. There are ways to address these challenges, but it is particularly difficult to measure and correct for what social scientists call “social desirability bias.” This refers to “the tendency to respond to questions in a socially acceptable direction” when answering surveys.¹ To the degree that gun ownership has become an increasingly controversial, politicized, and stigmatized practice, respondents may be less inclined to admit to owning firearms in a survey.

There is indeed evidence that respondents underreport firearms ownership. When Rafferty et al. conducted a telephone survey of Michigan residents who had purchased a hunting license or registered a handgun, only 87.3 percent of the handgun registrants and 89.7 percent of hunting license holders reported having a gun in their

¹ Spector, Paul. “Social desirability bias.” *Encyclopedia of social science research methods* (2004): 1045-1046.

household.² Ludwig et al. have also documented a large gender gap in reporting of firearms ownership, finding that “in telephone surveys, the rate of household gun ownership reported by husbands exceeded wives’ reports by an average of 12 percentage points.”³ Moreover, a news article cited in Donohue’s report calls attention to peculiar patterns observed in firearm ownership surveys that are likely due to social desirability bias.⁴ A year before the Clinton administration’s ban on “assault weapons,” 51 percent of Gallup poll respondents reported having a firearm in the home, but two years after the legislation’s passage the percentage who admitted to having a firearm in the house had dropped to 38 percent. By 2011, 47% of respondents indicated that they have a gun in their house or on their property.⁵ These large swings in reported firearm ownership likely have much more to do with people’s willingness to admit to a sensitive practice during periods of public controversy than with actual double digit fluctuations in rates of firearms ownership.

To his credit, Donohue’s scholarly work examining gun ownership rates has been careful and nuanced, calling attention to important caveats concerning the underlying analysis. However, these were not well communicated in his expert report. As Donohue’s article “Recent Trends in American Gun Prevalence” makes clear, there has been a significant divergence in the rates of firearms ownership reported on the General Social Survey compared to Gallup polls (Figure 2). Over the last five years, an average of 43.2% of Gallup respondents have indicated that they have a gun in their home or on their property⁶, while only about 31% of GSS respondents admitted to having a firearm in their house or garage during the same period. What could explain this discrepancy?

As Donohue notes, the General Social Survey is conducted face-to-face and run by the University of Chicago. Although studies have suggested that respondents are more willing to admit to stigmatized health behavior (e.g. drug use, depression, etc.) in face-to-face surveys⁷, there are strong reasons to believe that respondents may not be comfortable admitting to firearm ownership to an in-person interviewer, particularly given that most interviews are conducted at the respondent’s residence. A respondent may be concerned about making an interviewer uncomfortable, or that revealing ownership of a firearm may make the respondent a target for theft or expose them to potential legal issues.

² Rafferty, Ann P., et al. “Validity of a household gun question in a telephone survey.” *Public Health Reports* 110.3 (1995): 282.

³ Ludwig, Jens, Philip J. Cook, and Tom W. Smith. “The gender gap in reporting household gun ownership.” *American Journal of Public Health* 88.11 (1998): 1715-1718.

⁴ “The Myth of Declining Gun Ownership” <https://dailycaller.com/2016/07/13/the-myth-of-declining-gun-ownership/>

⁵ <https://news.gallup.com/poll/1645/guns.aspx>

⁶ <https://news.gallup.com/poll/1645/guns.aspx>

⁷ See: Holbrook, Allyson L., Melanie C. Green, and Jon A. Krosnick. “Telephone versus face-to-face interviewing of national probability samples with long questionnaires: Comparisons of respondent satisficing and social desirability response bias.” *Public opinion quarterly* 67.1 (2003): 79-125.; Krumpal, Ivar. “Determinants of social desirability bias in sensitive surveys: a literature review.” *Quality & Quantity* 47.4 (2013): 2025-2047.

Moreover, gun owning respondents, who are often right leaning in their political orientation, may be suspicious of surveys conducted by universities, which are generally perceived to be left leaning in their political orientation. If true, this would also complicate the results of the web based National Firearms Survey, which respondents thereto were told was sponsored by Northeastern University. Finally, as the article Donohue includes as Exhibit C notes, there were also internal inconsistencies observed in the NFS data, as 23% of gun owners indicated both that they acquired a gun in the last five years **and** that their last firearms acquisition was more than five years ago (earlier, the authors report this as the difference between a 49% and 62% response rate, in which case the discrepancy would be 13%, although it is unclear whether the typo is in the reported rates or the authors' math).

Not only do Gallup polls find much higher rates of firearms ownership than the GSS and NFS, so do the most recent and most representative Pew Surveys (which, like Gallup, are unaffiliated with a university). In the very same 2017 Pew Survey that Donohue cites [paragraph 28] as evidence for widespread support for an "assault weapons" ban, 42% of respondents report having a gun in their household (n=3,930).⁸ Moreover, more than half of those who indicate that they don't currently own firearms say they could "see themselves owning one in the future."⁹ The next most recent Pew Survey from 2016 that reports household ownership finds that 44% of respondents report a gun in their household.¹⁰

In summary, based on Pew and Gallup surveys, which are not conducted in person and not associated with a university, it appears that about 43% of households currently own firearms and that a majority of people who don't own firearms could see themselves owning one in the future. Finally, as the authors of Donohue's Exhibit C ("The Stock and Flow of US Firearms: Results from the 2015 National Firearms Survey") note, even though they believe that the percentage of the population that owns guns has shrunk, more Americans own guns today than ever before in terms of raw numbers (given the increasing size of the population). Indeed, if we follow Gallup and Pew numbers, there are approximately 54 million households with a firearm (out of 126.22 million household in the US, according to 2017 U.S. Census Bureau estimates). This is greater than the number of households that own cats.¹¹ Thus, firearm ownership remains extremely popular and not far off from its historic highs, with more people owning guns today than ever before. As we will see in the next section, an increasing number of people own "assault weapons" as well.

⁸ Pew Research Center, June 2017, "America's Complex Relationship With Guns" http://www.pewsocialtrends.org/2017/06/22/the-demographics-of-gun-ownership/psdt_2017-06-22-guns-01-10/

⁹ Pew Research Center, June 2017, "America's Complex Relationship With Guns" http://www.pewsocialtrends.org/2017/06/22/the-demographics-of-gun-ownership/psdt_2017-06-22-guns-01-11/

¹⁰ Pew Research Center, August, 2016, "Opinions on Gun Policy and the 2016 Campaign" <http://www.people-press.org/2016/08/26/opinions-on-gun-policy-and-the-2016-campaign/>

¹¹ <https://www.iii.org/fact-statistic/facts-statistics-pet-statistics>

II. “Assault Weapon” Ownership

Donohue argues that “assault weapon” ownership is concentrated amongst a “small minority” of Americans and, indeed, a small minority of gun-owning households [Paragraph 16]. Moreover, he asserts, “This minority status of assault weapon ownership by household reflects the judgment of most Americans that assault weapons are not important to their self-defense [Paragraph 26].” On its face, this is a poorly reasoned inference. However, Donohue is likely also mistaken about rates of “assault weapon” ownership. Contrary to the picture he paints, rifles meeting the definition of “assault weapon” are currently the most popular and best selling long-guns in America, and surveys suggest that at least one out of every two active hunters and shooters now owns an “assault weapon.”¹²

What leads Donohue to a contrary conclusion? He cites a *Rolling Stone* article that reports an NSSF survey finding that the average “assault rifle” owner has three or more of the guns and “27 percent of owners have bought four or more.” The first thing to note is that this same survey finds that 35% of “assault rifle” owners own only one of these firearms, and the distribution implied by the survey is still consistent with a very large number of people owning “assault rifles.” Second, this survey was conducted in 2013, and there is evidence that these guns have only gained in popularity since then, becoming increasingly widespread amongst even casual shooters and hunters. Indeed, even according to that survey, about 10% of respondents had purchased their first “assault rifle” that year. A year earlier, in 2012, an NSSF survey of active hunters and shooters found that more than one out of four respondents owned these firearms. A larger survey conducted three years later in 2015, found that this percentage had nearly doubled, with 47.1% of active hunters and shooters reporting that they owned an assault rifle.¹³ This expansion in ownership is consistent with reports from recent (2017) retailer surveys, which show that “assault rifles” are the most popular selling long gun.¹⁴

The dramatic rise in ownership rates of rifles meeting the “assault weapon” definition witnessed in recent years is consistent with a standard model of diffusion and adoption observed with many consumer products.¹⁵ At first, specialty products are expensive and owned by small number of enthusiasts, but as prices come down and the quality/usability/customization improves, adoption spreads to a mass audience. Historically, “assault weapons” have been expensive, and an NSSF survey from 2010 indicates that the average price paid was \$1,083 (which is far more expensive than the average price paid for handguns).¹⁶ In 2018, a search of the popular online gun market

¹² NSSF Report, “2017 Edition Firearms Retailer Survey Report: Trend Data 2008-2016.”; “NSSF Survey Shows Growing Approval of AR15 Use for Hunting” <http://ar15hunter.com/nssf-survey-shows-growing-approval-of-ar15-use-for-hunting/>

¹³ “NSSF Survey Shows Growing Approval of AR15 Use for Hunting” <http://ar15hunter.com/nssf-survey-shows-growing-approval-of-ar15-use-for-hunting/>

¹⁴ NSSF Report, “2017 Edition Firearms Retailer Survey Report: Trend Data 2008-2016.”

¹⁵ Rogers, Everett M. *Diffusion of Innovations*, (5th ed.). (2003) New York: Free Press.

¹⁶ NSSF Report, “Modern Sporting Rifle (MSR) Comprehensive Consumer Report 2010.”

Gunbroker.com shows over a thousand AR-15's available for purchase for under \$600. Falling prices are undoubtedly one reason for the increasing popularity of "assault rifles," but other factors have likely played a role as well, including better features and customization options, increased reliability, and expanding hunting opportunities.¹⁷ Put simply, "assault weapons" are increasingly popular because they are generally good guns that have gotten better while decreasing in price.

In my expert report, I conservatively estimate that there are about 15 million AR style rifles in circulation in the US in 2018. If we take the distribution of "assault rifle" ownership reported in 2013 (35% own 1, 25% own 2, 14% own 3, 27% own four or more), this implies that about 6.4 million individuals own "assault rifles." If we take the more recent survey evidence indicating that 47.1% of active hunters and shooters own "assault rifles," this implies that about 7.5 million individuals own "assault rifles" (recent reports estimate that 16 million people participated in rifle or handgun shooting in 2017).¹⁸ Taking the average, I estimate that about 7 million individuals likely currently own "assault rifles." This is about equal to the number of people who participate in skateboarding, downhill skiing, snowboarding, or mountain biking.¹⁹ In sum, "assault weapon" ownership is increasingly widespread and "assault weapons" are the best selling long guns in America.

III. The Societal Effect of a Ban on "Assault Weapon"

The central, substantive claim at the heart of Donohue's report is his assertion that: "Restrictions on weaponry ...such as those prohibited under California's assault weapons ban...can be expected to reduce deaths and injury from gun violence." [Paragraph 12]

The evidence he offers is summarized in a graph from the Washington Post, which Donohue believes demonstrates that "gun massacres fell substantially during the ten

¹⁷ Brune, Evan. "10 Affordable AR-15s Found Under \$500" *Shooting Illustrated*. August 15, 2018 <https://www.shootingillustrated.com/articles/2018/8/15/10-affordable-ar-15s-found-under-500/> ; Billings, Jacki. "Why Hunters Are Trading in Traditional Hunting Rifles for the AR-15" *Guns.com* Nov 17, 2017. <https://www.guns.com/news/2017/11/17/why-hunters-are-trading-in-traditional-hunting-rifles-for-the-ar-15> ; Hayes, John. "Pa. law allows game commission to regulate use of semiautomatics" *Pittsburgh Post Gazette*. Nov 22, 2016 <http://www.post-gazette.com/life/outdoors/2016/11/22/new-pa-law-allows-for-hunting-with-semi-autos/stories/201611220170> ; Stokes, Jon. "Why millions of Americans — including me — own the AR-15" *Vox.com* Jun 20, 2016. <https://www.vox.com/2016/6/20/11975850/ar-15-owner-orlando> ; Stokes, Jon. "The AR-15 is More Than a Gun. It's a Gadget." *Wired*. Feb 25, 2013 <https://www.wired.com/2013/02/ar-15/>

¹⁸ Outdoor Industry Association, "Outdoor Participation Report, 2018."

<https://outdoorindustry.org/resource/2018-outdoor-participation-report/>

¹⁹ Outdoor Industry Association, "Outdoor Participation Report, 2018."

<https://outdoorindustry.org/resource/2018-outdoor-participation-report/>

years of the federal assault weapons ban, and then rose sharply when the ban was lifted in 2004.” However, scholarly literature has not reached the same conclusion.

Before examining that literature, it is important to clarify one potential source of confusion in Donohue’s report. He often references statistics regarding mass shootings, but even according to the Defendant’s own expert, Lucy P. Allen’s, report, only about a quarter of mass shootings have been committed with “assault weapons.”²⁰ Indeed, of the 302 deaths that Donohue and the Washington Post attribute to mass shootings from 2004- 2014, only 72 shooting deaths (23.8%) involved assault weapons, according to the database of mass shootings compiled by Mother Jones.²¹ To put this in perspective, about five times as many people died from being struck by lightning in the United States during this same period (377 total lightning deaths, according to the Centers for Disease Control).²²

Donohue’s claim in paragraph 92 of his report that “Assault weapons are the mass killers’ armament of choice” is, thus, false. In the subsequent sentence, he cites a Mother Jones article²³ as supporting evidence, noting that “A study of 62 public mass shooting incidents occurring between August 1982 and December 2012 found that more than half of the time, the attackers used assault rifles, high capacity magazines, or both.” Donohue has apparently misconstrued the meaning of “or.” As it is used in this sentence, “or” indicates that the over half of mass shooters possessed at least one of the following: a) an assault rifle, b) a high capacity magazine. Had Donohue read the article or examined the list of data contained on the very same page, he would have learned that “assault weapons” were in fact used in only 14 of the 62 shootings referenced during that period (or 22.6%).²⁴

Scholars who have examined the effect of the “assault weapon” ban in the U.S., as well as “assault weapon” bans in other countries, have found that such bans have little to no statistical effect on mass shooting and murder rates. Donohue cites Australia’s 1996 National Firearms Agreement, which severely restricted firearm ownership, as evidence that an “assault weapon” ban would save lives, observing that Australia has not had any mass shooting since the law went into effect (in fact, Australia has had

²⁰ Expert Report of Lucy P. Allen, p. 5

²¹ <https://www.motherjones.com/politics/2012/12/mass-shootings-mother-jones-full-data/>

²² Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999-2016 on CDC WONDER Online Database, released December, 2017. Data are from the Multiple Cause of Death Files, 1999-2016, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed at <http://wonder.cdc.gov/ucd-icd10.html> on Nov 14, 2018 5:52:38 PM

²³ Lee et al. “More Than Half of Mass Shooters Used Assault Weapons and High-Capacity Magazines,” *Mother Jones*. Feb. 27, 2013. <https://www.motherjones.com/politics/2013/02/assault-weapons-high-capacity-magazines-mass-shootings-feinstein/>

²⁴ The Mother Jones data for this article can be viewed here: <https://docs.google.com/spreadsheets/d/1MHjy3irhi41L-vrk72GOZjxnVV4qSfQzPfGZm3DY0s/edit#gid=0>

mass shootings since 1996, including a 2015 incident in which 5 people were killed²⁵ and a 2018 incident in which 7 people were killed.²⁶) However, a comprehensive study recently published in *The American Journal of Public Health* concludes that “The NFA had no statistically observable additional impact on suicide or assault mortality attributable to firearms in Australia.”²⁷ Moreover, Australia’s close neighbor, New Zealand, has not witnessed any mass shootings since 1997, although the country has a relatively high density of firearms ownership and permits licensed individuals to own semi-automatic rifles.²⁸

As the accomplished data journalist, Leah Libresco, notes in a *Washington Post* editorial entitled “I used to think gun control was the answer. My research told me otherwise”:

I researched the strictly tightened gun laws in Britain and Australia and concluded that they didn't prove much about what America's policy should be. Neither nation experienced drops in mass shootings or other gun related-crime that could be attributed to their buybacks and bans. Mass shootings were too rare in Australia for their absence after the buyback program to be clear evidence of progress. And in both Australia and Britain, the gun restrictions had an ambiguous effect on other gun-related crimes or deaths.”²⁹

Libresco mentions two studies that she found particularly persuasive. A 2003 analysis by criminologists Peter Reuter and Jenny Mouzos suggested that people used other weapons for homicide and suicide and the ban didn’t “appear to change the overall trend for violent deaths.”³⁰ A more recent, comprehensive study entitled

²⁵ “Lockhart shooting” Oct 9, 2015. abc.net.au <https://www.abc.net.au/news/2015-10-09/findings-of-coronial-inquest-into-hunt-family-deaths/6839798>

²⁶ “Margaret River murder-suicide.” May 11, 2018. abc.net.au <https://www.abc.net.au/news/2018-05-11/seven-people-found-dead-in-margaret-river-murder-suicide/9751482>

²⁷ Stuart Gilmour, Kittima Wattanakamolkul, Maaya Kita Sugai, “The Effect of the Australian National Firearms Agreement on Suicide and Homicide Mortality, 1978–2015”, *American Journal of Public Health* 108, no. 11 (November 1, 2018): pp. 1511-1516. <https://ajph.aphapublications.org/doi/abs/10.2105/AJPH.2018.304640>

²⁸ McPhedran, Samara and Baker, Jeanine, Mass Shootings in Australia and New Zealand: A Descriptive Study of Incidence (2008). Justice Policy Journal, Vol. 8, No. 1, Spring 2011. Available at SSRN: <https://ssrn.com/abstract=2122854> ; Manch, Thomas. “NZ's battle over semi-automatics: Police frustrated by the law, firearm owners frustrated by police” Aug 05 2018. <https://www.stuff.co.nz/national/105882611/the-battle-over-semiautomatics-police-frustrated-by-the-law-firearm-owners-frustrated-by-police>

²⁹ Libresco, Leah. “I used to think gun control was the answer. My research told me otherwise.” *The Washington Post*. October 3, 2017. https://www.washingtonpost.com/opinions/i-used-to-think-gun-control-was-the-answer-my-research-told-me-otherwise/2017/10/03/d33edca6-a851-11e7-92d1-58c702d2d975_story.html <https://fivethirtyeight.com/features/gun-deaths-mass-shootings/>

³⁰ Reuter, Peter and Jenny Mouzos. “Australia: A Massive Buyback of Low-Risk Guns” <http://faculty.publicpolicy.umd.edu/sites/default/files/reuter/files/gun%20chapter.pdf>

“Association Between Gun Law Reforms and Intentional Firearm Deaths in Australia, 1979-2013” published in *The Journal of the American Medical Association* concluded that “it is not possible to determine whether the change in firearm deaths can be attributed to the gun law reforms.”³¹

With regard to the United States, there is little evidence that either the federal “assault weapon” ban of 1994-2004 or any state “assault weapon” ban yielded substantive improvements to public safety. If we employ a linear regression to test whether the federal “assault weapon” ban reduced the proportion of Americans killed each year by an “assault rifle” in a mass shooting event, the result is that there is no statistically significant effect (coefficient= -.00000002152 p >.179).³² However, for event counts, particularly events as rare as mass shootings, there are statistical reasons to prefer more sophisticated analytical approaches such as poisson, negative binomial, zero-inflated, or hurdle regression models. Using a poisson, two-way fixed-effect model, controlling for both state-specific and year-specific effects, as well as controls for a variety of crime related socio-economic data, a recent study finds that the federal “assault weapon” ban was associated with a statistically significant decrease in mass shooting fatalities.³³ Unsurprisingly, the estimate of this effect (that there are about a third as many fatalities during ban years) is almost exactly what we obtain if we divide the number of fatalities during ban years reported in the Washington Post graph by the average fatalities per decade of non-ban years (89/228.5).³⁴ Put another way, these estimates imply that about 12 fewer people died per year from mass shootings during the decade the federal “assault weapon” ban was in place.

However, this association pales in comparison to another association that the same economist documents in a separate paper employing the same methods. That paper, which examines the effect of the federal “assault weapon” bans on gun-related murder rates, finds that the effect of “the Federal assault weapons ban is significant and

³¹ Chapman S, Alpers P, Jones M. Association Between Gun Law Reforms and Intentional Firearm Deaths in Australia, 1979-2013. *JAMA*. 2016;316(3):291–299. doi:10.1001/jama.2016.8752. <https://jamanetwork.com/journals/jama/fullarticle/2530362>

³² I performed this analysis using the same linear model that DiMaggio et al. (2018) use and the Stanford Mass Shootings in America dataset: <https://library.stanford.edu/projects/mass-shootings-america>

³³ Mark Gius (2015) The impact of state and federal assault weapons bans on public mass shootings, *Applied Economics Letters*, 22:4, 281-284, DOI: 10.1080/13504851.2014.939367

³⁴ The only other recent, large-scale study of this question I am aware of is: DiMaggio, Charles, et al. "Changes in US Mass Shooting Deaths Associated With the 1994-2004 Federal Assault Weapon Ban: Analysis of Open-Source Data." *The journal of trauma and acute care surgery* (2018). However, this study suffers from serious methodological problems. First, the authors commit an egregious coding error, taking every mention of the word “semiautomatic” to indicate that an “assault rifle” was used. This leads them to code the majority of shootings, which were committed with semiautomatic pistols, as being committed with “assault rifles.” The authors confirmed this mistake in email correspondence, and it means that every claim made in their article concerning “assault rifles” is wrong. Second, they only include shootings if they were mentioned in an arbitrary LA Times article, which skews the other empirical findings of the article.

positive, indicating that murder rates were 19.3% higher when the Federal ban was in effect.”³⁵ Put another way, these estimates imply that about 2,000 more people died per year from homicide by firearm during the decade the “assault weapon” ban was in place. Thus, from a public policy perspective, there are substantial reasons to doubt that the federal “assault weapon” ban had a net positive impact. Indeed, these estimates suggest the ban was associated with ~1,988 additional lives lost per year to gun violence. One may object, of course, that the causes of homicides by firearm are complex, and perhaps it is just a fluke that the ban was associated with higher rates, but the same can be said of mass shootings (again, a majority of which do not employ “assault weapons”).

In sum, studies have not shown that “assault weapon” bans implemented in recent decades within Australia, the U.S., and the U.K. made a substantive, positive difference. However, perhaps the most remarkable evidence illustrating the impotence of “assault weapon” bans comes from Europe, where countries with longstanding restrictions on “assault weapon” ownership have witnessed a number of mass shootings with “assault weapons” in recent years, at a rate about equal to the US on a per capita basis.³⁶

In March 2012, a gunman killed three paratroopers, three school children, and a Rabbi in the Toulouse and Montauban areas of France utilizing an AK-47 for some of the murders.³⁷ On January 7th, 2015 two gunmen killed 12 people at the offices of Charlie Hebdo in Paris using AK-47s.³⁸ From January 7-9th, 2015 another gunman shot a jogger, killed a police officer, and killed four people at a Parisian supermarket using an AK-47 variant rifle.³⁹ In November of 2015, nine individuals killed 130 people in Paris, with most dying from AK-47 gunfire.⁴⁰

³⁵ Mark Gius (2014) An examination of the effects of concealed weapons laws and assault weapons bans on state-level murder rates, *Applied Economics Letters*, 21:4, 265-267, DOI: 10.1080/13504851.2013.854294

³⁶ <https://crimeresearch.org/2015/06/comparing-death-rates-from-mass-public-shootings-in-the-us-and-europe/>

³⁷ Squires, Peter. "Paris attacks: terrorism, trafficking—and the enduring curse of the AK-47," Nov 16, 2015. [theconversation.com](http://theconversation.com/paris-attacks-terrorism-trafficking-and-the-enduring-curse-of-the-ak-47-50733) <http://theconversation.com/paris-attacks-terrorism-trafficking-and-the-enduring-curse-of-the-ak-47-50733>

³⁸ Withnall, Adam and John Lichfield. "Charlie Hebdo shooting: At least 12 killed as shots fired at satirical magazine's Paris office," *The Independent*. Jan 7, 2015. <https://www.independent.co.uk/news/world/europe/charlie-hebdo-shooting-10-killed-as-shots-fired-at-satirical-magazine-headquarters-according-to-9962337.html> ; Fouquet, Helene. "Paris Killings Show Rise of Banned French 'Weapons of War,'" *Bloomberg*. Jan 7, 2105. <https://www.bloomberg.com/news/articles/2015-01-07/paris-killings-show-rise-of-banned-weapons-of-war-in-france>

³⁹ Burke, Jason. "Military grade firearms increasingly available to terrorists in Europe - report," *The Guardian*. April 18, 2018. <https://www.theguardian.com/world/2018/apr/18/arms-race-criminal-gangs-helping-terrorists-get-weapons-report-warns>

⁴⁰ Cruickshank, Paul. "The inside story of the Paris and Brussels attacks," *CNN*. October 30, 2017. <https://www.cnn.com/2016/03/30/europe/inside-paris-brussels-terror-attacks/index.html> ; "Paris attacks death toll rises to 130" *RTE*. Nov 20 2015

Semi-automatic rifles are, practically speaking, banned in France, as in most other countries in Europe. As noted in the *Washington Post*, "There is no right to bear arms for the French, and to own a gun, you need a hunting or sporting license which needs to be repeatedly renewed and requires a psychological evaluation." Moreover, so-called assault rifles "are highly restricted and require extremely stringent background checks to buy."⁴¹ And yet, this has not prevented the extraordinarily high rates of mass shootings utilizing "assault weapon" in France in recent years.

France isn't alone. In 2011, Anders Breivik killed 69 people in Norway with an "assault rifle," despite the country's strict gun laws, which only permit firearm ownership if an individual has officially documented a use for a gun. In 2010, Ľubomír Harman used an AK style "assault rifle" to kill seven people and injure 15 more near Bratislava, despite the fact that semi-automatic rifles may only be owned with special authorization in Slovakia.⁴² In 2011, Nordine Amrani used an "assault rifle" to kill 6 people and wound 125 others in Belgium, despite that country's similarly restrictive guns laws.⁴³ And numerous other mass shootings have taken place in recent years across other European states, including the UK, Germany, Switzerland, Finland, Italy, and the Netherlands.⁴⁴

John Lott has compiled a database of these shootings, which shows that the U.S. and EU had similar incidence rates of mass shootings in recent years (no statistical difference) and that "There were 27% more casualties per capita from mass public shootings in [the] EU than [in the] U.S. from 2009-15."⁴⁵ This occasioned a debate with Snopes.com (which rated his conclusion as a mixture of truth and falsity) and other critics eager to discredit his analysis, focusing on the definition of "mass shootings" and the overall populations being considered.⁴⁶ Lott's rebuttal, however, is overwhelmingly persuasive. In a more recent study examining rates of mass shootings from around the world, Lott finds that mass shootings in the United States are both less frequent than in

<https://www.rte.ie/news/2015/1120/747897-paris/> ; Candea, Stefan, et al. "The Path to Death: How EU Failures Helped Paris Terrorists Obtain Weapons" *Spiegel Online*. March 24, 2016. <http://www.spiegel.de/international/europe/following-the-path-of-the-paris-terror-weapons-a-1083461.html>

⁴¹ Taylor, Adam. "France has strict gun laws. Why didn't that save Charlie Hebdo victims?" *The Washington Post*. January 9, 2015.

https://www.washingtonpost.com/news/worldviews/wp/2015/01/09/france-has-strict-gun-laws-why-didnt-that-save-charlie-hebdo-victims/?utm_term=.f552524660bd

⁴² <https://www.gunpolicy.org/firearms/region/slovakia>

⁴³ "Profile: Liege mass killer Nordine Amrani" *BBC*. Dec 14, 2011. <https://www.bbc.com/news/world-europe-16175795> ; https://en.wikipedia.org/wiki/2011_Liège_attack

⁴⁴ <https://crimeresearch.org/2015/06/comparing-death-rates-from-mass-public-shootings-in-the-us-and-europe/>

⁴⁵ <https://crimeresearch.org/2015/06/comparing-death-rates-from-mass-public-shootings-in-the-us-and-europe/>

⁴⁶ <https://crimeresearch.org/2018/03/fact-checker-snopes-com-big-mistake-comparing-mass-public-shootings-us-europe/>

other countries and also much less deadly on average.⁴⁷ This study directly contradicts Donohue's claim that the U.S. has had a third of the world's public mass shootings since the late 1960's [paragraph 50], which is an inaccurate statistic derived from a flawed study by Adam Lankford that greatly undercounted mass shooting incidents around the world.⁴⁸

To conclude: Contrary to Donohue's assertions, there is little evidence that state-based "assault weapon" bans, such as California's, or the federal ban that was in place between 1994-2004 have yielded substantial improvements in public safety. Moreover, severe restrictions on "assault weapon" ownership have not only failed to prevent mass shootings in Europe, but, in recent years, such shootings have occurred at rates similar to the United States.

IV. "Assault Weapons" as a Public Health and Safety Threat

Throughout his report Donohue portrays "assault weapons" as peculiarly dangerous and powerful. The truth is that, in terms of ballistic performance, "assault weapons" are amongst the least powerful centerfire rifles in common use. Rifle calibers that have been most popular for hunting big game over the last century - e.g. 270 Winchester, 30-06, 45-70, .308 - all generate significantly higher foot pounds of energy than the .223 in an AR-15.⁴⁹ Indeed, the charges that Donohue levels at .223 chambered "assault weapons" - that they are capable of penetrating walls, capable of penetrating body armor, and creating devastating wounds - are, in fact, even more true of most traditional hunting rifles manufactured a century ago. Donohue's real concern with "assault weapons" is apparently that they are good guns. That is to say, they are guns with many attractive features, which is why they are now the most popular and best selling long guns in America.

It is reasonable to step back and ask what the public health costs of "assault weapon" ownership are at the broadest level. Are "assault weapons" responsible for unconscionable levels of death, either in the context of mass shootings or firearms deaths at large? The answer is a resounding no.

As mentioned, of the 302 deaths that Donohue and the *Washington Post* attribute to mass shootings from 2004- 2014, only 72 shooting deaths involved "assault weapons." To put that in perspective, according to the Centers for Disease Control and Prevention, National Center for Health Statistics,⁵⁰ the following caused more deaths in

⁴⁷ Lott, John R., How a Botched Study Fooled the World About the U.S. Share of Mass Public Shootings: U.S. Rate is Lower than Global Average (August 25, 2018). Available at SSRN: <https://ssrn.com/abstract=3238736> or <http://dx.doi.org/10.2139/ssrn.3238736>

⁴⁸ <https://crimeresearch.org/2018/08/new-cprc-research-how-a-botched-study-fooled-the-world-about-the-u-s-share-of-mass-public-shootings-u-s-rate-is-lower-than-global-average/>

⁴⁹ Ballistics data can be found at <http://gundata.org>

⁵⁰ Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999-2016 on CDC WONDER Online Database, released

the U.S. than mass shootings (and far more than mass shootings involving “assault weapons”) between 2004-2014:

- Fall from tree (939 deaths)
- Contact with powered lawnmower (750 deaths)
- Fall involving ice-skates, skis, roller-skates or skateboards (698)
- Victim of lightning (377)
- Bitten or struck by dog (360 deaths)

- Fall from ladder 4,473 (deaths)
- Drowning from swimming pool (6,474 deaths)
- Fall involving bed (7,875 deaths)
- Fall on same level from slipping, tripping and stumbling (7,936 deaths)
- Accidental suffocation and strangulation in bed (8,087 deaths)

With regard to mass shootings, Donohue writes of “the need for governmental action to address this serious menace.” One can only imagine what actions he believes should be taken to address the much larger menaces of ice skates, lawnmowers, and dogs.

If we examine crime more broadly, here too the role of “assault weapons” is minimal. Koper et al. estimate that “assault weapons” are used in less than 7% of general crime.⁵¹ According to the FBI, 374 people were murdered by a rifle of any kind (including non-“assault rifles”) in 2016, compared to 7,105 murders by handgun and 262 murders by shotgun.⁵² Put another way, rifles of any kind were implicated in only 4.8% of murders. There were also an additional 3,263 cases in which the type of gun wasn’t reported. However, if we assume the same prevalence rates, this would imply that 158 of these involved rifles. In sum, this suggests that rifles of any sort were involved in about about 532 murders. The same year, 1,604 people were killed with knives in the United States. Thus, “assault rifles” are, at most, responsible for about a third as many murders as knives.

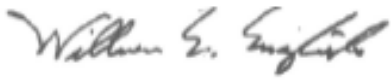
In conclusion, reports of the demise of gun ownership are exaggerated, with data suggesting possibly modest decreases in household ownership rates, while the total number of Americans who own guns has never been higher. Meanwhile, so-called “assault weapons” have become increasingly popular in recent year and are now the best selling long guns, owned by about half of active hunters and shooters. Mass shootings are extremely rare, and “assault weapons” are only used in a small proportion of them. Moreover, “assault weapon” bans have not stopped such shootings from happening in Europe at rates similar to the US, and there is little evidence that bans

December, 2017. Data are from the Multiple Cause of Death Files, 1999-2016, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed at <http://wonder.cdc.gov/ucd-icd10.html> on Nov 14, 2018 5:52:38 PM

⁵¹ Koper, Christopher S., et al. "Criminal use of assault weapons and high-capacity semiautomatic firearms: an updated examination of local and national sources." *Journal of urban health* (2017): 1-9.

⁵² <https://ucr.fbi.gov/crime-in-the-u.s/2016/crime-in-the-u.s.-2016/tables/table-12>

have contributed to public safety in the U.S., UK, and Australia. Not only are mass shootings extremely rare, and mass shootings with “assault weapons” rarer still, but “assault weapons” are also seldom used in crime and are responsible for far fewer deaths than other common objects, such as knives. In America you are much more likely to be killed by lightning than by an “assault weapon” used in a mass shooting, and indeed many common objects and activities kill more people than rifles of any kind. In my professional opinion, Donohue’s report greatly exaggerates the risk posed by “assault weapons” and the efficacy of “assault weapon” bans. Rather, an empirically informed evaluation suggests that “assault weapon” bans yield no substantial benefits to public health and safety.



William English, PhD

Dated: November 21, 2018

EXHIBIT 63

Rebuttal to the Expert Reports of John J. Donohue and Lucy Allen

In *Rupp et al. v. Becerra*
Gary Kleck
College of Criminology and Criminal Justice
Florida State University
Tallahassee, FL 32306

November 21, 2018

I. Assignment

I have been asked by counsel for the plaintiffs in the above described matter to provide my opinion rebutting various opinions concerning the prevalence of “assault weapons” in mass shooting and other related matters, made in the reports of two expert witnesses for the Defendant: Professor John Donohue and Ms. Lucy Allen. This rebuttal report sets forth my qualifications and foundation for my opinions. I offer these opinions based on my experience and abilities as a criminologist and am willing and able to testify consistently with the contents of this report.

II. Background & Qualifications

I am an emeritus Professor of Criminology and Criminal Justice at Florida State University. I received my doctorate in Sociology from the University of Illinois in 1979, where I received the University of Illinois Foundation Fellowship in Sociology. I was, at the time of my retirement in May 2016, the David J. Bordua Professor of Criminology at Florida State University, where I served on the faculty from 1978 to 2016. My research has focused on the impact of firearms and gun control on violence, and I have been called “the dominant social scientist in the field of guns and crime.” William J. Vizzard, *Shots in the Dark: The Policy, Politics, and Symbolism of Gun Control* 183 (2003).

I have published the most comprehensive reviews of evidence concerning guns and violence in the scholarly literature, which informs and serves as part of the basis of my opinions. I am the author of *Point Blank: Guns and Violence in America*, which won the 1993 Michael J. Hindelang Award of the American Society of Criminology, awarded to the book of the previous several years which “made the most outstanding contribution to criminology.” I also authored *Targeting Guns* (1997) and, with Don B. Kates, Jr., *The Great American Gun Debate* (1997) and *Armed* (2001)—books that likewise addressed the topic of guns and violence.

I have also published scholarly research articles in virtually all the leading professional journals in my field. Specifically, my articles have been published in the *American Sociological Review*, *American Journal of Sociology*, *Social Forces*, *Social Problems*, *Criminology*, *Journal of Criminal Law and Criminology*, *Law & Society Review*, *Journal of Research in Crime and Delinquency*, *Journal of Quantitative Criminology*, *Law & Contemporary Problems*, *Law and*

Human Behavior, Law & Policy Quarterly, Violence and Victims, Journal of the American Medical Association, and other scholarly journals.

I have testified before Congress and state legislatures on gun control issues, and worked as a consultant to the National Research Council, National Academy of Sciences Panel on the Understanding and Prevention of Violence, as a member of the U.S. Sentencing Commission's Drugs—Violence Task Force, and as a member of the Institute of Medicine and National Research Council Committee on Priorities for a Public Health Research Agenda to Reduce the Threat of Firearm-Related Violence. I am a referee for over a dozen professional journals, and serve as a grants consultant to the National Science Foundation.

Finally, I have taught doctoral students how to do research and evaluate the quality of research evidence, and have taught graduate courses on research design and causal inference, statistical techniques, and survey research methodology.

My current curriculum vitae, which includes a full list of my qualifications and publications, is attached hereto as **Exhibit 1**.

In the past four years, I have been deposed and/or testified at trial in the following matters:

- *Heller v. District of Columbia*, D.D.C. (deposed July 2, 2013).
- *Cook et al. v. Hickenlooper*, D. Colo. (deposed and testified Mar. or April 2013).
- *Wilson v. Cook County* (deposed Sept. 16, 2013).
- *Kolbe v. O'Malley*, D. Md. (deposed Jan. 2, 2014).
- *Barbra Schlifer Commemorative Clinic v. HMQ Canada* ("Cross-examined" [Canadian term for deposed] Feb. 24, 2014).
- *Friedman v. City of Highland Park* (deposed May or June 2014).
- *Tracy Rifle and Pistol v. Harris*, E.D. Cal. (deposed Nov. 2, 2016).

III. Compensation

I am being compensated for my time in this case at the rate of \$400 per hour. My compensation is not contingent on the results of my analysis or the substance of my testimony.

IV. Opinions & Analysis

Rebuttal of the Expert Report of John J. Donohue

I have organized my rebuttal according to the paragraph numbering in Professor Donohue's expert report.

Paragraph 11.

Donohue asserts that “the problem of public mass shootings in the United States is a serious national problem” (p. 4). Although public mass shootings generate a huge amount of news media coverage, they contribute less than one percent of the homicide deaths in the U. S. For example, 114 people were killed in mass (4+ dead) public shootings in 2013 (Krouse and Richardson 2015, p. 43), a year in which a total of 14,249 Americans were murdered (U.S. FBI 2014). While even one murder is one too many, it is surely a gross overstatement to characterize public mass shootings as a major national problem, no matter how much news coverage they stimulate.

Donohue also claims that “efforts to arm the public with increased gun carrying” generate increases in violent crime is not supported by the vast bulk of research. For support, Donohue relies entirely on his own research on the effects of right-to-carry laws (which make it easier to get carry permits), but does not share with readers the fact that his conclusions are very much a minority opinion in the field, and that the vast majority of scholars who have evaluated these laws have concluded that they either reduce violent crime or have no effect one way or the other. Moody and Marvell (2008, pp. 275-276) found that of 19 studies published in refereed outlets, 11 found that these laws reduce crime, 8 found that they have no net effect, and *no* refereed studies (as of 2008) found that the laws increase crime. The only studies finding that the laws increase crime were all by Donohue, and all appeared in nonrefereed publications. For a critical assessment of Donohue’s most recent research on this topic, see Kleck (2018c).

Paragraph 12.

“Gun massacres” did not fall “substantially” during the ten years when the federal assault weapons ban (“AWB”) was in effect, and the most thorough evaluation of that law concluded that any declines in violence that did occur during that period could not be attributed to the AWB (Koper 2004).

The “problem of active shooters inflicting mayhem on the public” has *not* been “rising substantially” since the end of the federal AWB. Donohue claims that “FBI data” support his assertion (p. 4), but does not cite any particular FBI source that does so. It should be noted that the term “active shooters” is highly misleading, even meaningless, in the context of a discussion of mass shootings because it can encompass incidents in which *zero* persons were shot, fatally or nonfatally (Blair and Schweit 2014). As to the more meaningful category of mass shootings, Fox and Fridel (2016, p. 17) have shown that the trend was basically flat from 1992 to 2013. More relevant still to claims concerning current or very recent trends, the number of mass shootings (4+ killed) has not increased in the most recent five years for which data are available, 2013-2017 inclusive. Based on the most comprehensive data source available, the Gun Violence Archive, there were 25 mass shooting incidents in 2013, 20 in 2014, 26 in 2015, 25 in 2016, and 24 in 2017 (Table 3). Indeed, if one were willing to take very small changes seriously, one would have to conclude that the problem of mass shootings has been declining recently.

Paragraph 14.

Persons “who have the criminal intent to kill as many individuals” are precisely the kinds of offenders *least* likely to be restrained by an AWB or other gun control measure from acquiring firearms. There is no evidence known to me that any AWB has prevented any prospective mass shooter from acquiring guns that function the same as those generally prohibited by AWBs, and none of the evidence cited by Donohue supports such a claim. In the most thorough evaluation of the federal AWB, Koper (2004) concluded that violent criminals just substituted other semiauto firearms with large-capacity magazines for those banned under the federal AWB, with no effect on the frequency or seriousness of firearms violence.

Donohue claims that the “banned assault weapons are notably ill-suited for self-defense in the home because of their high penetration capacity, which leads their bullets to easily penetrate walls, thereby endangering other lawful occupants” (p. 5). This observation is at best irrelevant to the merits of AWBs. People who own those banned rifles are not compelled to use them when there is a risk of shots penetrating walls and wounding innocent persons; they can confine their use to circumstances where this is not a problem. For example, people who own these rifles for protection may live in rural areas, in homes surrounded by a great deal of open space. The issue of bullet penetration would be of little significance in outdoor defensive uses of guns in such locations.

Finally, Donohue inserts into this paragraph his speculation that the banned rifles impose greater risks to law enforcement officers, presumably an allusion to the ability of bullets fired from “assault rifles” to penetrate police body armor. This claim is rebutted elsewhere in this report (see the discussion of Donohue’s Paragraph 110).

Paragraph 15.

The guns restricted by the California AWB are not “uniquely designed to aid in their homicidal rampages.” The banned “assault rifles” are rarely used by mass shooters, and this was so even before the federal AWB was enacted (Kleck 1997, p. 144). This could be because rifles are less concealable than handguns, and thus less suitable for criminal purposes, including those of mass killers (Kleck 1997, pp. 110-112).

Paragraph 16.

The number of U.S. households owning firearms has *not* been declining “in recent decades” (a temporal term Donohue does not define), and even Donohue’s cherry-picked sources of survey data do not support this claim. Donohue relies most heavily on data drawn from the GSS, whose trends in gun ownership deviate sharply from virtually every other national survey, and therefore is arguably the worst source for determining trends in household gun prevalence. In any case, the GSS data indicate no significant change in the past 20 years, with the percent of households reporting gun ownership varying almost entirely within the narrow 32-36% range (see my Table 1). His claim that 31% of U.S. households “currently” own firearms (p. 6) is inaccurate. The figure is 43% in the most recent Gallup poll, conducted in October of 2017 (Table 1).

Table 1 also shows that the GSS surveys have regularly missed a large share of household gun ownership in recent decades. For example, in the 2016 GSS, only 32% of respondents admitted to household gun ownership, even though the Gallup poll for that same year found that 40% of households reported guns. The reason why the GSS does so poorly may lie with its unusual character among regularly conducted national surveys in relying on non-anonymous interviews in the respondents' homes. Without any assurance of anonymity, many gun owners may be unwilling to admit their gun ownership to strangers.

Donohue also notes results from the Behavioral Risk Factor Surveillance System (BRFSS) survey, but reports only two gun-prevalence estimates, and these two data points (for what it's worth) indicated *increasing* gun prevalence! (see Donohue and Rabbini, in Appendix to Donohue report, Figure 2).

The national survey that has gathered data on gun ownership for the longest period by far is the Gallup Poll, which likewise indicates no downward trend over the past 20 years (Table 1), or even the past 50 years (see Figure 2 in Donohue Appendix). The Gallup poll indicates that 41% +/- 6% of U.S. households have reported gun ownership throughout the past two decades, as well as the entire 1968-2017 period (Kleck 1997, pp. 98-99; Table 1). Indeed, if one were willing to be as selective as Donohue is in picking data to cite, one could cite the Gallup poll finding that just 34% of households reported guns in 1999, and a 2011 Gallup poll finding that 47% of households reported guns, and assert that there was a huge *increase* in gun prevalence. The entire body of data, however, actually indicates no long-term trend one way or the other since 1997 (Table 1).

Only the GSS has ever indicated any persistent downward trend in U.S. gun ownership, but this brief decline did not occur in the most recent decades; instead it occurred between 1990 and 2000 (see Figure 2 in the unpublished Donohue and Rabbini paper in Donohue's Appendix). Regarding the past two decades, however, even GSS data show no downward trend. Because of Donohue's vagueness about what he meant by the term "recent decades," one could charitably speculate that he was alluding to some other historical period that was even less recent, yet nevertheless "recent" by his subjective standards. Even if we generously assume that he meant to refer to some unspecified part of the past half century, however, the Gallup figures (Donohue's Figure 2; Table 1 herein) indicate that there has been no significant trend in household gun prevalence since 1968.

Donohue creates a false impression of independent support for his thesis from other surveys, by making illegitimate inferences about trends on the basis of comparisons of results from different surveys. When different survey organizations conduct surveys, they may use different sampling procedures, employ interviewers of differing levels of expertise, and use crucially different wordings of the gun ownership questions. Consequently, results from different surveys (e.g. GSS vs. BRFSS) are not comparable with each other and cannot be used to judge trends. The noncomparability of survey results from different survey organizations is definitively established by Donohue's own data. His Appendix Figure 2 indicates that the GSS regularly yields estimates of gun prevalence that are far lower than estimates from the Gallup poll – as much as 12 percentage points lower (see also my Table 1).

Once one disposes of these illegitimate comparisons between surveys conducted by different survey organizations, Donohue's case for a downward trend relies entirely on the GSS results, and even those results indicate no downward trend in gun prevalence in the most recent two decades. If Donohue was asserting that gun prevalence in America has been declining in *recent* years, and that this is therefore a trend likely to continue into the future, his own evidence clearly does not support this assertion. The prevalence of gun ownership in America has not been declining.

Donohue also asserts that gun ownership has become increasingly concentrated in recent years, but can only guess ("presumably..." – p. 6) that this is specifically true of "assault weapons" – he presents no evidence on "assault weapons" at all. Regarding firearms in general, all his claim amounts to is the bland assertion that those who already owned guns in the past are continuing to acquire guns, increasing the number of guns per gun-owning household. This assertion is correct, but Donohue offers no explanation for how this is relevant to the merits of California's AWB or gun control in general.

In the middle of paragraph 16 Donohue also tosses in the claim that "most Americans favor bans on assault weapons." This is false. The most recent national survey result is from the October 2018 Gallup poll, and it indicates that most Americans *oppose* bans on even the narrower category of "assault rifles" (the very firearms at issue in this lawsuit) – 57% opposed such a measure, and only 40% supported it (Gallup 2018). Even fewer would support a law banning a still broader category of firearms such as "assault weapons." Even in previous years when a bare majority (51%) favored banning "assault rifles," much of the support was attributable to the erroneous but widespread belief that the guns proposed for banning fired in fully automatic mode like a machinegun. In a January 2013 national survey, when asked to describe an "assault weapon," 29% of the respondents stated that it was an automatic weapon, among other inaccurate descriptions (Reason-Rupe 2013).

Paragraph 17.

Donohue claims that a federal ban on assault weapons did "greatly curtail the number of assault weapons in circulation" (p. 16). He cites no evidence to support this extraordinary claim, and I know of none. For example, Koper's extensive 2004 evaluation of the federal AWB did not present any evidence on the number of "assault weapons" in circulation. Given the highly durable character of firearms, even sharp reductions in the number of new firearms added to the gun stock through production or importation would not reduce the total number in circulation, but would only restrict its growth. In fact, the cumulated civilian stock of all firearms, regardless of type, continued to increase during the 1994-2004 period when the federal AWB was in effect (Table 2).

Paragraph 55.

Donohue claims that the federal AWB "saved lives." This is not what the best available evidence indicates. The most extensive evaluation of the ban, sponsored by the U.S. Justice Department and conducted by a scholar with extensive background in studying guns and

violence, concluded that the law had no measurable effect on the rate of gun violence, including homicide, and produced “no discernable reduction in the lethality and injuriousness of gun violence” (Koper 2004, p. 96).

Paragraph 56.

Instead of relying on the sophisticated and detailed research done by Koper, Donohue chooses to rely on material in a non-scholarly book written by an author, Louis Klarevas, with no prior experience or record of publication on guns and violence. His crude “analysis” consisted of simply noting the counts of what he calls “gun massacres” for the decades around the period when the federal AWB was in effect. Klarevas uncritically assumed that any differences in the numbers of “gun massacres” were attributable to the presence or absence of the AWB. More distinguished experts on mass murder such as James Fox and Christopher Koper, however, have concluded that the federal AWB had little or no impact on mass shootings (Fox and Fridel 2016, pp. 16-17; Koper 2004, p. 96).

Paragraph 57.

Donohue believes that he can support his claim that the federal AWB reduced mass shootings by noting that supposed post-2004 increases in “gun massacre incidents” “closely tracks the growth in U.S. sales of assault weapons.” The phrase “closely tracks” is nothing more than an eccentric way of alluding to a coincidence in trends, i.e., a rough correlation of two trends over time. As even beginning researchers know, correlation is not causation. Donohue’s claims in Paragraph 57 are nothing more than guesses, not scientific conclusions from evidence. Finally, his apparently serious reliance on the opinion of the executive director of an organization that lobbies for AW bans is patently not the action of a serious, unbiased researcher, but rather of someone who either has a desired outcome or who is unsophisticated in research science.

Paragraph 62.

Donohue claims that the U.S. has a higher rate of public mass shootings than other advance industrialized nations (p. 26). The only academic research study that he cited to support (albeit way back in Paragraph 50) was a study that has already been discredited. Lankford (2016) made this claim, supposedly based on data covering 171 nations, and Donohue uncritically accepts Lankford’s conclusions. Lankford, however, failed to offer any detail on how he conducted the research that supposedly supported his conclusions or to describe all the sources he used to get world-wide counts of mass shootings. When subsequently challenged, Lankford refused to specify what sources he had relied on (Lott 2018). The only source known to me that covers mass shootings in more than a handful of nations are news media accounts. Lankford did not claim to be able to read any languages other than English, so if he did indeed rely on news accounts for most of his 171 countries, this means that he would not have been able to obtain even minimally complete counts of mass shootings except for English-speaking nations, including the U.S. Counting only a tiny fraction of those occurring in non-English speaking nations would necessarily bias Lankford’s analysis in favor of his claim that the U.S. has far more mass shootings than other nations.

Lott (2018) studied the same topic, but used a source that yielded far more complete counts of mass shootings in foreign nations than Lankford obtained. Lott analyzed data from the University of Maryland Global Terrorism Database (which itself offers only partial coverage), excluded cases of “insurgency” and counted the number of public shootings in which four or more people were killed. He found that the per capita rate of mass public shootings in the U.S. was substantially *lower* than the rate for the world as a whole, and that even though the U.S. claimed 4.6% of the world’s population, it had only 2.93% of the mass public shootings. The U.S. ranked just 56th in the per capita rate of mass public shooting incidents. “Advanced industrial nations” with higher rates of mass public shootings than the U.S. included Finland, Israel, Norway, Russia, Croatia, Yugoslavia, Serbia, and Slovakia.

Paragraph 81.

This paragraph is a masterpiece of misleadingly selective citation of a source. Donohue refers to work by Christopher Koper (2004), but instead of citing the results of empirical research reported by Koper, he cites only Koper’s non-empirical hopes for what might be achieved at some future point if the federal AWB were reinstated and kept in operation for a long time. This was little more than wishful thinking by Koper, not evidence. There can be no scientific or scholarly justification for Donohue ignoring Koper’s evidence-based conclusions that the federal AWB did not reduce either the frequency or the seriousness of violent crime (including mass shootings) (Koper 2004, p. 96), and citing only Koper’s optimistic hopes as support for Donohue’s beliefs.

Paragraph 86.

Donohue repeats a long-discredited claim that defensive gun use, regardless of the type of gun used, is rare. His sole source of support for this claim is the National Crime Victimization Survey (NCVS). Donohue, however, withholds two key pieces of information from readers. The first is that the NCVS *has never asked a single respondent specifically about defensive gun use*, and thus its data cannot be used to meaningfully estimate the frequency of defensive gun use (Kleck and Gertz 1995). Respondents to the NCVS can only report a defensive gun use if they choose to volunteer this information in response to a general question about self-protection that makes no reference to gun use. The second piece of information is that *every other national survey known to have asked a question about defensive gun use* has obtained results indicating that defensive gun use is common in the U.S., and has yielded estimates of defensive gun use frequency that are orders of magnitude larger than the estimates derived from the NCVS. At least 20 professionally conducted national surveys, using representative probability samples of the adult U.S. population, have obtained results implying anywhere from 600,000 to 3 million defensive gun uses (DGUs) per year – far more than the number of crimes committed with guns (Kleck 2018a, Table 4). The relevant empirical evidence is clear: defensive gun use is not rare and is much more frequent than criminal offensive gun use resulting in a person being harmed.

Paragraphs 87-89.

Donohue claims that the need for an “assault weapon” is virtually nonexistent in DGUs, citing for support research supposedly indicating that defenders rarely do anything beyond “brandishing” the gun. He does not explain why this is relevant to the defensive effectiveness of gun use, and appears to assume that the deterrent or intimidating effect of brandishing an “assault weapon” could not be greater than brandishing some other gun type; particularly a smaller one that the attacker may not see. In any case, the share of DGUs in which something beyond merely brandishing the gun is done is far larger than Donohue claims. For example, crime victims using guns for protection actually fire the gun in 24% of the incidents (Kleck and Gertz 1995, p. 185), not the less than 1% or 2% supposedly implied by the Lott survey. The latter survey was never published, Lott cannot supply the data supposedly produced by his survey, cannot provide a copy of the questionnaire he used, and cannot describe in detail the procedures used to conduct the survey. Thus, his results cannot be relied upon.

No one knows how many DGUs involve the use of “assault weapons” because the surveys that have asked about DGU have never asked for the detailed information about the guns used (make, model, magazine size, “military-style” features, etc.) that would be needed to establish whether they were “assault weapons.” Certainly there have been cases reported in the news media of the AR-15 being used in self-defense (Messamore 2013). Thus, Donohue has no scientific foundation whatsoever for his assertion that defensive use of such weapons is rare.

Paragraph 92.

“Assault weapons” are not “mass killers’ armaments of choice” (p. 37). Mass killers rarely use “assault rifles” or “high-capacity” magazines. A Congressional Research Service study found that only 9.78% of the guns used by mass shooters were “assault weapons” (Krouse and Richardson 2015, p. 29). This is roughly the same as the share of ordinary (not mass) gun crimes committed with “assault weapons.” Koper (2004, p. 97) reported that “AWs were used in no more than 8% of gun crimes even before the [federal] ban.” Thus, neither mass killers nor ordinary gun criminals prefer to use “assault weapons.” The evidence Donohue cites in support of his outlandish claim is derived from a propaganda source (see his footnote 72), and the propagandists’ claim could be supported only because they limited their analysis to a tiny unrepresentative subset of mass shootings that were chosen precisely because the authors already knew that they were more likely to involve large-capacity magazines or assault weapons. Studies that examine the *full* set of mass shootings find precisely the opposite of what Donohue claims – only a tiny minority (less than a tenth) of mass shooters use assault weapons, assault rifles, or large-capacity magazines (Krouse and Richardson 2015, p. 29).

Paragraph 98.

Donohue claims that Australia’s 1996 National Firearms Agreement (NFA) “dramatically reduced mass shootings in Australia.” His sole support for this claim is that there had been 7 mass shootings in the 17 years before the NFA was implemented and none in the 22 years afterwards (p. 39). What Donohue does not tell the reader is that the absence of mass shootings in the post-NFA period was nothing more than a return to the norm that had prevailed in

Australia for almost all pre-NFA years – zero mass shootings in a typical year. Further, the nation most similar to Australia, New Zealand, also experienced zero mass shootings in the post-1996 period even though New Zealand did not enact any significant new gun control measures (McPhedran and Baker 2011). Thus, if one uses the New Zealand to establish the number of mass shootings we could expect in Australia after 1996 if Australia had not enacted the NFA, we would expect zero – precisely the number that Australia in fact experienced in the immediate post-NFA period (Kleck 2018b).

In any case, Donohue’s claim that “there have been none” since the NFA was implemented (p. 39) is false: Australia has experienced two mass shootings since the NFA was implemented (RTE News 2018). More importantly, Australia has experienced at least 10 *mass murders* (4 or more dead), regardless of whether firearms were used, since the NFA was implemented (Wikipedia 2018). The NFA did not stop mass murder in Australia. At best, it may have reduced the number committed *with guns*. I am not aware of any public benefit from deranged people killing large numbers of victims by burning or knifing them to death rather than shooting them to death.

Further, the apparently dramatic contrast between 7 public mass shootings committed before the NFA was implemented and (supposedly) none committed after the NFA is something of an illusion produced by pro-NFA supporters’ eccentric definition of mass shootings. Scholars typically define a shooting incident as a mass shooting if the offender shoots many people in one location and in one limited period of time (Kleck 2016; Fox and Fridel 2016; Krouse and Richardson. 2015). Shootings that occur in multiple incidents in different locations, at widely separated times, are called “spree shootings,” not mass shootings. The distinction is crucial with regard to Australia’s NFA or California’s AWB because these control measures focus on firearms that can be capable of firing many rounds in a short period of time without reloading. Advocates of these control measures can make a rational argument that such firearms might affect the number of casualties in a mass shooting in which many victim are shot in a few seconds or minutes, but such an argument would be nonsensical with regard to spree shootings in which only one or two victims are shot in any one burst of shooting, and each burst is separated by long periods of time in which the shooter had ample opportunity to reload, regardless of the type of firearm he possessed.

In one study supporting the NFA (Chapman, Alpers, and Jones 2016) the authors counted 13 “mass shootings” in the years prior to the NFA, but at least six of these were actually spree shootings in which no more than three people were shot in any burst of shooting. By padding out the list of mass shootings with spree shootings, the authors artificially exaggerated the contrast between the number of mass shootings before the NFA (13 according to the authors) and the number after (0 according to the authors). In reality, there were no more than seven mass shootings before the NFA and two since then (Kleck 2018b).

Paragraph 99.

This paragraph seems to suggest that Australia’s NFA was a moderate control measure that merely deprived “disturbed individuals” of guns, and that the NFA merely banned semiautomatic rifles. This distortion conceals just how much more extreme a measure the NFA

was than any law implemented by California or any other state. The NFA not only banned any further manufacture, importation, or sale of the prohibited guns, it also required people who already owned such guns to turn them in to the government (Peters 2013). Further, it did not just ban semiauto rifles; it also banned semiauto pistols, semiauto shotguns, and pump-action shotguns (Peters 2013). Since the NFA was a far more radical measure than any gun control measure that one could realistically expect to be passed in the United States, even if the evidence really did indicate that the NFA reduced mass shootings, it would say nothing about the effects of either California's AWB or of any other gun laws actually enacted in the U.S.

Paragraph 108.

Donohue claims that "Klarevas, Koper, and [unspecified] courts" have observed that "assault weapons with large capacity magazines are disproportionately used in mass shootings." In fact neither Klarevas nor Koper have shown this to be true. Indeed, they could not possibly have done so given that one would necessarily have to know how many assault weapons—let alone rifles meeting that definition—with large capacity magazines there are in order to determine whether their involvement in mass shootings is disproportionate to their numbers. Neither Klarevas nor Donohue provides an estimated number of how many such rifles are possessed by the American public. Consequently, neither one can legitimately say whether the involvement of such firearms in mass shootings is even slightly greater than one would expect based on their share of all extant firearms, as they do not ever purport to know what that number is.

Donohue misleadingly cites a statistical association between use of such firearms at a shooting and the number of shots fired and number of persons wounded. It is important to note that Donohue does not explicitly state that use of such firearms *causes* more shots fired or more victims injured, though noting such associations is likely to suggest causation to the unwary reader if it is not accompanied by explicit caveats to the contrary. There is good reason to believe that the association is "spurious," i.e. not causal. Shooters differ in the lethality of their intentions, some desiring to hurt only one or a few victims, others desiring to hurt many. Their lethality of intent, however, also almost certainly affects both (1) the number of victims they in fact hurt in an attack, and (2) the kinds and number of weapons they employ. If more lethal intentions increase both (1) the number of victims hurt and (2) the use of assault weapons with large-capacity magazines, the result will be an association between (1) and (2) even if (2) has no effect on (1). No researcher has reported evidence that rules out the possibility that this association is totally spurious (Kleck 2016).

What *is* known that bears on this issue? A shooter armed with three magazines holding 10 rounds can fire 30 rounds, the same as a shooter armed with a single large-capacity magazine holding 30 rounds. The only effect of the shooter using smaller magazines is that it requires the shooter to reload more times. It has been established that U.S. mass shooters invariably use either multiple guns or multiple magazines, and usually both. Consequently, they do not need large-capacity magazines to fire large numbers of rounds with little or no interruption to reload (Kleck 2016). The unpublished master's thesis by Luke Dillon, cited by Donohue (see his fn. 90), does not in any way contradict this proposition, but merely documents once again the simple

statistical association between weapons used and harm inflicted, while doing nothing to rule out the possibility that it is totally spurious.

Paragraph 109.

In this paragraph, Donohue repeats the falsehood that “mass shooters seem to prefer using assault weapons” (p. 44). The previously cited evidence on the rarity of assault weapon use among mass shooters indicates that mass shooters do *not* prefer using “assault weapons,” and the evidence indicating that their use is unnecessary for hurting large numbers of victims (Kleck 2016) helps explain just why shooters intent on hurting many victims would have no preference for using these weapons.

Paragraph 110.

Donohue claims that assault weapons are especially dangerous to law enforcement officers because the rounds they fire are especially capable of penetrating body armor. If this really were the serious problem that Donohue argues it to be, one would expect him to cite statistics on the large numbers of officers killed with rounds fired from an assault weapon and penetrating body armor. He does not.

How big a problem is this for police? In 2016 there were over 421,000 full-time sworn officers in the U.S., and still more if one counted part-time officers. For the most recent 10 years of data available, 2008-2017, a total of 496 police officers were killed, 455 of them with guns. Only 22 of these, however, were killed because a round penetrated the officer’s body armor, and only some unknown fraction of these few shootings involved “assault weapons” (U.S. Federal Bureau of Investigation 2018, Tables 35-39). Thus, at most two officers per year, out of 421,000-plus officers at risk, are killed by a round fired from an “assault weapon” that penetrated the officer’s body armor. All but one of these deaths involved use of a rifle, but not necessarily an “assault rifle.” Only one involved any kind of a handgun.

As to rifles, it may be true that rounds fired from some banned “assault rifles” are “capable of penetrating the soft body armor customarily worn by law enforcement” (p. 45), but Donohue fails to explain whether non-“assault rifles” can also penetrate such body armor. If they can, and Donohue provides no basis for believing they cannot, offenders would still be able to use rifles to inflict armor-penetrating wounds on law enforcement officers even in the complete absence of “assault rifles.” Consequently, it is not clear whether *any* police deaths can be attributed to the availability of “assault weapons,” or would be prevented by AWBs.

Paragraph 112.

Donohue claims that the federal AWB reduced criminal use of “assault weapons,” relying on a report produced by a gun control advocacy group (see his fn. 97). Leaving aside the dubious practice of relying on a propaganda document, this assertion is extremely misleading. The term “assault weapons” in this context referred to the specific firearms banned by the federal AWB. Donohue’s claim is misleading because, although fewer criminals used *the specific guns banned by the AWB* while it was in effect, they also substituted mechanically

identical *unbanned* semiauto firearms that could be fired just as fast, could also accept easily changed detachable magazines, and were just as lethal as the banned guns. Consequently, reduced use of the banned models of firearms did not produce any reduction in the number or seriousness of violent crimes (Koper 2004, pp. 5, 10-11, 92-96).

Donohue also commits a rudimentary research error, drawing conclusions about trends in the use of “assault weapons” in crime based on firearms trace data from the Bureau of Alcohol, Tobacco, and Firearms (ATF) (p. 46). One could only use trace data to judge the prevalence of AW use in crime, or trends in this prevalence, if the guns traced were a representative sample of all firearms used in crime. They are not. As ATF itself explicitly states in a caveat to readers of their firearms trace reports: “Firearms selected for tracing are not chosen for purposes of determining which types, makes or models of firearms are used for illicit purposes. The firearms selected do not constitute a random sample and should not be considered representative of the larger universe of all firearms used by criminals, or any subset of that universe.” (U.S. Bureau of Alcohol, Tobacco, Firearms, and Explosives 2018, p. 2).

Paragraph 113.

In this paragraph Donohue asserts that mass killers have an especially powerful desire to have and use an “assault weapon,” but in light of how few mass killers use such weapons, it would be more accurate to only say that mass killers have especially strong motivations to obtain and use *some* kind of firearm, not necessarily an “assault weapon.” By far the most common type of firearm used by mass shooters is a semiautomatic pistol (Krouse and Richardson 2015; Koper 2004).

Further, Donohue fails to draw the most obvious implication of mass shooters’ powerful motivations to obtain firearms: they are precisely the kinds of criminals *least* likely to be blocked from obtaining firearms by laws like California’s AWB, and most likely to seek substitutes for the banned weapons. AWBs only prohibit a tiny select subset of firearms while leaving available a wide variety of firearms that function identically to “assault weapons,”—able to accept detachable magazines and capable of the same rate of fire—remain available to would-be mass shooters (Kleck 1997, pp. 110-117).

Dated: November 21, 2018



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Table 1. Recent Trends in U.S. Gun Ownership (Percent of Households Reporting Guns) – A Comparison of Results from the Gallup Poll vs. Those of the General Social Surveys

<u>Year</u>	<u>Gallup</u>	<u>GSS</u>
1997	42	
1998		34.9
1999	35*	
2000	42*	32.5
2001	40	
2002	44	34
2003	43	
2004	40	38
2005	43	
2006	43	36
2008	42	35
2009	40	
2010	41	34
2011	47	
2012	36	34
2013	36	
2014	44	32
2016	40	32
2017	43	

* Average of two surveys conducted in the same year.

Source: Roper iPoll online database of survey results.

Table 2. The Size of the Cumulated Civilian Gun Stock, 1986-2014

Year	Net Additions to Stock			Cumulated Stock		Guns/1000 pop	
	Handguns	Long guns	Total	Handguns	Total	Handguns	Total
1986	1,538,080	2,178,190	3,540,637	63,959,072	194,196,773	266.3	808.7
1987	1,842,145	2,668,607	4,323,951	65,801,217	198,522,724	271.6	819.4
1988	2,234,883	2,604,824	4,830,214	68,036,100	203,352,938	278.3	831.7
1989	2,353,087	2,769,701	5,113,576	70,389,187	208,466,514	285.2	844.6
1990	2,109,394	2,224,544	4,318,410	72,498,581	212,784,924	290.4	852.4
1991	1,941,977	1,930,422	3,837,827	74,440,558	216,622,751	294.3	856.3
1992	2,802,490	3,675,942	6,469,113	77,243,048	223,091,864	301.1	869.7
1993	3,880,773	3,878,055	7,756,056	81,123,821	230,847,920	312.1	888.2
1994	3,324,238	3,316,541	6,634,310	84,448,059	237,482,230	320.9	902.5
1995	2,199,420	2,712,789	4,902,135	86,647,479	242,384,365	325.4	910.3
1996	1,820,847	2,569,347	4,378,347	88,468,326	246,762,704	328.4	916.0
1997	1,772,849	2,469,663	4,289,499	90,241,175	251,052,203	331.0	920.8
1998	1,727,548	2,716,952	4,464,837	91,968,723	255,517,040	333.4	926.3
1999	1,556,003	3,124,416	4,683,654	93,524,726	260,200,694	335.2	932.5
2000	1,205,095	2,391,755	3,596,850	94,729,821	263,797,552	335.6	934.7
2001	882,166	1,867,508	2,749,674	95,611,987	266,547,226	335.1	934.2
2002	1,995,332	3,117,157	5,112,489	97,607,319	271,659,715	338.9	943.3
2003	1,923,026	2,625,708	4,548,734	99,530,345	276,208,449	342.3	949.8
2004	1,828,395	2,952,787	4,781,182	101,358,740	280,989,631	345.9	958.9
2005	1,883,511	2,974,636	4,858,147	103,242,251	285,847,778	349.1	966.5
2006	2,358,631	3,095,672	5,454,303	105,600,882	291,302,081	353.7	976.4
2007	2,914,690	3,344,090	6,258,280	108,515,572	297,560,361	359.8	986.7
2008	3,165,183	3,155,843	6,321,026	111,680,755	303,881,387	366.9	998.4
2009	4,514,639	3,855,386	8,370,025	116,195,394	312,251,412	378.5	1,017.1
2010	4,402,181	2,761,267	7,163,448	120,597,575	319,414,860	388.7	1,029.6
2011	4,752,010	4,573,483	9,497,402	125,349,585	328,912,262	402.3	1,055.6
2012	6,634,485	6,210,392	13,135,646	131,984,070	342,047,908	420.5	1,089.8
2013	8,073,647	7,445,169	16,031,210	140,057,717	358,079,118	443.0	1,132.7
2014	6,695,705	5,506,759	12,202,524	146,753,482	370,281,642	481.9	1,196.1

Source: U.S. Bureau of Alcohol, Tobacco and Firearms, Firearms Commerce in the United States: Annual Statistical Update 2017. Available online at <https://www.atf.gov/resource-center/data-statistics>.

Notes: Net Additions to Stock equal the number of firearms manufactured minus number exported plus number imported, as of the end of the calendar year. Totals manufactured exclude firearms made for the U.S. military but include guns purchased by domestic law enforcement agencies. Import figures prior to 1992 covered Fiscal years; these figures have been treated as if they apply to the corresponding calendar year. Import figures for 1992 covered five quarters because this was a transitional year from the fiscal year period to the calendar year period; they were treated as if they pertained to calendar year 1992. "Total" columns include gun types not

separately tabulated in the Handguns and Longguns categories. “Handguns” figures encompass pistols and revolvers, while “Longguns” figures encompass rifles, shotguns, and combination guns.

Table 3. Recent Trends in Mass Shootings (4 or More Victims Killed), 2013-2017

<u>Year</u>	<u>Number of Incidents</u>
2013	25
2014	20
2015	26
2016	25
2017	24

Annual average = 24

Source: Gun Violence Archive, at www.shootingtracker.com, accessed 1-20-18. Note that this source does not cover any period before 2013.

Rebuttal of Expert Report of Lucy P. Allen

As with my rebuttal of the Donohue expert report, I have organized my rebuttal of Lucy Allen's report according to her numbering of paragraphs.

Paragraph 8.

Allen narrowly focuses her analysis on just one tiny subset of firearms crimes, mass shootings, and within that subset an even smaller subset of that subset, *public* mass shootings. She claims she did this because "it is my understanding that the state of California is concerned about public mass shootings and enacted the challenged laws, in part, to address the problem of public mass shootings" (p. 4). This justification is illogical. The fact that the State of California is concerned about public mass shootings does not mean it is not concerned with all the other shootings that do not fall into this narrow category. Further, her own statement concedes that California's "assault weapons" ban (AWB) was enacted only "in part" to address these kinds of shootings, and thus must have also been based on concerns about other kinds of gun violence. Certainly, Allen does not cite any California legislators who stated they were concerned about large-scale murders committed in public places but not those committed elsewhere. People murdered in public places are just as dead as those murdered in private places, so policymakers in California, like those elsewhere are undoubtedly concerned about criminal violence regardless of where it occurs. Thus, her proffered explanation does not justify her narrow focus. It will be shown later that the narrowness of her focus produces some highly misleading results.

First, it should be made clear just how narrow her focus is. Less than 1% of all U.S. murder victims are killed in *any* kind of a mass shooting, regardless of location or other attributes. A Congressional Research Service (CRS) study covering 1999-2013 found that 1,554 victims were killed in all mass shootings (Krouse and Richardson 2015, p. 14), a period for which FBI data indicated that there were 237,524 persons murdered (U.S. FBI 2013). Thus, only 2/3rds of one percent of all murders were committed as part of a mass shooting of any kind ($1,554/237,524=0.0065$). Second, even within this tiny subset of killings, only 20.8% of mass shooting incidents were *public* mass shootings (Krouse and Richardson 2015, p. 29). The 446 victims killed in public mass shootings therefore accounted for 0.00188 of U.S. murder victims, or just 1 in 533 victims. Thus, public mass shootings contribute an even tinier share of firearms violence than mass shootings as a whole. Allen's focus on this set of killings cannot be justified on the basis of their claiming a big part of America's violence problem.

The main consequence of this narrow focus is that it allows Allen to claim that a large share of killings involve use of "assault weapons" (AWs) or large capacity magazines (LCMs). AWs and LCMs are of little or no significance in ordinary gun violence crimes with few victims and few shots fired (Kleck 1997, pp. 121-128; 2016), but advocates of LCM restrictions claim that their benefit is most likely to lie within the set of mass shootings, where many shots are fired and LCMs supposedly increase the casualty count. However, even within this subset of violent crimes – mass shootings as a whole - LCMs are rarely involved (Kleck 2016). The Violence Policy Center (2018), which advocates bans on LCMs, was able to identify only 49 incidents with four or more dead (excluding the shooter) over the 38 year period from 1980 to 2017 that involved LCMs, or less than 1.3 per year (note that this organization inflated their numbers

somewhat by including incidents involving only three dead victims besides the shooter and by counting shooters in their victims-killed totals). The shootings with four or more dead accounted for 534 murdered victims, or about 14 per year. Over this same period, the FBI (2017) reports a total of 704,651 murders (assuming the same number of murders in 2017 as in 2016). Thus, mass shootings (4+ dead) known to involve LCMs accounted for just 0.000758 of murder victims, or $1/13^{\text{th}}$ of one percent (Kleck 2016).

Public mass shootings account for an even smaller fraction of U.S. homicide deaths, but are far more likely to involve “assault weapons” or LCMs than other mass shootings. The Congressional Research Service found that only 9.78% of *all* mass shootings in 1999-2013 involved “assault weapons,” but in the minority of incidents that were *public* mass shootings, 27.3% (18 of 66) involved use of “assault weapons” (Krouse and Richardson 2015, p. 29). In sum, it is only within the tiny subset of *public* mass shootings in which a nonnegligible share involve use of LCMs. Limiting her analysis to these extremely rare and unrepresentative shootings thereby allows Allen to report misleadingly high shares of the incidents as involving AWs or LCMs, as she does in her Paragraph 10.

Paragraph 9-11.

Allen asserts that a large share of public mass shootings involve AWs and/or LCMs, and states that her analyses were based on two sources, a dataset compiled by the staff of Mother Jones magazine, and one compiled by the Citizens Crime Commission of New York City – both of which were confined to shootings in public places. While this is certainly consistent with Allen’s artificially constricted focus, it is not useful for assessing the claimed benefits of California’s AWB since it fails to cover the vast majority of mass shootings, as well as over 99% of all homicides.

Paragraphs 12 and 13.

Allen reports that casualty counts were higher in mass public shootings in which AWs, or more specifically “assault rifles” (as defined in the California AWB), than in incidents not involving such weapons, but does not offer any explanation of why this is so, or why the reader should believe that it was the use of these types of firearms that caused higher casualty counts. For example, why should use of a semiauto rifle of a type banned by California result in more casualties than use of a functionally identical semiauto rifle capable of equally rapid fire and also capable of accepting detachable magazines that was not banned under the California AWB? After all, neither this law nor any other AWBs banned all semiauto firearms (or all semiauto rifles) capable of accepting detachable magazines, and many other models of firearms capable of firing the same number of rounds at the same pace as the banned models continued to be legally available after implementation of the AWBs (Koper 2004).

It has already been noted, in an article Allen cites (Kleck 2016; see Allen’s fn. 9 and 11), that the crude bivariate association between LCM or AW use and casualty counts is at least partially and possibly entirely spurious, i.e. *not* causal in nature. One would expect to find this statistical association even if use of LCMs or AWs had no effect at all on how many people a mass shooter killed or injured. This is due to two facts that neither Allen nor any other scholar

known to me has disputed. (1) First, the lethality of the shooter's intentions (i.e., how badly he wants to hurt many people) affects how many people he will in fact hurt. (2) Second, the more lethal the shooter's intentions, the more likely it is that he will use weaponry he believes is suited to the task, whether or not the weaponry actually does facilitate hurting large numbers of people. The first statement is a virtual tautology, not subject to serious dispute. The second statement is supported by accounts of mass shootings with high death tolls, which "routinely describe the shooters making elaborate plans for their crimes, well in advance of the attacks, and stockpiling weaponry and ammunition," including multiple firearms such as "assault rifles," multiple magazines, and larger capacity magazines (Kleck 2016, p. 31; see this source for numerous supporting citations).

Allen does nothing to address the possibility that these associations are spurious, and thus has no basis concluding that use of AWs or LCMs has any causal effect on the numbers of people killed or wounded in mass public shootings, or any other kind of shooting. If their use does not affect the number of casualties, there is no mass shooting-based justification for banning them.

Paragraph 14.

Allen claims that 59-66% of the public mass shootings "considered in this analysis" involved magazines holding more than 10 rounds. The only reason these percentages are so high, however, is because the two sources on which she relied effectively preselected for analysis small, unrepresentative subsets of mass shootings in which LCM use was more common. More meaningful analysis of *all* mass shootings indicates that LCMs are rarely used. Based on data compiled in the Gun Violence Archive, the U.S. experienced a total of 120 incidents in which four or more victims were shot dead (without regard to location) from 2013 through 2017 (see Table 3 in rebuttal of Donohue report). Of these, just 10 incidents (8%) were known to involve magazines holding more than 10 rounds (Violence Policy Center 2018).

Allen creates an impression that LCMs are used in a large share of mass shootings through a combination of dubious tactics. First, she dropped the FBI definition of mass shootings as involving four or more dead, justifying this procedure by alleging some undocumented "change in the federal definition of a mass shooting" (p. 4), and substituted a criterion of *three*-or-more dead. She does not provide any supporting evidence for this supposed change in the "federal definition." In any case, describing an incident in which as few as three people are shot as a "mass shooting" hardly seems to accord with either popular usage or the way the term is typically used in the news media.

Second, and even more dubiously, she includes *offenders* in her count of "victims" shot, thereby qualifying incidents as mass shootings that did not even involve three deaths of persons who could legitimately be defined as victims. Her "mass shootings" could involve as few as just *two* dead victims, plus a dead offender. She provides no evidence whatsoever, or even argumentation, that LCMs would be necessary or even helpful for shooting as few as two victims. This is not a trivial matter – for 2013-2017, of 33 public "mass" shootings included in Allen's Appendix B dataset, 36% (n=12) involved fewer than four victims. Five of the incidents did not involve four total victims even if one included those nonfatally shot. Using such a low

victim count threshold, however, allowed Allen to greatly inflate the number of LCM-involved mass shootings.

Third, Allen radically reduced the total count of mass shootings (the denominator in the percent of incidents that involved an LCM) through her arbitrary focus on just those few that occurred in public places. For example, for the 2013-2017 for which we have fairly complete data from the Gun Violence Archive, there were at least 120 total shooting incidents with four or more dead victims (see Table 3 in rebuttal of Donohue report), yet Allen's Appendix B shows that she analyzed only 33 incidents that she labeled *public* mass shootings. Further, only 21 of these involved four or more dead victims, which would constitute just 17.5% of all shootings in that period known to involve four or more dead victims.

To be sure, it is trivially true that one can easily identify a subset of killings in which a large share involved LCMs. Indeed, one could identify a subset in which 100% of the incidents involved LCMs, simply by preselecting cases with certain circumstances already known to involve LCMs. No serious policy-making or scholarly purpose, however, can be served by such a stratagem.

Finally, after checking on all Allen's Appendix B incidents that occurred in 2013-2017, I found that her claims that the incidents numbered 10, 30, and 35 involved LCMs cannot be confirmed by news accounts, either those cited in her two sources or in any I located using the Newsbank database. For incidents 10 and 30, none of the sources I checked made any mention of the capacities of magazines used by the shooter. And for incident number 35, the Orange County Register (May 28, 2014) explicitly reported that the "shooter used 10-round magazines." Confirming the suspicion that these cases did not actually involve use of LCMs, none of these three incidents were included in the compilation of LCM-involved mass shootings maintained by the Violence Policy Center (2018), an organization that advocates stricter gun control.

After one (1) eliminates incidents that were not really mass shootings (based on the common 4+ fatalities criterion), (2) excludes incidents that had four dead victims only if one counted offenders as victims, and (3) eliminates the incidents that, as far as can be determined from news accounts, did not really involve LCMs, we are left with only 10 genuine mass public shootings that involved LCMs in 2013-2017 – two per year. These constitute just 8.3% of all mass shootings (4+ dead) committed in 2013-2017 – only a tenth the 83% figure Allen reports (p. 6) for public mass shootings in 1982-2018. In sum, mass shooters in America rarely use LCMs.

Paragraphs 15-19.

The same problem afflicts Allen's discussions of higher casualty counts and rounds fired in mass shootings with LCMs (or both LCMs and AWs) that characterized her discussion of "assault weapons" (see discussion of her paragraphs 12 and 13). For what it's worth, there is indeed a simple bivariate association between LCM use and casualty counts, but neither Allen nor anyone else has established a basis in empirical research for believing that LCM use *causes* higher casualty counts rather than merely serving as an outward indicator that the shooter intended to hurt many people. There is no extant information known to me that establishes that

this correlation is anything more than a spurious association. As far as we know, shooters using LCMs, or LCM and “assault weapons,” fire more rounds and kill or injure more victims because (1) they *want* to hurt more people, and (2) they prepare for doing so by acquiring the equipment they believe, correctly or not, will help them do that – not because of the firearms and magazines they used.

The rationales offered by supporters of bans on LCMs for why LCM use purportedly affects casualty counts in mass shootings are inconsistent with what research has revealed about mass shootings. Use of LCMs has no effect on the total number of rounds a would-be mass shooter can bring to the scene of his crime – a shooter with three 10-round magazines obviously has just as many rounds to fire as one with a 30-round magazine. The real difference between two such shooters is that the one with three smaller magazines would need to reload twice to fire 30 rounds, while the one with the LCM would not need to reload at all. LCM bans that prevented at least some prospective mass shooters from acquiring LCMs would therefore force affected shooters to reload more often than if they had obtained LCMs. How, then, is this need to reload relevant to casualty counts in mass shootings?

Supporters of LCM bans offer two explanations of why more reloading by prospective mass shooters would save lives. First, they claim that when shooters pause to reload it offers a somewhat safer opportunity for bystanders to tackle the shooter and thereby prevent any further inflicting of harm. The more times the shooter must reload, they contend, the more such opportunities there would be. Second, they claim that additional pauses to reload could lengthen the time available for prospective victims to escape to safety (Kleck 2016).

The problems with these rationales is that (1) bystanders to U.S. mass shootings have virtually never tackled mass shooters using semiauto guns with detachable magazines – at most just once in the U.S. over the entire 20-year period from 1994 through 2013 (in an incident that did not occur in California), and (2) reloading does not actually lengthen the time available for prospective victims to escape. Mass shooters almost always take longer between shots, even when *not* reloading, than it takes to reload a detachable magazine – about 2 to 4 seconds. In other words, the few seconds it takes to reload does not slow mass shooters’ firing because they typically fire fairly slowly even when not reloading (Kleck 2016).

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Further, all known mass shooters (more than 6 persons shot, fatally or nonfatally) in the U. S., regardless of where their crimes took place, used either multiple magazines or multiple guns, and usually both. This means that even if they had no LCMs (or banned semiauto firearms), they could still fire many rounds with little or no interruption that might allow either bystander intervention or more victims to escape (Kleck 2016). In sum, empirical information about the way that mass shootings actually occur in the U.S. contradicts advocates' claims about how LCM use increases casualty counts and why LCM bans would reduce casualty counts. The absence of any known mechanism by which LCM use could cause higher casualty counts in mass shootings strongly suggests that the associations between LCM use and casualty counts cited by Allen are indeed spurious, i.e. do not reflect causal effects.

Dated: November 21, 2018



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EXHIBIT 1

CURRICULUM VITAE

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PERSONAL

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CURRENT POSITION

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COURTESY APPOINTMENT

Courtesy Professor, College of Law, Florida State University

PROFESSIONAL MEMBERSHIPS

American Society of Criminology

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EDUCATION

A.B. 1973 - University of Illinois, with High Honors and with Distinction in Sociology

A.M. 1975 - University of Illinois at Urbana, in Sociology
Ph.D. 1979 - University of Illinois at Urbana, in Sociology

ACADEMIC HONORS

National Merit Scholar, 1969
Freshman James Scholar, University of Illinois, 1969
Graduated from University of Illinois with High Honors and with Distinction in Sociology, 1973
University of Illinois Foundation Fellowship in Sociology, 1975-76
1993 Winner of the Michael J. Hindelang Award of the American Society of Criminology, for the book that made "the most outstanding contribution to criminology" (for Point Blank: Guns and Violence in America).
Awarded Named Professorship, Florida State University, 2012.
Nominated for University Teaching Award, Florida State University, 2014.
Paper of the Year awarded by Criminal Justice Review for "Does Gun Control Reduce Crime?," Volume 4, pp. 488-513 (2016).

TEACHING POSITIONS

Fall, 1991 to May 2016	Professor, College of Criminology and Criminal Justice, Florida State University
Fall, 1984 to Spring, 1991	Associate Professor, School of Criminology, Florida State University.
Fall, 1979 to Spring, 1984	Assistant Professor, School of Criminology, Florida State University.
Fall, 1978 to Spring, 1979	Instructor, School of Criminology, Florida State University.

COURSES TAUGHT

Criminology, Applied Statistics, Regression, Introduction to Research Methods, Law Enforcement, Research Methods in Criminology, Guns and Violence, Violence Theory Seminar, Crime Control, Assessing Evidence, Survey Research, Research Design and

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DISSERTATION

Homicide, Capital Punishment, and Gun Ownership: An Aggregate Analysis of U.S. Homicide Trends from 1947 to 1976. Department of Sociology, University of Illinois, Urbana. 1979.

PUBLICATIONS (sole author unless otherwise noted)

BOOKS

1991, Point Blank: Guns and Violence in America. Hawthorne, N.Y.: Aldine de Gruyter. Winner of the 1993 Michael J. Hindelang award of the American Society of Criminology. Republished in 2005 in paperback by Transaction Publishers.

Reviewed in Contemporary Sociology, American Journal of Sociology, Social Forces, Journal of Criminal Law and Criminology, The Criminologist, The Public Interest, Criminal Law Forum, Social Science Review, Criminal Justice Abstracts, Crime, Criminal Justice and Law Enforcement, Newsletter of Public Policy Currents, Commonweal, Choice, and others.

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- 1984 Review of Under the Gun, by James Wright et al. Contemporary Sociology 13:294-296.
- 1984 Review of Social Control, ed. by Jack Gibbs. Social Forces 63: 579-581.
- 1985 Review of Armed and Considered Dangerous, by James Wright and Peter Rossi, Social Forces 66:1139-1140.
- 1988 Review of The Citizen's Guide to Gun Control, by Franklin Zimring and Gordon Hawkins, Contemporary Sociology 17:363-364.
- 1989 Review of Sociological Justice, by Donald Black, Contemporary Sociology 19:261-3.
- 1991 Review of Equal Justice and the Death Penalty, by David C. Baldus, George G. Woodworth, and Charles A. Pulaski, Jr. Contemporary Sociology 20:598-9.
- 1999 Review of Crime is Not the Problem, by Franklin E. Zimring and Gordon Hawkins. American Journal of Sociology 104(5):1543-1544.
- 2001 Review of Gun Violence: the Real Costs, by Philip J. Cook and Jens Ludwig. Criminal Law Bulletin 37(5):544-547.
- 2010 Review of Homicide and Gun Control: The Brady Handgun Violence Prevention

Act and Homicide Rates, by J. D. Monroe. Criminal Justice Review 35(1):118-120.

LETTERS PUBLISHED IN SCHOLARLY JOURNALS

- 1987 "Accidental firearm fatalities." American Journal of Public Health 77:513.
- 1992 "Suicide in the home in relation to gun ownership." The New England Journal of Medicine 327:1878.
- 1993 "Gun ownership and crime." Canadian Medical Association Journal 149:1773-1774.
- 1999 "Risks and benefits of gun ownership." Journal of the American Medical Association 282:136.
- 2000 (with Thomas Marvell) "Impact of the Brady Act on homicide and suicide rates." Journal of the American Medical Association 284:2718-2719.
- 2001 "Violence, drugs, guns (and Switzerland)." Scientific American 284(2):12.
- 2002 "Doubts about undercounts of gun accident deaths." Injury Prevention Online (September 19, 2002). Published online at <http://ip.bmjournals.com/cgi/eletters/8/3/252>.
- 2005 "Firearms, violence, and self-protection." Science 309:1674. September 9, 2005.

UNPUBLISHED REPORT

- 1987 Violence, Fear, and Guns at Florida State University: A Report to the President's Committee on Student Safety and Welfare. Reports results of campus crime victimization survey and review of campus police statistics on gun violence (32 pages).

RESEARCH FUNDING

- 1994 "The Impact of Drug Enforcement on Urban Drug Use Levels and Crime Rates." \$9,500 awarded by the U.S. Sentencing Commission.
- 1997 "Testing a Fundamental Assumption of Deterrence-Based Crime Control Policy." \$80,590 awarded by the Charles E. Culpeper Foundation to study the link between actual and perceived punishment levels.

PRESENTED PAPERS

- 1976 "Firearms, homicide, and the death penalty: a simultaneous equations analysis." Presented at the annual meetings of the Illinois Sociological Association, Chicago.
- 1979 "The assumptions of gun control." Presented at the Annual Meetings of the American Sociological Association, New York City.
- 1981 "Lethality comparisons between handguns and weapons which might be substituted in assault if handguns were prohibited." Presented at the Annual Meetings of the American Society of Criminology, Washington, D.C.
- 1982 "Life support for ailing hypotheses: Modes of summarizing the evidence on racial discrimination." Presented at the Annual Meetings of the American Society of Criminology, Toronto.
- 1984 "Policy lessons from recent gun control research." Presented at the Duke University Law School Conference on Gun Control.
- 1985 "Policy lessons from recent gun control research." Presented at the Annual Meetings of the American Society of Criminology, San Diego.
- 1986 "Miscounting suicides." Presented at the Annual Meetings of the American Sociological Association, Chicago.
- 1987 (with Theodore G. Chiricos, Michael Hays, and Laura Myers) "Unemployment and crime: a comparison of motivation and opportunity effects." Annual meetings of the American Society of Criminology, Montreal.
- 1988 "Suicide, guns and gun control." Presented at the Annual Meetings of the Popular Culture Association, New Orleans.
- 1988 (with Susan Sayles) "Rape and resistance." Presented at the Annual Meetings of the American Society of Criminology, Chicago, Ill.
- 1989 (with Karen McElrath) "The impact of weaponry on human violence." Presented at the Annual Meetings of the American Sociological Association, San Francisco.
- 1989 (with Britt Patterson) "The impact of gun control and gun ownership levels on city violence rates." Presented at the Annual Meetings of the American Society of Criminology, Reno.
- 1990 "Guns and violence: a summary of the field." Presented at the Annual Meetings of the American Political Science Association, Washington, D.C.

- 1991 "Victim resistance and weapons effects in robbery." Presented at the Annual Meetings of the American Society of Criminology, San Francisco.
- 1991 "News media bias in covering gun control issues." Presented at the Annual Meetings of the American Society of Criminology, San Francisco.
- 1992 "Interrupted time series designs: time for a re-evaluation." Presented at the Annual Meetings of the American Society of Criminology, New Orleans.
- 1993 (with Chester Britt III and David J. Bordua) "The emperor has no clothes: Using interrupted time series designs to evaluate social policy impact." Presented at the Annual Meetings of the American Society of Criminology, Phoenix.
- 1993 "Crime, culture conflict and support for gun laws: a multi-level application of the General Social Surveys." Presented at the Annual Meetings of the American Society of Criminology, Phoenix.
- 1994 (with Marc Gertz) "Armed resistance to crime: the prevalence and nature of self-defense with a gun." Presented at the Annual Meetings of the American Society of Criminology, Miami.
- 1995 (with Tom Jordan) "The impact of drug enforcement and penalty levels on urban drug use levels and crime rates." Presented at the Annual Meetings of the American Society of Criminology, Boston.
- 1996 (with Michael Hogan) "A national case-control study of homicide offending and gun ownership." Presented at the Annual Meetings of the American Society of Criminology, Chicago.
- 1997 "Evaluating the Brady Act and increasing the utility of BATF tracing data." Presented at the annual meetings of the Homicide Research Working Group, Shepherdstown, West Virginia.
- 1997 "Crime, collective security, and gun ownership: a multi-level application of the General Social Surveys." Presented at the Annual Meetings of the American Society of Criminology, San Diego.
- 1998 (with Brion Sever and Marc Gertz) "Testing a fundamental assumption of deterrence-based crime control policy." Presented at the Annual Meetings of the American Society of Criminology, Washington, D.C.
- 1998 "Measuring macro-level gun ownership levels." Presented at the Annual Meetings of the American Society of Criminology, Washington, D.C.
- 1999 "Can owning a gun really triple the owner's chances of being murdered?" Presented at the Annual Meetings of the American Society of Criminology,

Toronto.

- 2000 "Absolutist politics in a moderate package: prohibitionist intentions of the gun control movement." Presented at the Annual Meetings of the American Society of Criminology, San Francisco.
- 2001 (with Tomislav V. Kovandzic) "The impact of gun laws and gun levels on crime rates." Presented at the Annual Meetings of the American Society of Criminology, Atlanta.
- 2001 "Measures of gun ownership levels for macro-level violence research." Presented at the Annual Meetings of the American Society of Criminology, Atlanta.
- 2002 "The effects of gun ownership levels and gun control laws on urban crime rates." Presented at the Annual Meetings of the American Society of Criminology, Chicago.
- 2003 (with Tomislav V. Kovandzic) "The effect of gun levels on violence rates depends on who has them." Presented at the Annual Meetings of the American Society of Criminology, Denver.
- 2003 (with Kyubeom Choi) "Filling in the gap in the causal link of deterrence." Presented at the Annual Meetings of the American Society of Criminology, Denver.
- 2004 (with Tomislav Kovandzic) "Do violent crime rates and police strength levels in the community influence whether individuals own guns?" Presented at the Annual Meetings of the American Society of Criminology, Nashville.
- 2004 (with Jongyeon Tark) "Resisting crime: the effects of victim action on the outcomes of crime." Presented at the Annual Meetings of the American Society of Criminology, Nashville.
- 2004 (with Jongyeon Tark) "The impact of self-protection on rape completion and injury." Presented at the Annual Meetings of the American Society of Criminology, Nashville.
- 2004 (with Kyubeom Choi) "The perceptual gap phenomenon and deterrence as psychological coercion." Presented at the Annual Meetings of the American Society of Criminology, Nashville.
- 2005 (with Jongyeon Tark) "Who resists crime?" Presented at the Annual Meetings of the American Society of Criminology, Toronto.
- 2005 (with Jongyeon Tark and Laura Bedard) "Crime and marriage." Presented at the Annual Meetings of the American Society of Criminology, Toronto.

- 2006 (with Shun-Yang Kevin Wang) “Organized gun trafficking, ‘crime guns,’ and crime rates.” Presented at the Annual Meetings of the American Society of Criminology, Los Angeles.
- 2006 “Are police officers more likely to kill black suspects?” Presented at the Annual Meetings of the American Society of Criminology, Los Angeles.
- 2007 (with Shun-Yang Kevin Wang) “The myth of big-time gun trafficking. ”Presented at the Annual Meetings of the American Society of Criminology, Atlanta.
- 2007 (with Marc Gertz and Jason Bratton) “Why do people support gun control?” Presented at the Annual Meetings of the American Society of Criminology, Atlanta.
- 2008 (with J.C. Barnes) “Deterrence and macro-level perceptions of punishment risks: Is there a “collective wisdom?” Presented at the Annual Meetings of the American Society of Criminology, St. Louis.
- 2009 “The myth of big-time gun trafficking.” Presented at UCLA Law Review Symposium, “The Second Amendment and the Right to Bear Arms After DC v. Heller.” January 23, 2009, Los Angeles.
- 2009 (with Shun-Yung Wang) “Employment and crime and delinquency of working youth: A longitudinal study of youth employment.” Presented at the Annual Meetings of the American Society of Criminology, November 6, 2009, Philadelphia, PA.
- 2009 (with J. C. Barnes) “Do more police generate more deterrence?” Presented at the Annual Meetings of the American Society of Criminology, November 4, 2009, Philadelphia, PA.
- 2010 (with J. C. Barnes) “Article productivity among the faculty of criminology and criminal justice doctoral programs, 2005-2009.” Presented at the annual Meetings of the American Society of Criminology, November 18, 2010, San Francisco, CA.
- 2010 (with Will Hauser) “Fear of crime and gun ownership.” Presented at the annual Meetings of the American Society of Criminology, November 18, 2010, San Francisco, CA.
- 2010 “Errors in survey estimates of defensive gun use frequency: results from national Internet survey experiments.” Presented at the annual Meetings of the American Society of Criminology, November 19, 2010, San Francisco, CA.
- 2010 (with Mark Faber and Tomislav Kovandzic) “Perceived risk, criminal

- victimization, and prospective gun ownership.” Presented at the annual Meetings of the American Society of Criminology, November 19, 2010, San Francisco, CA.
- 2011 (with Shun-young Wang) “The impact of job quality and career commitment on delinquency: conditional or universal?” Presented at the annual Meetings of the American Society of Criminology, November 17, 2011, Washington, D.C.
- 2011 (with Moonki Hong) “The short-term deterrent effect of executions on homicides in the United States, 1984-1998.” Presented at the annual Meetings of the American Society of Criminology, November 16, 2011, Washington, D.C.
- 2011 (with Kelly Roberts) “Which survey modes are most effective in getting people to admit illegal behaviors?” Presented at the annual Meetings of the American Society of Criminology, November 17, 2011, Washington, D.C.
- 2011 (with Will Hauser) “Pick on someone your own size: do health, fitness, and size influence victim selection?” Presented at the annual Meetings of the American Society of Criminology, November 18, 2011, Washington, D.C.
- 2011 (with Tomislav Kovandzic) “Is the macro-level crime/punishment association spurious?” Presented at the annual Meetings of the American Society of Criminology, November 18, 2011, Washington, D.C.
- 2012 (with Dylan Jackson) “Adult unemployment and serious property crime: a national case-control study.” Presented at the annual Meetings of the American Society of Criminology, November 15, 2012, Chicago, IL.
- 2013 (with Will Hauser) “Confidence in the Police and Fear of Crime: Do Police Force Size and Productivity Matter?” Presented at the annual Meetings of the American Society of Criminology, November 22, 2013, Atlanta, GA.
2013. (with Dylan Jackson) “Adult unemployment and serious property crime: a national case-control study.” Presented at the annual Meetings of the American Society of Criminology, November 22, 2013, Atlanta, GA.
- 2014 (with Dylan Jackson) “Does Crime Cause Punitiveness?” Presented at the annual Meetings of the American Society of Criminology, November 20, 2014, San Francisco, CA.
- 2015 “The effect of large capacity magazines on the casualty counts in mass shootings.” Presented at the annual Meetings of the American Society of Criminology, November 18, 2015, Washington, D.C.
- 2015 (with Bethany Mims) “Article productivity among the faculty of criminology and criminal justice doctoral programs, 2010-2014.” Presented at the annual Meetings of the American Society of Criminology, November 20, 2015,

Washington, D.C.

- 2016 “Firearms and the Lethality of Suicide Methods.” Presented at the annual Meetings of the American Society of Criminology, November 16, 2016, New Orleans, L.A.
- 2017 “Macro-level Research on the Effect of Firearms Prevalence on Suicide Rates: A Systematic Review and New Evidence.” Presented at the annual Meetings of the American Society of Criminology, November 15, 2017.

CHAIR

- 1983 Chair, session on Race and Crime. Annual meetings of the American Society of Criminology, Denver.
- 1989 Co-chair (with Merry Morash), roundtable session on problems in analyzing the National Crime Surveys. Annual meetings of the American Society of Criminology, Reno.
- 1994 Chair, session on Interrupted Time Series Designs. Annual meetings of the American Society of Criminology, New Orleans.
- 1993 Chair, session on Guns, Gun Control, and Violence. Annual meetings of the American Society of Criminology, Phoenix.
- 1995 Chair, session on International Drug Enforcement. Annual meetings of the American Society of Criminology, Boston.
- 1999 Chair, Author-Meets-Critics session, More Guns, Less Crime. Annual meetings of the American Society of Criminology, Toronto.
- 2000 Chair, session on Defensive Weapon and Gun Use. Annual Meetings of the American Society of Criminology, San Francisco.
- 2002 Chair, session on the Causes of Gun Crime. Annual meetings of the American Society of Criminology, Chicago.
- 2004 Chair, session on Protecting the Victim. Annual meetings of the American Society of Criminology, Nashville.

DISCUSSANT

- 1981 Session on Gun Control Legislation, Annual Meetings of the American Society of Criminology, Washington, D.C.
- 1984 Session on Criminal Sentencing, Annual Meetings of the American Society of

Criminology, Cincinnati.

- 1986 Session on Sentencing, Annual Meetings of the American Society of Criminology, Atlanta.
- 1988 Session on Gun Ownership and Self-protection, Annual Meetings of the Popular Culture Association, Montreal.
- 1991 Session on Gun Control, Annual Meetings of the American Statistical Association, Atlanta, Ga.
- 1995 Session on International Drug Enforcement, Annual Meetings of the American Society of Criminology, Boston.
- 2000 Session on Defensive Weapon and Gun Use, Annual Meetings of the American Society of Criminology, San Francisco.
- 2004 Author-Meets-Critic session on Guns, Violence, and Identity Among African-American and Latino Youth, by Deanna Wilkinson. Annual meetings of the American Society of Criminology, Nashville.
- 2007 Session on Deterrence and Perceptions, University of Maryland 2007 Crime & Population Dynamics Summer Workshop, Aspen Wye River Center, Queenstown MD, June 4, 2007.
- 2009 Session on Guns and Crime, at the DeVoe Moore Center Symposium On The Economics of Crime, March 26-28, 2009.
- 2012 Panel discussion of news media coverage of high profile crimes
Held at the Florida Supreme Court On September 24-25, 2012, sponsored by the Florida Bar Association as part of their 2012 Reporters' Workshop.

PROFESSIONAL SERVICE

Editorial consultant -

- American Sociological Review
- American Journal of Sociology
- Social Forces
- Social Problems
- Law and Society Review
- Journal of Research in Crime and Delinquency
- Social Science Research
- Criminology
- Journal of Quantitative Criminology
- Justice Quarterly
- Journal of Criminal Justice

Violence and Victims
Violence Against Women
Journal of the American Medical Association
New England Journal of Medicine
American Journal of Public Health
Journal of Homicide Studies

Grants consultant, National Science Foundation, Sociology Program.

Member, Gene Carte Student Paper Committee, American Society of Criminology, 1990.

Area Chair, Methods Area, American Society of Criminology, annual meetings in Miami, November, 1994.

Division Chair, Guns Division, American Society of Criminology, annual meetings in Washington, D.C., November, 1998.

Dissertation evaluator, University of Capetown, Union of South Africa, 1998.

Division Chair, Guns Division, American Society of Criminology, annual meetings in Washington, D.C., November, 1999.

Member of Academy of Criminal Justice Sciences selection committee for Editor of Justice Quarterly, 2007.

Outside reviewer of Dr. J. Pete Blair for promotion to Full Professor in the School of Criminal Justice at Texas State University, San Marcos, 2014.

UNIVERSITY SERVICE

Member, Master's Comprehensive Examination Committee, School of Criminology, 1979-1982.

Faculty Advisor, Lambda Alpha Epsilon (FSU chapter of American Criminal Justice Association), 1980-1988.

Faculty Senate Member, 1984-1992.

Carried out campus crime survey for President's Committee on Student Safety and Welfare, 1986.

Member, Strategic Planning and Budgeting Review Committee for Institute for Science and Public Affairs, and Departments of Physics and Economics, 1986.

Chair, Committee on Ph.D. Comprehensive Examination in Research Methods, School of Criminology, Summer, 1986.

Member, Committee on Ph.D. Comprehensive Examination in Research Methods, School of Criminology, Summer, 1986 to present.

Chair, Committee on Graduate Assistantships, School of Criminology, Spring, 1987.

Chair, Ad Hoc Committee on Computers, School of Criminology, Fall, 1987.

Member, Recruitment Committee, School of Criminology, Spring, 1988; Spring, 1989; and 1989-90 academic year.

Member, Faculty Senate Committee on Computer-Related Curriculum, Spring, 1988 to Fall, 1989.

Chair, Ad Hoc Committee on Merit Salary Distribution, School of Criminology, Spring, 1988.

Chair, Ad Hoc Committee on Enrollment Strains, Spring, 1989.

Member, Graduate Handbook Committee, School of Criminology, Spring, 1990.

Member, Internal Advisement Committee, School of Criminology Spring, 1990.

University Commencement Marshall, 1990 to 1993.

Member, School of Criminology and Criminal Justice Teaching Incentive Program award committee.

Chair, Faculty Recruitment Committee, School of Criminology and Criminal Justice, 1994-1995.

Chair, Committee on Ph.D. Comprehensive Examination in Research Methods, School of Criminology and Criminal Justice, 1994-1995.

Member, University Computer and Information Resources Committee, 1995-1998.

Member, University Fellowship Committee, 1995 to present.

Member, University Library Committee, 1996 to 1999.

Chair, Electronic Access Subcommittee, University Library Committee, 1998 to 1999.

Member, Ad Hoc Committee on Merit Salary Increase Allocation, School of Criminology and Criminal Justice, 1998-1999.

Member, Academic Committee, School of Criminology and Criminal Justice, 2000-

present.

Member, Recruiting Committee, School of Criminology and Criminal Justice, 2000-2001.

Member, Promotion and Tenure Committee, School of Criminology and Criminal Justice, 2000-present.

Chair, Committee on Ph.D. Comprehensive Examination in Research Methods, School of Criminology and Criminal Justice, 2000-2002.

Chair, Promotion and Tenure Committee, School of Criminology and Criminal Justice, 2001-2002.

Faculty Adviser, School of Criminology and Criminal Justice Graduate Student Association, 2001-present.

Member, ad hoc committee on survey research, School of Criminology and Criminal Justice, 2002.

Coordinator of Parts 2 and 4 of the School of Criminology and Criminal Justice Unit Review, 2002.

Chair, Academic Committee, School of Criminology and Criminal Justice, 2002-2003.

Director, Honors Programs, School of Criminology and Criminal Justice, 2002-present.

Member, University Promotion and Tenure Committee, Fall, 2003 to present.

Member of University Graduate Policy Committee, Fall 2003 to present.

Director of Graduate Studies, School (later College) of Criminology and Criminal Justice, April 2004 to May 2011.

Chair, Promotion and Tenure Committee, College of Criminology and Criminal Justice, 2005-2006

Served as major professor on Area Paper by Christopher Rosbough, completed in 2012.

Served as member of dissertation committee of Kristen Lavin, dissertation completed in 2012.

Served as member of dissertation committee of Elizabeth Stupi, dissertation completed in 2013.

Served as outside member on two dissertation committees in 2014-2015: Brian Meehan

in the Department of Economics and Adam Weinstein in the English Department. Both dissertations were completed.

Served as major professor on Area Paper on legalization of marijuana for Pedro Juan Matos Silva, Spring 2015. Paper completed.

Currently serving as major professor for two doctoral students, Moonki Hong and Sergio Garduno. Hong is scheduled to finish his dissertation by December 2015, and Garduno will be starting his dissertation in Spring 2016.

PUBLIC SERVICE

Television, radio, newspaper, magazine, and Internet interviews concerning gun control, racial bias in sentencing, crime statistics, and the death penalty. Interviews and other kinds of news media contacts include Newsweek, Time, U.S. News and World Report, New York Times, Washington Post, Chicago Tribune, Los Angeles Times, USA Today, Boston Globe, Wall Street Journal, Kansas City Star, Philadelphia Inquirer, Philadelphia News, Atlanta Constitution, Atlanta Journal, Arizona Republican, San Antonio Express-News, Dallas Morning News, Miami Herald, Tampa Tribune, Jacksonville Times-Union, Womens' Day, Harper's Bazaar, Playboy, CBS-TV (60 Minutes; Street Stories) ABC-TV (World News Tonight; Nightline), NBC-TV (Nightly News), Cable News Network, Canadian Broadcasting Company, National Public Radio, Huffington Post, PolitiFact.com, and many others.

Resource person, Subcommittee on Crime and Justice, (Florida House) Speaker's Advisory Committee on the Future, February 6-7, 1986, Florida State Capitol.

Testimony before the U.S. Congress, House Select Committee on Children, Youth and Families, June 15, 1989.

Discussant, National Research Council/National Academy of Sciences Symposium on the Understanding and Control of Violent Behavior, April 1-4, 1990, Destin, Florida.

Colloquium on manipulation of statistics relevant to public policy, Statistics Department, Florida State University, October, 1992.

Speech to faculty, students, and alumni at Silver Anniversary of Northeastern University College of Criminal Justice, May 15, 1993.

Speech to faculty and students at Department of Sociology, University of New Mexico, October, 1993.

Speech on the impact of gun control laws, annual meetings of the Justice Research and Statistics Association, October, 1993, Albuquerque, New Mexico.

Testimony before the Hawaii House Judiciary Committee, Honolulu, Hawaii, March 12, 1994.

Briefing of the National Executive Institute, FBI Academy, Quantico, Virginia, March 18, 1994.

Delivered the annual Nettler Lecture at the University of Alberta, Edmonton, Canada, March 21, 1994.

Member, Drugs-Violence Task Force, U.S. Sentencing Commission, 1994-1996.

Testimony before the Pennsylvania Senate Select Committee to Investigate the Use of Automatic and Semiautomatic Firearms, Pittsburgh, Pennsylvania, August 16, 1994.

Delivered lectures in the annual Provost's Lecture Series, Bloomsburg University, Bloomsburg, Pa., September 19, 1994.

Briefing of the National Executive Institute, FBI Academy, Quantico, Virginia, June 29, 1995.

Speech to personnel in research branches of crime-related State of Florida agencies, Research and Statistics Conference, sponsored by the Office of the State Courts Administrator, October 19, 1995.

Speech to the Third Annual Legislative Workshop, sponsored by the James Madison Institute and the Foundation for Florida's Future, February 5, 1998.

Speech at the Florida Department of Law Enforcement on the state's criminal justice research agenda, December, 1998.

Briefing on news media coverage of guns and violence issues, to the Criminal Justice Journalists organization, at the American Society of Criminology annual meetings in Washington, D.C., November 12, 1998.

Briefing on gun control strategies to the Rand Corporation conference on "Effective Strategies for Reducing Gun Violence," Santa Monica, Calif., January 21, 2000.

Speech on deterrence to the faculty of the Florida State University School of Law, February 10, 2000.

Invited address on links between guns and violence to the National Research Council Committee on Improving Research Information and Data on Firearms, November 15-16, 2001, Irvine, California.

Invited address on research on guns and self-defense to the National Research Council Committee on Improving Research Information and Data on Firearms, January 16-17,

2002, Washington, D.C.

Invited address on gun control, Northern Illinois University, April 19, 2002.

Invited address to the faculty of the School of Public Health, University of Alabama, Birmingham, 2004.

Invited address to the faculty of the School of Public Health, University of Pennsylvania, March 5, 2004.

Member of Justice Quarterly Editor Selection Committee, Academy of Criminal Justice Sciences, Spring 2007

Testified before the Gubernatorial Task Force for University Campus Safety, Tallahassee, Florida, May 3, 2007.

Gave public address, "Guns & Violence: Good Guys vs. Bad Guys," Western Carolina University, Cullowhee, North Carolina, March 5, 2012.

Invited panelist, Fordham Law School Symposium, "Gun Control and the Second Amendment," New York City, March 9, 2012.

Invited panelist, community forum on "Students, Safety & the Second Amendment," sponsored by the Tallahassee Democrat.

Invited address at University of West Florida, Department of Justice Studies, titled "Guns, Self-Defense, and the Public Interest," April 12, 2013.

Member, National Research Council Committee on Priorities for a Public Health Research Agenda to Reduce the Threat of Firearm-related Violence, May 2013.

Invited address at Davidson College, Davidson, NC, April 18, 2014. Invited by the Department of Philosophy.

OTHER ITEMS

Listed in:

- Marquis Who's Who
- Marquis Who's Who in the South and Southwest
- Who's Who of Emerging Leaders in America
- Contemporary Authors
- Directory of American Scholars
- Writer's Directory

Participant in First National Workshop on the National Crime Survey, College Park, Maryland, July, 1987, co-sponsored by the Bureau of Justice Statistics and the American Statistical Association.

Participant in Second National Workshop on the National Crime Survey, Washington, D.C., July, 1988.

Participant, Seton Hall Law School Conference on Gun Control, March 3, 1989.

Debater in Intelligence Squared program, on the proposition “Guns Reduce Crime.” Rockefeller University, New York City, October 28, 2008. Podcast distributed through National Public Radio. Further details are available at <http://www.intelligencesquaredus.org/Event.aspx?Event=36>.

Subject of cover story, “America Armed,” in Florida State University Research in Review, Winter/Spring 2009.

Grants reviewer, Social Sciences and Humanities Research Council of Canada, 2010.

Named one of “25 Top Criminal Justice Professors” in the U.S. by Forensics Colleges website (<http://www.forensicscolleges.com/>), 2014.

Publications in the Last 10 Years

Book

- 2017 (with Brion Sever) Punishment and Crime: The Limits of Punitive Crime Control. NY: Routledge.

Articles in Refereed Journals

- 2009 “The worst possible case for gun control: mass shootings in schools.” American Behavioral Scientist 52(10):1447-1464.
- 2009 (with Shun-Yung Wang) “The myth of big-time gun trafficking and the overinterpretation of gun tracing data.” UCLA Law Review 56(5):1233-1294.
- 2009 (with Tomislav Kovandzic) “City-level characteristics and individual handgun ownership: effects of collective security and homicide.” Journal of Contemporary Criminal Justice 25(1):45-66.
- 2009 (with Marc Gertz and Jason Bratton) “Why do people support gun control?” Journal of Criminal Justice 37(5):496-504.
- 2011 (with James C. Barnes) “Article productivity among the faculty of criminology and criminal justice doctoral programs, 2005-2009.” Journal of Criminal Justice Education 22(1):43-66.
- 2011 (with Tomislav Kovandzic, Mark Saber, and Will Hauser). “The effect of perceived risk and victimization on plans to purchase a gun for self-protection.” Journal of Criminal Justice 39(4):312-319.
- 2013 (with Will Hauser) “Guns and fear: a one-way street?” Crime and Delinquency 59:271-291.
- 2013 “Gun control after Heller and McDonald: what cannot be done and what ought to be done.” Fordham Urban Law Journal 39(5):1383-1420.
- 2013 (with J. C. Barnes) “Deterrence and macro-level perceptions of punishment risks: is there a “collective wisdom?” Crime and Delinquency 59(7):1006-1035.
- 2013 (with Tomislav Kovandzic and Mark Schaffer) “Estimating the causal effect of gun prevalence on homicide rates: A local average treatment effect approach.” Journal of Quantitative Criminology 28(4):477-541.
- 2014 (with Jongyeon Tark) “Resisting rape: the effects of victim self-protection on rape completion and injury.” Violence Against Women 23(3): 270-292.

- 2014 (with J. C. Barnes) "Do more police generate more crime deterrence?" Crime and Delinquency 60(5):716-738.
- 2015 "The impact of gun ownership rates on crime rates: a methodological review of the evidence." Journal of Criminal Justice 43(1):40-48.
- 2016 (with Tom Kovandzic and Jon Bellows) "Does gun control reduce violent crime?" Criminal Justice Review 41:488-513.
- 2016 "Objective risks and individual perceptions of those risks." Criminology & Public Policy 15:767-775.
- 2016 (with Dylan Jackson) "What kind of joblessness affects crime? A national case-control study of serious property crime." Journal of Quantitative Criminology 32:489-513.
- 2016 "Large-capacity magazines and the casualty counts in mass shootings: the plausibility of linkages." Justice Research and Policy 17:28-47.
- 2017 (with Will Hauser) "The impact of police strength and arrest productivity on fear of crime and subjective assessments of the police." American Journal of Criminal Justice 42:86-111.
- 2017 (with Dylan Jackson) "Does crime cause punitiveness?" Crime & Delinquency. 63(12):1572-1599.
- 2017 (with Bethany Mims) "Article productivity among the faculty of criminology and criminal justice doctoral programs, 2010-2014." Journal of Criminal Justice Education 28(4):467-487.
- 2018 (with Moonki Hong) "The short-term deterrent effect of executions: an analysis of daily homicide counts." Crime & Delinquency 64(7):939-970.
- 2018 "Response errors in survey estimates of defensive gun use." Crime & Delinquency 64(9):1119-1142.
- 2018 "Macro-level research on the effect of firearms prevalence on suicide rates: a systematic review and new evidence." Social Science Quarterly, in press.

Articles in Nonrefereed Outlets

- 2009 "How not to study the effect of gun levels on violence rates." Journal on Firearms and Public Policy 21:65-93.
- 2011 "Mass killings aren't the real gun problem --- how to tailor gun-control

measures to common crimes, not aberrant catastrophes.” Wall Street Journal January 15, 2011. Invited opinion article.

2011 “The myth of big-time gun trafficking.” Wall Street Journal May 21, 2011. Invited opinion article.

2015 “Defensive gun ownership is not a myth: why my critics still have it wrong.” Politico Magazine, February 17, 2015. Online at Politico.Com.

Book Chapters

2009 “Guns and crime.” Invited chapter. Pp. 85-92 in 21st Century Criminology: A Reference Handbook, edited by J. Mitchell Miller. Thousand Oaks, CA: Sage.

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EXHIBIT 64

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SECOND AMENDMENT

The Founders were well aware of continuing advances in arms technology.

Building on what had come before, the Madison-Monroe research program led the way to the many innovations of the 19th century

DAVID KOPEL | 5.26.2023 1:08 PM

During the 19th century, firearms improved more than in any other century. As of 1800, most firearms were single-shot muzzleloading blackpowder flintlocks. By end of the century, semiautomatic pistols using detachable magazines with modern gunpowder and metallic cartridges were available. Would the Founders be surprised by the improvements in ability to exercise Second Amendment rights? Perhaps not, given the tremendous advances in firearms that had taken place before 1791. And certainly not, given that James Madison, author of the Second Amendment, initiated a federal government industrial with the specific aim of vastly improving the quality and quantity of firearms manufacture.

Part I of this post briefly describes Some of the firearms advances before 1791. Part II describes the federal industrial policy for advancing firearms technology.

This post is based on my article *The History of Bans on Types of Arms Before 1900*. It is forthcoming in Notre Dame's *Journal of Legislation*, vol. 50, no. 2, in 2024. The Post also draws on [chapter 23](#) of my coauthored textbook *Firearms Law and the Second Amendment: Regulations, Rights, and Policy* (Aspen Pub., 3d ed. 2022).

I. Firearms improvements before 1791

While the Founders could not foresee all the specific advances that would take place in the nineteenth century, the Founders were well aware that firearms were getting better and better.

Tremendous improvements in firearms had always been part of the American experience. The first European settlers in America had mainly owned matchlocks. When the trigger is pressed, a smoldering hemp cord is lowered to the firing pan; the powder in the pan then ignites the main gunpowder charge in the barrel.

The first firearm more reliable than the matchlock was the wheel lock, invented by Leonardo da Vinci. In a wheel lock, the powder in the firing pan is ignited when a serrated wheel strikes a piece of iron pyrite. The wheel lock was the first firearm that could be kept loaded and ready for use in a sudden emergency. Although matchlock pistols had existed, the wheel lock made pistols far more practical and common. Paul Lockhart, *Firepower: How Weapons Shaped Warfare* 80 (2021).

The wheel lock was the "preferred firearm for cavalry" in the sixteenth and seventeenth centuries. *Id.* The proliferation of wheel locks in Europe in the sixteenth century coincided with the homicide rate falling by half. See Carlisle E. Moody, *Firearms and the Decline of Violence in Europe: 1200-2010*, 9 Rev. Eur. Stud. 53 (2017)

However, wheel locks cost about four times as much as matchlock. Moreover, their moving parts were far more complicated than the matchlocks'. Under conditions of hard use in North America, wheel locks were too delicate and too difficult to repair. The path of technological advancement often involves expensive inventions eventually leading to products that are affordable to average consumers and are even better than the original invention. That has been the story of firearms in America.

Flintlocks quintuple the rate of fire

The gun that was even better than the wheel lock, but simpler and less expensive, was the flintlock. The earliest versions of flintlocks had appeared in the mid-sixteenth century. But not until the end of the seventeenth century did most European armies replace their matchlocks with flintlocks. Americans, individually, made the transition much sooner. Lockhart at 106.



Unlike matchlocks, flintlocks can be kept always ready. Because blackpowder is hygroscopic, and could be ruined by much water, it was common to store a firearm on the mantel above the fireplace. Another advantage, which mattered greatly in America but was mostly irrelevant for European warfare, is that a flintlock, unlike a matchlock, has no smoldering hemp cord to give away the location of the user. Flintlocks are more reliable than matchlocks—all the more so in adverse weather, although still far from impervious to rain and moisture. Significantly, Flintlocks are much simpler and faster to reload than matchlocks. *See, e.g.,* W.W. Greener, *The Gun and Its Development* 66-67 (9th ed. 1910); Charles C. Carlton, *This Seat of Mars: War and the British Isles 1585-1746*, at 171-73 (2011).

Initially, the flintlock could not shoot further or more accurately than a matchlock. Lockhart at 105. But it could shoot much more rapidly. A matchlock takes more than a minute to reload once. *Id.* at 107. In experienced hands, a flintlock could be fired and reloaded five times in a minute, although under the stress of combat, three times a minute was a more typical rate. *Id.* at 107-08. Compared to a matchlock, a flintlock was more likely to ignite the gunpowder charge instantaneously, rather than with a delay of some seconds. *Id.* at 104. "The flintlock gave infantry the ability to generate an overwhelmingly higher level of firepower." *Id.* at 107.

The Theoretical Lethality Index (TLI) is a measure of a weapon's effectiveness in military combat. The TLI of a seventeenth century musket is 19 and the TLI of an eighteenth century flintlock is 43. Trevor Dupuy, *The Evolution of Weapons and Warfare* 92 (1984). So the transition of firearm type in the American colonies more than doubled the TLI. There is no reason to believe that the American Founders were ignorant of how much better their own firearms were compared to those of the early colonists.

Joseph Belton's 16-shot model

In 1777 in Philadelphia, inventor Joseph Belton demonstrated a firearm that could fire 16 shots all at once. The committee watching the demonstration included General Horatio Gates, General Benedict Arnold, and scientist David Rittenhouse. They wrote to the Continental Congress and urged the adoption of Belton guns for the Continental Army. Congress voted to order a hundred—while requesting that they be produced as 8-shot models, since gunpowder was scarce. However, the deal fell through because Congress could not afford the high price that Belton demanded. Repeating arms were expensive, because their small internal components require especially complex and precise fitting.

Hence, the Founders who served in the Second Continental Congress were well aware that a 16-shot gun had been produced, and was possible to produce in quantity, for a high price. Delegates to the 1777 Continental Congress included future Supreme Court Chief Justice Samuel Chase, John Adams, Samuel Adams, Francis Dana, Elbridge Gerry, John Hancock, the two Charles Carrolls from Maryland, John Witherspoon (President of Princeton, the great American college for free thought), Benjamin Harrison (father and grandfather of two Presidents), Francis Lightfoot Lee, and Richard Henry Lee.

The Girardoni rifle

Likewise, the 22-shot Girardoni rifle famously carried by the Lewis & Clark expedition starting in 1803 was no secret, as it had been invented in 1779. It was used by the Austrian army as a sniper rifle. Powered by compressed air, its bullet hit as hard as the modern Colt .45ACP cartridge. John Paul Jarvis, *The Girardoni Air Rifle: Deadly Under Pressure*, Guns.com, Mar. 15, 2011.

The Girardoni had a 21 or 22 round caliber tubular magazine, and could be quickly reloaded with 20 more rounds, using speedloading tubes that came with the gun. After about 40 shots, the air reservoir could be exhausted, and would need to be pumped up again.

Repeaters in ordinary commerce

As of 1785, South Carolina gunsmith James Ransier of Charleston, South Carolina, was advertising four-shot repeaters for sale. *Columbian Herald* (Charleston), Oct. 26, 1785.

The American Rifle

The founding generation was especially aware of one of the most common firearms of their time, the Pennsylvania-Kentucky rifle, which is also called "The American Rifle." The rifle was invented by German and Swiss gunsmith immigrants in the early eighteenth century. When they came to Pennsylvania for religious freedom, they were familiar with the heavy Jaeger rifles of Central Europe.

The American Rifle was created initially for the needs of frontiersmen who might spend months on a hunting expedition in the dense American woods. "What Americans demanded of their gunsmiths seemed impossible": a rifle that weighed ten pounds or less, for which a month of ammunition would weigh one to three pounds, "with proportionately small quantities of powder, be easy to load," and "with such velocity and flat trajectories that one fixed rear sight would serve as well at fifty yards as at three hundred, the necessary but slight difference in elevation being supplied by the user's experience." Robert Held, *The Age of Firearms: A Pictorial History* 142 (1956). "By about 1735 the impossible had taken shape" with the creation of the iconic American Rifle. *Id.*

gun shot so hard and so fast that the very possibility of such performance had hitherto not even been imaginable." *Id.* at 137.

The Founders were well aware that what had been impossible or unimaginable to one generation could become commonplace in the next. With the federal armories advanced research and development program that began in the Madison administration, the U.S. government did its best to make the impossible possible.

II. James Madison and James Monroe, the founding fathers of modern firearms

U.S. Representative James Madison is well-known as the author of the Second Amendment and the rest of the Bill of Rights. What is not well-known is how his presidency put the United States on the path to mass production of high-quality affordable firearms.

Because of weapons procurement problems during the War of 1812, President Madison's Secretary of War James Monroe, who would succeed Madison as President, proposed a program for advanced weapons research and production at the federal armories, which were located in Springfield, Massachusetts, and Harpers Ferry, Virginia. The Madison-Monroe program was to subsidize technological innovation. Ross Thomson, *Structures of Change in the Mechanical Age: Technological Innovation in the United States 1790-1865*, at 54-59 (2009). It was enthusiastically adopted with the support of both the major parties in Congress: the Madison-Monroe Democratic-Republicans, and the opposition Federalists. 8 Stat. 204 (1815); Johnson, Kopel, Mocsary, Wallace & Kilmer, *Firearms Law and the Second Amendment: Regulation, Rights, and Policy* 2209 (3d ed. 2022) ([online chapter 23](#)).

While serving as ambassador to France, Thomas Jefferson had observed the progress that the French were making in producing firearms with interchangeable parts. He enthusiastically recommended that the United States do the same. See Letter from Thomas Jefferson to John Jay (Secretary of Foreign Affairs under the Confederation government), Aug. 30, 1785, in 1 *Memoirs, Correspondence, and Private Papers, of Thomas Jefferson* 299 (Thomas Jefferson Randolph ed., 1829). In 1801, President Jefferson recounted his French observations to Virginia Governor James Monroe and expressed hope for Eli Whitney's plan for interchangeable gun parts. Letter from Thomas Jefferson to James Monroe, Nov. 14, 1801, in 35 *The Papers Of Thomas Jefferson* 662 (Barbara B. Oberg ed., 2008).

Under the bipartisan Madison-Monroe program, generous federal arms procurement contracts had long lead times and made much of the payment up-front, so that manufacturers could spend several years setting up and perfecting their factories. The program succeeded beyond expectations, and helped to create the American industrial revolution.

The initial objective was interchangeability, so that firearms parts damaged in combat could be replaced by functional spare parts. After that would come higher rates of factory production. And after that, it was hoped, production at lower cost than artisanal production. Achieving these objectives for the more intricate and closer-fitting parts of repeating firearms would be even more difficult.

To carry out the federal program, the inventors associated with the federal armories first had to invent machine tools. Consider for example, the wooden stock of a long gun. The back of the stock is held against the user's shoulder. The middle of the stock is where the action is attached. (The action is the part of the gun containing the moving parts that fire the ammunition; the Founding generation called it "the lock.") For many guns, the forward part of the stock would contain a groove to hold the barrel.

Making a stock requires many different cuts of wood, few of them straight. The artisanal gunmaker would cut with hand tools such as saws and chisels. Necessarily, one artisanal stock would not be precisely the same size as another.

To make stocks faster and more uniformly, Thomas Blanchard invented fourteen different machine tools. Each machine would be set up for one particular cut. As the stock was cut, it would be moved from machine to machine. By mounting the stock to the machine tools with jigs and fixtures, a manufacturer could ensure that each stock would be placed in precisely the same position in the machine as the previous stock. The mounting was in relation to a bearing — a particular place on the stock that was used as a reference point. To check that the various parts of the firearm, and the machine tools themselves, were consistent, many new gauges were invented. Felicia Johnson Deyrup, *Arms Makers of the Connecticut Valley: A Regional Study of the Economic Development of the Small Arms Industry, 1798-1870*, at 97-98 (1948); Thomson at 56-57.

What Blanchard did for stocks, John H. Hall, of the Harpers Ferry Armory, did for other firearms parts. Hall shipped some of his machine tools to Simeon North, in Connecticut. In 1834, Hall and North made interchangeable firearms. This was the first time that geographically separate factories had made interchangeable parts. *Id.* at 58; Merritt Roe Smith, *Harpers Ferry Armory and the New Technology: The Challenge of Change* 212 (1977).

Because Hall "established the efficacy" of machine tools, he "bolstered the confidence among arms makers that one day they would achieve in a larger, more efficient manner, what he had done on a limited scale. In this sense, Hall's work represented an important extension of the industrial revolution in America: a mechanical synthesis so different in degree as to constitute a difference in kind." *Id.* at 240.

The technological advances from the federal armories were widely shared among American manufacturers. The Springfield Armory built up a large network of cooperating private entrepreneurs and insisted that advances in manufacturing techniques be widely shared. By mid-century, what had begun as the mass production of firearms from interchangeable parts had become globally known as "the American system of manufacture"—a system that encompassed sewing machines, and, eventually typewriters, bicycles, and automobiles. *See, e.g., David R. Meyer, Networked Machinists: High-Technology Industries In Antebellum America* 81-84, 252-62, 279-80 (2006).

Springfield, in western Massachusetts on the Connecticut River, had been chosen for the federal armory in part because of its abundance of waterpower and for the nearby iron ore mines. Many private entrepreneurs, including Colt and Smith & Wesson, made the same choice. The Connecticut River Valley became known as the Gun Valley. It was the Silicon Valley of its times, the center of industrial revolution. *Id.* at 73–103, 229–80.

In short, the Founding generation was familiar with tremendous advances in firearms technology. In the American colonial experience, the rate of fire for an ordinary firearm had quintupled. As of 1791, repeating firearms capable of firing 16 or 22 shots had been demonstrated, but they were much too expensive for ordinary citizens. The Madison-Monroe administration's wise industrial policy, continued under future administrations, led the way towards the mass production of high quality firearms at low prices. No one in 1791 or 1815 could have foreseen all the firearms innovations in the 19th century. We do know that the American federal government did all it could to make those innovations possible.

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