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9 IN THE UNITED STATES DISTRICT COURT
10 FOR THE SOUTHERN DISTRICT OF CALIFORNIA
11 CIVIL DIVISION

12
13 **VIRGINIA DUNCAN, RICHARD**
14 **LEWIS, PATRICK LOVETTE,**
15 **DAVID MARGUGLIO,**
16 **CHRISTOPHER WADDELL, and**
CALIFORNIA RIFLE & PISTOL
ASSOCIATION, INC., a California
corporation,

17 Plaintiffs,

18 v.

19
20 **ROB BONTA, in his official capacity**
21 **as Attorney General of the State of**
California; and DOES 1-10,

22 Defendants.
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Case No. 3:17-cv-01017-BEN-JLB

**COMPENDIUM OF WORKS
CITED IN DECLARATION OF
RANDOLPH ROTH**

VOLUME 4 OF 7

Courtroom: 5A
Judge: Hon. Roger T. Benitez
Action Filed: May 17, 2017

INDEX

Works	Decl. Page	Compendium Page
HISTORICAL STATUTES		
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An Act to Regulate the Keeping and Bearing of Deadly Weapons, 12th Leg. Reg. Sess., ch. XXXIV, §§ 1, 3, 1871 Tex. Gen. Laws 25	26 n.80	0008-0011
Federal Explosives Act of 1917, 40 Statute 385	35 n.103	0012-0020
The National Firearms Act of 1934, 48 Statute 1236	34 n.102	0021-0026
The National Firearms Act of 1938, 52 Statute 1250	34 n.102	0027-0029
The Organized Crime Control Act of 1970, 84 Statute 922	35 n.103	0030-0071
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J. A. Chapman, <i>History of Edgefield County</i> 39-41 (Newberry, South Carolina: Elbert H. Aull, 1897)	30 n.90	0103-0109

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	141-145, 149-152		
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		23 n.71	
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24	145-149, 158, 162, 180-186, 195-196, 199-203, 218-		
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	<i>Homicide in American History</i> ," in Jennifer Tucker,		
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18 Spitzer can provide them.
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Inspired by the Revolution, the American laity dreamed of creating a form of Catholicism that was more compatible with republican values. They had maintained their faith during the colonial period without the presence of a hierarchy and wished to continue in this manner. Both the laity and clergy realized the importance of avoiding the appearance that foreign princes would be encroaching on American government. Rome did not share these concerns, and was eager to bring the new nation under Papal control. The Vatican appointed Rev. John Carroll superior of the mission in the United States. Carroll and other American clergymen protested that the new nation should have a local church headed by a bishop who would answer to the Pope on spiritual affairs only. In 1789 the Vatican relented and the American clergy elected John Carroll as the first Bishop of Baltimore. Even though a hierarchy was established, the American laity did not relinquish its desire to play an active role in the Church. The trustee system allowed the laity to retain temporal control of the churches they had built. This system was another attempt to bring European ecclesiastical traditions in line with American republican values.¹⁰

The earliest attempts to bring a priest into Kentucky were unsuccessful. The first clergymen

assigned to the area were unable to handle money or were alcoholic and unable to withstand the harsh wilderness conditions. It was almost ten years before the Kentucky Catholics found a priest hearty and devoted enough to join them on a permanently. Father Stephen Badin arrived in Kentucky in 1793. He and another priest walked to Pittsburgh, from there they had taken a flatboat down the Ohio to Maysville and had walked to Lexington. His companion departed for the deep South, but Badin remained in Kentucky. Fr. Badin, a French emigre and the first priest ordained in the United States, was a man of strong convictions and severe moral character; he gained the respect of his parishioners but not their affection. The austere Badin found the worldliness of Kentucky's three hundred Catholics unacceptable. He was especially distressed by the youth, whom he considered vain, ill-mannered, and lacking in faith and charity. He broke up many of the country dances that his people enjoyed.

The presence of a Catholic priest in the community alarmed the Protestants. Protestants often hid themselves and watched Badin ride past to catch a glimpse of the dreaded Papist. Perhaps Badin's narrow escape during the French Revolution made him sensitive to the precarious position Catholics occupied in the wilderness of Kentucky. He remained firm in his

beliefs but was careful not to offend his Protestant neighbors. In some ways Badin resembled his Protestant brethren. He rode about the state on horseback to minister to his large flock. As Catholic priests had not yet adopted the Roman collar for everyday wear, he dressed in a dark suit and tie, a costume quite different from the rich robes Protestants expected to see. Kentucky's Protestants came to respect Father Badin; quite often he was on better terms with them than he was with his own Catholics. ¹¹

Rev. John Thayer's arrival in Kentucky in 1799 threatened the peaceful coexistence between the Protestant and Catholic communities. Thayer, a Harvard educated convert to Catholicism, assaulted Protestants with tirades against their beliefs. He made enemies among Protestants and Catholics alike by preaching about the evils of slavery and urging that the peculiar institution be abolished. The Catholic church had never denounced slavery, and both Badin and Thayer owned slaves. Badin urged Catholic masters to consider the spiritual needs of their slaves and to have them baptized and taught the catechism. It is likely that Badin and many others were more than a little relieved when Thayer left Kentucky. ¹²

Life was difficult enough for priests on the Kentucky frontier without one of their own generating

animosity. On their journeys through the state they often encountered hostility from non-Catholics. According to tradition one priest making his rounds stopped at a farmhouse for shelter during a driving rainstorm. When the owner learned that his guest was a Catholic clergyman, he sent his children and slaves away and ordered the man to leave. The priest argued that throwing a man out into a storm was hardly a Christian act, and the farmer reluctantly allowed him to stay. The following morning, the farm owner was still uneasy about having a Papist in his home. He urged his guest to leave without paying, afraid that the money was tainted. The Catholic laid the money on the ground and told the farmer: "I think you will find your children all right this morning; but in case you should find on any one of them the mark of the beast.[sic] I want you to understand distinctly that its impress is due to another than myself." According to tradition, the farmer was so impressed by the priest's courage that he dropped his ill will towards Catholics and insisted that the priest stay with his family any time he was in the area. ¹³

Not all early Catholic priests were as fortunate as this one. Another clergyman traveling through Kentucky was thrown from his horse. A young boy in the employ of a farmer found the injured man, but his

employer would not allow the child to go for help. Unaided, the priest died as a result of his injuries.¹⁴

The Louisiana Purchase of 1803 finally gave the United States the navigation rights to the lower Mississippi River. A bustling river trade developed, and Louisville blossomed. At the turn of the century only 359 people lived in Louisville but, by 1810 the town was home to 1375. Several Catholic families were among the new arrivals, and before long the Catholic population was large enough to warrant a church of its own. Catholics celebrated their first Mass on Christmas Day in 1811. St. Louis was the second church built in Louisville, the first having been erected two years earlier by a Methodist congregation.¹⁵

Some members of the community expressed disgust that the Catholic Church had "set her idolatrous foot on Columbia's soil." They mocked the beliefs and ceremonies of the Church and scoffed at "variegated dresses and monkey shines of the priests before the altar."¹⁶ In spite of such prejudices, these early Catholics paved the way for the relative toleration and acceptance that Protestants offered their religion before the Know Nothing Party came into power. The early Catholic and Protestant settlers were both mostly of English descent. They interacted on a daily basis. Observing conflicts between Catholics and their

clergymen, Protestants concluded that their neighbors rejected the hierarchical elements of their religion. The first Catholics in Louisville convinced their neighbors that there was nothing alien or threatening about their faith. They proved that peaceful coexistence between Catholics and Protestants was possible.

The situation in Cincinnati was quite different. Catholics were almost nonexistent in that city until the 1820's, and the few that were there made little issue of their religious beliefs. Louisville had been established for ten years when the first settlers reached the area now known as Cincinnati. In 1788, a charter was granted to develop the Miami Purchase on the northern bank of the Ohio River. By winter of that year three colonies inhabited by settlers from New Jersey and Pennsylvania, sprang up in the area. Of the three, Losantiville had the best geographic features and quickly gained prominence. The topography of the settlement resembled an amphitheater, a large basin area with a gently sloping hill rising around it. Losantiville was more suitable for expansion than the other settlements, and its location at the mouth of the Licking River would provide a vital artery into Kentucky which was more developed. In 1789 Fort Washington was constructed at Losantiville as a base

for campaigns against Northwest Indian tribes and the following year the community's name was changed to Cincinnati. ¹⁷

Cincinnati continued to grow, although as late as 1795 the city tended to be little more than a collection of rough cabins and the fort. The beginning of the nineteenth century saw Cincinnati with 750 residents, more than double the population of Louisville. Cincinnati remained a military town until the Treaty of Greenville was signed in 1804. Fighting with the Indians of the Northwest territory had all but ended, and Fort Washington was no longer necessary. The garrison was moved to northern Kentucky; five years later the fort was torn down and Cincinnati became a city of merchants, artisans and farmers.¹⁸

The young city continued to grow at a rapid rate, and by 1810 Cincinnati had 2,540 inhabitants. Permanent houses of worship appeared; by 1815 Baptists, Methodists, Presbyterians, Quakers and Swedenborgians were represented. There were a few Catholics in the area and only a minority remained steadfast in their faith; they eagerly awaited the rare occasions when a priest, sometimes the indefatigable Fr. Badin, came from Kentucky to celebrate Mass. Several Catholics joined Protestant churches, in part due to the absence of a Catholic religious organization, but also because

19.

anti-Catholic sentiment was strong in Cincinnati. Prejudice was so great that Protestants refused to sell Catholics land for a church within the city limits. Shame or fear may have been the motivating factor in many conversions to Protestantism. ¹⁹

By 1817, some Catholics were dismayed that many of their fellow Catholics were being buried by protestant churches. Twice, a small cluster of Catholic families had attempted to build a Church and failed. Finally, this handful of Catholics decided to take matters into their own hands and build a church just outside the city limits. Christ Church was completed in time for Easter Sunday services in 1819. ²⁰

Between the time the Maryland Catholics established the Pottinger's Creek Settlement and the completion of Christ Church, attempts to create a more American form of Catholicism had failed. More and more, elements of European Catholicism had come into the American Church. For instance, the clergy no longer elected new bishops. These decisions were made by the Congregation for Propagation of the Faith in Rome with little if any input from the American clergy.

Another reason that attempts to create a distinctly American church failed was the importation of European priests. Bishop Carroll urged these clergymen to "Americanize themselves but, most retained

their European viewpoints. They were committed to a European form of Catholicism in which leadership was provided by priests and bishops. Native born Catholics and immigrant priests often clashed. The laity did not want to consult with the clergy on temporal affairs, and expected bishops to confer with them before appointing priests to their parishes. The European clergy was dismayed by the weakening of the church hierarchy in the United States, and the laity's lack of respect for the clergy. Kentucky's Stephen Badin was angered that the clergy was viewed "only as the obsequious servants of Their Mighty Highnesses" the laity.²¹ The European values brought to the American Church by the immigrant priests were in direct opposition to republican values. As the immigrant population of the Church grew, Catholicism was seen as even more of a threat by the Protestant majority.

In 1821, Ohio, Michigan, Indiana and Illinois were removed from the Diocese of Bardstown and the Diocese of Cincinnati was created under the leadership of Father Edward Fenwick. The descendant of a wealthy Maryland family, Fenwick was educated in Europe and served there for a time before being sent to the United States and subsequently to Kentucky. Between 1808 and 1816 Fenwick divided his time between Kentucky and Ohio. After 1816 he devoted himself exclusively to the

Catholics of Ohio. His knowledge of the land as well as his piety, practicality and zeal made Fenwick the logical choice for Bishop of Cincinnati.²²

In the early 1820's Fenwick estimated that there were roughly 3,000 Catholics in Ohio, most of whom were German and Irish. He noted that the bulk of his congregations were sober and industrious, but very poor. Many of them were still in debt from their passage to the United States. The end of the Napoleonic era made it easier to emigrate to America and the building of roads and canals attracted many Catholic immigrants to Ohio.

The German element was strengthened in 1825 when Friedrich Reese, a native of Germany came to serve in Cincinnati. During Reese's first year in the Queen City he persuaded thirty three German Catholic families who had joined a Lutheran congregation to return to the Catholic fold. This caused animosity between the Lutherans and Catholics. Attracted by a clergyman who spoke their language, many German Protestants shifted their allegiance to Catholicism.²³

Early hostility toward Catholics foreshadowed the problems the city would face as the Catholic population grew. Despite their opposition the Protestant majority was unable to prevent the rise of the religion that they dreaded. The foreign origins of the incoming

Catholics and the mass conversion of Germans caused the Church to be viewed as an alien aggressor that threatened the young republic.

During the 1830's Catholicism came under attack across the nation. One attack was intellectual. Protestant ministers appealed to republican spirit of their congregations and pointed out the inconsistencies of the Roman Catholic doctrines. Another more emotional form of anti-Catholicism also appeared in the 1830's. Nativists portrayed Catholicism as a religion based on evil principles, and targeted convents as hotbeds of immorality. Violence and bloodshed followed these harangues against Catholicism. Cincinnati and Louisville were spared bloodshed, but anti-Catholic incidents occurred in both cities.

In Cincinnati opposition to Catholicism was aimed at the mind rather than the emotions. Protestants attacked Catholicism for making its followers submit to the powers of the priesthood and foreign princes. Catholics were not allowed to worship God according to their own conscience, but lived in constant fear of being condemned to death for heresy. The Catholic priests denied their people education and access to the Bible in order to prevent them from finding the inconsistencies between it and their teachings.

Protestants also took offense that Catholics believed their Church was the only one ordained by God.²⁴

Debates between Catholic and Protestant clergymen became popular in the 1830's; Cincinnati was the scene of one of these debates in 1837. The participants were Alexander Campbell, a Protestant clergyman from Bethany, Virginia, and Bishop John Baptist Purcell of Cincinnati. Purcell was born in Ireland in 1800. He left his native land at the age of eighteen. After theological studies in Maryland and Paris, Purcell served as President of a Catholic seminary before his appointment to the Diocese of Cincinnati.²⁵ The young Bishop gained a reputation as an eloquent, straightforward speaker, and his skills were requested by Catholics and Protestants throughout the city. During one of these speaking engagements that Campbell arose and attacked the doctrines of the Catholic Church. The two men agreed to discuss the accusations in a series of seven public debates.²⁶

The participants considered these debates a free discussion in keeping with the spirit of the age. For seven weeks the two men debated on the nature of the Roman Catholic Church. The topics included the anti-American nature of the Church, the Catholic Church as "the Babylon of John," the "Man of Sin of Paul," and the "Youngest Horn of Daniel's Sea Monster." It is not

surprising that the Protestant newspapers declared Campbell the winner of the debates and praised him as a crusader against the evils of the Papacy. The Catholics and their supporters, of course, declared victory for Purcell, and claimed that he had allayed much anti-Catholic sentiment in Cincinnati. The debates elevated the reputation of the young Bishop and he became known as the Catholic leader of the Midwest.²⁷

Unlike critics of Catholicism in Cincinnati, Louisville's anti-Catholic crusaders appealed to the emotions of the population. They built on rumors and myths imported from England. These tales did little to capture the imagination of the American people. These tales took on an immediate sense of urgency in 1834 when rumors spread through Charleston, Massachusetts that an escaped nun had been dragged back to the convent against her will. Citizens were outraged. A mob formed and burned the convent to the ground. Initially, many people were horrified by this incident, but in time the belief prevailed that convents were immoral and should be abolished.²⁸

By now, the American imagination was ripe for tales of Catholic immorality. Such a tale, Awful Disclosures of the Hotel Dieu Nunnary of Montreal quickly captured the attention of the American people.

Its author, Maria Monk, claimed to be an escaped nun. She reported that young nuns were forced to accept the advances of priests or face terrible consequences, including even death in extreme cases. The children of these unholy unions were baptized and strangled minutes after birth. When Maria Monk realized that she was carrying a priest's child, she fled the convent and came to the United States to wage war against the Catholic Church.

The nativist press failed to inform its readers that Maria Monk had given birth to a second illegitimate child and had later married, a marriage that ended in divorce because of her excessive drinking. A Canadian woman claiming to be Maria Monk's mother stated that her daughter had never been a nun, but rather an inmate of a Catholic institution for delinquent young women. She claimed that a childhood head injury caused her daughter's wild stories and instability. Monk died in jail after being arrested for pick pocketing in a house of ill-repute, but she remained a figurehead in the no-Popery campaign. Three hundred thousand copies of Awful Disclosures were sold before the Civil War; this book had such an impact that historians have dubbed it "the Uncle Tom's Cabin of Know Nothingism." ²⁹

Detractors of the Catholic Church claimed that a situation similar to the one described in Awful Disclosures existed near Louisville, but the confrontation ended peacefully. In 1836 the editor of a Protestant newspaper accused a priest of seducing a middle aged woman who was being assisted by an order of nuns. Officials of the Bardstown diocese took swift action and charged the editor with libel. The editor was found guilty and given a small fine. Fierce debates waged in the local press, but the fire and bloodshed of Charleston were averted.³⁰

Throughout the 1830's the populations of Cincinnati and Louisville continued to grow. In 1830, Cincinnati had 24,831 citizens; by 1840, that number had risen to 46,338. During the same period, Louisville's population rose from 10,341 to 21,210. These new residents came from eastern states as well as foreign countries, especially Ireland and Germany.³¹ The sheer numbers of these immigrants were a cause for alarm, but as the years progressed, many Americans found the types of immigrants coming into the cities less desirable.

The Irish were the largest group of immigrants coming to the United States. During the earliest years of the Irish migration the immigrants were primarily Protestants who came in family groups. Most were

fluent in English and there were significantly higher numbers of farmers, artisans, tradesmen and professionals than laborers and servants. As the years progressed, there were more laborers and servants coming to the United States. Many were single males who were less likely than families to settle into a community. By the 1830's, a large number of Catholics were beginning to migrate to the United States.³²

Few Irish came as far west as Cincinnati and Louisville in the 1830's. The majority preferred the cities of New England and the Mid-Atlantic seaboard to the more rural areas inland, and few could afford to travel west. As late as 1840, the Irish comprised only six percent of Cincinnati's population,³³ and in Louisville there were only 1,000 Irish immigrants in the city.

It should be noted that the Irish who settled in Louisville faced added difficulties in a slave state. Almost one third of Louisville's population was African American. Most were slaves; the free black population was minuscule. Slavery took on a different character in the city than on the plantation. While some slaves served as house servants and coachmen, more were hired out.

Louisville's black population was large enough to virtually eliminate a free labor market. Blacks served

as barbers, waiters, hack drivers, draymen and roustabouts. Any white man who sought this type of work in Louisville was scorned by the rest of the white population. Few native born whites of the laboring classes settled in the city because of this class distinction. The Irish laborer who settled in Louisville was derided both for his immigrant status and his willingness to do the work of slaves.³⁴

The Germans who settled in Cincinnati and Louisville had a much greater impact than the Irish. A few well known German immigrants came to the United States for political reasons, but more came for economic reasons. The bulk of the German immigrants to the United States were members of a lower middle class whose life style was changing rapidly. Farms had become smaller since inheritance laws called for land to be divided among the heirs. Artisans were displaced as mass production became more important, and German shopkeepers lost their clientele as the farmers and artisans became increasingly poor.³⁵

The German population of the two cities grew at a much faster rate than the Irish. In 1825 only three percent of Cincinnati's residents were natives of Germany. Fifteen years later, Germans comprised almost one third of the city's population.³⁶ Although Germans made up only seventeen percent of Louisville's

population in 1840, their numbers were rapidly growing. Between 1838 and 1840, the number of German immigrants in the city rose from roughly 2,000 to 3,616.³⁷

Many Americans were alarmed by the growing immigrant population and by the Catholic faith professed by many of these newcomers. One of the most vocal opponents of this influx of immigrants was Lyman Beecher, a New England native who served as President of a Presbyterian seminary in Cincinnati.

European despots had designs on the American West, Beecher claimed. They paid passage for "the contents of the poor house and the sweepings of the streets" to come to the United States and begin the process of gaining control over rich western lands.³⁸ Beecher urged his fellow western Protestants to remain steadfast in their faith. He asked native born Protestants to move west and help battle the evils of Popery.³⁹ Although Beecher's Plea For The West and other nativist propaganda made Catholicism seem like a grave danger in the West, Protestant sects predominated in every state.⁴⁰

Beginning in 1845, the potato blight in Ireland started one of the heaviest periods of immigration in America's history. The loss of that nation's main food crop created chaos in Ireland and caused many to flee. These men and women were different from their

predecessors in many ways. Earlier immigrants had come to the United States proud of their independence and hoping to improve their lot in life. The famine immigrants merely wanted to survive. Malnutrition caused many immigrants to arrive in the United States in poor health, and the desperate condition in their homeland resulted in many of the new arrivals being alcoholics.

These new arrivals aroused the ire of the native born Americans; as soon as they stepped off the ship, many became candidates for public charity. About ninety percent of the famine immigrants were Catholic, the majority were laborers or servants and almost a third of the new immigrants spoke only Gaelic.⁴¹

German immigration also rose in the 1840's and like their Irish counterparts, many of the Germans who arrived in the United States tended to be poorer and less skilled than their predecessors. Famine, unemployment, overpopulation and relaxed immigration laws all contributed to German migration. In some parts of the county, inhabitants of the poor houses were shipped to the United States.

Another kind of German immigrant came to the United States as well. A small portion of the immigrants were intellectuals who had fled Germany in the wake of the failed revolutions of 1848. These men

had risen up unsuccessfully against the censorship and suppression that had plagued Europe since the fall of Napoleon. They were not satisfied with the United States; slavery and nativism were inconsistent their vision of republicanism, and they found the principles of Puritanism an invasion of their personal liberty.⁴²

Some Germans in the United States took an active interest in the affairs of their homeland. In Louisville Germans formed clubs to support the Revolution and they greeted the few revolutionaries who immigrated to their city with open arms. In 1848, Germans in Cincinnati formed the first Turnverein. Louisville's Germans started their own Turnverein in 1851. The first of these organizations had been founded in Germany during the Napoleonic Era to promote the exercise of the mind and body as a means of preserving democracy and fostering true patriotism.

Besides gymnastic exercises, the Turners raised funds for the revolutionaries in the homeland and frequently spoke out against slavery. The Turners were not a popular organization in Cincinnati; much conflict existed between them and the rest of the community. The Turners were vocal in their opposition to Christianity which they claimed stifled free thought. Protestants responded by condemning the Turners for not observing the Sabbath. Archbishop Purcell expressed

his relief that the German Catholics were not influenced by their more radical countrymen; in fact, many Catholics feared that the Turners' physical activities were actually a preparation for future violent activity.⁴³

A second organization was founded in Cincinnati in 1852 which was even more radical than the Turner society. Friedrich Hassaurek who had fled Vienna during the Revolution, organized the Freeman's society. The Freemen were comprised of intellectual Germans who came to Cincinnati following the Revolution, and their supporters. These men were disillusioned by the United States. They had expected to find the ideas of the Enlightenment to be the major influence in America and were disappointed to learn that stifling Puritan beliefs were strongly entrenched in American society.⁴⁴

In both cities the clannish nature of the German immigrants disturbed the native born population. In Louisville, the Germans lived in Butchertown, the easternmost part of the city in the first and second wards, while Cincinnati's Germans lived north of the main section of the city, separated by a canal in an area known as Over the Rhine. These sections in both cities had a distinctly European atmosphere with German businesses and beer gardens lining the streets. Even

in appearance the heavily-bearded Germans stood out in a city of clean shaven men.

They formed their own militia units, singing societies, and theater companies and refused to assimilate into the native culture. Even in matters of religion, the Germans segregated themselves. During the 1830's separate German parishes were established in both cities. In Cincinnati, the large German population posed a special problem. Archbishop Purcell, although well educated and sympathetic to the Germans, spoke no German. This problem was solved by allowing the Germans laity to have a great deal of influence within the Church.⁴⁵

The large numbers of Germans coming into the United States caused Cincinnati voting patterns to fluctuate. The Queen City traditionally had been a Whig stronghold, but by 1844 this trend was shifting. Although the Whigs were victorious in that election it was the first time in that city's history that the Whigs garnered fewer than half the votes.⁴⁶

Hostility toward the German community manifested itself in Cincinnati that same year. As news of the Philadelphia riots reached Cincinnati, nativists held indignation meetings to denounce immigrants. The situation became so tense that many Germans and Irish

did not leave their homes until the tension had subsided.⁴⁷

As the decade progressed, anti-Catholic sentiment grew. By 1846 Catholics made up one third of the total population. Some tried to start an anti-Catholic, anti-immigrant party but were unsuccessful, causing nativism to remain an important part of the Whig platform. This outburst of nativism gave rise to a number of anti-Catholic journals in Cincinnati including the Anti-Papist, which declared itself "devoted to the defense of Protestantism, promotion of evangelical religion and the diffusion of useful knowledge and intelligence generally".⁴⁸

The year 1844 was also an emotional time in Louisville. Kentuckian Henry Clay was the Whig candidate for President, and many Whigs feared that the German Democrats would give their votes to Polk. Rumors circulated throughout the city that the Whigs had hired bullies to keep foreigners away from the polls. These rumors led a German editor to urge his countrymen to come to the polls armed; this warning was translated and published in the Whig papers, leading to fights in the German first ward. ⁴⁹

A handful of Protestant clergymen were dismayed by the popularity that Martin John Spalding, a priest in Louisville, enjoyed as a speaker. Large numbers of

Protestants as well as Catholics would flock to hear the articulate Spalding, who would later become Bishop of the Diocese. Fearing that these lectures would lead to conversions to Catholicism, six ministers from local Baptist, Methodist, and Presbyterian churches joined together in a league to combat the spread of Popery. These men conducted their own series of lectures on the evils of Catholicism. One of the topics was so shocking that women were excluded from the audience.

Catholic leaders attempted to counter the Protestants claims by pointing out the flaws in their logic in articles in the Catholic Advocate. From his pulpit Spalding discussed the divisions among Protestant sects and attempted to clarify some of the more confusing Catholic doctrines. The Advocate noted that the ladies of Louisville were welcome to attend all of Spalding's lectures. According to Catholic accounts, the contrast between Protestant attempts at sensationalism and Spalding's logic and sincerity were so great that many Protestants converted to Catholicism.⁵⁰

These debates ended in 1845, but bitterness towards Catholics survived among the Protestant ministers. In 1849 Edward P. Humphrey, one of the ministers who participated in the anti-Catholic lectures, addressed the Presbyterian Synod of Kentucky

on the spiritual power of the Catholic clergy. When Humphrey declared that Catholicism and republicanism could not co-exist because of the unnatural power that the Catholic clergy held over their people, it caused little reaction. But, six years later the Know Nothings would offer this argument with great success.⁵¹

Kentucky's Constitutional debates of 1849 produced the states most significant failed attempt at nativism. Garrett Davis, a respected Whig leader who would later be considered as a Presidential candidate by the Know Nothings, proposed a naturalization period of twenty-one years be for all immigrants. Davis depicted the immigrants as men saturated in a tradition of degradation and despotism; men "without mental or moral culture, with but a vague consciousness of human rights, and no knowledge whatever of the principles of popular constitutional government." ⁵²

Davis declared that the recent immigration had reduced the ratio of native born to immigrant to five to one. He predicted that by 1870, the native born sons of Kentucky would be outnumbered by the combined numbers of slaves and foreigners. He exhorted his colleagues that this fact "must fill every patriotic and sober mind with grave reflection." ⁵³ He urged his listeners to consider the consequences of giving

foreigners access to the ballot box, since it would be in their best interests to abolish slavery and drive the price of immigrant labor to a new high. The growing number of immigrants should not be a concern of the slave holder alone; the honest native born worker was kept in poverty by the immigrants whose abundance kept wages low.⁵⁴

The fact that most of the immigrants professed the Catholic faith was another mark against them. Aware of the fact that almost all of Kentucky's native born Catholics were Whigs, Davis declared that American Catholicism was quite different from European Catholicism. The latter was "a great all ambitious, all-grasping religious politico institution" that would go to any lengths to destroy other religions. ⁵⁵

This attempt to incorporate nativism into Kentucky's government failed. Several delegates spoke out against Davis's resolution. They denounced his religious intolerance, and condemned him for trying to turn native born citizens against foreigners and Catholics against Protestants by exciting the worst passions in both groups. The Philadelphia riots of 1844 were frequently cited as examples of what would result from this type of agitation ⁵⁶

Some argued that the best class of immigrant would avoid Kentucky under these conditions. They would take

their education, skills, and capital to other states, leaving Kentucky with only the worst class of immigrants.⁵⁷ The proposal was defeated overwhelmingly. Only six members of the convention were in favor of a twenty-one year naturalization period. Sixty-eight were opposed.⁵⁸

Another important issue during the debates dealt with the distribution of state representatives. Louisville, the most populous area in the state, demanded fair representation in the state legislature. Garrett Davis led the opposition to this proposal, arguing that Louisville had the highest percentage of foreign voters who had strong abolitionist leanings. Giving Louisville more representation could lead to the abolition of the peculiar institution. However, most of the delegates ignored the nativists' arguments and adopted Louisville's proposal.⁵⁹

The results of Kentucky's Constitutional Convention illustrate the stability of Protestant-Catholic, and native born-immigrant relations in Louisville. The Catholics were a respected minority; few people in the city believed that they posed a threat to American liberties. Nor was the immigrant population viewed as a menace. The Irish were scorned but few in number. Some harbored strong feelings against the Germans, while others held

this group in high regard. A contemporary observer praised the city's Germans as "a careful, painstaking and industrious people, of quiet, unobtrusive and inoffensive manners." ⁶⁰ Although Louisville had radical German groups, they rarely came to the attention of the American born population. These circumstances allowed diverse groups to coexist in a peaceful manner.

In Cincinnati, both Catholics and foreign born citizens were viewed as alien aggressors. The city's Catholic Church was largely foreign, and a portion of the German population was unusually vocal about their disappointment in their adopted land. These outspoken Germans with their strong antipathy for Catholicism would help to create a unique political system in Cincinnati.

Notes for Chapter I

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Chapter II

A Year of Contrasts

The events of 1853 clearly illustrate the difference in attitudes towards Catholics in the two cities. In Cincinnati opposition to Catholicism resulted in confrontation and violence on several occasions. The Catholics of Louisville enjoyed the rights of a respected minority, but 1853 would be the last year for toleration. National events and local tensions combined to create a nativist movement in Louisville by the following year.

The American political system was undergoing a major realignment in the 1850's which would allow a nativist party to come into power. The Compromise of 1850 had imposed a tremendous sectional strain on the two party system and these tensions were increased during the presidential election of 1852. Both the Whigs and the Democrats endorsed the Compromise and promised to execute the Fugitive Slave Law, much to the chagrin of anti-slavery Northerners. The Whigs made an ill fated attempt to gain the Catholic and immigrant votes by capitalizing on candidate Winfield Scott's

convent educated daughters and his fondness for foreign accents. Few Catholic votes were gained, while these actions alienated the nativist element of the Whig Party. Democrat Franklin Pierce won the election carrying all but four states.¹

The Mayoral election in Cincinnati reflected the splintering of the Whig Party and continued hostility toward Catholicism. Religion and education, which had a turbulent history in Cincinnati, combined to make the Mayor's race bitter. From the earliest years of Cincinnati's existence, Catholic schools received outside funding from European missionary societies and were able to provide a higher quality of education than the common schools. Many of Cincinnati's leading citizens, wanting their children to have the best education possible, sent them to the Catholic schools, against the advice of nativists who warned them that their children were being pressured to reject their Protestant faith.²

Catholics who could not afford to send their children to the parochial schools objected to their children reading the King James version of the Bible in the public schools. In 1842 Archbishop Purcell induced the school board to exempt Catholic children from reading the Protestant Bible. But problems continued because of the hostility displayed toward Catholics and

their religion in the common schools. Common textbooks ridiculed the Catholic faith as backward and superstitious. The Telegraph ran an article about a Catholic girl who was severely chastised by her teacher for maintaining that Catholics worship God when her textbook gave the correct answer as the Virgin Mary.³

Basing their arguments on such evidence, the Catholics claimed that the state-funded common schools were actually Protestant schools. Since Protestant schools were funded by tax dollars, Catholic schools also had the right to be funded by the state. Many Cincinnati Catholics petitioned the Ohio legislature for the money they believed they deserved, a move which outraged many Protestants.⁴

Saving the common schools from the Catholics was the major issue of the 1853 election for Mayor in Cincinnati. Joseph Ross, the Whig candidate, promised protection of the common schools from Catholic encroachment. The nativist faction in the Whig Party was not satisfied with Ross. They demanded a candidate more strongly opposed to nativists and foreigners. James Taylor, the fiery editor of the Times, had always craved political office, but the more moderate members of the Whig party had prevented him from achieving his goal. Now that the Whigs were faltering, Taylor

announced his candidacy for Mayor, promising to defend his country from foreign Princes if elected.⁵

The Democratic candidate for Mayor that year was David T. Snelbaker, a native of Philadelphia who had come to Cincinnati to establish a cooperage business. He took an active interest in the affairs of his adopted city; during the 1830's and 40's Snelbaker was active in the National Trades Union and the Working Men's Party. Later he served as a magistrate and city councilman.⁶

The Whigs attacked Snelbaker and the Democrats for avoiding the school issue. They accused Snelbaker of signing the Catholic's petition requesting funding for their schools. Snelbaker maintained that he was a staunch supporter of the common schools. He published the following statement:

I desire that all persons interested therein should know:

1st. That I am not a Catholic or a Jesuit; but one who walks in the fear of God and strives to keep his commandments.

2nd. That I never knew there was such a petition in circulation.

3rd. That I never saw the petition.

4th. That I never signed it; and

5th. That I am altogether opposed to the prayer of the petitioner.⁷

A fourth candidate entered the election as well. The previous year it was revealed that the Miami tribe, a secret organization in the Democratic party, was attempting to suppress the growing German influence

within that organization. Embittered by this betrayal and fearing the nativist tendencies of both Ross and Taylor, the free thinking Germans nominated J. J. Chambers on an anti-Catholic platform.

With three anti-Catholic candidates and Snelbaker opposed to state funding for parochial schools, the Catholic population believed that it had little voice in city government. Archbishop Purcell fought allegations that he dictated how his flock should vote; he insisted that he had faith in the intellect and judgment of his people and trusted them to make the right decision. Many young Catholics were frightened by the bigotry they witnessed and began to doubt the existence of the republican virtues in which Cincinnati took so much pride. Among the American Bishops Cincinnati gained the reputation of a city populated by bigots and infidels. Privately, Purcell feared that this hostility would soon "ripen into open violent and prolonged persecution."^a

Snelbaker won the election by fewer than a thousand votes.⁹ If the supporters of the anti-Catholic candidates had been united, it is doubtful that Snelbaker would have won the election. His tenure in office would be turbulent. Citizens who had voted for the anti-Catholic candidates were willing to take the issue beyond the ballot box. They would

accuse Snelbaker of favoritism toward Catholics again and again over the next two years.

The first of many confrontations between Snelbaker and Cincinnati's anti-Catholic faction took place a few weeks after the election. A street preacher named Kirkland¹⁰ appeared in the market place and began a violent harangue against the Catholic religion in the vein of Maria Monk's Awful Disclosures; he denounced Catholic women as prostitutes and stated that Catholic orphan asylums were homes for illegitimate children fathered by priests. Tensions flared and fights broke out between Catholics and Protestants; many feared a full scale riot.¹¹

Kirkland promised to return the following Sunday to continue his mission of exposing the evils of the Catholic Church. In an effort to prevent further violence, Mayor Snelbaker wrote to Kirkland. While he admitted that the preacher had the right to speak in public, he warned that language inflammatory enough to provoke a riot would not be tolerated. To preserve the peace and welfare of the city, Snelbaker requested that Kirkland cancel his planned appearance.

The Mayor's plea was of no avail. The following Sunday Kirkland once again stood in the market place to preach. Mayor Snelbaker and several police officers

interrupted the sermon and asked Kirkland to desist. .
This time he complied with Snelbaker's proposal.¹²

Many citizens of Cincinnati were outraged by Snelbaker's actions. Their anger was even greater when they learned that the Mayor had ordered seventeen members of the police force to protect a Catholic procession on the same day. Angry Cincinnatians called a mass meeting to condemn Mayor Snelbaker and defend the rights of Kirkland and his audience. Many people at the meeting freely admitted that they disliked Kirkland; some suspected that his sole purpose was to collect money from his audience while others admitted that they found his sermon offensive. But they pointed out that Catholic newspapers in the East had made equally offensive statements about Protestants.¹³

Among the speakers at the meeting were Protestant ministers who resurrected the rumors of Snelbaker's pro-Catholic leanings that had plagued him during the campaign. They mocked Snelbaker for his concern that Kirkland's preaching would disturb the peace of the Sabbath when the parades and music of the Catholics were allowed to fill the city streets. "Provided you are headed by a Catholic Bishop you have a right to march where you please on Sunday, or any other day; but don't go declaiming against Catholics in the market

spaces or you will be pulled down by authority," declared one speaker at the meeting.¹⁴

Many Cincinnatians believed that problems had arisen because Snelbaker was not qualified for the office he held. Some argued that although he was the best candidate for Mayor that year, he lacked the coolness and tact needed to govern a city like Cincinnati. Others were not so kind; they called the Mayor "a vile thing, civilly, socially and politically" and asserted that he had come into office because most citizens had underestimated the importance of the election that year and had cast their ballots with little thought of the consequences that could follow.¹⁵

The crowd argued that Kirkland should be allowed to speak the following Sunday without fear of molestation by the police force. Several people became agitated and threatened to kill any officer who would dare to interfere with the preacher. Cooler heads convinced the throng that there were more peaceful ways to deal with the situation. They promised that there would be no violence but neither "the Mayor, the Bishop, the Pope, nor the Devil" could break up their assembly.¹⁶

A Committee of One Hundred called for the Mayor's resignation. They argued that Snelbaker had come into office as a result of voter fraud and warned honest

citizens that they must never again allow the ballot box to be unprotected. A voice in the crowd called for the Mayor's impeachment, and many argued that the Mayor of Cincinnati was not exempt from laws to which the President and Senate were subject.¹⁷

Snelbaker responded in print that he was not the petty tyrant that his opponents claimed. Believing that prevention was better than cure, he did everything he could to insure that hostile groups of Catholics and Protestants would not meet. He noted that it was quite a coincidence that the Catholic procession and Kirkland's appearance were scheduled for the same day, but he refused to indulge in further speculation on the matter. He pointed out that the police did not use violence to remove Kirkland from the market place, and that he had refused to allow the police to respond to the preacher's demand to be placed under arrest.

The Mayor stated that once he was positive there would be no violence in the market place, he proceeded to the residence of Archbishop Purcell, where he explained the situation to the Catholic leader and requested that a procession marking the laying of a new cornerstone be postponed. When Purcell refused, twenty thousand people from southern Ohio and northern Kentucky gathered for the procession. The Mayor ordered the police to accompany the Catholics, not only

to protect them, but also to arrest anyone who might disturb the peace.

Snelbaker lamented that he was condemned as a tyrant when he had actually saved the city from bloodshed and tragedy. He promised that Kirkland would be allowed to speak the following Sunday without any interference from the police. But he warned that if a similar situation occurred again, he would do everything in his power to see that tragedy was averted.¹⁸

A portion of the Mayor's followers blamed the Catholics for his problems. They argued that the followers of such a superstitious religion were too ignorant to understand or respect the republican concept of free speech. The secular papers did little but publish reports submitted by the committee and Snelbaker's response. Not surprisingly, the Catholic press furnished Snelbaker's most vigorous defense. According to the Telegraph, Kirkland was well known in his native Pittsburgh as a feeble minded street preacher who was harmless and peaceable until he began to expound on the evils of Catholicism. On at least one occasion Kirkland's behavior was so disruptive that he was taken to jail. The Catholic paper asserted that the Mayor wisely tried to prevent a crazy man from starting a riot, but the city's hostility toward

Catholics magnified the incident until it became a colossal attempt to destroy the rights of free speech.¹⁹

Archbishop Purcell condemned the actions of those "nominal Catholics" whose faith was not strong enough to withstand Kirkland's attacks and who resorted to violence in defense of their religion. He also urged his people to avoid events such as Kirkland's. Significantly, the secular press did not carry Purcell's excoriation and warning; nor did the Archbishop offer any explanation or apology for his refusal to cancel the procession. This served to reinforce the public's view of Purcell and his Catholics as unlawful interlopers.²⁰

Before the year was over Mayor Snelbaker would find Cincinnati embroiled in a situation more violent than the Kirkland affair. Once more he would take steps to prevent violence and face the castigation of Cincinnati's citizens. But calm prevailed for the time being. The following Sunday five thousand people gathered peaceably in the market place to hear Kirkland expound on the evils of Catholicism.

The citizens of Louisville reacted differently when Kirkland came to their city three months later. "He may suit the atmosphere of Cincinnati, but we question whether he will receive any sympathy in

Louisville" declared the editor of the Louisville Democrat.²¹ Kirkland's visit started inauspiciously as he stood in the market space preaching to an audience consisting of slaves and children. A few passersby paused to see what the attraction was, but after a few minutes they assumed that the speaker was hawking a book and quickly moved on. Later that day Kirkland mounted the steps of the courthouse and spoke to a large crowd. A few Irishmen were enraged at the attacks on their religion and started a disturbance, but they were quickly taken away and there was no further commotion.

The prediction of the Democrat was to be fulfilled; Kirkland received little if any sympathy from the people of Louisville. The newspapers denounced the preacher as a scoundrel and a troublemaker and noted that he was anything but an impressive speaker. "His speech was disjointed and he made awful havoc of the King's English." declared the Journal.²² The Democrat was even more outspoken; it condemned the preacher as "a coarse erratic humbug, entirely destitute of the essential qualities to fit him for that high office, . . . he does not show anything of that Christian charity and meekness which should accompany one of his calling."²³

In response to Kirkland's belligerent behavior, Bishop Martin Spalding adopted a conciliatory manner, hoping to prevent a confrontation between Catholics and the preacher's supporters. He urged his flock to stay peacefully at home and treat Kirkland's haranguing with "merited contempt." He maintained that this was the wisest course of action, since "our holy religion can surely receive no injury from attacks so utterly reckless and unprincipled." ²⁴

Kirkland again climbed the steps of the courthouse and began his discourse the next evening, but the crowd was so opposed to the preacher that the City Marshall ordered him to stop speaking. Kirkland left the courthouse square and a portion of the crowd followed him. Fearing their ill-will he ducked into a store; some members of the crowd made a half hearted attempt to follow him, but the presence of police and local militia units prevented them from pursuing him any farther.

Louisville adopted an air of superiority over Cincinnati following the Kirkland affair. The editors of Louisville's newspapers praised both the Catholics and Protestants of their city for living together in harmony. They scorned the people of Cincinnati for holding the rights of a scoundrel like Kirkland in higher regards than the rights of honest citizens.²⁵

Peaceful relations between Catholics and Protestants in Louisville resulted in part because Bishop Spalding accepted his role as a leader of an established minority religious group with a quiet dignity that won the respect of the Protestant community. Archbishop Purcell, on the other hand, was more concerned with asserting the Catholic Church's right to exist in Cincinnati, even if it meant defying the civil authority in minor ways.

Another incident which led to violence in Cincinnati, but caused little incident in Louisville were the cities' Fourth of July celebrations. In Louisville the holiday was celebrated with parades and picnics. The Board of Aldermen had no fear that violence might mar the celebration, no funding was allotted for extra police protection. In fact the Board's main concern was how much money should be allotted for the celebration. In Cincinnati sentiment against foreigners caused tensions to rise as plans were made for celebrating the Fourth of July. The editor of the Gazette, a Whig paper, chided native born citizens for growing complacent about their unique and precious heritage as Americans; he expressed his indignation that German organizations were taking too active a part in the celebration.

Many people agreed with these sentiments, and a few acted upon them. A short distance outside the city a group of Germans were holding a ball in honor of American independence. Eight nativists armed with stones and clubs entered the building and drove the party out into the street, injuring two men and one woman. The attackers fled across the river into Kentucky and no effort was made to arrest them.

Another group of Germans disgraced themselves in the eyes of the native born population and reinforced the image of the militaristic foreigner that many Americans hated and feared. Following the parades on the Fourth of July one of the military companies adjourned to a local tavern. Several members of the company became intoxicated, and a fight broke out among them. Shots were fired and spectators fled. Some were hit with stones, but none were seriously injured. Two of the Germans were not expected to recover from their injuries; one man had been badly beaten and the other had received several blows on the shoulders and head from a sword.²⁶

Following these events the situation between the native born citizens of Cincinnati and the German population became more tense. When a German funeral procession stopped at a coffee house, became intoxicated, and started fighting and throwing

furniture, even the Democratic Enquirer called for "[a] rigid system of strict Americanization." ²⁷

The Freeman added to the tension when they gathered to condemn the presence of Dr. Junghaus, a fellow German who had taken up residence in Cincinnati. According to the Freeman, Junghaus had betrayed two German patriots, leading to their imprisonment during the European Revolutions. They believed that he was currently a spy for the Prussian government. Junghaus admitted that he was a monarchist and that he opposed the American system of government, but denied that he was a spy. The Freeman were unmoved by the doctor's denial and after several incendiary speeches burned him in effigy. ²⁸

Shortly after the Junghaus incident, the Freeman of Cincinnati published a new platform of party politics. They called for support of common schools and opposition to ecclesiastical discipline in social and political affairs. Their platform seemed threatening to the non-Catholic population as well. They called for direct election of all public officials and specified fixed salaries for their offices. The Freeman displayed their abolitionist tendencies by calling for the immediate reduction of slavery in the territories and for the eventual suppression of the peculiar institution.

The Freemen were not content to be merely an opposition party composed of foreigners. They formed a committee to recruit sympathetic Americans to their party. The formation of this committee drew the scorn of many, including the editor of the Gazette who declared that "[the] radical doctrines enunciated in their platform and resolutions do not meet with the approbation of their own population, and we are sure will not with those of American birth." ²⁹

The tensions of the past several months combined with deep hatreds resulting from the European revolutions to make the visit of Papal Nuncio Gaetano Bedini a tragic page in the history of the United States.

As the population of Roman Catholics in the United States grew, the Church hierarchy became more and more concerned with how little they knew about the Catholic situation in this country. The American Bishops' correspondence was filled with accounts of hostilities between various nationalities and the lack of funds for building and maintaining institutions. Other issues included legal concerns over the ownership of Church property and the strong anti-Catholic sentiments that swept the country.³⁰

To gain a better understanding of the problems faced by the church in the young country the Vatican

appointed Gaetano Bedini to visit the United States and report on his findings. Bedini had been ordained a priest in 1828 and held a number of distinguished positions within the Catholic Church. In 1845 he was appointed Apostolic Internuncio to the Imperial Court of Brazil, where he displayed compassion for German immigrants who were being exploited by their employers. He worked to have the corrupt director of the German colony replaced and said masses and heard confessions for the Germans until he was able to secure the services of a priest who could speak their language.³¹

Bedini assumed the position of Prolegate of Bologna in 1848; this position was roughly equivalent to that of a military Governor. Italian nationalist revolutionaries despised Bedini and the Catholic Church for allying with the Austrian empire, whose armies crushed the revolutionary uprising. Bedini had been decorated by Bologna's municipal government for promoting business and agriculture and assisting those who had lost their jobs during the uprising. Nevertheless, the bitterness defeated nationalists felt toward him as the representative of the Church was so strong that it spread to the United States.³²

Before returning to Brazil, Bedini was instructed to visit the United States to observe the conduct of the clergy, conflicts between various ethnic groups,

and the progress of missionary work among slaves and Indians. He was also responsible for resolving a Trustee dispute in Buffalo and for delivering Papal greetings to President Pierce.³³

The American Bishops received little prior notice of the Nuncio's visit. Letters informed them to follow Bedini's advice to help put their own ecclesiastical affairs in order. Many of the Bishops feared that he was conducting an investigation of their behavior on behalf of the Vatican, or paving the way for greater Vatican control over the American Church. They also believed that an ulterior motive of the trip was to improve diplomatic relations between Rome and the United States and to lay the groundwork for the establishment of an Apostolic Nunciature in Washington D.C.³⁴

Bedini was delighted by the opportunity to visit the United States. He was anxious to observe the liberty enjoyed by the American people and to see the zeal of their Bishops and priests. In particular, he looked forward to visiting Cincinnati and seeing his old friend Archbishop John Purcell. The two men had met in 1838 when Purcell was in Europe to collect money to build Catholic schools in Cincinnati. During Bedini's tenure in Brazil the two men carried on a long correspondence concerning the problems faced by the

Germans in their congregations. The Nuncio had hoped that his visit to Cincinnati would come early in the trip, but there were other duties to be fulfilled first.³⁵

The visit that Gaetano Bedini had joyfully anticipated would be clouded by allegations made by Bologna's Italian nationalists. During Bedini's tenure as Prolegate, Bologna was occupied by the Austrian army. Several members of the nationalist movement were captured and executed by the Austrians, including a former Catholic priest named Ugo Bassi. Although Bedini did not learn of Bassi's capture and death sentence until after his execution, stories began to circulate that Bedini had signed his death warrant and had ordered that the skin on his hands and forehead where he had been anointed as a priest be peeled away before he was shot. Several versions of this gruesome tale reached the United States before Bedini's arrival. Some equated the Nuncio with a savage who scalped his victim while others suggested that Bedini had ordered that the former priest be flayed alive.³⁶

Bedini's alleged atrocities captured the American imagination. A fictionalized account of Bedini's boyhood was published that depicted the young Gaetano as such a corrupt and depraved youth that the Roman Catholic hierarchy handpicked him for a major office.

They found him perfect for "any undertaking that required a sacrifice of honor, principle and conscience." ³⁷ Bedini's career was filled with unspeakably evil deeds such as condemning good Protestant women to death for reading the works of Luther. After the execution of Bassi, he was sent to the United States to organize the Sanfedesti, a Catholic organization whose motives were so evil that the author could not publish them.³⁸

The political implications of Bedini's visit alarmed many Americans who feared that the Nuncio was only the first of many European Papists who would come to the United States. Among the nativist element it was believed that Bedini "had plenary powers to take possession of President, government and all, provided that the work had sufficiently progressed to bring the Americans into quiet submission to his Holiness Pius IX." ³⁹

The main proponent of this propaganda was an Italian named Alessandro Gavazzi who traveled through the United States ahead of the Nuncio to warn the masses about the atrocities committed by Bedini in Bologna and the evils of the Catholic Church. When Gavazzi visited Cincinnati in 1853 the papers were filled with stories about the tall, florid faced man

with long black hair dressed in clergyman's garb and enveloped in a long black cloak.

According to his lectures, Gavazzi entered the priesthood at a young age, but before long he learned about the evils of the Catholic faith and spoke out about them in spite of the severe punishment he received. Gavazzi boasted that his spirit was not broken by the torture and imprisonment inflicted upon him by his former superiors. He joined with the nationalists in 1848 and served as a soldier and preacher until he was captured. When he was released from prison he departed for England and began his crusade against the Catholic church.

Besides the stories about Bedini, Gavazzi discussed the way his native land had been ravaged by the Church and urged Americans to send money to support the overthrow of the government. He encouraged the women of America to abandon their quest for political rights and to devote themselves to educating their children instead of placing them in the care of Catholic nurses and schools.⁴⁰

Not long after Gavazzi's triumphant visit to Cincinnati he traveled south to Louisville. Brief notices of his visit appeared in the local papers, but they were less than complimentary. The Courier noted that although Gavazzi considered himself to be a

peaceful man, violence inevitably followed him. Hoping to prevent a disturbance, the Journal urged anyone who might be inclined to stir up trouble to avoid Gavazzi's lecture.⁴¹

The Italian's speech passed without incident. It received mixed reviews. The nativist Courier praised Gavazzi for his eloquence as an orator and the logical and comprehensive nature of his argument. The editors suggested that if Gavazzi spoke in Louisville again it would be difficult to find a hall large enough to accommodate his audience. The Journal briefly noted that Gavazzi spoke for two hours, but his thick accent made much of the speech unintelligible. The paper described his dramatic manner and noted somewhat caustically that Gavazzi "might probably be the greatest actor living." ⁴²

Neither the Courier nor the Journal gave detailed accounts of Gavazzi's lecture. The event was not even mentioned in the Democrat. There is no evidence that the lecture was published in pamphlet form for mass distribution in Louisville. Only a small portion of the city's population would have had access to Gavazzi's incendiary remarks. This, along with Louisville's toleration of Catholics, helped to prevent violence when Bedini visited that city.

Gaetano Bedini's visit to the United States contained both triumph and tragedy. In a strange twist of fate the Papal Nuncio found himself at one point sharing a railroad car with Gavazzi. Bedini must have felt a tremendous sense of vindication when Gavazzi cowered in the rear of the compartment, afraid to face the man whose name he had dishonored.⁴³ In Boston where anti-Catholic feeling ran rampant following the alleged abduction of a young Protestant woman by Catholic clergymen, Bedini's quiet dignity won him many admirers.⁴⁴

From the Catholic church's point of view, Bedini's resolution of the Buffalo trustee dispute in favor of the Archbishop was a huge success. This dispute had dragged on since 1829 when the pastor and trustees of St. Louis Church in Buffalo quarrelled over property rights to donated land. Bedini ruled that the Bishop had not agreed to incorporation under New York law, which made the contract invalid. While the Catholic clergy rejoiced that Bedini's decision marked the end of the trustee conflict, Protestants were horrified that a foreign official would come into the United States and settle a property dispute in favor of the Catholic Church. The former trustees declared Bedini's visit the start of a religious civil war. Before long New York's fledgling Know Nothing Party used the case

as an example of the aggressive nature of the Catholic Church.⁴⁵

In several cities Bedini faced severe opposition. Before Bedini arrived in New York an Italian exile approached Archbishop Hughes of New York and informed him that a band of exiled Italian nationalists would be waiting near the Cathedral armed with stilettos to kill the Nuncio. Hughes half believed the man's story and took the precaution of notifying the Chief of Police. Before the week was over the informant was found stabbed to death. A wave of fear and panic swept the Catholic community of New York. Bedini encouraged Catholics to remain steadfast in their faith in a letter published in the Freeman's Journal, the official organ of the Archdiocese of New York. In his letter the Nuncio stated that his life was in the hands of God and he would continue to love those who hated him. He urged them to pity the men who had plotted his death as unhappy beings who could never again set foot in the land of their birth.⁴⁶

Privately, Bedini confided to Purcell that he was fighting a feeling of desperation for the sake of the American Catholics who eagerly awaited his arrival. Again, Bedini expressed his strong belief that Divine Providence would protect him and asked Purcell for his prayers. In spite of his frightening experience, the

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Nuncio's enthusiasm for his visit to Cincinnati was not dampened. This plot against Bedini's life caused the American Bishops to keep the Nuncio's actions as quiet as possible to protect him from his enemies. ⁴⁷

Before departing for Louisville and Cincinnati, Bedini fell victim once again to an angry mob. In Pittsburgh the carriage he was riding in was attacked by a band of ruffians who blew cigar smoke at the Nuncio through the carriage windows. The day after this demonstration occurred, Bedini wrote to Purcell from Pittsburgh and requested that no fanfare should greet him when he arrived in Cincinnati. To prevent further violence, he asked that Purcell and Spalding refrain from publicizing his schedule for Cincinnati and Louisville. Upon arriving in Cincinnati Bedini was greeted by Archbishop Purcell and Bishop Spalding, and stayed overnight. The next day Spalding accompanied the Nuncio to Louisville.⁴⁸

Although not everyone in Louisville was happy about the Nuncio's visit, it was peaceful. A group of Germans gathered in Butchertown to condemn Bedini's visit. The angry Germans flagellated and burned an effigy of Bedini. No violence or bloodshed accompanied the demonstration. The Courier remarked that "the thing was done in so quiet and genteel a manner that people generally knew nothing about it."⁴⁹

Bedini spent two days visiting schools and charitable institutions in spite of a cold, a sore throat, and the strain of his recent experiences. He "had a kind smile and a word of fatherly encouragement and admonition for all." While in Louisville the nuncio tried to allay Protestant fears of a possible Catholic takeover by urging the Catholic population to be good citizens of the republic as a part of their religious duties.⁵⁰

Bedini returned to Cincinnati on December 21 where he visited Catholic schools, hospitals and orphan asylums and officiated at Christmas services in the Cathedral. Bedini's visit to Cincinnati might have passed without incident had the Freeman's organization not learned of Bedini's activities through the Catholic newspaper. Because of their own involvement in the Revolutions of 1848 they adopted Ugo Bassi as a member of their cause and felt that they could not allow his alleged murderer to pass through their city without notice. The Hochwachter published an article entitled "The Butcher of Bologna" which condemned Bedini for his evil deeds. Bedini's visit to the United States was depicted as a triumphal procession with Catholics unharnessing the horses and pulling the carriage themselves, "[o]xen and asses in place of horses" declared the author.⁵¹

The Hochwachter stated that the Germans alone could avenge the murdered nation of Italy; there were few Italians in the city and no other group could be counted on. The Yankees had no feelings or principles, their whole concern was making money. The Irish were ignorant and "unable to discover under cross and Rosary the heart of stone - the heart of a hyena" possessed by Bedini. The article went on to declare that the Nuncio was in America to destroy the peace of the nation, and anyone who welcomed him was an enemy of liberty.⁵² Bedini had committed an evil unrivaled on earth and "the opportunity for revenge should be taken hold of and used to the utmost."⁵³

The article in the Hochwachter put Mayor Snelbaker in a difficult position. The Kirkland affair had brought the wrath of the city upon him, but others complained that Cincinnati was being over run by crime and rowdyism. In some sections of the city organized gangs caused respectable citizens to cross over to the other side of the street out of fear for their safety. The abundance of saloons, houses of prostitution and overly sympathetic jurors were blamed for the condition of the city. Few people agreed on how much of the blame belonged with the police. Some argued that the police were doing their best with only 130 officers in a city with over 100,000 citizens. Others felt that

the police were lazy and flaunted their authority over minor offenders while they avoided dangerous criminals.⁵⁴

Snelbaker promised to do whatever was necessary to prevent nativist violence in Cincinnati following the Kirkland incident. He feared that the Freeman's society intended to harm or even kill Bedini. He later wrote that the Society was made up mostly of young men who had recently come from Germany and were strongly influenced by Friedrich Hassaurek. They were "liable in a moment of excitement to commit violence upon the persons, not of Catholics alone, but of every other sect or denomination of men or even of individuals whose path runs at right angles to their own."⁵⁵ On Christmas night Chief of Police Thomas Lukins ordered both the day and evening officers to remain on duty and wait for further orders. They did not know why they were being detained but quietly obeyed their superiors' request. Later that evening Captain Lukins informed Purcell that his home might come under attack, and ordered one hundred officers to the watch house near the Cathedral.⁵⁶

At ten o'clock the Germans emerged from their hall carrying a mock scaffold, an effigy of Bedini and transparencies bearing the slogans "Down with the Roman Butcher," "Down with Bedini," and "No Priests No

Kings". The Freemen passed the hall where the Turner's held their meetings and unsuccessfully attempted to persuade them to join in the protest. When the procession turned down the street leading to the Cathedral, the police emerged from the watch house.⁵⁷

It is not known which side fired first, but in the space of a few minutes several more shots were fired. Stones, clubs, and slingshots were all used in the melee. When the riot was over, sixteen protesters were wounded. One, Charles Engelberger, later died from his wounds. Sixty-three members of the German organization were arrested and detained in the watch house.

Friedrich Hassaurek was later arrested for aiding and abetting the rioters. A bail of five hundred dollars was posted for each defendant. To help his imprisoned compatriots, the President of the Freemen's Society published the following notice:

The Friends of the murdered and wounded, in the onslaught made by the police on Christmas night have secured the services of able counsel, who will immediately proceed to bring about a thorough investigation of the sad and disgraceful affair. Blood has been shed and justice should be satisfied. The appeal is to all lovers of liberty and law and order for aid. Let the appeal be liberally answered.⁵⁸

In a gesture of goodwill Archbishop Purcell sent a contribution of ten dollars to the fund established for the Freemen. He stated that the differences of faith and opinion should be forgotten when people are in

need. The Archbishop extended his sympathy to the wounded, both police and protester. The Freeman's society returned the money with the following scathing words:

. . . the blood of a brother barbarously murdered stands between you and us. . . Our honor and our conscience forbid us to accept a gift from a hand which, while it pretends to shake that of his brother under the garb of humanity, as a token of friendship, seeks to annihilate him making that noble feeling of humanity subservient to private views. And persuaded as we are by a long train of historical facts and the late occurrences of a Jesuit under the guidance of the despotic King of Rome can never mean good, nor deal with sincerity toward men known to cherish republican opinions and sentiments of justice and brotherly affection.⁵⁹

The Telegraph was outraged that so sincere a gesture would be rejected. The editor, Rev. Edward Purcell, brother of the Archbishop, stated that the donation was intended for the wounded poor who had been duped by the misrepresentation and falsehood of the Freeman.⁶⁰

In an address to the citizens of Cincinnati the Freeman attempted to justify their actions. They asserted that they had a moral obligation to the people of Cincinnati to inform them about the evil deeds of Bedini and the Catholic church, spanning from the Inquisition to the Revolution of 1848, in which brave men died horrible deaths "for having dared to utter the words of Liberty and Freedom." The Freeman demanded to know if Cincinnati was under the control of the

Jesuits, and recalled earlier tensions in the city by asking if they were not afforded "the same rights as the Roman Catholics in this city, who last summer and also on a Sunday made a public demonstration without the least hindrance or molestation." ⁶¹

Cincinnati was uneasy following the riot. Six hundred members of the Freeman's society gathered to bury their fallen compatriot, whom they deemed a victim of Popery. Tensions were at such a high level that fighting broke out among spectators of Engelberger's funeral procession over a seat on an express wagon to view the proceedings. The authorities asked the Catholic community to cancel the procession scheduled that weekend for the consecration of a new church. The Catholics replied that the procession had already been cancelled before the riot at Bedini's request. The Nuncio believed that out of respect for the solemnity of the occasion the procession should not be held. He also feared that a street celebration on a Sunday might offend church members of other denominations. ⁶²

Eighteen fifty four would prove to be a year of transition. In both cities there would be serious repercussions following Bedini's visit. In Louisville the Catholics who had once been tolerated and accepted seemed more and more sinister. The German Freeman and Turner organizations which had once remained quietly in

77.

the background became more vocal, especially on the issue of slavery. These changes in perception, along with national events allowed the anti-Catholic, anti-foreign Know Nothing Party to flourish in Louisville. In Cincinnati, government incompetence and corruption were discovered in the trials that followed the Bedini riots. More revelations of malfeasance led diverse groups of citizens to form a temporary coalition under the leadership of the Know Nothing Party that would remove many members of the unpopular Democratic administration from office.

Endnotes for Chapter II

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2. William A. Baughin, "Nativism in Cincinnati Before 1860" (M. A. diss., University of Cincinnati, 1963), 20-21

3. Catholic Telegraph and Advocate, April 2, 1853. Joseph Michael White, "Religion and Community: Cincinnati Germans 1814-1870" (Ph.D. diss., University of Notre Dame, 1980), 352.

4. White, 352.

5. White, 354. Cincinnati Commercial, March 29, 1853. Cincinnati Times, March 24, 1853.

6. Charles T. Greve, Centennial History of Cincinnati and its Representative Citizens (Chicago: Biographical Publishing Company, 1904), 654. Steven J. Ross, Workers on the Edge: Work, Leisure, and Politics in Industrializing Cincinnati, 1788-1890 (New York: Columbia University Press, 1985), 48-52.

7. Cincinnati Enquirer, March 20, 24, 1853. Cincinnati Times, March 24, 1853.

8. Archbishop John Baptist Purcell to Archbishop Anthony Blanc, 22 March 1853, Archdiocese of New Orleans Collection VI-1-e, UNDA. Archbishop Anthony Blanc to Archbishop John Baptist Purcell, 6 April 1853, Archdiocese of Cincinnati Collection II-4-1, UNDA. Catholic Telegraph and Advocate, March 26, April 9, 1853.

9. Greve, 654.

10. Most newspapers of the period referred to the preacher by his last name only. But, on May 7, 1853 the Columbian and Great West called him Hugh Kirkland and the Louisville Democrat identified him as Patrick Kirkland, a native of Cincinnati. This information does not appear in any of the other papers.

11. Cincinnati Commercial, April 25, 1853. Cincinnati Enquirer, April 29, 1853.

12. Columbian and Great West, May 7, 1853.
13. Cincinnati Enquirer, April 29, 1853.
14. Cincinnati Commercial, April 28, 1853.
15. Cincinnati Commercial, April 28, 1853.
Cincinnati Enquirer, April 29, 1853.
16. Cincinnati Commercial, April 28, 1853.
Columbian and Great West, May 7, 1853.
17. Strangely enough, there were no direct accusations of foreigners or Catholics "stuffing" the ballot boxes to insure Snelbaker's election.
18. Cincinnati Commercial, April 30, 1853.
Cincinnati Enquirer, April 26, 29, 1853. Columbian and Great West, May 7, 1853.
19. Catholic Telegraph and Advocate, May 14, 1853.
20. Catholic Telegraph and Advocate, April 30, 1853.
21. Louisville Democrat, July 18, 1853.
22. Louisville Journal, July 18, 1853.
23. Louisville Democrat, July 18, 1853.
24. Louisville Journal, July 18, 1853.
25. Louisville Courier, July 19, 1853. Louisville Democrat, July 19, 1853. Louisville Journal, July 19, 1853.
26. Minutes, Louisville Board of Aldermen, June 28, 1853. Louisville Courier, July 4, 5, 1853.
Cincinnati Gazette, July 1, 1853.
27. Cincinnati Enquirer, July 7, 1853.
28. Cincinnati Enquirer, July 16, 1853.
Cincinnati Gazette, July 15, 1853. Columbian and Great West, July 15, 1853.
29. Cincinnati Gazette, August 11, 1853.
Columbian and Great West, August 20, 1853.

30. Rev. James F. Connelly, The Visit of Archbishop Gaetano Bedini to the United States of America (Rome: Analecta Gregoriana, 1960), 1-3.

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32. Connelly, 289-290. Archbishop Gaetano Bedini to Archbishop John Baptist Purcell, 21 July 1853, Archdiocese of Cincinnati Collection II-4-1, UNDA.

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34. Connelly, 6-21.

35. Bedini to Purcell, 21 July 1853, Archdiocese of Cincinnati Collection II-4-1, UNDA. Sr. Mary Agnes Mc Cann, "Archbishop Purcell and the Archdiocese of Cincinnati" (Ph. D diss., Catholic University of America, 1918), 28-31. Connelly, 5.

36. Catholic Telegraph and Advocate, January 7, 1854. Cincinnati Enquirer, January 5, 1854.

37. Isaac Kelso, Light and More Light; or Danger in the Dark (Cincinnati: Epenetus Hampson, 1855.), 187.

38. Kelso, 167.

39. Frederick Rinehart Anspach, The Sons of Sires: A History of the Rise, Progress and Destiny of the American Party and its Probable Influence on the Next Election (Philadelphia: Lippencott, Grambo & Co., 1855), 32.

40. Columbian and Great West, October 23, 29, 1853.

41. Louisville Courier, October 28, 1853. Louisville Journal, October 28, 1853.

42. Louisville Courier, October 29, 1853. Louisville Journal, October 29, 1853.

43. Connelly, 33.

44. Connelly, 42-47.

45. Connelly, 50-74.

46. Connelly, 38-39.

47. Bedini to Purcell, 22 October 1853, Archdiocese of Cincinnati Collection II-4-1, UNDA. Archbishop Francis Patrick Kenrick to Archbishop John Baptist Purcell, 25 October 1853, Archdiocese of Cincinnati Collection II-4-1, UNDA.

48. Bedini to Purcell, 12 December 1853, Archdiocese of Cincinnati Collection II-4-1, UNDA.

49. Louisville Courier, January 21, 1854. The demonstration was apparently so mild that few people in the city knew about it at the time and it was not reported in the newspapers until a month after it happened.

50. Catholic Telegraph and Advocate, December 24, 1853.

51. Catholic Telegraph and Advocate, January 7, 1854. Cincinnati Enquirer, January 5, 1854. There are no existing editions of the Hochwachter from 1853. Translations of the Bedini article were printed in some of Cincinnati's other papers after the riot.

52. Catholic Telegraph and Advocate, January 7, 1854.

53. Cincinnati Enquirer, January 5, 1854.

54. See for example: Cincinnati Commercial, January 5, 1853. Cincinnati Enquirer, June 25, 1853. Cincinnati Gazette, August 11, 1853.

55. Cincinnati Enquirer, January 5, 1854.

56. Cincinnati Commercial, December 26, 1853. Cincinnati Times, January 5, 1854.

57. Cincinnati Enquirer, January 5, 1854.

58. Cincinnati Times, January 3, 1854.

59. Cincinnati Times, January 3, 1854.

60. Catholic Telegraph and Advocate, December 31, 1853.

61. Cincinnati Commercial, December 29, 1853.

62. Catholic Telegraph and Advocate, December 31, 1853. Cincinnati Commercial, December 30, 1853. Cincinnati Enquirer, January 5, 1854.

Chapter III

The Rise of Nativist Parties

Eighteen fifty four was a year of great turbulence throughout the United States. The nation's faltering party system received a deathblow when the Kansas Nebraska Act passed after months of the fiercest Congressional fighting that the United States had ever witnessed. The Kansas Nebraska Act allowed popular sovereignty to decide if slavery would be allowed in the two new territories, areas that had been declared free soil by the Missouri Compromise. The Democratic Party was badly weakened as free soil and pro-slavery factions developed within the organization. The Whig Party was destroyed by the Nebraska bill; Northern Whigs were among the most dedicated advocates of free soil principles in the nation, and were unable to forgive their southern counterparts who had overwhelmingly supported the bill.

The Know Nothing Party tried to step into the void left by the demise of the Whig Party. The Know Nothings had started in New York in 1849 as the Order

of the Star Spangled Banner. Political discontent helped the organization to grow, and by 1854 Know Nothing lodges had sprung up all over the United States. The motto of the Know Nothings was "Americans only shall govern America," and they promoted a passionate attachment to the institutions of the United States and the history¹ of its purer days. Vigilant opposition toward any attempts to weaken the nation was another Know Nothing principle and the party called for strict new immigration laws to protect the nation from foreigners.

Claiming the perpetuity of the Union as their main goal, the Know Nothings denounced the actions of the Whigs and Democrats regarding the abolition of slavery. They declared that Congress could not legislate on the subject because the Constitution did not recognize slavery, so Congress could not legislate on the subject.¹

The Know Nothing Party did not have an official ticket in the Cincinnati elections of 1854, but its influence was clearly felt in the sweeping victories of the independent People's party. Recent historians of nativism have cited the independent victory in Cincinnati as proof of a temporary fusion of anti-Catholic and anti-Nebraska factions,² or a union of nativists, temperance advocates and abolitionists.³

While opposition to the Nebraska bill did give the independent party many supporters, most notably the city's non-Catholic Germans, revelations of corruption and inefficiency in city government and the Democrats' alienation of the German community also played an important part in the independent party's success.

When the sixty-three Germans charged with attempting to commit violence against Bedini were indicted, Cincinnatians initially perceived them as lawless radicals; after the evidence was presented, however, they were viewed as innocent men whose rights had been violated by a brutal police force and an inefficient and corrupt city government. Throughout the proceedings the Freeman maintained that they only wanted to express their contempt for the clergyman and "would not stain [their] fingers with his accursed blood."⁴

They pointed out that there were many women and children in their procession who, if violence had been intended, would have been left behind. A number of them also insisted that they were not members of the Freeman's Society, but had seen the procession passing and had joined it out of curiosity, or were innocent bystanders who had the misfortune of attracting the attention of the police force. They said that although they went along to the watch house peacefully, many

were beaten by police officers as they were taken away or after they were placed in the cell.

The charges against the sixty-three were dropped when the Prosecutor declared that there was not enough evidence to prove that the defendants intended to harm Bedini, or that they had even been part of the procession.⁵

The dismissal of charges against the defendants did not mark the end of the Bedini affair. The citizens of Cincinnati were outraged by the conduct of the police force and demanded an investigation. Once again, a committee of one hundred was formed. The committee called on the Mayor to explain why he had left the situation in the hands of the police chief when he clearly expected violence, and why he defended the rights of Bedini when he had been so anxious to suppress Kirkland's freedom of speech months earlier. It tried to determine why Judge Spooner had not been on hand to read the riot act, and demanded to know if their rights as citizens and taxpayers were to be protected or if they were "to be beaten down in the streets of [their] own cities by [their] own police officers."⁶

Friedrich Hassaurek was also enraged by the events of Christmas night. Although he was not present for the demonstration, he had been arrested anyway on

charges of inciting a riot because of the article that appeared in his paper. The editor claimed that the article had not even been written by him but rather by a young friend who was in a state of "justifiable excitement" after witnessing Bedini's atrocities first hand. Hassaurek also declared that the translation of the article Snelbaker cited was a gross exaggeration and an attempt by the Jesuits to undermine the Freeman's organization. The charges against Hassaurek were dropped since there was no evidence to prove that he had participated in the riot.⁷

That same day, Hassaurek swore out a warrant against Judge Spooner, Chief Lukins, and over one hundred members of the police force. The men were arrested and charged with assembling for an unlawful act and doing violence to the persons of Hassaurek and others. Most of the men were released with orders to be present for the hearing scheduled for the following Monday. Two officers were brought before Mayor Snelbaker on charges that they had beaten prisoners in the watch house. One of the officers was convicted and dismissed from the police force, and the second officer was arrested and turned over to the criminal courts.⁸

In accordance with the demands of the committee of one hundred, a court of enquiry was held to determine what had happened on the night of the twenty fifth.

The hearing went on for two weeks; hundreds of witnesses were called and the actions of police force and city officials were scrutinized. The witness who did the most damage to the reputations of Mayor Snelbaker, Judge Spooner and Chief Lukins was William Dickson, the Whig who served as Prosecuting Attorney of the Police Court. During his testimony Dickson revealed that the Mayor held him responsible for not obtaining a conviction in the Freeman's trial. Snelbaker had maintained that he could produce witnesses who would swear that the organization planned to kill the nuncio, as well as the names of prominent Cincinnatians who had mingled among the crowd and beat the Germans. None of these witnesses were ever produced. Dickson also stated that Snelbaker had requested that charges against the Freeman be reduced to disorderly conduct. The Prosecutor denied the Mayor's request, knowing that the charge of rioting did not justify the brutality of the arrests, and fearing that a lesser charge would cause more scandal if the public learned of the beatings that the prisoners suffered at the hands of the police.⁹

Snelbaker was asked why he left his office when he clearly anticipated trouble from the Freeman. He insisted that he remained in his office until nightfall and left only after he believed it was too late for any

violence to erupt. He maintained that it was customary to hire extra officers during the holiday season, and while he condemned the kicking, he felt that the situation had been otherwise well handled.¹⁰

Further testimony showed that the Mayor had not taken an active part in preventing a physical confrontation between the Germans and Bedini. The Mayor had not discussed the possibility of violence against the nuncio with Archbishop Purcell; instead he offered Chief Lukins the opportunity to confer with the Catholic leader if he desired to do so. Lukins declined to warn Purcell of the impending danger, and after consultation with Police Court Judge William Spooner, the two men decided against placing a contingent of police officers around the Cathedral to protect Purcell and Bedini, believing that it would be better to take the Germans by surprise.¹¹

Judge Spooner was also censured for not reading the riot act and ordering the crowd to disperse before the confrontation with the police. Several witnesses claimed that Spooner had urged Lukins to proceed with the arrests without giving the protesters proper warning. The Gazette stated that this was cowardly behavior, and noted that in "ancient times when hostilities were designed, gallant men sent heralds in

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advance to announce their approach, but Lukins and his men lay in worse than an Indian ambush."¹²

Police Chief Thomas Lukins drew the most fire for his role in the Bedini incident. Two men came forward claiming that they had been brutalized by Lukins on the night in question. One stated that he was merely watching the procession when the Chief grabbed him. When the man protested that he was not involved in the protest, Lukins threatened to "mash [his] head" and threw him to the ground and kicked and beat him. Finally, Lukins dragged the man to the watch house where his pocketbook was taken from him and never returned. The second man claimed that Lukins grabbed him and dragged him through the crowd, cursing violently and ordering his men to kill the protesters.¹³

One of the most disturbing pieces of information to come from the testimony was the evidence of the physician who examined the body of Charles Engelberger. Judging by the position of the bullet wounds, it was determined that the shots had been fired by someone standing erect, while the victim who had been knocked to the ground was struggling to get up.¹⁴

Women and the elderly were not exempt from brutality at the hands of the police force on the night of December 25, 1853. Witnesses stated that there were

at least one hundred women in the procession, and a number of them had been knocked down by police officers during the melee. John Stolz, a former city councilman, said that he had followed the procession out of curiosity and suddenly found himself in the middle of the riot. After being accosted by an officer, Stolz promised to go along willingly and pleaded with the officer not to strike an old man. Heedless of the prisoner's pleas and promises, the officer beat Stolz as he was taken to the watch house.¹⁵

Even the prisoners who were treated humanely at the time of their arrest were likely to meet with violence in the watch house. There were numerous accounts of prisoners being beaten by the police in the watch house, and many claimed that their injuries were not attended to for several hours after their arrests. Prosecutor Dickson was horrified at the conditions in the watch house when he viewed the situation the morning after the riot. He said that six men were crowded into cells that were only made to hold two men, and he called for the windows to be opened so the prisoners could breathe.¹⁶

After weeks of dramatic testimony, the trial of the police force ended in an anticlimactic manner. The court allowed Judge Spooner to retain his position, but

called upon Captain Lukins to resign. Lukins and two other officers were bound over to the criminal courts, and a handful of other officers were dismissed from the force. Satisfaction was not to be gained in a court of law. The criminal courts dismissed the cases on the grounds of insufficient evidence.¹⁷

The citizens of Cincinnati were horrified by the actions of their police force. One way of expressing disgust for the actions of Lukins and his men was to make them the butt of derisive jokes. One local wit declared that "it is probable that the present chief of our Cincinnati police will be known in our annals and by posterity as the celebrated 'Little Kickapoo Chief'" because of his fondness for kicking men smaller than himself.¹⁸ A Cincinnati poet expressed his disdain for the police in "Pitch-In" which concluded with the following lines,

"The Kickapoo police force
This wondrous precept know,
That 'tis the best of policy
To let big culprits go;
But kick the little fellows
And pound their heads like sin
Aye! let 'em feel the mighty power
Of our war-cry "Pitch-In" ¹⁹

Black humor was not the only means of expressing anger about the present state of affairs. Some citizens of the Queen City still believed that the Freeman's rights had been violated. In a symbolic attempt to rectify the wrong, four thousand Americans

gathered in the vicinity of the Cathedral to set an effigy of Bedini ablaze. When the figure was almost completely burned, a member of the crowd tore it down and hurled it under the steps of the watch house. A scuffle followed as police officers retrieved the burning effigy. Two officers were slightly injured and three arrests were made. Most of the crowd dispersed peacefully, but a few proceeded to the home of Judge Spooner where they filled the air with groans and discordant music.²⁰

This incident set off a frenzy of effigy burning in the Cincinnati area during January, 1854. Bedini, Spooner, and one of the witnesses for the defense were burned in effigy in various parts of the city. Across the river in Covington, Kentucky a group of citizens sent a sardonic invitation to Thomas Lukins requesting that he send Snelbaker, Spooner, and the police force, because they were planning to burn the nuncio in effigy and needed the Cincinnatians to protect them in case of a riot. A few days after the invitation was sent, a seven foot tall effigy of Bedini was peacefully burned in Covington.²¹

The threat of another riot seemed imminent when a man on horseback galloped through the streets, ringing a bell and warning the Irish laborers that the Cathedral was to be attacked. Almost four thousand

Catholics gathered to protect the building. The combined efforts of Mayor Snelbaker, Archbishop Purcell and Chief Lukins, who had declined to tender his resignation until this crisis had passed, finally induced the Irish to return to their homes.

These events caused Bishop Purcell to recall the fate of the martyrs of old. He noted "with the hue and cry against us heard in the streets, and together with the burning of effigies making night hideous and preparing our souls for martyrdom - for which it seems after all God did not see us well enough prepared, for which he did not deem us worthy."²²

In the midst of the terror that surrounded them, Cincinnati's Catholic clergy found comfort in the conduct of their people. The Archbishop was amazed at the "[m]oderation, wisdom and firmness" that his flock had displayed during their time of trial. Tensions among the various Catholic ethnic groups were forgotten for a time as all the Catholics in the city united in defense of their faith. In addition, clergymen noted that many young people who had abandoned their religion had come back into the fold.²³

The last contact that the Catholics of Cincinnati had with the nuncio was a letter that was written to Purcell, and subsequently published in the Telegraph. Bedini thanked the Archbishop for his hospitality and

forgave the citizens who had acted upon the false accusations made against him. He wrote:

All that malice and hatred against our Holy Religion had accumulated on my head to make me odious to this amiable American nation and thus paralyze [sic] the effect of the Benedictions of an envoy of the Holy Father. [It] could neither diminish or destroy the consolations which my soul enjoyed at each moment in the midst of Catholics so pious and full of zeal.

I deplore the evil consequences of the atrocious calumnies propagated with the most hideous effrontery, remonstrances of common sense; as if a puerile credulity could have existed in a nation so enlightened and full of noble sentiments; but the consequences of evil are for him who harbors it in his heart or seeks to propagate it.²⁴

The Nuncio would have preferred that this letter never be published. He did not want to seem too harsh toward the people of Cincinnati, nor did he want to indulge in idle flattery. In his official report, Bedini placed the blame for the riot squarely on the shoulders of the Freemen, who he condemned as hypocrites who demanded freedom for themselves but refused to acknowledge the rights of others. They called on the laws of the United States to protect them, he stated, but they refused to obey the laws if they were not in their favor.²⁵

In 1854 the Know Nothing Party gained a majority of seats on the city's board of Aldermen, Common Council and school board. Traditionally, historians have attributed the success of the Know Nothings in Kentucky to the breakdown of the Whigs; no self

respecting Kentuckian would give their allegiance to the party that had deprived their favorite son, Henry Clay, of the Presidency four times.²⁶ There is much validity in this theory. There was so much hostility against the Democratic party in the state that a young Kentuckian declared that he would appear in Harvard's catalog as a resident of Baltimore if Kentucky went for a Democratic candidate.²⁷

Belonging to the Whig Party was so deeply ingrained in the Kentucky character that many Know Nothings continued to view themselves as Whigs of the "Henry Clay School". As one member of the Kentucky Grand Council declared, "I have been a Whig ever since I was a man and am yet one in principle under the title of 'American.'" Others simply considered membership in the Know Nothing Party as a means of biding their time until the Know Nothings would die out and the spirit and principles of the Whig party would rise from the ashes.²⁸

But longstanding devotion to the Whig party does not explain why the citizens of Louisville, who had long accepted Catholics and only months earlier had driven one anti-Catholic street preacher out of town and virtually ignored another, suddenly embraced a political party that held proscription of Catholics as one of its most cherished goals.

While it is possible that many Louisville voters viewed the American party as the successor of the Whigs and scoffed at the secret rituals, there was a shift in attitudes towards Catholics and foreigners that would enable a nativist party to flourish in Louisville. Bedini's visit to Louisville marked the beginning of tension among both the Catholic and foreign populations. Always sensitive to the mood of the community, Bishop Spalding blamed much of the tension on the ambiguous nature of Bedini's visit. The Catholic Church had not issued a statement about the nuncio's background or mission, and the accounts in the Catholic papers often contradicted each other. Also, Bedini's status in the United States placed him in limbo, since he was neither an ambassador nor a private citizen. But Spalding doubted that the visit would have gone more smoothly had Bedini been accredited directly to the United States, since neither political party would have been anxious to recognize him.²⁹

Following the Bedini visit, there was a growing sentiment in Louisville that the Catholic church had violated the trust of the community by bringing in a member of a foreign hierarchy to settle legal disputes. Some Protestants began to believe that Catholics were not sufficiently grateful for the toleration afforded them in their city. They pointed out that Bedini, a

foreigner, had been able to lead his followers in the manner of worship practiced in his native land, even when angry Americans had tried to prevent him from speaking. They questioned whether an influential American Protestant leader would receive similar privileges in the Papal States. Catholics, once a respected minority, suddenly seemed sinister. The ethnicity of the church had also changed. No longer were most of Louisville's Catholics native-born Americans. In addition to the German church which had been erected in 1838, St. Patrick's, an Irish parish, was consecrated in 1854. The American Catholics who settled in Louisville had an independent spirit that enabled them to defy ecclesiastical authority, but nativists feared that European Catholics would not be able to withstand the pressure of the hierarchy.³⁰

Louisville's German community had never enjoyed the levels of toleration that the city's Catholics had. The liberal German's political views and social activities had seldom attracted the attention of the native born population, but the Germans became more and more vocal following Bedini's visit and began to be seen as a threat to many in Louisville. The liberal Germans condemned the United States government for submitting to the power of Rome and prided themselves

for burning the nuncio in effigy before their brethren in Cincinnati did so.³¹

Louisville's free thinking Germans formed their own Freeman's society early in 1854. A member of the Cincinnati organization who had been a witness in the police trial addressed the meeting with an account of Bedini's visit to Cincinnati and the riot that followed. The organization announced its support of the Cincinnati Freeman and condemned the actions of the police and Bedini.³² Once they had gained the public's attention, the Germans advertised their desire to create a true reform party. These Germans believed that a new party was the only solution for the nation's problems, since the Whigs contained a large nativist element and the Democrats supported slavery. They praised the Constitution of the United States and the values espoused in the Declaration of Independence, but argued that slavery, privileges of race and station, and the party system prevented all Americans from claiming their full share of democracy's bounty.

To remedy these defects, the Union of Free Germans issued a document which would later be known as the Louisville Platform. The content of the Louisville Platform was similar to the platform that the Freeman of Cincinnati had issued several months earlier. But the Union of Free Germans was not content to leave

their platform a local document and sent copies to President Pierce, his cabinet, members of Congress, and State Legislatures. Newspaper editors also received copies of the Platform, and twenty-three Western editors and four Eastern editors included the document in their publications.³³

Opposition to the Catholic Church was an important plank in the Louisville Platform. Its creators called for Washington to denounce the Roman Catholic Church as a despotic organization whose aims were in direct opposition to republican values. While the Germans' belief that every priest was an agent of the Pope and every Catholic his subject echoed the views of nativists, they also attacked America's Protestant tradition. The Germans argued that true freedom of religion would not exist in the United States until Sunday closing laws, Thanksgiving Day, prayer in Congress and oaths on the Bible were outlawed.

In the field of foreign affairs and immigration, the United States was called upon to end its policy of neutrality and intervene when a fledgling republic was threatened by a despotic monarchy. To ease the way for new immigrants, the government was expected to introduce a special bureau of colonization and immigration. In turn, any immigrant who refused to

swear allegiance to the Constitution of the United States would face deportation.

In order to achieve true equality, the drafters of the Louisville platform demanded a revision of inheritance laws that would make a non-working aristocracy obsolete. The government would be responsible for preventing corrupt unions from exploiting labor's power for their own ends. For the workers' benefit a national credit bank, a ten hour work day, and a fair minimum wage would be established. Property would be made available to any American who wanted it and national resources would be used to support indigent colonists.

The Union of Free Germans also called for a major overhaul of the penal, legal, and electoral systems of the United States. They condemned the existing legal system as too complicated and called for simplified legal handbooks that would make the law accessible to a larger portion of the population. Claiming that correction, not retribution was the goal of the penal system, the liberal Germans called for the abolition of capital punishment. In the political realm, an end to the party system was demanded. All public officials were to be directly elected by the people and sectional differences would be resolved by allowing every American citizen to elect Congressmen from every state.

Finally, the Louisville Platform called for true equality of all citizens, namely women and blacks. Based on the statement that all people are created equal with certain inalienable rights, the Union of Free Germans demanded suffrage rights for women. Since blacks were denied equality by the peculiar institution, the Germans urged that slavery be abolished and former slaves be given full rights as citizens.³⁴

The Union of Free Germans invited any American who truly was opposed to the pro-slavery policies of the Democrats and the nativist policies of the Whigs to join with them to form a true reform party. In reality, the Louisville Platform only deepened tensions between natives and immigrants. Many natives scorned the Germans for their desire to reform the United States government, even though they had only been in the country for a short time. The newspapers emphasized the Germans' intention to vote as a block, and since one third of Louisville's population was German, this was not an idle threat. Garret Davis's warning that the foreign born and slave populations would outnumber the native born citizens by 1870 became increasingly urgent.³⁵

German societies in several states adopted their own set of resolutions based on the Louisville

Platform. Although the Freeman of Cincinnati had published their intention to form a similar party six months before, they published a more formal version in the spring of 1854. The Platform was no more popular in Cincinnati than it had been in Louisville. Even the pro-immigrant Enquirer condemned the document, stating that it opposed the idea of any party being formed on the basis of its members' nativity. The paper also disliked the Germans' demand for full citizenship rights for blacks, stating that if abolition was inevitable, colonization would be preferable to blacks being given voting rights.³⁶

Cincinnati's Spring elections of 1854 reflected the nations' political disorder, but concerns about malfeasance in local government were equally important. Cincinnati had traditionally been a Whig city. The Democrats only came into power in the 1840's as the immigrant population grew. The current Democratic Mayor had only come into office because three anti-Catholic candidates had divided the vote. The revelations of corruption and mismanagement caused many to seek new city leaders.

For a while it appeared doubtful that the Democratic party would even offer an official ticket for the Spring elections. The proposed Kansas Nebraska bill caused much dissent among Cincinnati Democrats.

The Enquirer, the city's Democratic organ, strongly supported the Kansas Nebraska act and declared that the abolition movement was made up of "negroes, strong minded women, and fanatical white men."³⁷ Only a small portion of Cincinnati Democrats agreed with this sentiment. Among the most vocal opponents of the Nebraska bill were Cincinnati's Germans. During the spring of 1854 they held several meetings denouncing the despised legislation. They called for all Americans to put aside prejudice resulting from birth, religion or party affiliation and stand against the party of slavery. Cincinnati's former Whig papers took a lively interest in the division and noted that the German population was almost all opposed to the bill, and since they had made up the Democratic majorities, politicians should be mindful of their opinions.³⁸

A small contingent of Cincinnati's Democrats met to voice their support for the Nebraska bill. The turnout was disappointingly low. Party regulars blamed the German leaders who had arranged a meeting in the Turners Hall the same evening and accused them of wanting to keep the truth about slavery from the rest of their people.³⁹

After much debate, a Democratic ticket was assembled for the upcoming election. Party leaders feared that without an official ticket the Democratic

vote would be divided among several unofficial candidates. Declaring that "to be defeated after a gallant struggle, would be better than an unconditional surrender beforehand," the Democratic ticket went forward to almost certain defeat.⁴⁰

There was no official Whig ticket in the Spring of 1854 and the Know Nothings had not yet organized. A few candidates for city council ran under the name "Independent Whig," but there was no party unity. Instead an independent party was formed to prevent undesirable Democrats from gaining office. One of the Independent party's special targets was Joseph Steel, a shoemaker, who was running for wharf master. It was alleged that Steele was a close friend of Mayor Snelbaker and had a great deal of influence in the current administration. Steele was soundly defeated. He ran third in a field of four candidates.⁴¹

The new Independent ticket contained a strong nativist element; two of the most closely watched elections dealt with opposition to the Catholics and Irish. James McCord, the Democratic candidate for director of the city infirmary was an Irish born Catholic. Nativists claimed that the Catholic hierarchy desired control of the city infirmary, because it was one of the few charitable institutions in Cincinnati that the Catholics did not run. The

nativist press avowed that McCords's Catholic education in Ireland and his continuing profession of that faith would make him a puppet of the Roman hierarchy, and put the infirmity under their control. In spite of Democratic assurances of McCord's compassion and commitment to American principles, he was overwhelmingly defeated.⁴²

The most hotly contested race during the 1854 election took place in the heavily Irish thirteenth ward. The Democratic candidates for city council and school trustee had previously supported public funding for Catholic schools. The supporters of the independent ticket feared that the Democrats could win these seats with the help of unnaturalized voters. Conditions looked grim the morning of the election, hundreds of Irishmen from the thirteenth ward poured into the courthouse for their naturalization papers, and observers noted a large number of strange faces at the polls. Supporters of both the Democratic and Independent parties surrounded the polling place to insure that no illegal voting took place, and in some cases to intimidate members of the opposition. Tensions ran high and fights broke out, but no one was seriously injured. Mayor Snelbaker and several police officers were on hand to insure that the polls would be closed peacefully at the end of the day. The nativist

platform triumphed, but the vote was close with the independent candidate for city council winning by only eighteen votes.⁴³

Overall, the spring elections were a great triumph for the independent ticket. The Democrats captured only a few positions, including council seats in the first, third, and fourth wards where most of the Irish population lived. Rather than reflecting a real fusion of conflicting elements concerned with national issues, the independent party addressed more immediate local issues and longstanding prejudices against Catholicism.

Following the spring election Cincinnati's nativists tried to keep the evils of Catholicism constantly before the eyes of the public. Rumors flew around the southern part of the state that a priest had received a shipment of weapons and was plotting a Catholic takeover.⁴⁴ More substantial than rumors was the trial of a priest accused of attempting to rape a student in a Catholic school. The defendant, Peter Kroeger, was a respected member of the clergy. He served as superintendent of the school and as editor of Cincinnati's German Catholic paper.

The only facts that the testimony of both sides agreed upon was that Kroeger asked to hear the girl following her confession, became angry with her and struck her. The alleged victim, Catherine Meyers was

described as a well developed girl with "a sluggish temperament which gives her an appearance of stupidity." ⁴⁵ According to Meyers, Kroeger called her into the sacristy, pulled up her skirts and whipped her with a stick. Then he asked her if she had ever sinned with a man and tried to pull up her skirts once again to see if this denial was true.

Meyers said that she managed to escape from the priest and ran home and told her parents about the whipping. There was no mention of rape at that time. Her parents investigated legal action against the priest, but upon learning that a charge of assault and battery would bring only a small fine, Meyers turned to Stephen Molitar for redress. Molitar was the editor of the Volksblatt, an anti-Catholic publication, and he and Kroeger had carried on a long feud in the pages of their respective papers. After a long private discussion with Molitar and her mother, Catherine Meyer introduced the charge of attempted rape.⁴⁶

Kroeger denied these accusations, but admitted that he called the girl into the hallway after her confession and "tried to persuade her to go call her mother, and tell her in his presence something of importance to the girl's welfare." When the girl refused he became angry and slapped her across the face

but denied that he pulled up her skirts or made any improper advances.⁴⁷

Doubts were raised regarding Meyers' testimony when a couple of her classmates came forward and reported that Catherine had bragged that all of her accusations were lies. Another witness who damaged the prosecution's case was the Protestant architect who designed the new church where the alleged incident took place. After his dealings with Kroeger, the architect believed that he was an honorable man. He suspected that since the girl's family was poor, the accusations might be a simple attempt to extort money from the Church. The architect approached the Meyers family and told them that if money was the motive for the accusations he would be willing to pay them himself in order to save a good man's reputation. He was told that "there was a time when money would have settled the matter, but that time was past."⁴⁸

No verdict was reached in the Kroeger case. Nine members of the jury voted for acquittal, and the three jurors who had called for a conviction had voiced strong anti-Catholic sentiments throughout the case. Kroeger was released on \$2,000 bond until September when another trial was slated to begin, but it seemed doubtful to many that the case would ever be retried. Even the assistant prosecuting attorney declared that

the evidence offered by the state would not warrant a second trial. The Kroeger case was dropped from the papers; there are no reports of a trial taking place in September.⁴⁹

The Catholic Church believed that the accusations against Kroeger was part of a plot by "native bigots and foreign infidels" to arouse hatred against the Catholic Church. Considering the strong nativist sentiments in the city, this is a distinct possibility. Stephen Molitar was involved with the nativist independent ticket, and may have viewed the situation as still another opportunity to portray Catholics in an unfavorable light to gain support for the nativist ticket. The nativist papers published only the seamiest portions of the testimony, and the Times declared before the trial ever began that the conviction of Kroeger would sully the reputations of all Catholics in the United States.⁵⁰

While the nativists used stories of priests stockpiling weapons and attempting to rape young girls to appeal to the voters' emotions, they used the writings of Catholic editor Orestes A. Brownson to appeal to their logic. Many of the articles written that portrayed Catholicism as the antithesis of republicanism were based on statements in Brownson's Review. At first the Telegraph sided with Brownson,

stating that Protestants read the Review to misconstrue the articles. But, as the campaign against the Catholics heightened, it became less tolerant of Brownson, and declared that the Bishop of Boston should censor Brownson's writing more closely. His writing caused such a furor, that many accused Brownson of sympathizing with the Know Nothings, a charge he denied.⁵¹

Although the independent party was sometimes referred to as the Know Nothing-Anti-Nebraska ticket, nativism was more important than slavery in their party platform. After spending the summer presenting Catholics in a bad light, the nativists continued to present Catholicism in direct opposition to republicanism, and dredged up old accusations that Purcell would produce large numbers of voters for the Democratic ticket. The independent ticket abandoned some of its earlier hostility toward the immigrant population during the fall campaign. Cincinnati's many Germans would be a valuable asset for either party and the independent candidates declared that the industrious Germans were quite different from the lazy Irishmen. The Times even paid the German Catholics a rather backhanded compliment, declaring them much more receptive to republican values since contacts with Protestants in their homeland helped them cast off the

superstitions normally associated with their religion.⁵²

A large portion of Germans did support the independent ticket, because the Democrats continued to endorse the Nebraska bill. The Germans stated that they would give their support only to candidates who opposed slavery. The Democrats tried to convince the Germans that they were supporting a party which would eventually proscribe them and put them on a level below the slave. But the actions of Cincinnati's Democrats were as important in driving Germans into the arms of the independent party as the slavery issue.

Before the election, Jesse Timanus, a Democrat and an alleged member of the Miami tribe who was currently supervising construction of the new courthouse, took out an advertisement for three hundred native born Protestant laborers to work on that building. Timanus later resigned, and the Democrats tried to gloss over the incident saying that poor health had clouded his judgment in the matter and that neither Timanus or the party leadership harbored any ill feeling toward Catholics or immigrants. The Democrats' efforts to minimize the incident were of no use. The independents used the event to demonstrate that the nativist Miami tribe was still alive in the Democratic party and better organized than ever.⁵³

Another incident that damaged the Democrats' relationship with the German community took place at the Hamilton County Democratic Convention. Before the convention, the Enquirer clearly stated that the party would re-endorse the Baltimore Platform which forbade the agitation of the slavery issue. German leader Charles Reemlin had been threatened with physical violence if he spoke out on the slavery issue and disrupted the convention. Reemlin ignored the warning and declared that the Democratic party faced serious obstacles in the fall election. Re-endorsing the Baltimore Platform would not solve them.

Instead, he suggested that they condemn the Nebraska Bill and then turn their attention to local issues. He spoke of the corruption that plagued the construction of the new courthouse and other city buildings. He called on the Democrats to take concrete measures to preserve naturalized citizens' rights rather than vaguely denouncing the Know Nothings. As he was speaking, another delegate came up behind him and hit him over the head, then several other members of the convention set upon Reemlin and beat him. After he recovered the Democrats offered Reemlin a chance to finish his speech, but he refused, causing the Enquirer to accuse the German of being fond of creating

disturbances, but running away once trouble had been stirred up.⁵⁴

Through a series of unwise actions the Democrats lost a number of their German supporters. Endorsement of the Nebraska bill, discriminating against the Germans in hiring for public works, and assaulting one of their leaders, both verbally and physically, all helped to insure an independent victory in the fall. While the Germans had ample reason to turn away from the Democratic ticket, not all of them trusted the independent party. They could not believe that the independents suddenly abandoned their nativist sentiments. They suspected that if the People's Party was successful in proscribing the Irish, it would only be a short time before the Germans also faced proscription. They warned the independents that they supported them because of their opposition to the Nebraska bill, but "negro slavery loses much of its interest the moment that slavery of the white man is sought to be introduced. When our Constitutional rights are called into question, then Know Nothingism becomes our anti-Nebraskaism."⁵⁵

Besides the loss of their German support, the Democrats faced a general lack of trust from the electorate. The construction of a new courthouse was a great scandal for the party. The Democrats had

promised that the building would be completed at the cost of \$200,000, but the bill for the still uncompleted building had risen to over \$400,000. A large portion of the extra expense was explained when it was revealed that padded contracts had been granted to Democratic favorites. Accusations were also made that public money had been embezzled or used on party schemes.⁵⁶

In short, the people of Cincinnati were ready for a change. They were tired of corruption and malfeasance in office and political bargaining, so it was no surprise that the independent ticket enjoyed an overwhelming victory in October. As the fall elections approached, tensions ran high on both sides. Rumors of illegal voting and fraudulent ballots ran rampant in Cincinnati and both the Democrats and independents organized forces of men in each ward to guard the polls. The elections were surprisingly peaceful. While some men were arrested for attempting to vote illegally, there were few reports of violence, and the Times grudgingly admitted that Mayor Snelbaker should be commended for his excellent management of the police force during the election.⁵⁷

Every single candidate on the People's ticket won the seat to which he aspired, in some cases by a majority of several thousand votes. Among other

offices gained by the nativist ticket were two Congressmen, a Superior Court Judge, a probate and two common pleas judges, as well as a sheriff and other county offices.⁵⁸ The "Treasury Eaters" as the Democrats had been dubbed, were soundly defeated, but the success of the independents was to be short lived. By the April elections the Democrats would be back in power. The people of Cincinnati quickly learned that the Know Nothings were more corrupt than the hated Treasury Eaters."

Louisville was the scene of political changes as well. With the disintegration of the Whig Party and the shift in attitudes toward Catholics and foreigners, the Know Nothings easily filled several seats on the Board of Aldermen, the Common Council, and the School Board during the Spring election. The only controversy in the April election concerned whether or not the citizens should be voting for a Mayor. Louisville's Mayor was elected for a term of two years, but the man who won the office in 1851 resigned after only one year. An election was held in 1852 and the victor was James Speed. Speed was a Whig and a member of one of Louisville's most prominent families as well as a convert to Catholicism. During the 1852 election it was not specified whether Speed was elected for one

year to fill his predecessor's post, or if he had gained a two year term in his own right.

In 1853 a Democrat announced his candidacy for Mayor. Speed argued that he had been elected to a two year term and refused to run again, but his supporters put his name on the ballot and he was easily re-elected. This did not end the controversy, and yet another election was held in 1854. The situation would come to a climax the following year, but until then Louisville experienced a unique set of circumstances, a city governed by a Catholic Mayor and a Know Nothing Council.⁵⁹

Conflicts between natives and foreigners continued following the spring election. One of the most publicized disputes involved the liberal Germans and the Louisville Democrat. In keeping with their opposition to organized religion, the Germans refused to keep a Protestant Sabbath and spent Sundays visiting taverns or indulging in picnics or gymnastic exercises. The Democrat objected to these activities, saying that the German loafers prevented orderly citizens from enjoying their Sunday. The paper asserted that its opposition to the Germans was not the result of nativist sentiment, but it believed that neither native or foreign born citizens should be allowed to disturb the peace.⁶⁰

This growing nativist sentiment led to physical violence. Throughout 1854 the Louisville papers were peppered with accounts of violence between native and foreign born citizens. Americans attacked Irishmen on 11th Street a section of town that would become a hotbed of nativist violence over the next several months. Americans entered an Irish coffee house and killed a patron and injured the proprietor. Reports of random nativist violence appear throughout the Louisville papers. Whether this reflects an increase in nativist violence or not is uncertain. Possibly, editors found it to their advantage to focus on the violence committed by the nativists or the immigrants, depending on their own political views. In any event the increased attention to the nationality of the victim and the perpetrator reflects a greater awareness of immigrant issues in the city.⁶¹

The Know Nothing Party continued to grow, so it was no surprise when they were successful in the fall elections. The Americans added a temperance plank to their platform and called for the passage of a Maine Law, an act that the foreign population considered abhorrent. The Courier commented that the Know Nothings were "thirsty for office" while their opponents were thirsty for whiskey. The Know Nothings gained several offices including City Judge and City

Marshall. For the most part, the elections were peaceful although a few called for "an old-fashioned Kentucky fight." Long lines at the polls caused the most problems, and a number of men were turned away without getting to cast their ballots.⁶²

Now that the Know Nothings were firmly entrenched in Louisville, they took steps to curtail the liquor trade. The nativist Courier carried many news items about immigrants and intemperance. The Know Nothings proposed legislation to remedy the problem. According to their new liquor law, an applicant for a tavern license in Louisville would be required to file an application to sell liquor as well as one to open the tavern. Other provisions of this plan would include forfeiture of the liquor license of any proprietor who sold alcohol any time on a Sunday, or after 10 P. M. any other night of the week.

Mayor Speed vetoed these laws after they were passed by the city council. He argued that these proposals were in opposition to the Kentucky statutes, and therefore that the City of Louisville did not have the power to enact them.⁶³

James Speed's actions brought him the antipathy of the Know Nothing Party. His marriage to a Catholic and conversion to that religion already made him suspect,

but his veto of the American's pet piece of legislation contributed to the popular Mayor's downfall.

Considering the rapid rise of the Know Nothings in Louisville, it is surprising that none of the city's newspapers became an official Know Nothing publication. When the Courier was founded in 1844, it published a strong nativist platform and continued these sentiments over the next decade. In spite of his American sentiments, Walter Halderman, the editor of the Courier, did not join a Know Nothing lodge and seemed more than a little ambivalent about the Know Nothings. His main fear was that the young party would be taken over by washed up political hacks who would subvert American ideals for their own ends.⁶⁴

George Prentice, editor of the Journal, was even more suspicious of the new party. A die hard Whig, Prentice remained uncommitted all summer hoping that the Whigs would make a comeback. He did not trust the Know Nothings, they were an untried organization, there was no telling what they might do. He disliked their policy of putting men unschooled in politics in office and feared that the party was evasive on the slavery issue. Moreover, Prentice had been on excellent terms with the Catholics of Louisville throughout his career and believed that a general exclusion of Catholics and foreigners was wrong. "Our views have been well known

for many years, and they have undergone no recent change," he declared.⁶⁵

The following year, Louisville would experience a summer of terror and bloodshed resulting from the Know Nothing movement. While a few abandoned the movement as a result of violence, other remained faithful. To them, the Know Nothings offered a solution to the newly perceived problems of Catholics and foreigners, as well as a means of preserving the Union, Southern rights, and slavery.

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12. Cincinnati Gazette, January 6, 1854.
13. Cincinnati Enquirer, January 10, 1854. Cincinnati Gazette, January 10, 1854.
14. Cincinnati Enquirer, January 14, 1854.

15. Cincinnati Enquirer, January 12, 1854.
16. Cincinnati Enquirer, January 12-14, 1854.
Cincinnati Gazette, January 12-14, 1854.
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Cincinnati Times, February 21, 22, 1854. The loss of Cincinnati's court records in an 1884 fire make it all but impossible to determine why these men were acquitted. The partial court dockets provide little or no information about the evidence presented by either side. City council meeting minutes published in the March 2, 1854 issue of the Gazette noted that some officers had been dismissed cruelty to prisoners. But, a few weeks later, Lt. William Phillips, one of the officers who had been tried for his role in the Bedini riot was reported to have arrested a woman on March 15 and given evidence at her trial. See Enquirer, March 19, 1854.
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Cincinnati Times, April 7, 1854.

40. Cincinnati Enquirer, March 15, 1854.

41. Cincinnati Times, March 30, 1854. See also
Times, April 4, 1854. Cincinnati Gazette, March 30,
1854.

42. Cincinnati Times, April 1, 1854. Cincinnati
Enquirer, April 1, 1854.

43. Cincinnati Times, April 4, 1854.

44. Cincinnati Gazette, July 29, 1854.

45. Cincinnati Commercial, July 11, 1854.

46. Cincinnati Commercial, July 11, 1854.
Cincinnati Gazette, July 11, 1854. Cincinnati Times,
July 11, 1854.

47. Catholic Telegraph and Advocate, July 8, 1854.

48. Cincinnati Commercial, July 11, 1854.
Cincinnati Gazette, July 11, 1854.

49. Catholic Telegraph and Advocate, July 15,
1854. Cincinnati Gazette, July 12, 1854.

50. Catholic Telegraph and Advocate, July 1, 1854.
Cincinnati Times, July 10, 1854. The newspapers were
unusually quiet about the Kroeger case. Part of this
may be the result of a murder trial in Louisville a few
months before that received heavy newspaper coverage.
The accused had been convicted in the local media
before the trial, and the public was outraged when the
man was acquitted, in fact the jurors in the case were
burned in effigy. Following this event, many called
for information about felony cases to be kept out of
the newspapers. The Cincinnati Commercial contained an
article on this subject on July 10, 1854. While
morality may have been a factor it hardly seems likely
since lurid tales of life in convents occasionally
appeared in the Cincinnati papers.

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Chapter IV

The Politics of Fear: The Election Day Riots of 1855

The Cincinnati and Louisville elections of 1855 both erupted into violence. But the nature of the conflicts were quite different. Cincinnati's Germans defended themselves against native born citizens, while the more brutal Louisville riots included attacks on Catholic property as well as foreign born citizens. The violence reflected the political situation of each city. Although Cincinnati's nativists still used anti-Catholic rhetoric, it was the united German population that they feared the most. In Louisville both Catholics and foreigners were perceived as a threat to republican institutions.

In 1854 Cincinnati voters had formed a temporary coalition led by the Know Nothings to remove corrupt officials from office. In April, 1855 voters found themselves confronted with a candidate that they trusted less than the Democrats who had been replaced a year earlier. The Know Nothing Party signed its own death warrant by nominating James Taylor, the editor of the Times whose rabid hatred of foreigners as well as

Catholics was well known, as their candidate for Mayor. Taylor was unpopular with many voters. He was not a wise choice for the new party. It had long been suspected that his nativism was merely a tool to help him win political office, especially since he had broken away from the regular Whig party two years earlier during the Mayoral election and split the vote, giving the victory to Snelbaker.

Several months before, some of Cincinnati's Protestant Germans warned that they would maintain an alliance with the Know Nothings only as long as their rights as citizens were protected. Under Taylor's leadership the American ticket lost the support of non-Catholic foreigners. He frequently made statements defending the secrecy of the party's organization, declaring that it was necessary since foreigners controlled the old Whig and Democratic parties. Taylor's candidacy caused the Know Nothings to lose much of their credibility as a reform movement. The Commercial, whose editors were not affiliated with either party, had supported the independent party the previous year. But Taylor's nomination caused them to declare that "[a] reform party so far gone that it has lost the power to present its safe sound judicious men to the people as candidates had better disband." ¹

The rhetoric that had drawn thousands into the American ranks six months earlier seemed tired by the spring of 1855. There were no revelations of corruption or incompetence in office, only vague warnings of the danger the city would be in if the "Treasury Eaters" won the election. Cincinnati had been one of the worst governed cities in the United States for the last decade, declared the Know Nothings; criminals of all kinds had settled in the city because the police were unable to do anything about them. Government officials expended energy only if they could line their own pockets. The Times maintained that the lunatic asylum which was under construction for an estimated \$400,000 would end up costing \$800,000 if the Democrats came back into power.

While the American reform ticket still stressed the dangers of Catholicism, this issue proved to be less important in this election than it had in previous years. The Times predicted that Protestants would lose all religious freedom if the Democrats were elected. Taylor cited the brutality that befell the Bedini rioters as an example of what Protestants had to look forward to if Papal power and the American political system were once again allowed to unite. ²

The Democrats waged a strong offensive battle against the Know Nothings in 1855. They warned

naturalized citizens that Pap Taylor would gladly accept their votes, but he would repay them by taking away their voting rights. The Democrats also exploited the fact that Taylor was the child of Irish parents, and suggested that he may have been raised in the Catholic faith. The Enquirer reported that other members of the nativist ticket had boasted of their Irish heritage in previous years, but abandoned their heritage to win the votes of nativists. ³

A large portion of the population expressed serious doubts about both parties. The Democrats' reputation was still tarnished from the revelations about corruption in their ranks the year before, but the disreputable Taylor was not regarded as an acceptable candidate for Mayor. Several groups who had supported the independent ticket the previous year, including many former Whigs, non-Catholic Germans and Irishmen, as well as Cincinnati's small Jewish community, decided to avoid any party entanglements. Instead, they would examine the candidates carefully and vote for the ones they considered best qualified, regardless of party. All of these groups heartily endorsed James Farran, the Democratic candidate for Mayor. In their opinion, the lawyer and former state legislator was better qualified for the office than Taylor. ⁴

In past years the German population had been divided over religious and social issues. But Pap Taylor's long history of prejudice against foreigners made issues like the extension of slavery, or the common schools seem trivial in comparison to their rights as citizens in their new land. With more than thirty thousand Germans living in Cincinnati in 1855, large numbers of native born Americans who voted the Democratic ticket and more than thirteen thousand Irish immigrants who were predominantly Catholic Democrats,⁵ defeat for the American reform ticket seemed almost inevitable. Desperate actions were necessary for nativists to retain power.

Their usual plea for Americans to guard the polls went out, and for extra protection hundreds of Know Nothings from Northern Kentucky lodges were brought across the Ohio. Mayor Snelbaker feared that the emotional climate of the city would result in violence and appointed a strong additional police force to prevent bloodshed. Before dawn natives and foreigners clashed in several wards over control of the polls. But every man who was qualified to vote was able to cast his ballot without difficulty that morning.

The quiet of the morning did not last. Rumors that young German boys had been allowed to stuff the ballot boxes in various wards spread throughout the

city. Random acts of violence were reported; a man who expressed his support for Farran was severely beaten, a well dressed, elderly man was chased down the street by German boys who were throwing stones at him. In Over the Rhine a young German was flogged without mercy as he stumbled blindly through the streets, blood from a head wound streaming down his face.

The first mob violence broke out in the eleventh ward, an area with a large foreign population. Stories circulated that the Germans who had gained possession of the polls were not allowing American voters to cast their ballots, and Know Nothings from every part of the city made their way to the scene. A German militia unit was firing a cannon on a hill overlooking the city⁶ until a group of Know Nothings made their way up the hill and, after fierce fighting, obtained both the cannon and the militia commander's sword. The nativists dragged the cannon back to the eleventh ward and positioned it across from the polls. Mayor Snelbaker and several police officers went to the eleventh ward in hopes of restoring order. Their efforts were unsuccessful. One portion of the mob turned their attention to the Mayor, who was knocked to the ground, his coat torn from his back. This created the diversion needed for the mob to snatch the ballot box and poll book from the ward and destroy them.

The next target of the mob was the heavily Irish thirteenth ward. The polls were closed and the ballots safely removed, but the attack on the Mayor had only whetted the Know Nothings' appetite for violence. The mob dragged the cannon to the ward, filled it with stones and fired several times, injuring several bystanders. That night the Germans and Americans fought for the cannon; the former group was victorious and dragged their prize back to Over the Rhine.

The following day excitement broke out in the German twelfth ward. The American judges declared the election invalid, claiming that there were more votes cast than registered voters in the ward. Before any official action could be taken, a Know Nothing mob stormed the polling place, seized the ballots and poll books and stuffed them into the fire, before hoisting the American flag above the building. Many believed that the Know Nothings assertions of election fraud were false, for otherwise they would have been anxious to preserve the proof. 7

The cannon that the Germans had recaptured during the night became the focal point of the struggle. Several nativists proceeded to Over the Rhine in an attempt to win back the weapon, but they were greeted by a volley of German fire and forced to turn back. Fearing another attack the Germans erected barricades

across the bridges that led into their part of the city. The well organized German troops joined by members of an Irish militia unit, patrolled the barricades. On the other side of the barricades, street corners were littered with red triangular scraps of paper, the Know Nothings' signal for an emergency meeting.

Thousands of nativists gathered in the streets near the barricades. Party leaders tried to convince the men to allow the authorities to retrieve the cannon, but their efforts were useless. At ten o'clock that night four hundred nativists attempted to march across the bridge into German territory. The disorderly and possibly inebriated procession was led by fife and drum players and included small boys throwing stones at the German troops. The Germans were waiting for the procession; militia units were armed and ready at the barricades, while other men stood on the housetops or watched at windows armed with firearms, bricks and boulders, prepared to attack any nativist who threatened their homes. The small band of Know Nothings were no match for the Germans. They were fired on from every side and forced to flee. One of the Americans was killed during the failed raid, and another later died of his wounds.

The rest of that night and into the next morning, a number of leading citizens, including James Farran and Timothy Day, a former Democrat who had been elected on the independent ticket to Congress the previous year, attempted to negotiate a peaceful settlement with the Germans regarding the cannon. Finally, the Germans agreed to return the cannon to the armory, but insisted on retaining the carriage to insure that the weapon would not be used against them again. Believing that tensions would ease when the cannon was returned, the Germans removed the barricades but kept one militia unit on patrol near the bridges.

Upon hearing that the cannon had been returned the nativist mob rushed to the armory to view the weapon, but were outraged to learn that the Germans still retained the carriage. A mob gathered near the bridge and called for the wheels. There were rumors that another raid across the canal was being planned and Freeman's Hall would be burned to the ground.

Negotiations with the Germans continued through the afternoon when they finally agreed to surrender the carriage of the cannon. Their decision may have been prompted by the news that the Democrats had won the election.

In spite of the Know Nothings support for temperance, at least two of the attacks on Germans were

committed by drunken nativists. A group of nativists entered a German tavern and demanded liquor; when the proprietor refused to serve them, they vowed revenge. They returned later and fired shots through the window, injuring a German inside. Another German tavern keeper tried to avoid trouble with nativists by giving them beer and making no protest when they refused to pay him. Instead of leaving quietly, the Americans beat the tavern keeper and destroyed furniture and glasses before going into the living quarters, assaulting his wife, whipping his young children and stabbing a man who boarded with the family.

A downpour of rain on Thursday prevented any more mobs from gathering and although tensions still ran high, peace began to return to the strife ridden city. Henry Munroe who was killed in the rioting was given a hero's funeral by the Know Nothings of Cincinnati and Northern Kentucky, who declared Munroe a martyr, a statement which enraged the Germans and Democrats. Some disturbing information was uncovered about the second victim of the ill-fated procession. Patrick Drury of Covington wore the Know Nothing badge on his breast despite being an Irish immigrant and a Catholic; apparently, he had joined with the nativist mob for the sheer excitement of the conflict. *

It is not surprising that the nativists attempted to avoid the blame for the riots. They claimed that the Democrats had incited the naturally violent Germans to acts of bloodshed. Mayor Snelbaker was censured for not being in better control of the city. Feeble attempts were made to justify the behavior of the mob. The Gazette asserted that the mob's behavior would have been justified if the reports of foreigners keeping Americans from voting would have been true. ⁹

Some members of the party admitted that the best men were not on the ticket. Others pointed out that the Americans were defeated by the foreign vote. They claimed that all of Taylor's supporters were native born citizens but only two twelfths of the Democratic vote had been cast by native born citizens. The foreign born population had a great deal of power in Cincinnati. Especially strong was the current union of the Catholic Protestant and free thinking Germans. Taylor had alienated these groups and lost the election. ¹⁰

Many Cincinnatians were disgusted by the April election, as a result some former Whigs even considered joining the Democratic Party. ¹¹ Taylor's nomination and the riots destroyed the American's credibility as a reform party. ¹²

The rapid growth of the Know Nothings in Louisville was a cause of great concern for many Democrats and former Whigs alike. Men who had prided themselves on their Whig principles complained that the Know Nothings lacked principles on any subjects other than foreigners and Catholics. The party's views on slavery were of special concerns to many Kentuckians. Some believed that the party consisted of abolition Whigs, disappointed Democrats, and religious fanatics. Democratic newspapers printed stories about the abolitionist sentiments and activities of the Know Nothings in the North. ¹³

Race became an issue because Kentuckians were anxious to keep slavery alive in their state and to bring more slave states in the Union. They condemned the Know Nothings for proposing a twenty-one year naturalization period, declaring it a means of enslaving white men in the North. Denying intelligent immigrants voting rights for a period of twenty-one years would create a large class of white men who lived without hope, ambition, or patriotism. Feeling no sense of ownership or belonging in their new land, these men would not hesitate to overthrow republican institutions. ¹⁴

The Courier was concerned about the rapid growth of the party, fearing that opportunistic men were

joining the order because of its popularity, rather than a firm belief in its principles. Among the "old broken down politicians" that the paper believed were the gravest danger within the party were Humphrey Marshall, a former military leader and minister to China, who had frequently denounced the Know Nothings in the past and General William Pilcher who loved foreigners and their votes and was active briefly with the Freeman's Society. ¹⁵

Early in 1855 Bishop Spalding was hopeful that this anti-Catholic party would have little effect on the acceptance that Catholics had enjoyed in Louisville. When a speaker hostile to Catholicism received favorable notices in the papers, the Bishop declared that in spite of "flourishing trumpets" only about two hundred people actually attended the lecture. He responded with a speech of his own attended by four thousand people, many of whom were Protestants who had been warned by their ministers to avoid any defense of Romanism. "This anti-Catholic crusade is destined to do us much good" he noted, never dreaming of the bloodshed and violence that would rock the city over the next several months. ¹⁶

Louisville's April elections were the beginning of four months of violence and terror. The main issue, as it had been since 1851 was the election of a mayor.

Even though Speed had been re-elected in 1853 and 1854, the Know Nothings called for a new election. They argued that Speed had been elected in 1852 for a period of one year to fill a vacancy, and re-elected in 1853 for a period of two years ending in April. The matter was turned over to City Chancellor, Henry Pirtle, who ruled that the elections of 1852 and 1854 were regular elections for two year terms, making Speed mayor until 1856. The election of 1853 was declared invalid since the office was not vacant at the time. ¹⁷

The Know Nothings on the Board of Aldermen argued that Pirtle had offered no legal precedents for his decision and resolved that an election for Mayor would be held the first Saturday in April. Speed vetoed this resolution. While he realized that this action could appear to be prompted by self-interest, he pointed out that he had agreed to abide by the decision of Chancellor Pirtle and expected the City Council to do the same since all parties had more important business to attend to than electing a mayor every year. As easily as the Board of Aldermen disregarded Pirtle's decision, they ignored Speed's veto, and nominated John Barbee, a merchant, as their candidate for mayor. The mayor refused to recognize this as a legal election and did not file as a candidate or engage in any campaigning. ¹⁸

It is surprising that James Speed's profession of the Catholic faith did not become an issue in the spring election. Since Speed was a popular man and a member of an important Louisville family, the Know Nothings may have feared that personal attacks would once again bring out supporters who would keep Speed in office without any effort on his part. In any case, Speed's Catholicism must have been unpopular in a city where the Know Nothings were gaining more and more power. Undoubtedly the party desired a Mayor who would be more amenable to their agenda; Speed had already opposed the Know Nothings regarding temperance legislation and would not hesitate to oppose them in the future.

Speed's removal from office was made a strictly legal issue. The morning of the election the Courier contained the following statement:

According to Mr. Speed's interpretation of the charter, he is Mayor of Louisville for all time to come. His term of office can never expire. Louisville is under the rule, not of a Mayor, but of a dictator. . . Now is the time, and voting for Barbee the only means left us to set this matter at rest. ¹⁹

With no competition, John Barbee easily won the Mayor's election. The Know Nothings swept the city election; in addition to the Mayor's office, the party defeated the Democrats for the positions of City Attorney and Treasurer. All of the aldermen elected

were Know Nothings, and all but two new members of the common council were members of the order. Speed refused to accept the results of the illegal election and continued to perform his duties as Mayor. Barbee also claimed to be Mayor and vowed to support such Know Nothing projects as protection of the common schools and temperance, complaining that he was unable to perform his duties until Speed surrendered various documents to him.

In an effort of end this deadlock Speed filed suit in the county courts to determine whether he or Barbee was the rightful mayor of Louisville. The decision was in Speed's favor, but Barbee appealed and the appellate court declared him the winner of the election. A month after Barbee was confirmed Speed moved his family to Chicago. ²⁰

A minor election for city magistrates induced violence that foreshadowed the full scale riots that would plague the city a few months later. In the heavily German first and second wards, foreigners and natives attempted to prevent each other from casting their ballots. Scattered violence throughout the city was reported. One man fired at anyone who made unfavorable comments about the Know Nothings, but no one was seriously injured. A nativist mob was pursuing some Germans and throwing stones at them until another

German saw his countrymen being abused. He fired several shots at the mob and they turned and chased him into his coffee house where they severely beat him. There were rumors that a German funeral procession was fired upon, but the nativist papers denied this accusation. At least two German businesses were attacked, and several people including one elderly German who was dragged from his home were beaten by the mob. ²¹

Democrats bitterly complained that members of the police force were nowhere to be seen during the riot and a deputy sheriff allegedly told victims that they would have to take care of themselves. The Democrat noted that no one had been arrested for the outrages and suggested that the high number of Know Nothings on the police force was the reason. But even if arrests were made it would be useless since all of the judges were members of that order. The paper challenged the people of Louisville to confront the lawlessness that surrounded them and argued that Know Nothingism was nothing more than a Northern effort to subjugate the South and destroy the personal freedom of members of the order. ²²

Later that month, another incident of American aggression towards foreigners took place. The German Hook and Ladder Company was called out to answer an

alarm. When they got to their destination, there was no fire and two American fire companies lay in wait. The Americans outnumbered and overpowered the Hook and Ladder Company; they took the Germans wagon and dragged it through the city streets before pushing it into the Ohio. The wagon was fished out of the river the following day, but all of the equipment save one ladder was lost. There was a great deal of public outcry since the wagon was city property, but no arrests were made and the Know Nothings popularity did not fade after this incident. ²³

Louisville was in the grip of the Know Nothings; even their questionable acts - the illegal removal of a respected man from public office; dragging elderly men from their homes and beating them; attacking funeral processions and other senseless acts of violence - did not deter the party's growth. No one in Kentucky could ever remember a time when there had been so much excitement regarding a political party. A few thoughtful men feared that turning religious groups against one another would bring out the worst side of human nature, but the masses did not waver in their support for the American party. ²⁴

There was at least one important nativist whose support for the Know Nothings began to cool during the early summer. Walter Halderman, the editor of the

Courier, had expressed doubts about the Know Nothings from their inception even though he supported many of their principles. A number of factors contributed to Halderman's loss of faith in the party. The recent violence in Louisville and the riots in Cincinnati were unnerving to him. Halderman had frequently warned that the nomination of political hacks would destroy the party as they subverted it to their own ends. ²⁵

Throughout the summer Halderman urged the party to take steps to save itself. He believed that the Know Nothings could redeem themselves at their national convention in Pittsburgh by placing wise and discreet men on the ticket who would turn their attention to solving sectional differences, instead of trying to find temporary answers for serious problems. These hopes were dashed when the National Council took no firm stand on the slavery issue,

. . . it is impossible to reconcile opinions so extreme as those which separate the disputants . . . the National Council has deemed it the best guarantee of common justice and of future peace to, abide by and maintain the existing laws on the subject of slavery, as a final and conclusive settlement of that subject in spirit and in substance. ²⁶

Halderman declared that this lack of decision on an issue that threatened to divide the nation condemned the Know Nothings as a national movement. While it would appeal to the Southern states, the party would

have no strength or influence in the North where abolition sentiments were strong. ²⁷

The National Council's refusal to make a firm commitment on the slavery issue brought forth a fresh round of accusations from the Democrats that Know Nothingism and abolitionism were synonymous. There were rumors throughout the state that prominent members of the party had strong anti-slavery sentiments and that Know Nothing lodges in various parts of the state had adopted abolitionist views to bring their party closer to the organization in the North. ²⁸

The party tried to minimize the damage of these accusations. It stated that abolitionists were welcome in the party, but their devotion to the Union had to be stronger than their desire to end slavery. But the party tried to allay voters' concern over the slavery issue by pointing out that several leading Know Nothings in the state were slave holders. When gubernatorial candidate Charles Morehead was accused of being a freesoiler, the Americans countered with accounts of his plantation in Mississippi where he kept a hundred slaves. Likewise when Edward Bartlett, the Kentuckian who served as President of the National Council, was accused of being a member of the Methodist Episcopal Church North and an abolitionist, the party maintained that he was a Baptist and a slave holder. ²⁹

Not everyone in Louisville believed that the Know Nothings should take some definite stand on the slavery issue. The Union was too precious to be torn apart by any fanaticism. The American party would tolerate neither Northern abolitionists nor Southern secessionists. This would be the grounds of a successful national party, protecting the republic from both foreign enemies and domestic malcontents.³⁰ One of the most enthusiastic supporters of this principle was George Prentice, the editor of the Louisville Journal. Prentice had clung to the hope that the Whig Party would be resurrected for more than a year, but by late spring the Journal's editorials reflected a growing admiration for the American party.

According to the Journal, political power in the hands of foreigners would only serve to destroy American institutions and slavery was the institution that was in the most danger. Since foreigners coming to the United States were already prejudiced against slavery and viewed slave labor as economic competition, immigrants were more likely to settle in the North. Once an immigrant established himself as a citizen and gained the right to vote, he associated himself with an abolitionist movement, giving these organizations greater numbers and more political power. With more abolitionist power in the North, the South would be the

weaker section of the nation and slavery would eventually be abolished. But if immigrants were proscribed the balance of power between the North and the South would be more equal and slavery would have a greater chance of survival. ³¹

In a little more than a year the Know Nothings evolved from a replacement party for the Whigs into a major force in Louisville politics, the only party to which "the South can now look for justice and undisturbed enjoyment of her peculiar institutions." ³² The American party would allow native born Protestants to continue to enjoy the rights to which they had grown accustomed. This new party would not force them to share their political system with the drunken criminal Irish who willingly sought work that no white man would do in Louisville. The Germans with their strange mix of ultra-liberal principles and socialism, who not only called for slaves to be freed from bondage but given full rights as citizens would also be proscribed. Finally, no agitation of the slavery issue would be allowed. Americans could preserve their economic and social systems. In short, the Know Nothing Party would allow the native born population to preserve both their established social hierarchy and the Union.

The violence and turmoil of 1855 would come to a climax during the gubernatorial election in August.

Ironically, the American party's candidate, Charles Morehead, had strong Catholic ties. Morehead had married Amanda Leavy, a Lexington native of Irish Catholic descent. After Amanda died, Morehead married her sister Margaret. Ignoring their own candidate's ties to Catholicism, the Know Nothings declared that Beverly Clark, the Democratic candidate, was not affiliated with any religion, but that his sentiment came closer to the Catholic faith than any other. Rumors were also spread about Clark's wife converting to Catholicism after her marriage and the couple having their daughters educated in a convent. ³³

In the weeks before the election there were fears of violence on both sides. The Know Nothings circulated reports that the Germans and Irish were arming themselves to prevent Americans from voting. The Democrats argued that Prentice's incendiary editorials in the Journal were meant to enrage Americans so much that they would try to prevent foreigners from voting. Prentice denied these accusations claiming that his only goal was to impress upon Americans how important their vote was. The German population was not reassured by Prentice's words, and many of them feared going to the polls on election day. As a result of the German's fears the Journal printed the following statement:

We sincerely regret that the Germans feel any such apprehension, and we are sure they have no good ground for entertaining it. . . no class of citizens shall with our consent or connivance have reason to apprehend bodily injury or any other kind of molestation in the exercise of their legal rights. ³⁴

There were more than mere threats of violence in the weeks leading up to the election. The most severe and prophetic incident took place in the heavily Irish eighth ward two weeks before the election. Know Nothings who tried to speak in that ward were heckled by Irish immigrants, adding to the already hostile atmosphere of that section of the city. It was also believed that the Irish had stashed a large cache of arms and munitions at various places in the ward which they planned to use on election day.

Stirred by these incidents and rumors, a group of nativists stoned and fired upon several Irish homes and businesses. At least two people were shot, but no one was critically injured. Frank Quinn, an Irish immigrant and owner of five or six of the damaged buildings had been threatened by Americans the day before. During the attack members of the mob called out that Quinn's property would soon be burned. That same night the mob went to St. Patrick's, the Irish Catholic Church in the eighth ward and demanded the keys. They searched the building and after finding no weapons or ammunition, they returned the keys and there

was no further disturbance that night. There were no arrests in these attacks which emboldened the mob for further acts of violence. ³⁵

In light of threats of violence and the bloody acts of recent weeks it is almost unbelievable that Louisville's government did not take measures to prevent violence on election day. Mayor Barbee called for fifty extra police officers to be placed in the first, second, and eighth wards during the election. This proposal was introduced to the Board of Alderman but overwhelmingly rejected. Since earlier election day disputes were caused by overcrowded conditions at the polls, some thought that providing additional judges to speed the voting process in the first, second, and eighth wards would help prevent further difficulties, but this resolution was also rejected. ³⁶

The written record provides no insight into the motives of these men. Because of their affiliation with the Know Nothings it can be assumed that those in control of the city government were willing to subvert the laws to carry out their own agenda and insure victory for their own party. Attacks on immigrants went unpunished. Not only was the Catholic Mayor removed from office, but all Catholic teachers were removed from the public schools. Steps that might have alleviated the carnage of August 6, 1855 were not

taken. It cannot be proven that government officials were involved in the actual rioting, but their actions, or lack of action, sent a clear signal that the city would not act to prevent mob violence.

In the days before the election two candlelight rallies were held by the Know Nothings drawing great crowds. Reports circulated that the Democrats planned to stone the processions but there was no violence. The Democrats had planned a mass meeting of their own, but cancelled it fearing that bloodshed might result.³⁷ Both sides continued to accuse their opponents of plotting violence on election day. Perhaps the most ironic statement was to be found in the Louisville Courier. Although that publication continued to print the American ticket under its masthead it declared that Americanism was based on reform and protection of American institutions, but Know Nothingism was composed of political hacks who would go to any measure to gain power.³⁸

Bloody Monday, one of the most violent elections in the history of the United States started before dawn when the Know Nothings took control of the polls in every ward. According to some accounts the nativists were protected by city watchmen, most of whom were members of the Know Nothing organization. Few foreigners were allowed to vote; the mobs made sure

that every citizen carrying the yellow Know Nothing ticket was allowed into the polls to cast his ballot. Eye witnesses declared that the aggression was solely on the side of the Know Nothings, naturalized voters were coming to the polls alone rather than in mobs, and the well behaved foreigners provided a contrast to the nativists who shouted and waved clubs. ³⁹

The violence of Bloody Monday was not limited to the polls. The partisan nature of the newspapers makes it impossible to determine which side started the fighting. The first incident of violence away from the polls seems to have taken place in the first ward. The Journal claimed that the Germans were firing randomly at Americans passing in the street, while the anti-Know Nothing papers claimed that there was fighting going on in the streets which justified the use of fire arms. ⁴⁰ Stories spread throughout the city that six Americans had been killed by foreigners, causing nativists to gather from all parts of the city. They proceeded to the home of a German, John Vogt, on Clay Street near Madison from where shots had reportedly been fired. Vogt was beaten and shot and another German in the house was injured. Vogt's wife was stabbed and the child in her arms injured.

The mob attacked several German businesses in the area including two groceries and a beer house. Several

Germans were stabbed or beaten. Volleys of gun fire were exchanged and several men were injured. The mob proceeded to St. Martin's Catholic Church on Shelby Street claiming that munitions had been stored there. Mayor Barbee appeared before the mob could sack or destroy the church. He searched the building and assured the crowd that there were no weapons inside.

After leaving the church, the mob joined with a unit of the state militia who had possession of a cannon. Traveling through the central portion of the city, the mob fired upon two German breweries. The Cathedral also appeared to be in great danger. Bishop Spalding turned the keys of the Cathedral over to Mayor Barbee who searched the building and issued a statement that there were no weapons inside. As an added precaution vestments, vessels and communion wafers were removed from the Cathedral and taken to a private home for safe keeping. ⁴¹

The mob proceeded through Louisville beating or shooting several more immigrants and firing on at least one more building, a confectionery shop that employed several women who poured out into the streets trying to gain entrance into surrounding buildings where no one who would let them in. At least one more home was invaded. A man named Smith of unknown nationality came into the disfavor of the mob and was spared certain

death when his "fainting wife threw herself and her children between him and his assailants." ⁴²

Mayor Barbee pleaded with the mob to desist; their party had easily won the election. But the Know Nothings were not satisfied. After the polls were closed, the most horrible violence of the day broke out in the Irish section of the city. The most brutal and dramatic incident of the night took place in the eighth ward at the corner of Main and Eleventh. Several buildings were surrounded by the armed mob who had the cannon in their possession. An Irish grocery was fired upon and the flames spread to the surrounding buildings. Several homes and businesses were destroyed. Occupants of these buildings tried to escape, but the mob shot at them as they ran out of the burning buildings. The people who did not die from their gunshot wounds were either seized by the mob and murdered or crawled back into the burning buildings to die. ⁴³

Why did such incidents take place after the Know Nothings were assured victory? The Know Nothings claimed that weapons had been stored in the buildings that were attacked, but this accusation had been made many times on Bloody Monday without any corroboration. Perhaps a clue can be found in the property's ownership. All of the buildings belonged to Frank

Quinn whose property had been attacked by a mob on July 18, the day after Quinn had been threatened. After that attack, the mob had threatened to return and burn the buildings.

The attacks may have arisen more from personal animosity toward Quinn than by a continuation of the mob mentality. Possibly the nativists resented the fact that Quinn, an Irish immigrant, had been successful as a merchant and was able to gain property. Another possible explanation is that Frank Quinn had a brother, John, who was a priest. John worked among the other immigrants in the city and had gained their trust. Not having much faith in banks, many immigrants entrusted their savings to Rev. Quinn who invested them and kept a small portion of the profits as a fee. Many Catholics were concerned that Quinn was becoming more concerned with financial matters than with his priestly duties. When Rev. Quinn died in 1852, he left the bulk of his estate to his brother Frank, who invested his inheritance in property on Main Street that soon was known as Quinn's Row.⁴⁴ It is possible that the mob was aware of Rev. Quinn's activities and viewed Quinn's Row as a symbol of the result of the control that the Catholic clergy exercised over their people.

By Tuesday morning an uneasy calm had settled over the city. The courthouse yard was littered with the

bodies of victims. The exact number of dead has never been determined, but most place the number at about twenty. Some citizens were dismayed by the violence and expressed their shame at holding a "birthright in common with men who could commit acts against unoffending humanity".⁴⁵ Others blamed both the politicians and the editors who induced the "naturally slavish and bloodthirsty foreigners" to acts of violence.⁴⁶

Much debate has taken place over George Prentice's responsibility for Bloody Monday. The anti-Know Nothing papers place the blame for the riots on Prentice, whom they alleged stirred up the Americans to a point of violence. Historians have also blamed Prentice, most notably Benedict Webb who was outspoken in his condemnation of Prentice. Even one hundred years after the riots, many Catholics still placed the blame on Prentice.⁴⁷ Prentice's most vigorous defender claimed that Prentice published similar articles on election day for twenty five years and his actions on Bloody Monday were not out of the ordinary.⁴⁸

While George Prentice's inflammatory statements such as his definition of Catholics as the mindless drones of "that miserable old despot in red stockings who holds out his toes in Rome to the longing lips of his devotees",⁴⁹ shows a lack of judgment on the

editor's part, all of the blame cannot be placed at his door. The Common Council and Board of Aldermen refused to take steps that might have alleviated or prevented the violence by rejecting proposals to have extra police or more judges in the wards where violence could have been easily anticipated. The criminal justice system did little more in the case of Bloody Monday than it had in the months leading up to the riot. Several foreigners were fined for minor acts of violence and bonds were posted for a few Americans. Between 1855 and 1879 five people were tried for crimes relating to the riots but there were no convictions.⁵⁰

The riots caused much damage in Louisville. Many Germans and Irish left the city. Homes and businesses were left standing vacant and real estate values plummeted. Bishop Spalding noted that "in a short time grass will grow in our streets." Even a year later observers commented on the blackened shells of buildings left in the city.⁵¹

The Know Nothings remained a viable force in Kentucky politics through the 1850's. The bloodshed and visible corruption within the party did little to tarnish its reputation. The party's devotion to Southern rights, slavery, and the Union made voters willing to ignore these flaws in order to preserve their way of life.

Endnotes for Chapter IV

1. Cincinnati Commercial, March 22, 1855. See also, Cincinnati Enquirer, March 20, 22, 1855. Cincinnati Times, March 21, 1855.
2. Cincinnati Times, March 19, 22, 23, 31, 1855.
3. Cincinnati Enquirer, March 22, 26, 1855.
4. Cincinnati Commercial, March 22, 26, 27, 29, 30, 1855.
5. See Joseph Michael White, "Religion and Community: Cincinnati Germans 1814-1870" (Ph.D. diss., University of Notre Dame, 1980), 38-39. for population data.
6. There is no real explanation of why the cannon was being fired. The April 3, 1855 edition of the Enquirer said that the Germans were celebrating Jefferson's birthday, but they would have been over a week early. Possibly the unit was having a drill that day.
7. See, for instance, Commercial, April 4, 1855.
8. Cincinnati Commercial, April 2, 3, 4, 5, 6, 7, 1855. Cincinnati Enquirer, April 2, 3, 4, 5, 6, 7, 1855. Cincinnati Gazette, April 3, 4, 5, 6, 7, 1855. Cincinnati Times, April 2, 3, 4, 5, 6, 7, 1855.
9. Cincinnati Gazette, April 5, 1855. Cincinnati Times, April 4, 1855.
10. Cincinnati Gazette, April 4, 1855
11. Louise Taft, Cincinnati, Ohio, to [Susan H. Torrey, Milbury, Mass.], 15 April 1855, William Howard Taft Papers, Library of Congress, Microfilm Series.
12. For differing interpretations on the role of nativism in the gubernatorial election see William E. Gienapp, "Salmon P. Chase, Nativism and the Formation of the Republican Party in Ohio," Ohio History 93 (Winter-Spring, 1984): 5-39. and Eugene H. Roseboom, "Salmon P. Chase and the Know Nothings," Mississippi Valley Historical Society Review 25 (Dec. 1938): 335-350.

13. James Speed, Louisville, to William R. Thompson, Shepherdsville, Ky. Quoted in James Speed (his Grandson), James Speed, A Personality (Louisville: John P. Morton and Company, 1914), 36-37. C. A. Wickliffe, Address of C. A. Wickliffe at St Joseph's College, Bardstown, Ky. Delivered Before the Students on the Celebration of Washington's Birthday, February 22nd 1855 (Louisville; Times Job Printing Establishment, 1855), 9. Louisville Weekly Democrat, March 28, 1855.

14. Wickliffe, 13-15.

15. Louisville Courier, January 30, 1855. For accounts of Pilcher's involvement with the Freemen see Courier, January 30, 1854 and Louisville Democrat, April 3, 1855.

16. Spalding to Purcell, 6 January 1855 and 13 February 1855, Archdiocese of Cincinnati Collection, II-4-m, UNDA.

17. Louisville Board of Aldermen, "Minutes", February 1, 1855. Louisville Common Council "Minutes", January 11, February 1, 1855. Louisville City Archives. An interesting side note to this ruling is that by 1856, Pirtle declared himself to have "the cause of the American Party as much at heart as any man" Henry Pirtle, Louisville, to Know Nothing Party of Louisville, 22 April 1856, Henry Pirtle Papers. Property of the Filson Club, Louisville, Ky.

18. Louisville Board of Aldermen, "Minutes", February 23, March 8, 1855. Louisville City Archives.

19. Louisville Courier, April 7, 1855.

20. Board of Aldermen, April 10, 13, 33, 1855. Common Council, April 13, 30, 1855. Louisville Courier, April 13, 1855. Louisville Journal, May 5, 9, 1855. Louisville Weekly Democrat, May 16, 1855.

21. Louisville Courier, May 7, 1855. Louisville Journal, May 9, 1855. Louisville Weekly Democrat, May 9, 1855.

22. Louisville Weekly Democrat, May 9, 15, 1855.

23. Louisville Journal, May 14, 15, 1855. Louisville Weekly Democrat, May 23, 1855.

24. Thomas Horace Cleland, "Memorandum Book", May 7, 1855 and July 17, 1855. Property of the Filson Club, Louisville, Ky.

25. Louisville Courier, May 19, August 2, 1855.

26. American Party, Platform and Principles of the American Party, Adopted by the National Council at Philadelphia, June 15, 1855 (Louisville: C. Settle, 1855), section 12.

27. Louisville Courier, June 4, July 19, 1855.

28. Louisville Democrat, July 4, 13, 1855.

29. Frankfort Tri-Weekly Commonwealth, June 8, 11, 13, 18, 27, 29, 1855.

30. Orlando Brown, "Address of Orlando Brown on the General Principles of the American Organization," [n.d.] Orlando Brown Papers, Property of the Filson Club, Louisville Ky. Louisville Journal, May 8, 1855.

31. Louisville Journal, June 28, July 21, August 2, 1855.

32. Louisville Journal, July 30, 1855.

33. Louisville Courier, March 26, April 30, 1855.

34. Louisville Journal, July 7, 1855. See also Journal, July 12, 13, August 2, 1855. Louisville Democrat, July 25, 1855.

35. Louisville Democrat, July 20, 1855. Louisville Journal, July 20, 1855.

36. Louisville Board of Aldermen, "Minutes", August 1, 1855. Louisville Common Council, "Minutes", July 26, August 1, 1855. Louisville City Archives.

37. Louisville Journal, August 4, 1855.

38. Louisville Courier, August 2, 1855. Louisville Journal, August 2, 1855.

39. James Speed, Louisville, to William R. Thompson, Shepherdsville, Ky. Quoted in James Speed (his grandson), James Speed, A Personality. (Louisville: John P. Morton and Company, 1914), 39-42.

40. Louisville Courier, August 8, 1855.
Louisville Journal, August 8, 1855.

41. Laurence Bax "Memoir," 56. Louisville Chancery Archives, p. 56

42. Louisville Courier, August 8, 1855.

43. The main sources for this account of Bloody Monday were the Louisville Courier, August 8, 1855, and the Louisville Journal, August 8, 1855. More detailed accounts of the riot can be found in Sr. Mary Agnes McGann, "Nativism in Kentucky to 1860", (Ph.D. diss., Catholic University of America, 1944), 86-113. or Charles Deusner, "The Know Nothing Riots Louisville", Register of the Kentucky Historical Society (March 1963): 122-147 and Ludwig Sterlin, The State of Kentucky and the City of Louisville With Special Consideration of the German Element. trans. John J. Weisert. (In the Collection of the University of Louisville Archives.) 264-275.

44. Webb, pp. 309-311

45. Josiah Stoddard Johnson, "Farmbook", p. 15, Collection of the Filson Club.

46. Lemuel Porter Diary, Sept. 25, 1855.

47. Benedict J. Webb, Sham Patriotism in 1896: Know Nothingism as it was and A.P.A.ism as it is. (Louisville: Charles A. Rogers, 1896) ,1. The Record, August 5, 1855.

48. Betty Carolyn Congleton, "George D. Prentice and Bloody Monday: A Reappraisal," Register of the Kentucky Historical Society 69 (Dec. 1963): 218-239.

49. Louisville Journal, July 31, 1855.

50. Emmet V. Mittlebeeler, "The Aftermath of Louisville's Bloody Monday Election Day Riot," The Filson Club History Quarterly 66 (April 1992): 210-219.

51. Spalding to Purcell, 6 September 1855, Archdiocese of Cincinnati Collection, II-4-m, UNDA. Joseph Holt, Speech Before the Democratic Association of Frederick City, Maryland. July 31, 1856, ([n.c.] [n.p.], 1856) 6. Stierlin, 273-275.

Conclusion

In the late summer of 1854, a portion of Cincinnati's German population warned the independent coalition that although opposition to slavery was one reason they supported the coalition, they considered their own rights more important than the position of slaves. "When our Constitutional Rights are called into question, then Know Nothingism becomes our anti-Nebraskaism." The nomination of a nativist candidate for Mayor drove the Germans back to the Democrats, and insured success for that party.

The people of Louisville chased an anti-Catholic preacher out of their city in 1853, declaring that the Catholics of their city should not have to face such abuse. But as Catholics and foreigners came to be viewed as a threat to their way of life, they called for their exclusion from the political arena. Some resorted to violence.

The Know Nothing Party answered a set of needs unique to each of the two cities. In Cincinnati it provided leadership to remove a corrupt, incompetent administration from office. A year later it battled the united German population, a group whose size could easily decide city elections. In Louisville the party

responded to the growing population of Catholic immigrants and radical Germans, groups who were viewed as possible threats to slavery and Southern rights. Many saw proscription and violence as the only way to preserve their way of life.

This study does not pretend to be an exhaustive comparison of the American party in the North and South, rather it points out the need for more work in this area. Opposition to slavery was one of the reasons that Cincinnati's Germans were willing to join a coalition led by nativists, but it does not appear to have been an important factor for American voters who were more concerned with Catholics and corrupt politicians. Louisville's Germans had called for the abolition of slavery and full citizenship for African Americans. In a city that equated white laborers to slaves this was a horrifying proposition. Catholics' alleged blind obedience to the Pope made them possible abolitionists as well. Closer attention needs to be paid to the relationship between the American party and slavery in other parts of the country, the South in particular.

Nativism and the Know Nothing Party help to put the American experience into clearer perspective. It illustrates the difficulties faced by a nation of immigrants, and provides further examination of the

strain of anti-Catholicism that has pervaded the politics and culture of the United States well into this century. Future study in this field can lead to greater understanding of the American character as well as antebellum politics.

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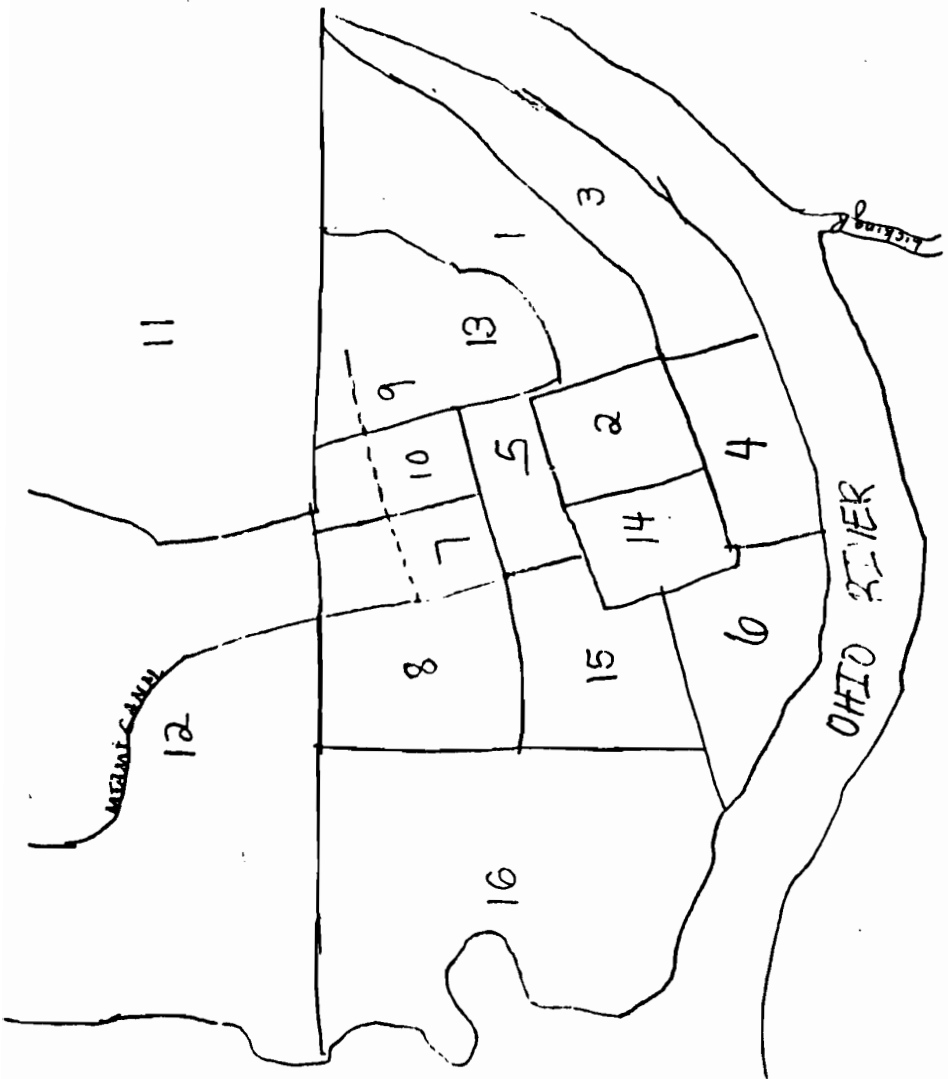


Figure 1
Cincinnati divided by wards

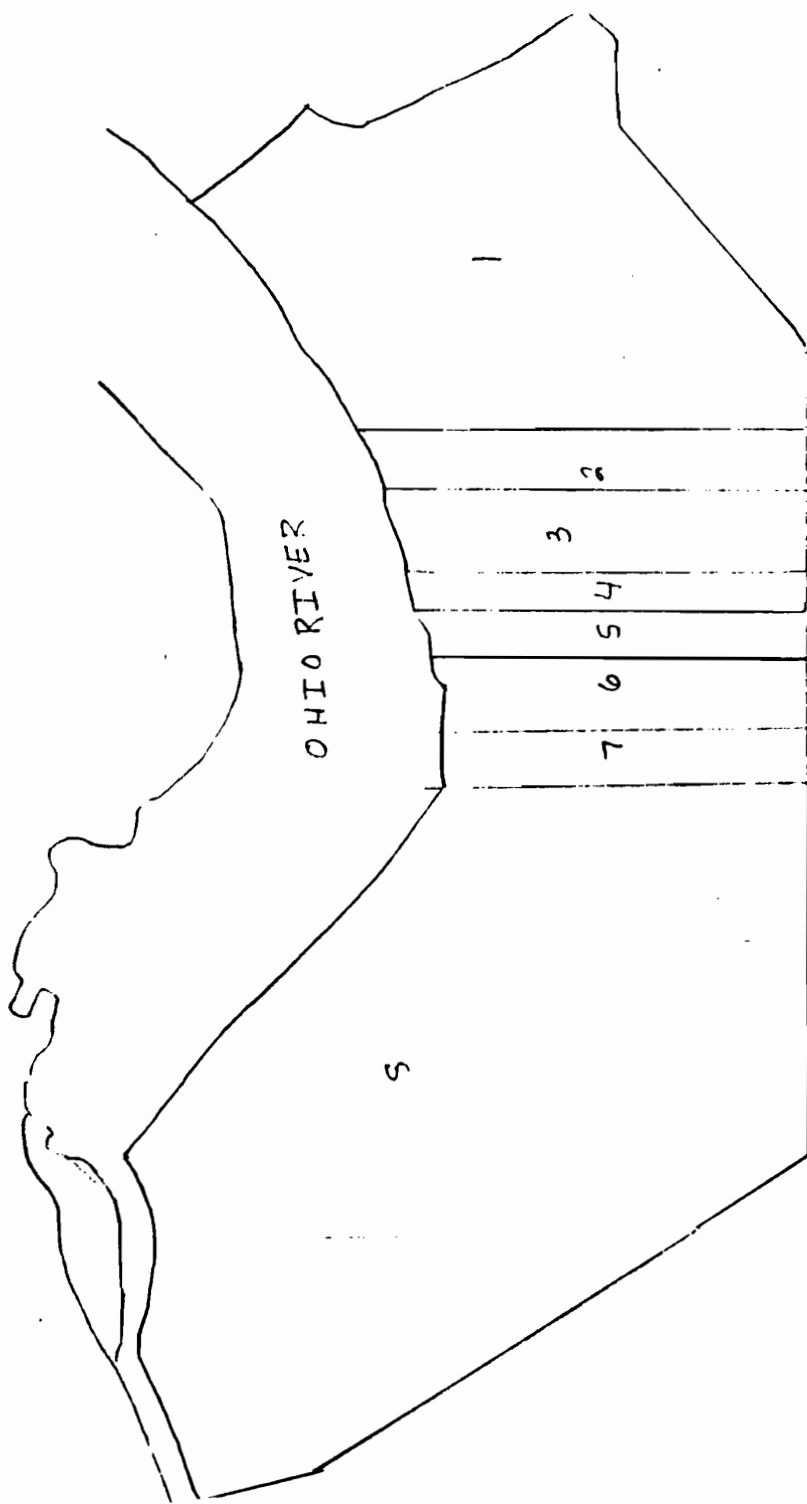


Figure 2
Louisville divided by wards

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Symposium

The 2nd Amendment at the Supreme Court: “700 Years of History” and the Modern Effects of Guns in PublicBrennan Gardner Rivas^{a1}

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ENFORCEMENT OF PUBLIC CARRY RESTRICTIONS: TEXAS AS A CASE STUDY

In ongoing conversations about public carry laws, many scholars make references to enforcement of public carry laws. These references tend to claim that such laws were enforced in a discriminatory way, or even not at all. This Article presents data-driven conclusions about the enforcement of the 1871 deadly weapon law of Texas, the state's primary public carry law which prohibited the open and concealed carrying of pistols, knives, and some other small weapons. The author collected this data from the extant criminal misdemeanor records of four sample counties, relying upon archival research rather than digital repositories to identify cases.

TABLE OF CONTENTS

<u>I. LACK OF ARCHIVAL RESEARCH ON PUBLIC CARRY ENFORCEMENT HAS PRODUCED FALSE ASSUMPTIONS</u>	<u>2603</u>
<u>II. TEXAS AS A CASE STUDY OF ARCHIVAL-BASED ENFORCEMENT HISTORY</u>	<u>2609</u>
<u>A. Statutory Context in Texas</u>	<u>2609</u>
<u>B. Sample Counties</u>	<u>2612</u>
<u>C. Jurisdictional Flexibility and Changes</u>	<u>2614</u>
<u>D. Conviction Rates</u>	<u>2615</u>
<u>E. Racially Discriminatory Enforcement</u>	<u>2616</u>
<u>CONCLUSIONS</u>	<u>2620</u>
<u>APPENDIX: BIBLIOGRAPHY OF ARCHIVAL SOURCES</u>	<u>2623</u>

I. LACK OF ARCHIVAL RESEARCH ON PUBLIC CARRY ENFORCEMENT HAS PRODUCED FALSE ASSUMPTIONS

Since *Heller* there has been substantial discussion of public carry laws in the United States, and in particular the nineteenth-century jurisprudence arising from the southern states. But there has not been *2604 much talk of enforcement. In 1983, Raymond G. Kessler theorized that during times of political crises, firearm regulations “can be selectively enforced against those perceived to be a threat to government.”¹ He rested his assertions on a 1979 article whose authors inferred that, since handgun permit laws display “prejudice” toward drug users, “former mental patients,” and felons, “enforcement practices are likely to be worse.”² Stephen P. Halbrook in 1989 speculated that Texas Democrats retained a public carry law enacted by their Republican enemies simply because “those in power could selectively enforce this act against political opponents or selected ethnic groups.”³ But it did not take long for writers to make the leap from theorizing about potentialities to pulling up supposed instances of such discriminatory enforcement. In 1990, a sociologist named Brendan F. J. Furnish claimed that the pages of the *New York Times* from 1911 to 1913 show that seventy percent of those arrested under the Sullivan Act were Italian.⁴ Just a few years later, Clayton Cramer—in an article so riddled with falsehoods that it ought not be cited by a federal circuit judge—argued that the entire secret purpose behind postbellum, race-neutral public carry laws was the systematic and racially motivated disarming of African Americans.⁵ Such claims have been repeated, republished, and assumed to be true.⁶ *2605 Taking these works at face value, critical race theorists and ethnic studies scholars have marshalled the idea of selective enforcement

against minorities into a growing historiography on the contours of racism and gun policy across American history--much of it predicated upon the false assumption that gun laws were enacted with racist ends in mind, and enforced in a racially discriminatory way as a matter of consistent-yet-unspoken policy by law enforcement officials.⁷ The only substantive rebuttal to these arguments that I have seen so far (aside from my own research) has come from Patrick Charles, who found the anti-immigrant accusations surrounding the Sullivan Act's enforcement to be wildly inaccurate.⁸

There is another false assumption regarding the enforcement of public carry laws--incompatible with the one I just described--which holds that these statutes went largely unenforced. This is an amusing claim because the state appellate cases cited by *Heller* and addressed in *Young* came from somewhere; each one began with an arrest, and it stands to reason that for each case appealed there were far more that were not. Sadly, an over-reliance upon digitized newspaper collections, which only represent a small fraction of the publications that circulated in the nineteenth century, gives the impression that public carry laws were not enforced simply because few cases were reported in the news. In fact, the only place where a researcher might hope to find evidence of misdemeanor law enforcement is in county archival records--a place where it seems few people have looked.

If these common assumptions drive some researchers to examine and rebut them, new roadblocks emerge. In his dissent in *Young*, Judge O'Scannlain asserts that, even if these public carry laws were enforced, *2606 they evaded constitutional scrutiny under the Second Amendment.⁹ Beyond that, he argues, misdemeanors and sureties were inconsequential and akin to traffic violations in terms of their constitutional significance.¹⁰ This line of argument would have us ignore enforcement history altogether as irrelevant to the constitutional issue at hand.

I will rebut these mutually incompatible claims of selective enforcement, non-enforcement, and enforcement irrelevancy, and discuss the results of my data-driven, archival exploration into the enforcement of the public carry laws of Texas.

The least compelling of these claims are the ones concerning irrelevancy which Judge O'Scannlain raised. To the first challenge, regarding constitutional scrutiny, of course this is an impossible request of nineteenth-century jurists whose education and professional consensus instructed them that the Second Amendment was irrelevant to police-based public carry laws enacted at the state level; we should not hold it against them that they did not foresee *Heller*, particularly when that decision claims to speak for a "consensus" from the past.¹¹ To Judge O'Scannlain's second point, that misdemeanors and sureties are constitutionally inconsequential, I will acquiesce that inferior courts today are consigned to traffic violations; but the kinds of criminal cases which they used to handle have been relocated to higher, constitutionally consequential courts. Rather than focus on the jurisdiction in which a crime is prosecuted, we should focus on the law in question. The fact that historic public carry laws are the subject of such great controversy before the court today only underscores their constitutional significance, misdemeanors though they may have been.

*2607 Even more fundamental than the relevancy of enforcement history is the fact that it does indeed exist. Robert Leider has argued that the "Massachusetts Model" legislation involving sureties went unenforced, in large measure because digitized newspaper repositories do not carry many stories about the law's enforcement. While I agree with him that the Massachusetts Model was not technically a "ban," and that the drift away from common law led other states to pursue criminal statutes rather than sureties to keep the peace, the key phrase from his paper remains, "until someone does archival research on this issue."¹²

Another attempt, similarly without the aid of archival research, has been made by Justin Aimonetti and Christian Talley, who purport to prove that post-Civil War¹³ concealed weapons laws were enacted with racist intent, and were consistently enforced in a discriminatory way against African Americans.¹⁴ Their evidence contains zero archival sources and instead relies upon a small assemblage of Southern newspaper articles.¹⁵ A large portion of these articles are reform-minded editorials calling for better enforcement of concealed weapon statutes, regardless of race. But Aimonetti and Talley misconstrue these voices of Southern progressivism and argue quite weakly that they show a lack of vigorous enforcement against whites. One revealing example comes from the pages of the *Savannah Morning News*, wherein the editor laments the common practice of carrying weapons and the inadequacy of prior legislation to curtail it; far from evidence of racial animus, the article clearly demonstrates that mainstream Americans (even those in *2608 the South) supported public carry laws and lamented the unnecessary deaths that resulted from indiscriminate weapons-carrying.¹⁶

The Aimonetti and Talley article further claims that public carry laws were enacted for racist purposes, though they do not address any specific legislation. The closest their article comes is a newspaper report of debates in the South Carolina legislature

surrounding a bill that would have amended the state's concealed weapon law in 1901. A state senator promoted mandatory licensing for concealed-carry as a way to dissuade Black citizens from carrying weapons; however, the man withdrew his own proposed amendment in favor of one “which he thought would suit better.”¹⁷ That amendment was proposed by a different state senator, “the effect of which is that no person shall carry a pistol, concealed or unconcealed, except on his own premises, the length of which is less than twenty inches and the weight of which is less than three pounds.”¹⁸ This amendment, which would have prohibited even the *open* carrying of pistols in South Carolina, was adopted, though the bill in question did not become law.¹⁹ So much for evidence of “impermissible motives” for legislative enactments.²⁰

But what about racially discriminatory enforcement of Southern public carry statutes? The authors make this claim, but it rests primarily upon reports that African Americans had been arrested for carrying *2609 concealed weapons, often amid a larger local riot or violent episode. The connections to enforcement more broadly are scant, and consist of a few passing references and one small city's list of “doings” by the Police Court for the years 1902 and 1904.²¹ So much for evidence of “disparate enforcement” of public carry laws.²²

II. TEXAS AS A CASE STUDY OF ARCHIVAL-BASED ENFORCEMENT HISTORY

Where the previous authors have theorized, conjectured, and attempted to present evidence of public carry law enforcement, I will now present data-driven conclusions drawn from archival records. I have put together a dataset of more than three thousand cases from four sample counties in Texas covering the years 1870 to 1950.

A. Statutory Context in Texas

Public carry restrictions in Texas included several statutory parts. The first was a time-place-manner (“TPM”) restriction enacted in 1870 which prohibited a broad array of weapons, including long guns, at *2610 specific social gatherings; its penalty ranged from \$50 to \$500.²³ The second was what I have called in my own research the 1871 deadly weapon ban or deadly weapon law;²⁴ it has also been referred to as “The Six-Shooter Law” by Gov. Greg Abbot²⁵ or “the pistol law”²⁶ by other scholars and commentators. It was a sweeping prohibition against the open or concealed carrying of deadly weapons (all of which were small, not considered militia or hunting weapons, and deemed to be weapons of interpersonal conflict rather than arms that may be borne in proper defense or service).²⁷ There were exemptions, so it was not a total ban *2611 --but it came fairly close.²⁸ That law, confusingly, superseded the 1870 TPM restriction with a similar one; therefore, the revised TPM law as well as the deadly weapon law both became absorbed in the state's penal code of 1879.²⁹ Texans also had statutes which prohibited the unlawful discharge of a firearm as well as the “rude display” of a pistol.³⁰ Judges treated the latter of these as a minor offense, and it was common for unlawful carry defendants to plead down to rude display as a lesser offense.³¹ A fourth and more obscure law was another time-place- *2612 manner restriction which specifically and solely concerned carrying arms to a polling place. It also made its way into the penal code, but under the title and chapter involving elections rather than the one pertaining to deadly weapons.³²

A brief aside which I would like to make here pertains to the time-place-manner restrictions which remained in place alongside the deadly weapon law. The *Young* dissent made the case that such restrictions do nothing more than demonstrate “that carry was presumptively lawful everywhere else.”³³ Not so. In Texas, these separate TPM statutes provided opportunities for legal flexibility. What I mean by that is: the list of prohibited weapons was slightly different, and in the case of the broad 1870 TPM statute, included long guns which were untouched by the 1871 deadly weapon law. Furthermore, the two TPM statutes in Texas had much higher fine thresholds, meaning that they could more forcefully punish a violator and, *importantly*, be prosecuted in District court rather than Justice or County courts.³⁴ I want to reiterate that all three of these mechanisms remained within the state penal code through multiple revisions reaching across the late nineteenth and early twentieth centuries. Beyond that, in my own archival research I have seen each one be enforced.

B. Sample Counties

With 254 separate counties, a comprehensive survey of county-level misdemeanor records in Texas is an impossible task. I relied upon a strategic and historically informed sampling process to draw conclusions about the enforcement of public carry provisions. About 150 counties have compiled inventories of the surviving records. Only a fraction of these have been microfilmed, but some of them have been *2613 transferred to university libraries and archives for safekeeping. The majority of Texas county records, though, can only be seen by traveling to the small county seats and asking clerks for a chance to poke around their storage areas to look for them. I limited my sample to only those counties that had been inventoried and still held criminal misdemeanor records *other than* just case files (which are time-consuming to sort through as compared to scanning pages of a ledger).

I chose four sample counties spanning the more heavily populated portion of the state--east of the so-called "frontier line" which demarcated Comanche lands that were (prior to irrigation) inconducive to large-scale farming.³⁵ The surviving, accessible records vary for each county, so the type of information varies as well.³⁶

Jefferson County is along the Gulf coast, near the Louisiana border. The seat, Beaumont, has long been a thriving coastal city bustling with economic activity. Jefferson County yielded 784 cases spanning the years 1874 to 1953; this is a fairly low number due in large measure to the fact that entire collections of records listed in the inventory were missing. The most useful records there were Criminal Index books from the early to mid-twentieth century, which included names, crimes, dates, and case numbers but did not reveal any information about the outcome of the case itself.

Parker County is along the old "frontier line" and remained a home of Comanche bands well into the 1860s. After the Comanches were pushed off the land, Anglo-white ranchers and farmers moved into the area. Parker County records were hit-and-miss, yielding 301 total cases from 1877 to 1920. There are several gaps in the chronological record, particularly for the period prior to the late 1890s.

McLennan County is about one hundred miles south of the Dallas-Fort Worth metro area and near the turn of the twentieth century it was a bustling, thriving market town. Cotton farming and slavery had long been present in this northern part of the "blackland prairie" but the area *2614 really grew on the back of the railroads that came through in the 1870s and 1880s. Waco became a hub featuring the kinds of transfer points and railway infrastructure that most cities lacked. I found 825 cases spanning 1871 to 1930. The records from McLennan District and County courts is extensive, and the Criminal Fee books from 1897 to 1930 provided insights into the average cost of prosecution and whether convicted violators had to work off their fines on the county farm.

The single best documented county, insofar as criminal misdemeanors are concerned, is Fayette County. This historic area was part of the original empresario grant given to Stephen F. Austin by the newly independent Mexican empire. Fayette County attracted many Bohemian and Czech immigrants, which made it fertile ground for the development of a Republican Party apparatus during Reconstruction. Fayette County farmers had plantations and slaves, but they were not mono-agricultural in favor of cotton and voted against secession in 1861. Fayette County records yielded 1,346 cases, 560 of which derived from Justice Court Docket books.

In total, I found 3,256 separate cases from these four counties. The final outcome of many of the cases is known, which means that the dataset can tell us not only who was being arrested, but what ended up happening to him or her within the justice system. In this Article, I will focus on three issues which the dataset support, the first being jurisdictional flexibility in enforcing the deadly weapon law.

C. Jurisdictional Flexibility and Changes

In the early and mid-1870s, these cases usually originated in District court via a grand jury indictment. This was a new law with a hefty fine (minimum \$25) that addressed a cause of serious concern among Texan people, all of which encouraged prosecutors to proceed via indictment. Furthermore, the Texas constitution in force from 1869 to 1876 did not include a judicial role for County courts; the Republicans who authored the Constitution of 1869 believed the County court system to be intransigently racist in its dealings with freedmen and deliberately unfair in its dealings with white Republicans, so they vested judicial powers within the District Court system and the Justices of the Peace.³⁷ *2615 Since JPs were not professional jurists, many misdemeanor charges were vetted through the indictment process before being transferred back to the inferior court for adjudication. After the Constitution of 1876 took effect, and particularly after the 1879 legal reforms set forth a new Code of

Criminal Procedure, the cases typically began via information or complaint in Justice courts with appeals receiving a trial *de novo* in the resuscitated County courts. That being said, there were plenty of Fayette County cases in the County court records that do not have a corresponding match in the Justice court docket books; some docket books may be lost, or some cases may have indeed originated in County court, which shared original jurisdiction with Justice courts.³⁸ This pattern came to an abrupt halt in 1905, when the legislature raised the minimum fine to \$100, placing cases beyond the jurisdiction of Justice courts and squarely within County courts. Prosecutions skyrocketed after 1905, indicating that local officials prioritized its enforcement when it became exceedingly profitable for the county-- fines went to the road fund, and violators jailed for failure to pay typically had to work on the road crew or a county farm. A deep understanding of the state's larger legal and legislative context was crucial to my making sense of these jurisdictional changes--a word of advice I give to anyone interested in conducting a similar archival research project.

D. Conviction Rates

So far, we have seen evidence that people in Texas were being arrested for unlawfully carrying deadly weapons, but were they being convicted? Of the 3,256 cases, 1,885 left a record of the final adjudication. Among those, 1,684 resulted in guilty judgments or appeals (89% of those with known outcomes; 52% of the total); 200 resulted in not guilty judgments (11% of those with known outcomes; 6% of the total). There was one recorded mistrial, which accounts for a negligible percentage of both. There was also a total of 406 cases that were dismissed or had indictments quashed, which accounts for 12% of the total.³⁹ This is a ***2616** high conviction rate, particularly in relation to average misdemeanor conviction rates today in Texas, which hover at around 73%.⁴⁰ And among the 62 known Black deadly weapon violators, the conviction rate was 87% among those adjudicated (13% acquitted), with 21% receiving dismissals. These numbers correspond, more or less, to the larger sample.⁴¹ We can conclude from this data that public carry arrests were likely to result in convictions for both White and Black defendants.

E. Racially Discriminatory Enforcement

A third issue which I would like to address is racially discriminatory enforcement, and what the dataset can tell us on that score. Scholarship on Texas points toward counties with a substantial Black minority--most of which had sizeable cotton production either before or after the Civil War--as the ones most affected by lynching, electoral fraud, and vicious behavior toward Black citizens during the half-century following the Civil War and Reconstruction.⁴² It stands to reason that the counties most likely to engage in *prima facie* racially discriminatory enforcement--the ones most likely to use public carry laws for the racist ends that some scholars have proposed⁴³--are the ones with a White majority but substantial Black minority, and a history of cotton production. Fayette County fits this description quite well, and the cultural influence of its European immigrants in fostering and maintaining a Republican Party presence through the end of the 1880s ***2617** makes it a revealing case study. McLennan County, on the other hand, only briefly fell under the leadership of Republicans and has a long, well-documented history of severe racial violence across the long Progressive Era.

To assess the prevalence of racially biased enforcement patterns, I used statistical sampling to take a closer look at these two counties. I found compelling evidence that racially discriminatory enforcement of the deadly weapon law developed over time and emerged during the decade of the 1890s.⁴⁴ The sample consisted of 177 named defendants from the two counties, which is about 10% of the total number.⁴⁵ These names became a starting point for research within census and other genealogical records to determine the race, ethnicity, age, hometown, and occupation of each person. There were only seven names (3.9% of the sample) for which I could not ascertain race or ethnicity with reasonable certainty, and for this reason I declined to include them in these results. My findings show that from 1870 to about 1890, the race of public carry defendants reflected the larger demographics of the county in question, with Black defendants accounting for anywhere from 25-40% during those two decades when their share of the population ranged from 27-34%. Evidence from Fayette County is particularly compelling because I undertook an additional step to confirm this hypothesis; I investigated the racial background of *all* 82 of the county's defendants from the years 1870 to 1879 and found that they mirrored local demographics almost perfectly. In 1870, the Black population of Fayette County was 33% of the total, and during that decade, 32% of those arrested for unlawful carry were Black (see Fig. C).

***2618 Fig. A**

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

Fig. B

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

***2619 Fig. C**

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

The graphs of long-term enforcement within my sample show that racially biased enforcement of the deadly weapon law evolved over time and manifested itself during the 1890s. I believe this turning point is directly related to the collapse of Black voting rights in Texas during that decade, and the resulting erosion of Black political power locally. The best way to explain this phenomenon is by way of describing the economic and demographic growth that occurred in the market towns of Texas between 1870 and 1920. In both McLennan and Fayette counties, White people from elsewhere in Texas and the former Confederacy arrived by the thousands between 1870 and 1920.⁴⁶ They slowly upended the local balance of political power that had taken root following the enfranchisement of Black men in Texas in late-1860s. In these counties with substantial African American minorities (33% and 34%), Black men represented a crucial segment of the local voting population. Particularly in Fayette County, where immigrants from Central Europe engaged in less extreme forms of racism, county-level politics made room for Black voters and their political goals. When the state legislature convened every other year from 1875 to 1895, Fayette County's three- or four-member delegation almost always included a Republican, but the practice came to a swift stop amid the political turmoil of the 1890s. By that time, waves of newcomers meant that the White population outnumbered its Black counterpart to such an extent ***2620** that African Americans became irrelevant to the maintenance of local political power. When Black disfranchisement occurred in Texas, during the 1890s, whatever residual fairness was left in the administration of local justice evaporated; politics is about power, and a population robbed of its political voice can neither claim nor exercise it.

Fig. D

FAYETTE COUNTY CENSUS DATA, 1870-1920											
Year	1870		1880		1890		1900		1910		1920
White	10,953	67%	19,167	69%	23,031	73%	26,148	72%	22,434	75%	23,201 77%
Negro	5,473	33%	8,763	31%	8,446	27%	10,394	28%	7,351	25%	6,755 23%

Fig. E

MCLENNAN COUNTY CENSUS DATA, 1870-1920											
Year	1870		1880		1890		1900		1910		1920
White	8,861	66%	19,276	72%	28,811	74%	45,345	76%	55,991	73%	65,280 79%

ENFORCEMENT OF PUBLIC CARRY RESTRICTIONS:..., 55 U.C. Davis L. Rev....

Negro	4,627	34%	7,643	28%	10,381	26%	14,405	24%	17,234	22%	17,575	21%
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CONCLUSIONS

This local political history may seem insignificant in comparison to the great gun control debate that occupies the attention of the federal courts today--and indeed it is. If we are going to have a Second Amendment jurisprudence driven by history, then we need to prioritize the accuracy of that history; and to do that, we must venture into the proverbial weeds of historical context--almost universally driven by local imperatives, and therefore *complicated*. Context matters, from this political history of central Texas to the regional context in which it unfolded. For reasons which historians still discuss and debate today, the decade of the 1890s proved to be a momentous turning point in race relations across the American South. The number and severity of segregation laws increased, and all Southern states replaced or amended their constitutions to eliminate Black voting rights; the epidemic of heinous, ritualized race-killings hit its high point, as the writings of anti-lynching crusader Ida B. Wells-Barnett have demonstrated. Historians have long been aware of and intrigued by this seemingly inexplicable turning point. The eminent Southern historian C. Vann Woodward even went so far as to claim that post-emancipation race relations in the South did not really coalesce around segregation until that time.⁴⁷ His thesis has been disputed, but even his critics feel the need to explain why such dramatic changes took place *then*.⁴⁸ Was it a *2621 reaction against Black activism, a response to perceived electoral corruption, or possibly a result of the U.S. Supreme Court abandoning the Reconstruction Amendments? No matter its origin, the swift and merciless reassertion of white supremacy was carried out through a local political process that White Democrats ultimately rigged to disempower Black voters and oppress Black communities. Interpreted within this larger regional context, the development of racially discriminatory enforcement in the 1890s is predictable, and it tells us far more about the failure of democracy in the American South than it does about public carry laws. Were we to look this closely at the enforcement of other misdemeanor crimes across the same time span, I believe we would see nearly identical results-- during the closing years of the nineteenth century, discrimination emerged where it had been largely absent before or sharpened dramatically in places where it already existed. Indeed, the scholarship emerging from within critical race theory has demonstrated quite clearly the systemic failure of our nation's justice system to protect the civil rights of racial and ethnic minorities, particularly African Americans.⁴⁹

Another persistent problem with historically driven jurisprudence is the “when” question. We have seen enforcement patterns change over time, influenced by the larger socio-political environment that necessarily shaped local policing and justice. Unlawful carry prosecutions moved from one jurisdiction to another, were treated by some officials as high-priority crimes while being set aside by others--a hallmark of the justice system as true today as it was then. Should we make legal judgments based on legislative intent? Or the initial application of the law? Or the racist practices that developed over time? Which “when” matters most? The fundamental shortcoming of history-in-law centers on this very issue of chronology, and how to accurately characterize a complex, convoluted story with the brevity needed to *2622 keep the judicial process moving. Sadly, the method most used by gun rights advocates is that of freezing the story at its most convenient time, or flattening the complexities to suit their argument. In the end, History as a jurisprudential lodestar poses as many problems as it resolves; it can show us how laws and customs came to be, but it cannot shine a light on where we are headed--we have to look to the future, not the past, to do that.

I will conclude with my own humble opinion, and my most significant takeaway from years spent studying the history of gun and weapon regulation. The nineteenth-century Americans whose jurisprudential mentality *Heller* claims to safeguard did not see the Second Amendment as a roadblock to sweeping state regulation of the weapons most likely to be used in the commission of crimes. These ambitious, risk-taking, forward-thinking Americans looked to their governments for bold and creative solutions to the new problems posed by life in an industrial age. They funded the construction of railways, bridges, and sanitation systems that we still use today, and in Texas they built and expanded commercial centers that still define exurban life in the Lone Star State. Yes, nineteenth-century Americans (and southern ones in particular) disagreed at times about the meaning and scope of the Second Amendment; and yes, they carefully phrased their statutes so as not to deny the right of self-defense during what they dubbed “a difficulty.” But they did not see themselves as powerless to act, nor did they see the law or the constitution as frozen in time. If we want a history-focused jurisprudence, maybe we should listen to them a little more closely.

*2623 APPENDIX: BIBLIOGRAPHY OF ARCHIVAL SOURCES

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Footnotes

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[¹](#) Raymond G. Kessler, *Gun Control and Political Power*, 5 LAW & POL'Y Q. 381, 381 (1983).

[²](#) DAVID T. HARDY & KENNETH L. CHOTINER, RESTRICTING HANDGUNS: THE LIBERAL SKEPTICS SPEAK OUT 209-11 (Don B. Kates, Jr. ed., 1979). Hardy and Chotiner cite as evidence for this assertion the racially disproportionate arrests in Massachusetts (statewide) and Chicago near the time of their writing. Recent scholarship from critical race studies calls into question this kind of facile analysis, which mistakes correlation for causation and underplays the extent of structural racism within the American justice system. *See infra* note 40.

[³](#) *See* Stephen P. Halbrook, *The Right to Bear Arms in Texas: The Intent of the Framers of the Bills of Rights*, 41 BAYLOR L. REV. 629, 662 (1989).

[⁴](#) Brendan F. J. Furnish, *The New Class and the California Handgun Initiative: Elitist Developed Law as Gun Control, in THE GUN CULTURE AND ITS ENEMIES* 133 (William R. Tonso ed., Second Amend. Found. 1990).

[⁵](#) Clayton E. Cramer, *The Racist Roots of Gun Control*, 4 KAN. J.L. & PUB. POL'Y 17, 20-21 (1995).

- ⁶ See, e.g., Robert J. Cottrol & Raymond T. Diamond, ‘*Never Intended to Be Applied to the White Population*’: *Firearms Regulation and Racial Disparity - The Redeemed South’s Legacy to a National Jurisprudence?*, 70 CHI.-KENT L. REV. 1307 (1995) [hereinafter *Never Intended to Be Applied to the White Population*] (“The model of gun control that emerged from the redeemed South is a model of distrust for the South’s untrustworthy and unredeemed class, a class deemed both different and inferior, the class of Americans of African descent.”); Robert J. Cottrol & Raymond T. Diamond, *The Second Amendment: Toward an Afro-Americanist Reconsideration*, 80 GEO. L.J. 309 (1991) [hereinafter *Afro-Americanist Reconsideration*] (“[T]he purpose of [twentieth century gun control statutes in the South] ... like that of the gun control statutes of the black codes, was to disarm blacks.”).
- ⁷ Brennan Gardner Rivas, *Strange Bedfellows: Racism and Gun Rights in American History and Current Scholarship*, in NEW HISTORIES OF GUN RIGHTS AND REGULATION: ESSAYS ON THE PLACE OF GUNS IN AMERICAN LAW AND SOCIETY (Joseph Blocher & Jake Charles eds., Oxford Univ. Press) (forthcoming 2022) (manuscript at 1-2) (on file with authors); Patrick J. Charles, *Racist History and the Second Amendment: A Critical Commentary*, 43 Cardozo L. Rev. 1343, (April, 2022) (manuscript at 1-2), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3897310 [<https://perma.cc/DCT4-XFM4>].
- ⁸ Where Furnish claimed 70% of defendant surnames listed in the pages of the *New York Times* were Italian, Charles found only 27-30%. Nearly a third (43 of 132) of the defendants had no name listed at all. Patrick J. Charles, *A Historian’s Assessment of the Anti-immigrant Narrative in NYSRPA v. Bruen*, DUKE CTR. FOR FIREARMS L.: SECOND THOUGHTS BLOG (Aug. 4, 2021) <https://firearmslaw.duke.edu/2021/08/a-historians-assessment-of-the-anti-immigrant-narrative-in-nysrpa-v-bruen/> [<https://perma.cc/N8GU-24MV>].
- ⁹ Young v. Hawaii, 992 F.3d 765, 857 (9th Cir. 2021) (en banc) (O’Scannlain, J., dissenting).
- ¹⁰ *Id.* at 845 (O’Scannlain, J., dissenting).
- ¹¹ The *Duke* decision from Texas indeed engaged in constitutional scrutiny, even going so far as to explain quite clearly that the entire matter was “settled law” that the Bill of Rights was “intended to be limitations on the power of the government of the thirteen States, and not on the powers of the State governments,” and “has been long regarded as the settled construction in the Supreme Court of the United States.” State v. Duke, 42 Tex. 455, 457 (1875). The statute in question, one which I will talk in more detail about, is as close to a ban on public carry of pistols and knives as any state dared venture during the Gilded Age; in fact, it was so sweeping in its effect that I called it a ban in my own dissertation. But the court at that time saw it, not as a ban on weapons in public, but as “nothing more than a legitimate and highly proper regulation of their use.” *Id.* at 459. Two decades later, in another case arising from this Texas law, the U.S. Supreme Court held that “it is well settled that the restrictions of these [Second and Fourth] amendments operate only upon the federal power, and have no reference whatever to proceedings in state courts.” Miller v. Texas, 153 U.S. 535, 538 (1894).
- ¹² Robert Leider, *Constitutional Liquidation, Surety Laws, and the Right to Bear Arms* 15 (Mar. 2021) (unpublished manuscript) (on file with George Mason University School of Law).
- ¹³ This is a chronologically nebulous period for the authors as they decline to define it. The states they refer to enacted concealed weapons restrictions throughout the nineteenth century and early twentieth century, ranging from 1801 to 1917. See *Search the Repository*, DUKE CTR. FOR FIREARMS L., <https://firearmslaw.duke.edu/repository/search-the-repository/> (last visited Feb. 1, 2022) [<https://perma.cc/T6KY-CK5U>].
- ¹⁴ Justin Aimonetti & Christian Talley, *Race, Ramos, and the Second Amendment Standard of Review*, 107 VA. L. REV. ONLINE 193, 197 (2021).
- ¹⁵ *Id.* The authors cite forty-one separate newspaper articles, from thirty-three newspapers. The plurality is from South Carolina papers--eighteen of the citations (44%) are drawn from seven of that state’s newspapers. Each title (save

one, which I could not find and believe to be a mistyped citation, *id.* at 216 n.172) are available through the Library of Congress: Chronicling America. Presumably, the authors looked no further than a keyword search of Chronicling America without looking to any other newspaper databases, let alone archival resources.

¹⁶ The *Savannah Morning News* editor said, “No man who thinks very much of himself, cares to be going around with the butt of a pistol sticking out of his pocket,”--a statement which calls into question the assumption that white Southerners engaged in near-constant weapon-carrying and considered it an appropriate behavior for men. *The Concealed Weapon Evil*, MORNING NEWS, Sept. 8, 1893, at 6. On manliness and weapon-carrying, see Brennan Gardner Rivas, *The Deadly Weapon Laws of Texas: Regulating Guns, Knives, and Knuckles in the Lone Star State, 1836-1930*, at 114-23 (May 2019) (Ph.D. dissertation, Texas Christian University) (on file with author) [hereinafter *The Deadly Weapon Laws of Texas*]. The editor’s brief remark regarding armed Black Georgians was: “Almost every negro that one meets is armed. Some of them carry two pistols and a Winchester rifle.” This statement should cause readers to ponder whether Black Southerners chose to arm themselves to spite the law, or to defend themselves from a hostile white majority whom they encountered in the public square. Speaking eloquently against all weapon-carrying, the editor concluded with this statement, worth quoting in full: “The very act of carrying these concealed weapons in a time of peace is an offense. The man that does it has murder in his heart. It has grown to be a very common thing where men get into a little dispute that could be settled very easily, as soon as their passion was over, for one or both to draw pistols and one or both get killed or seriously wounded. This is a free country, of course, but is it not possible that there is too much freedom in some things?” *The Concealed Weapon Evil*, *supra*, at 6.

¹⁷ *The General Assembly*, YORKVILLE ENQUIRER, Feb. 16, 1901, at 2.

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ Aimonetti & Talley, *supra* note 14, at 223.

²¹ Emblematic of the authors’ approach is a discussion of concealed-weapons arrests as a way for white Virginians to prevent feared uprisings by local African American residents. *See id.* at 215. This method has previously been used by Cottrol and Diamond, which also failed to draw any concrete connection between arrest of Black weapon-carriers and systematic law enforcement policy. *See Cottrol & Diamond, Afro-Americanist Reconsideration, supra* note 6, at 349-358. Isolated episodes do not prove a consistent policy across time and place. More weight must be given to the two articles from the *Watchman and Southron* of Sumter, SC, which gave annual reports of proceedings of the Police Courts. The two articles cited by Aimonetti and Talley present figures for 1902 and 1904. The first of those reports included only three arrests for concealed weapons, two Black and one white, of a total of more than four hundred criminal misdemeanors. *See Doings of the Police Force for 1902*, WATCHMAN AND SOUTHRON (Sumter, SC), Feb. 25, 1903, at 2. The second year featured a much more stark racial disparity of thirty Black persons arrested for concealed-carry and only four white. This certainly shows us inconsistent enforcement patterns, and a tremendous racial disparity in that local area for the year 1904, but it decidedly does not present compelling evidence of consistent discriminatory enforcement across the long Progressive Era or across the entire South. These articles instead show us the extent to which local law enforcement as an entire enterprise became a tool for the oppression of Black Southerners. The *Watchman and Southron* editor even addressed racial disparities regarding the misdemeanors reported for 1904, saying “As usual the negroes are in the great majority, but an inspection of the summary will show that the percentage of convictions was much higher in the cases against white prisoners than in those where negroes were the defendants.” *The Sinner’s Record*, WATCHMAN AND SOUTHRON (Sumter, SC), Feb. 1, 1905, at 6.

²² Aimonetti & Talley, *supra* note 14, at 223.

²³ “Be it enacted by the Legislature of the State of Texas, That if any person shall go into any church or religious assembly, any school room or other place where persons are assembled for educational, literary or scientific purposes, or into a

ball room, social party or other social gathering composed of ladies and gentlemen, or to any election precinct on the day or days of any election, where any portion of the people of this State are collected to vote at any election, or to any other place where people may be assembled to muster or perform any other public duty, or any other public assembly, and shall have about his person a bowie-knife, dirk or butcher-knife, or fire-arms, whether known as a six-shooter, gun or pistol of any kind, such person so offending shall be deemed guilty of a misdemeanor, and on conviction thereof shall be fined in a sum not less than fifty or more than five hundred dollars, at the discretion of the court or jury trying the same; provided, that nothing contained in this section shall apply to locations subject to Indian depredations; and provided further, that this act shall not apply to any person or persons whose duty it is to bear arms on such occasions in discharge of duties imposed by law.” An Act Regulating the Right to Keep and Bear Arms, 12th Leg., 1st Called Sess., ch. XLVI, § 1, 1870 Tex. Gen. Laws 63.

²⁴ Brennan Gardner Rivas, *An Unequal Right to Bear Arms: State Weapons Laws and White Supremacy in Texas, 1836-1900*, 121 SW. HIST. Q. 284, 284-303 (2018); Rivas, *The Deadly Weapon Laws of Texas*, *supra* note 16, at 124.

²⁵ Brief for the Governor of Texas as Amicus Curiae in Support of Petitioners, New York State Rifle & Pistol Association, Inc. v. Bruen, No. 20-843 (U.S. July 20, 2021).

²⁶ Donald Curtis Brown, who wrote a dissertation on the subject in the 1980s, tended to refer to it as “the pistol law” in emulation of many newspaper editors of the day who used that phrase. The fact that pistols were only one of several weapons included under its purview has discouraged more recent scholars (myself included) from using this phrase as a primary identifier for the law in question. *See* Donald Curtis Brown, *The Great Gun-toting Controversy, 1865-1910: The Old West Gun Culture and Public Shootings* (1983) (Ph.D. dissertation, Tulane University) (on file with author).

²⁷ No amendments were made to this law between its enactment in 1871 and the completion of the 1879 penal code, but subsequent changes were made and are reflected in later penal code revisions. The first section stated, “That any person carrying on or about his person, saddle, or in his saddle bags, any pistol, dirk, dagger, slung-shot, sword-cane, spear, brass-knuckles, bowie knife, or any other kind of knife manufactured or sold for the purposes of offense or defense, unless he has reasonable grounds for fearing an unlawful attack on his person, and that such ground of attack shall be immediate and pressing; or unless having or carrying the same on or about his person for the lawful defense of the State, as a militiaman in actual service, or as a peace officer or policeman, shall be guilty of a misdemeanor, and, on conviction thereof shall, for the first offense, be punished by fine of not less than twenty-five nor more than one hundred dollars, and shall forfeit to the county the weapon or weapons so found on or about his person; and for every subsequent offense may, in addition to such fine and forfeiture, be imprisoned in the county jail for a term not exceeding sixty days; and in every case of fine under this section the fines imposed and collected shall go into the treasury of the county in which they may have been imposed; provided that this section shall not be so construed as to prohibit any person from keeping or bearing arms on his or her own premises, or at his or her own place of business, nor to prohibit sheriffs or other revenue officers, and other civil officers, from keeping or bearing arms while engaged in the discharge of their official duties, nor to prohibit persons traveling in the State from keeping or carrying arms with their baggage; provided, further, that members of the Legislature shall not be included under the term ‘civil officers’ as used in this act.” An Act to Regulate the Keeping and Bearing of Deadly Weapons, 12th Leg. Reg. Sess., ch. XXXIV, § 1, 1871 Tex. Gen. Laws 25. The third section of the act reads, “If any person shall go into any church or religious assembly, any school room, or other place where persons are assembled for amusement or for educational or scientific purposes, or into any circus, show, or public exhibition of any kind, or into a ball room, social party, or social gathering, or to any election precinct on the day or days of any election, where any portion of the people of this State are collected to vote at any election, or to any other place where people may be assembled to muster, or to perform any other public duty, (except as may be required or permitted by law,) or to any other public assembly, and shall have or carry about his person a pistol or other firearm, dirk, dagger, slung shot, sword cane, spear, brass-knuckles, bowie-knife, or any other kind of knife manufactured and sold for the purposes of offense and defense, unless an officer of the peace, he shall be guilty of a misdemeanor, and, on conviction thereof, shall, for the first offense, be punished by fine of not less than fifty, nor more than five hundred dollars, and shall forfeit to the county the weapon or weapons so found on his person; and for every subsequent offense may, in addition to such fine and forfeiture, be imprisoned in the county jail for a term not more than ninety days.” *Id.* § 3.

- ²⁸ The law did not apply to a person's home or business, and there were exemptions for “peace officers” as well as travelers; lawmakers and jurists spent considerable time fleshing out who qualified under these exemptions, and how to allow those fearing an imminent attack to carry these weapons in public spaces. Also, the deadly weapon law did not apply to all guns or firearms but just pistols. The time-place-manner restrictions, however, applied to any “fire-arms ... gun or pistol of any kind” and later “pistol or other firearm,” as well as “any gun, pistol” *See supra* notes 23, 27; *see infra* notes 29, 32.
- ²⁹ *See* TEX. PENAL CODE ANN. § 9.318 (1879); *id.* § 9.320.
- ³⁰ TEX. PENAL CODE ANN. § 9.314 (1879); *id.* § 9.316.
- ³¹ This is a fascinating trend, and the dataset shows a total of 211 cases, which is 11% of the 1,885 cases with known outcomes, reduced to rude display. The law treated the simple act of carrying as a much more serious offense than using it in a rude or menacing way. I tracked rude display cases within the sample counties, though there were far fewer of them than there were “unlawful carry” cases. In some ways rude display seems to have become a replacement charge for affrays that did not result in injuries, as well as unlawful weapon carriers who were willing to plead guilty to a lesser charge.
- ³² “If any person, other than a peace officer, shall carry any gun, pistol, bowie knife, or other dangerous weapon, concealed or unconcealed, on any day of election, during the hours the polls are open, within the distance of one-half mile of any poll or voting place, he shall be punished as prescribed in article 161 of this Code.” TEX. PENAL CODE ANN. § 6.163 (1879). The prescribed penalty from section 161 was a fine of \$100 to \$500 in addition to imprisonment in the county jail not exceeding one month. *Id.* § 161.
- ³³ [Young v. Hawaii, 992 F.3d 765, 846 \(9th Cir. 2021\)](#) (en banc) (O’Scannlain, J., dissenting).
- ³⁴ *See supra* notes 23, 27, 28, 30.
- ³⁵ Historians of West Texas will surely be disappointed that I did not include a western county within my sample. My only response is that I hope to survey Presidio County and include it within my database. It is also worth noting that a very few cases (a total of three) came from two Liberty County Justice court criminal docket books. I reviewed these materials simply as a matter of convenience because they were close at hand, and two were found in a volume from the mid-1870s, making them rare and worth recording. But the Liberty County cases are far too few in number to represent an accurate view of law enforcement there. Where possible, I have deliberately tried to exclude them, though there are so few that they nonetheless have little bearing upon the overall totals.
- ³⁶ Sometimes, records that should be there are missing; other times, records are available but unusable, as happened to me in Jefferson County.
- ³⁷ *See* TEX. CONST. art. V (1869). Compare the constitutional statements vesting judiciary power within court systems for the constitutions of 1866, 1869, and 1876. Unlike the 1866 and 1876 constitutions, the republican-authored document does not mandate the creation of county courts. When the legislature created county courts in 1870, it required that justices of the peace serve as members of the court and vested them with administrative powers “as were heretofore discharged by the county commissioners and County Courts of this State.” *See* An Act to Organize the Courts of Justice of the Peace and County Courts, and to Define Their Jurisdiction and Duties, 12th Leg., 1st Called Sess., ch. LXV, § 32-38, 1870 Tex. Gen. Laws 87.

- ³⁸ There were 105 cases from justice court in Fayette County that were marked as transferred to county court. All but six of those stated a bail amount (usually \$100, but occasionally only \$50). By contrast, there are a total of 731 cases from the county court system.
- ³⁹ If we were to look at cases with known judgments, including those quashed or dismissed, the total number would be 2,291. Guilty and Appealed judgments would then account for 74%, Not Guilty judgments would account for 9%, and Quashed/Dismissed would account for 18%. Dismissals were common enough, however, that I decided to consider them within their own separate category rather than allow them to dilute statistics for those cases that actually went to an adjudication.
- ⁴⁰ STATE OF TEX.: JUD. BRANCH, ANNUAL STATISTICAL REPORT FOR THE TEXAS JUDICIARY 67 (2014), <https://www.txcourts.gov/media/885306/Annual-Statistical-Report-FY-2014.pdf> [<https://perma.cc/X3J7-JZXR>]. The numbers in question apply to Statutory County Courts, which “aid the constitutional county court with its judicial function.” STATE OF TEX.: JUD. BRANCH, TEXAS COURTS: A DESCRIPTIVE SUMMARY 2 (2014), <https://www.txcourts.gov/media/994672/Court-Overview.pdf> [<https://perma.cc/RB8Y-3YYW>].
- ⁴¹ For additional information regarding this sampling process, see Rivas, *The Deadly Weapon Laws of Texas*, *supra* note 16, at 164-95. For a full list of county records reviewed for the purposes of this dataset, see *infra* Bibliography.
- ⁴² See WILLIAM D. CARRIGAN, *THE MAKING OF A LYNCHING CULTURE: VIOLENCE AND VIGILANTISM IN CENTRAL TEXAS, 1836-1916*, at 3 (Univ. Ill. Press 2004).
- ⁴³ Aimonetti & Talley, *supra* note 14, at 203-10, 214-18; Cottrol & Diamond, *Afro-Americanist Reconsideration*, *supra* note 6, at 318-19, 354-55, 361; Cottrol & Diamond, *Never Intended to Be Applied to the White Population*, *supra* note 6, at 1329, 1331-35; Cramer, *supra* note 5, at 20-21, 23-24; David B. Kopel, *The Second Amendment in the Nineteenth Century*, 1998 BYU L. REV. 1359, 1418; Stefan B. Tahmassebi, *Gun Control and Racism*, 2 GEO. MASON U. C.R.L.J. 67, 67-85 (1991).
- ⁴⁴ *Infra* Figures A and B.
- ⁴⁵ There were 2,171 total cases from McLennan and Fayette counties combined, but 1,778 individual violators (repeat offenders, transferred cases, and appeals) account for the difference. The sample included 102 violators from a total of 1,021 in Fayette County, and 75 from a total of 757 in McLennan County. This sample size yields of confidence interval of ± 7 when using the worst-case-scenario of 50% accuracy, which is the standard for polling statistics. Since my figures are based upon the reading of straightforward census data rather than subjective poll questions, and I have disregarded defendants whose race could not be determined with reasonable certainty, it is fair to consider the accuracy of this sample at 95% or higher.
- ⁴⁶ *Supra* Figures D and E.
- ⁴⁷ C. VANN WOODWARD, *THE STRANGE CAREER OF JIM CROW* 7 (Oxford Univ. Press 1955).
- ⁴⁸ See, e.g., JOEL WILLIAMSON, *THE CRUCIBLE OF RACE: BLACK-WHITE RELATIONS IN THE AMERICAN SOUTH SINCE EMANCIPATION* (Oxford Univ. Press 1984) (discussing changing perceptions of African Americans by Southern whites); Kenneth W. Mack, *Law, Society, Identity, and the Making of the Jim Crow South: Travel and Segregation on Tennessee Railroads, 1875-1905*, 24 LAW & SOC. INQUIRY 377 (1999) (examining the advent of de jure segregation in the American South); Howard N. Rabinowitz, *More than the Woodward Thesis: Assessing*

The Strange Career of Jim Crow, 75 J. AM. HIST. 842 (1988) (book review) (examining the origins and nature of segregation).

[49](#)

See, e.g., MICHELLE ALEXANDER, THE NEW JIM CROW: MASS INCARCERATION IN THE AGE OF COLORBLINDNESS (New Press 2010) (examining how the U.S. criminal justice system operates as system of racial control); ELIZABETH HINTON, FROM THE WAR ON POVERTY TO THE WAR ON CRIME: THE MAKING OF MASS INCARCERATION IN AMERICA (Harvard Univ. Press 2016) (discussing the creation of the system of mass incarceration in the U.S.); KHALIL GIBRAN MUHAMMAD, THE CONDEMNATION OF BLACKNESS: RACE, CRIME, AND THE MAKING OF MODERN URBAN AMERICA (Harvard Univ. Press 2010) (describing how America has characterized African Americans as criminal).

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Why Was Antebellum Florida Murderous? A Quantitative Analysis of Homicide in Florida, 1821-1861

By James M. Denham and Randolph Roth

Before the Civil War, Florida was one of the most murderous places in the United States. Its homicide rate was rivaled only by Texas and California.¹ When it came to murders of or by blacks, Florida was typical for a slave state. But its white citizens killed each other at an extraordinary rate—usually three or four times the rate in most other slave states and eight to ten times the prevailing rate during the Second Seminole War, 1835-42, and the secession crisis, 1858-61.

Why were whites so likely to kill each other in antebellum Florida? The homicide rate rose among whites in every slave state in the early nineteenth century, as revolutionary ideals and aspirations disrupted the class-bound social hierarchy of the plantation South. Poor and middle-class whites grew impatient with their standing in society and prominent whites resented challenges to their authority, which led to deadly confronta-

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1. James M. Denham, *A Rogue's Paradise: Crime and Punishment in Antebellum Florida, 1821-1861* (Tuscaloosa: University of Alabama Press, 1997), ix.

[216]

HOMICIDE IN FLORIDA

217

tions. But the homicide rate rose much higher among whites in Florida because of the state's troubled political history. Only Texas and California experienced political instability on the scale that Florida did during the Patriot War, the Seminole Wars, and the secession crisis. The lawlessness and political violence of those years left a lasting legacy. And no state had more trouble establishing a strong government that was legitimate in the eyes of its citizens, thanks to a quarter century of rule by a territorial government that was perceived by most citizens as corrupt and ineffectual.

Florida's territorial government spent too little on law enforcement to secure the state's borders, suppress criminal gangs, or catch and convict murderers. Its jails were too flimsy to hold the suspects it did catch. Citizens therefore took the law into their own hands, and vigilantism started a cycle of killings and revenge killings. More important, many settlers perceived Florida's territorial government as corrupt, because most of its officials served at the pleasure of politicians in Washington, not Florida's voters. That undermined confidence in public officials and left Florida's white citizens feeling unrepresented and powerless. If they felt they could not get a fair hearing in court on a property dispute, they killed their opponents. If they believed their political opponents were unethical or unaccountable, they challenged them to duels, ambushed them, or lynched them. Whenever they felt their lives or property to be at risk they were quick to use violence, since they believed no one else would protect them. Political instability, poor law enforcement, and political alienation thus made Florida an extraordinarily homicidal place.

Determining Florida's homicide rate offers special challenges. It is harder to study homicide in Florida than in any other southern state. Most court minutes books and nearly all case files and coroner's inquests have been lost; and Florida newspapers did a poor job covering homicides due to poor communications and a lack of local correspondents. Florida newspapers rarely mentioned homicides, and when they did, they usually failed to discuss the motives or circumstances of those crimes. The state's financial records, which list payments for the arrest, confinement, and trial of many homicide suspects, fill the gap to some degree, as do the state proclamations that called upon citizens and local authorities to apprehend fugitive murder suspects. But these records seldom

identify the murder victim, and they say little or nothing about the particulars of the murders themselves.²

Florida's records are thus terribly incomplete, and we must make strong assumptions to fill the gaps mathematically. Nevertheless, the raw count of homicides in Florida's surviving records is much higher in proportion to the population than the counts that have been made in Virginia, North Carolina, South Carolina, and Georgia, which are based on more complete records. And when we use simple mathematics to estimate the number of homicides that probably occurred, the difference between Florida and other slave states is stunning.

Surviving records contain evidence of 401 homicides in Florida, 1821-1861, which include at least 10 homicides committed by Native Americans and 51 homicides committed by African Americans. The extant evidence says nothing about the identity of the victim in 30 percent of these cases and offers no information as to motive or circumstance in 61 percent (Table 1). We can improve upon the first percentage because Florida's judicial system had a clear policy toward African Americans found guilty of homicide. Every convicted black who was known to have killed a white person was found guilty of murder and sentenced to death. Every convicted black who was known to have killed a black person was found guilty of manslaughter and whipped. We can therefore with some certainty classify unknown victims of black "manslaughterers" as black and unknown victims of black "murderers" as white. There was no clear pattern, however, in the convictions of white homicide suspects, so we cannot predict the race of their unidentified victims. But we can extrapolate the race of the remaining unknown victims from the race of the known victims of black and white murderers. We have inferred the race of 112 known victims—28 percent—by extrapolation. We made separate extrapolations for 1821-45 and 1846-61 to take into account improvements in crime reporting and record keeping after Florida became a state.

The next task is to account for gaps in the evidence caused by the loss of records, the failure of newspapers to report murders systematically, and the failure of the authorities to investigate all of

2. The research for this essay was completed by James M. Denham. The primary sources he examined are listed in Denham, *Rogue's Paradise*, 341-50. The data are available through the Historical Violence Database at the Criminal Justice Research Center at Ohio State University (www.sociology.ohio-state.edu/cjrc/hvd).

HOMICIDE IN FLORIDA

219

Table 1

**Florida Homicides, 1821-1861: Estimates, Inferences, and
Extrapolations**

	Known Homicides	Estimated Homicides
Total	401	607
Unknown motive	243 (.61)	449 (.74)
Race of victim not inferred ¹	120 (.30)	326 (.54)
Race of victim not inferred ²	112 (.28)	318 (.52)

¹ Only 1 percent of Florida's inhabitants were free blacks, so victims and suspects who had surnames and were not identified as free blacks were assumed to be whites.

² All indicted black suspects who were found guilty of killing whites were found guilty of murder (16 cases). All indicted black suspects who were found guilty of killing blacks were found guilty of manslaughter (8 cases). Thus, in cases where the race of the alleged victim of a black homicide suspect is unknown, the race of the victim was assumed to be white if the suspect was found guilty of murder (3 cases) and black if the suspect was found guilty of manslaughter (5 cases).

the suspected homicides that came to their attention. There is no way to estimate the actual number of homicides that occurred without the help of forensic evidence, but we can estimate, using "matching list" mathematics, the number of suspected homicides that came to the attention of the public at the time, even if contemporaries failed to write about those homicides or if their writings have been lost.³ As long as a homicide had a statistical chance of turning up in a court record, inquest, newspaper, or diary—that is, as long as someone other than the murderer and victim suspected homicide and spoke about it with someone else—we can "recover" that homicide mathematically. The same technique is used by epidemiologists and demographers to estimate the number of people who have AIDS, for example, or the number of people in a particular census category, such as the homeless.

3. This is the methodology used in Randolph Roth, "Child Murder in New England." *Social Science History* 25 (Spring 2001): 101-47.

We divided the records of homicides into two lists. One list contains cases found in legal records (minute books, case files, inquests, proclamations, vouchers, pardons, etc.) and the other contains cases found in other records (newspapers, memoirs, diaries, letters). These two lists are not completely independent, statistically speaking. Homicides that enter the legal process are more likely to leave traces in non-legal records than vice versa, because they are likely to be discussed widely and repeatedly. Because the two lists are not completely independent, our estimate of homicides in Florida will be low, probably by about 10 to 15 percent. But the lists are to a great degree independent, and the downward bias in the estimates they yield should be steady from year to year.

The matching list method looks at the degree to which the two lists of homicides overlap.⁴ If a large proportion of homicides appears on both lists, we can predict that most cases appear in the surviving records, and we can estimate the number of homicides that came to the attention of the public with a great deal of confidence. The “standard errors” of our estimates are small relative to the estimated number of homicides. If a small proportion of homicides appears on both lists, we can predict that most cases do not appear in the surviving records, and we can estimate the number of homicides that came to the attention of the public with less confidence. The “standard errors” of our estimates for Florida are large relative to the estimated number of homicides, because we don’t know if the surviving records are missing “a lot” of homicides, “an awful lot” of homicides, or “a tremendous number” of homicides.

How many homicides do we estimate occurred in Florida? The degree of under-enumeration varies by period and by the race of the assailant (Tables 2 and 3). If we split our matching-list analysis in 1845/6, we estimate that 607 homicides came to the attention of the public in antebellum Florida—51 percent more than appear in the surviving records. Given the large number of known white assailants, we can refine the analysis further and estimate the number of white murderers in discrete historical periods, such as

4. Ibid. The formula for estimating the number of homicides that do not appear in the surviving records is simple: multiply the number of homicides found only in legal records by the number of homicides found only in other records, and divide that product by the number of homicides found in both legal and other records.

HOMICIDE IN FLORIDA

221

Table 2

Estimates from Matched Lists of the Number of Adult Homicide Victims in Florida, 1821-1845

Homicides committed by:

	Blacks	Indians	Whites	All Assailants
Percentage of estimated homicides found	.79	.75	.73	.73
Located only in legal records	6	1	54	61
Located only in other sources	8	1	31	40
Located in legal records and in other sources	8	1	37	46
Number of homicides found	22	3	122	147
Estimated number of homicides	28.0	4.0	167.2	200.0
Standard error of estimated homicides	4.6	2.0	14.3	15.2

the Second or Third Seminole Wars (Table 4). The results of the two analyses are similar enough to build confidence in the quality of the estimates. But the gaps in our knowledge about the motives, circumstances, and victims in Florida homicides are greater than we first thought. We do not know the race of the victim in 52 percent of the homicides that we believe occurred or the motive or circumstance in 74 percent (Table 1). It is impossible, therefore, to estimate the rate of rare homicides, such as spousal murders, and it requires considerable extrapolation to estimate interracial and intraracial homicide rates for blacks and whites.

Table 3

Estimates from Matched Lists of the Number of Adult Homicide Victims in Florida, 1846-1861

Homicides committed by:

	Blacks	Indians	Whites	All Assailants
Percentage of estimated homicides found	.74	1.00	.59	.62
Located only in legal records	16	0	118	134
Located only in other sources	5	3	56	64
Located in legal records and in other sources	8	4	44	56
Number of homicides found	29	7	218	254
Estimated number of homicides	39.0	7.0	368.2	407.4
Standard error of estimated homicides	7.0	0.0	35.4	33.4

To calculate homicide rates, we divided the number of homicides by the population at risk and multiplied by 100,000, as the Federal Bureau of Investigation does:

Homicide rate = (number of homicides / population at risk) * 100,000

A common objection to historical homicide estimates is that it is impossible to produce reliable rates for places that have small populations or few homicides. It would certainly be a mistake to make too much of Florida's homicide rate in a particular year, given that its population as late as 1830 was only 35,000. Its homi-

HOMICIDE IN FLORIDA

223

Table 4

Estimates from Matched Lists of the Number of Adult Homicide Victims in Florida, 1821-1861

Homicides committed by whites:

	Percentage of estimated homicides found	Estimated number of homicides	Standard error of estimated homicides
1821-1827	.84	8.3	1.9
1828-1834	.91	32.9	2.5
1835-1842	.62	102.7	16.3
1843-1845	.56	36.0	11.6
1846-1854	.73	115.0	13.0
1855-1857	.65	73.7	16.5
1858-1861	.53	162.0	27.7

cide rate "per 100,000 persons per year" could be high if three dozen homicides occurred in a given year, while the following year it might drop to a moderate level if only a dozen occurred.⁵ But it is possible to produce reliable homicide rates for longer stretches of time, because the cumulative number of people at risk of being murdered for a year becomes large very quickly. That is why the homicide rates here are calculated for time periods, rather than single years.⁶

Our initial estimates of the homicide rates for whites and blacks (using the estimates of the number of homicides by black and Indian assailants in Tables 2 and 3, and by white assailants in Table 4) appear in Figures 1 and 2. The census figures for Florida's population were also adjusted for underenumeration, to ensure that Florida's homicide rates would not be biased

5. See, for example, Robert R. Dykstra, "Overdosing on Dodge City," *Western Historical Quarterly* 27 (1996), 505-14; and "Body Counts and Murder Rates: The Contested Statistics of Western Violence," *Reviews in American History* 31 (2003), 554-63.
6. See Randolph Roth, "Guns, Murder, and Probability: How Can We Decide Which Figures to Trust?" *Reviews in American History* 35 (2007): 168-73.

Figure 1



Note: The numbers of homicides committed by black and Indian assailants were estimated separately for 1821-45 and 1846-61. The numbers of homicides committed by white assailants were estimated separately for 1821-7, 1828-34, 1835-42, 1843-5, 1846-54, 1855-7, and 1858-61.

upward by a failure to correct both terms in the equation for homicide rates.⁷

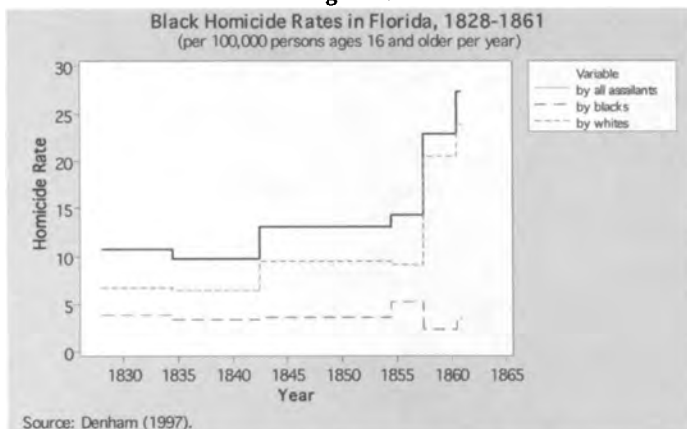
What do they show? Florida was very homicidal, even for a southern state. The homicide rate for black adults was not unusual before the late 1850s—10 to 14 per 100,000 persons per year, a bit higher than the 8 per 100,000 in the four counties that have been studied in Virginia, but the same as in Horry and Edgefield counties in South Carolina and in Franklin, Jasper, and Wilkes counties in Georgia.⁸ The rate at which whites were murdered by blacks was

7. The population figures from the federal censuses of Florida were also corrected for underenumeration, using the method outlined in Randolph Roth, "Child Murder in New England," *Social Science History* 25 (2001): 129-35. The underenumeration figures for whites were from James D. Hacker, "The Human Cost of War: White Population in the United States, 1850-1880" (Ph. D. dissertation: University of Minnesota, 1999) and for blacks from A. J. Coale and N. W. Rives, "A Statistical Reconstruction of the Black Population of the United States, 1880-1970," *Population Index* 39 (1973): 3-36. An additional 1 percent was added to the population to account for the probably higher level of underenumeration in Florida, and an additional 5 percent on top of that to the population of free blacks to account for the probably higher level of underenumeration nationwide.
8. The data from Virginia, South Carolina, and Georgia are from Randolph Roth's forthcoming study of American homicide. The data for the Virginia counties are from Amelia, Lancaster, Rockbridge, and Surry, 1800-63. The

HOMICIDE IN FLORIDA

225

Figure 2



Note: The numbers of homicides committed by black were estimated separately for 1821-45 and 1846-61. The numbers of homicides committed by white assailants were estimated separately for 1821-7, 1828-34, 1835-42, 1843-5, 1846-54, 1855-7, and 1858-61.

homicide rates for Rockbridge County and for the counties in Georgia, 1815-1863, are matching-list estimates from newspapers, local histories, and newspapers. The rates for Amelia, Lancaster, and Surry are from court records, case files, coroner's inquests, and local histories, because Virginia newspapers failed to report on crime in those counties. The rates for Edgefield County, 1844-1863, and Horry County, 1849-63, are from typescripts of their coroner's records, available at the University of South Carolina Library.

The legal records for the counties studied in Georgia and Virginia are available at their respective county courthouses, the Library of Virginia, or the Georgia Department of History and Archives. The estimate for Rockbridge County relies on a systematic reading of the surviving issues of newspapers published in Fincastle, Lexington, and Staunton, Virginia, 1790-1821 (available at the Library of Virginia in the Valley of Virginia newspaper collection) and of the following newspapers: *Lexington Gazette*, 1835-63; *Republican Farmer* (Staunton), 1822-3; *Rockbridge Intelligencer* (Lexington), 1823-32; and *Union* (Lexington), 1832-5. The estimates for the Georgia counties rely on Tad Evans's superb indexes of the Baldwin County, Georgia newspapers: Tad Evans, *Baldwin County, Georgia, Newspaper Clippings* (*Union Recorder*), 1830-1887, 12 v. (Savannah: T. Evans, 1994-7); Tad Evans, *Milledgeville, Georgia, Newspaper Clippings* (*Southern Recorder*), 1820-1872, 12 v. (Savannah: T. Evans (1995-7); and Fred R. Hartz, Emily K. Hartz, and Tad Evans, *Genealogical Abstracts of the Georgia Journal* (Milledgeville) *Newspapers, 1809-1840*, 5 v. (Vidalia and Savannah: T. Evans, 1990-5). Other Georgia newspapers consulted include: *Augusta Chronicle*, 1785-1815; *Friend and Monitor*, (Washington), 1814-15; *Monitor and Impartial Observer* (Washington), 1802-9; and *Washington News*, 1816-40. The research on the Virginia and Georgia counties was completed in collaboration with James Watkinson of the Library of Virginia and Kenneth Wheeler of Reinhardt College. The research was supported by grants from the National Science Foundation and the National Endowment for the Humanities.

also typical for a Southern state—an average of 4 per 100,000 persons per year. But the rate at which white adults murdered each other truly stands out. That rate never fell below 36 per 100,000 persons per year. During the Second Seminole War, 1835-42, it reached 71 per 100,000. It rose to 56 per 100,000 during the Third Seminole War and to 86 per 100,000 on the eve of the Civil War. In Virginia, the rate at which whites murdered each other was only 5 or 6 per 100,000 persons per year, except in the decade that followed Nat Turner's rebellion, when it fell to near zero. In Franklin, Jasper, and Wilkes counties in Georgia, the rate was 10 to 15 per 100,000; in Edgefield County, South Carolina, it was 13 per 100,000; and in Horry County, South Carolina, it was 27 per 100,000. Thus the rate at which white Floridians killed each other was far higher than in the rest of the slave South. Only California (and probably Texas) had comparable rates. The rate among whites in southern and central California was at least 40 per 100,000 adults per year, 1850-65,⁹ and will probably prove to have been much higher, once matching-list estimates are available.¹⁰ Florida should be linked historically with Texas and California as an extremely violent state.

We can get a more immediate sense of how homicidal Florida was by converting its homicide rate to a "risk." What was the chance that a white adult who lived in Florida would have been murdered by another white? We can turn rates into "risks" by using the following formula:

$$\text{Risk} = 100,000 / (\text{homicide rate} * \text{years of exposure})$$

9. Claire V. McKanna, Jr., *Race and Homicide in Nineteenth-Century California* (Reno: University of Nevada Press, 2002); Kevin J. Mullen, *Dangerous Strangers: Minority Newcomers and Criminal Violence in the Urban West, 1850-2000* (New York: Palgrave Macmillan, 2005); and Eric H. Monkkonen, "Los Angeles Homicides, 1830-2001 [computer file]." Los Angeles: University of California at Los Angeles, 2005. Together, the counties these authors studied contained 57% of the population of southern and central California. The data are available through the Historical Violence Database at Ohio State University.
10. From newspaper accounts alone, the total homicide rate in California was at least 186 per 100,000 adults per year in 1848, 231 in 1854, and 234 in 1855. See John Boessenecker, *Gold Dust and Gunsmoke: Tales of Gold Rush Outlaws, Gunfighters, Lawmen, and Vigilantes* (New York: John Wiley, 1999), 323-5. San Francisco, studied by Mullen, was probably the least homicidal county in early California; and McKanna estimates the homicide rates for the seven counties in his study from court records and coroner's inquests, not newspapers.

Systematic research has yet to be completed on homicide in antebellum Texas, but given the similarity between the anecdotal evidence available for Texas and that available for California and Florida, its homicide rate was probably extremely high as well.

A person exposed to a homicide rate of 36 per 100,000 for their entire adult life—an average of 43 years in the United States in the mid-nineteenth century for persons who reached the age of 16¹¹—would have stood a 1 in 65 chance of being murdered. And a person exposed to a rate of 86 per 100,000 would have stood a 1 in 27 chance of being murdered.

Why were whites so extraordinarily likely to kill each other in Florida? The homicides for which we know something about motive or circumstance are much like those that occurred throughout the slave South in the antebellum period. Florida whites fought for property, for honor, and, when they were drunk, for the heck of it. They killed when they were snubbed socially, when they were called names, when they were thrown out of bars or boarding houses, when they were refused credit, when they lost at cards, and when neighbors trespassed on their land. The worst thing that could happen to a white man in the slave South was to be humiliated by another man. A good number of men were willing to kill or be killed to prevent that from happening.

In the slave South as a whole, the homicide rate was probably 10 to 15 per 100,000 adults per year in the antebellum period: at least twice what it had been for whites at its low point in the Chesapeake in the late 1750s and 1760s and three times what it had been for blacks in the 1780s and 1790s. The homicide problem in the antebellum South cannot be explained by the presence of slavery or by a traditional code of honor, because the slave South had been only moderately homicidal in the mid- or late-eighteenth century.¹² The explanation lies in revolutionary ideas and aspirations, which wrought havoc with

11. Michael R. Haines, "Estimated Life Tables for the United States, 1850-1910," *Historical Methods* 31 (1998): 156. Life Table for both sexes, 1850, ages 15-19, e(x).

12. See, for example, Randolph Roth, "Twin Evils: The Relationship between Slavery and Homicide in New England, the Chesapeake, and the Shenandoah Valley, 1677-1800," in S. Mintz and J. Stauffer, eds., *The Problem of Evil: Slavery, Freedom, and the Ambiguities of American Reform* (Amherst: University of Massachusetts Press, 2006). The classic works that cite slavery and honor as the fundamental causes of the antebellum South's high rate of violence are Bertram Wyatt-Brown, *Southern Honor: Ethics and Behavior in the Old South* (New York: Oxford University Press, 1982), and Edward L. Ayers, *Vengeance and Justice: Crime and Punishment in the Nineteenth-Century American South* (New York: Oxford University Press, 1984). Wyatt-Brown's recent work, however, emphasizes as this essay does the contribution of the American Revolution to Southern violence. See Bertram Wyatt-Brown, *The Shaping of Southern Culture: Honor, Grace, and War, 1760s-1890s* (Chapel Hill: University of North Carolina Press, 2005), 31-55.

slave society in a number of significant ways. Poor and middle-class whites were increasingly frustrated by their inability to rise in a society that remained class-bound and hierarchical. Prominent whites were subjected to the rough and tumble of democracy and seethed at the way they were treated. Slaves despaired over the failure of the American Revolution to lead to emancipation in the South, and whites were more fearful than ever of black rebellion. As a result, impatience with restraint and sensitivity to insult were more intense in the slave South after the Revolution, and the region had more than its share of deadly quarrels, property disputes, duels, and interracial killings. In areas of the South where there were few slaves, like mountainous western Virginia, north Georgia, or southwest Missouri, homicide rates were as low as those in the rural North by the 1830s and 1840s.¹³ Homicide rates correlated strongly in the antebellum South with the presence or absence of slavery. Because Florida had a large slave population—over 45 percent statewide by the 1830s—it had the same homicide problem that other slave states had.

Coming out on top in contests with peers was important to white men in antebellum Florida—they refused to be “mastered” by other men. Farmers Jim Munden and Elijah Locklear of Lafayette County shot each other dead when their “daughter swap” went bad. They had hired their daughters out to each other to work as domestic servants, but Locklear’s daughter ran back home after two days. Munden told Locklear that he’d kill him if his daughter didn’t return, but Locklear refused to send her back, saying it was her decision. Munden and several friends went gunning for Locklear that Saturday night, but Locklear was ready, and he wounded Munden fatally before he himself was shot.¹⁴ Augustus Noyes of Columbia County took offense

13. Again, these data are from Randolph Roth’s forthcoming study of American homicide. They include data from Cabell and Greenbrier counties in Virginia, and Gilmer and Rabun counties in Georgia. See also the data from four counties on the Kentucky-Tennessee border in William Montell, *Killings: Folk Justice in the Upper South* (Lexington: University of Kentucky Press, 1986) and from Taney County, Missouri, in F. McConkey, *The Bald Knobbers or Citizens’ Committee of Taney and Christian Counties, Missouri* (Forsyth: Groom and McConkey, 1887), 38.

14. James M. Denham and Canter Brown, eds. *Cracker Times and Pioneer Lives: The Florida Reminiscences of George Gillett Keen and Sarah Pamela Williams* (Columbia: University of South Carolina Press, 2000), 80-86. Capt. Frank Sams, another pioneer, offers a slight variation of Keen’s version of this embellished yet historically accurate story to a New York newspaper reporter. The effect is the same. See Jerald T. Milanich, *Frolicking Bears, Wet Vultures, and Other Oddities: A New York City Journalist in Nineteenth-Century Florida* (Gainesville: University Press of Florida, 2006), 182-85.

when Dr. John Clyde whipped a slave he had sent on an errand, and he demanded an apology. Dr. Clyde, unwilling to be called on the carpet for manhandling a slave he felt had been insolent, replied: "God d—n you, if you say anything, I will serve you the same way." Noyes slapped Clyde in the face, "knocked him down and there left him"; so Clyde tracked Noyes down and shot him dead.¹⁵

Anxiety over status was considerable among Florida whites. George Gillett Keen, a pioneer settler in East Florida, recalled how much he had wished as a young man that he could have taken part in the "overseer talk" of the local men he escorted on hunting trips. "All of them were rich men. I was poor, but a natural born pioneer with a thorough knowledge of the woods, and was a crack shot, together with a pack of hounds as good as ever give tongue on a deer trail." But he couldn't compete with his neighbors when the talk turned to farming.

One would say, Iv'e [*sic*] got the best overseer I ever had; another would say, my overseer is a worthless fellow, a third would say I am pretty well satisfied with my overseer, and so on. I would sit there like a bump on a log. You bet I never wanted anything worse in my life than I wanted a plantation of niggers so I could talk about my overseer. I had some niggers, but not enough to have an overseer; that's what worried me. When hunting time come round I was in but when overseer talk was the topic of the day I was ten feet above high water mark on dry land.¹⁶

Ironically, it was mastery of white men—not slaves—that was the key to success in the antebellum slave South. And members of the elite could be ruthless in their judgments of lesser men. For example, Corinna Aldrich, the wife of an officer in the U. S. Army, referred sneeringly to the white men her aunt employed on her plantation as "understrappers."¹⁷

15. Jacksonville *News*, 25 December 1846 and 8 January 1847. For other homicides caused by conflicts over the whipping of blacks, see the murders of John Wilson by William Davis in Santa Rosa County in 1852, *Pensacola Gazette*, 17 January 1852, and of Rafael Gonzales by Florentino Commyns, Inquest on the body of Rafael Gonzales, 31 January 1837, in *Territory vs Florentino Commyns*, 1837, Escambia County Case Files.

16. Denham and Brown, *Cracker Times and Pioneer Lives*, 46.

17. James M. Denham and Keith L. Huneycutt, *Echoes from a Distant Frontier: The Correspondence of the Brown Sisters from Antebellum Florida* (Columbia: University of South Carolina Press, 2004), 126.

Such inequality had been less painful for men in the slave South in the mid-eighteenth century, when it seemed natural that some men, like English aristocrats, would have mastery over others. But after the Revolution that idea was painful to many Southern men, and it raised the stakes in any confrontation that threatened a man's standing in his own eyes or that of his peers. Too often, such confrontations turned deadly in the slave South after the Revolution, and Florida was no exception.

But why was the homicide problem among whites so much worse in Florida than in the rest of the slave South? Historian Edward Baptist believes that the "agendas" white migrants brought to Florida frontier compounded their anxiety over status. "Desire for mastery and antipathy toward submission dominated the individual consciousness and collective unconscious of white men who moved to Florida."¹⁸ Baptist, in his study of Jackson and Leon counties in Middle Florida, notes that many planters, like John Parkhill of Virginia, came to Florida because they had lost badly in the financial panics of 1819 and 1837, or because the cold weather of the 1820s and 1830s had ruined their cotton crops in the Carolinas, or because the soil on their farms had played out. Such men worried about their declining fortunes and were willing to defend what status they had ruthlessly, in business, politics, and day-to-day relations with peers. The same held true, in Baptist's opinion, for poor "countrymen" like Isaac Hay of North Carolina, a laborer and sharecropper. Hay had fought in the Continental Army during the Revolution, survived Valley Forge, and endured a year in a British prison ship after the fall of Charleston, only to find himself mired in poverty and disfranchised by North Carolina's electoral laws, which allowed only property owners to vote. Hay moved to Washington County, Georgia for a fresh start, but he had to abandon his eighty-acre farm because it was too sandy. He came to Florida as impatient with his standing as planters like John Parkhill and just as willing to fight, if necessary, to make it clear that he would subordinate himself to no man.¹⁹ Baptist's evidence for the connection between the disappointments of Florida migrants and their readiness to use violence is anecdotal, based on letters, diaries, and family histories; but it is powerful.

18. Edward E. Baptist, *Creating an Old South: Middle Florida's Plantation Frontier before the Civil War* (Chapel Hill: University of North Carolina Press, 2002), 102.

19. Baptist, *Creating an Old South*, 16-87, especially 16-18 and 37-8.

The most important causes, however, of the high homicide rate among whites in Florida were political. The turning points in the history of homicide among whites in Florida coincided with political events: the homicide rate dropped in the early 1820s at the end of the Patriot War and the American conquest, and it rose during the Second Seminole War, 1835-42, the Third Seminole War, 1855-7, and the secession crisis, 1858-61 (Figure 1). Florida would not have been more homicidal than the rest of the slave South had it not experienced political instability, factionalism among elites, lawlessness, and warfare on an unprecedented scale, and had its citizens not chafed at being the "step-children" of an uncaring federal and territorial government. Disillusionment with state government came later.

It appears that there are four basic requirements for creating societies that are relatively non-homicidal. If these requirements are met, societies can attain homicide rates of less than 2 per 100,000 adults per year. If none of these requirements are met, societies can have homicide rates of hundreds or thousands per 100,000 adults per year. The first three requirements have to do with politics. They are closely related; failure to meet one usually means at least a partial failure to meet the other. The first is a stable government that can impose law and order. The second is a government that is recognized by the vast majority of its constituents as legitimate. The third is solidarity among members of a society, a sense of patriotism or fellow-feeling that extends beyond the bounds of family and neighborhood. The fourth requirement, which operates somewhat independently of the other three, is a legitimate social hierarchy. As we have seen, the slave South as a whole failed to meet the fourth requirement, because the Revolution had so profoundly disrupted and de-legitimized its social hierarchy, although the disruption was somewhat worse in Florida because of the discontents of its migrant population. But before the collapse of the Confederacy in 1863-4, only Florida and Texas failed to meet the first three requirements. That is why their homicide rates hit postbellum levels in the antebellum period.

When governments are unstable, elites are at odds with each other, and laws cannot be enforced, as is common on contested frontiers and during revolutions, civil wars, and military occupations, competition among groups and individuals can spin out of control and lead to catastrophic homicide rates. Homicides of all kinds—political, racial, predatory (including rape and robbery

killings), vigilante, and revenge—can run rampant, and there may be lasting damage to society, because habits learned during sustained periods of political instability are hard to break and can be passed down for generations. Such homicides were evident as early as the Patriot War, 1812-14. Families who lost relatives in the fighting between the American insurgents and Loyalists of Spain, such as the Dells and the Entralgos, became bitter partisans. They took revenge whenever they could, burning out their enemies or killing them. After the war, defeated Patriots like William Williams, disaffected and inured to the violence, formed criminal gangs and robbed, murdered, and stole slaves along the Georgia-Florida border. They made no bones about their contempt for government. Williams wrote a defiant letter to Don Tomás Llorente, the commander of Fort San Nicolás who was charged with his capture. “In six hours I can be over the river laying behind an old pine log within one hundred yard[s] of your garrison and let me tell you Old Mr. Comidant, don’t you go so far from your garrison to shit, for it lay in my power to shoot you in what part I chose.”²⁰

Also well documented are the repeated breakdowns in law and order that occurred during the Seminole Wars and the inability of Florida’s governments to provide adequate law enforcement or jails.²¹ The homicide rate among whites was unusually high during the Second Seminole War, 1835-42, and the Third Seminole War, 1855-7 (Figure 1), not only in the vicinity of the fighting, but throughout Florida. Criminal gangs seized control of swamps and woodlands, and ran back and forth across the Georgia and Alabama borders and Caribbean sea lanes, preying on Floridians. Vigilantism increased, as citizens took the law into their own hands to make up for the failures of the territorial, state, and federal governments, or sought revenge against their political or personal enemies. Surviving records show that one in every twenty-five murder victims in

20. James G. Cusick, *The Other War of 1812: the Patriot War and the American Invasion of Spanish East Florida* (Gainesville: University Press of Florida, 2003), 174-7, 303-4.

21. See Jane Landers, *Black Society in Spanish Florida* (Urbana: University of Illinois Press, 1999); Larry E. Rivers, *Slavery in Florida: Territorial Days through Emancipation* (Gainesville: University Press of Florida, 2000); Canter Brown, Jr., *Florida’s Peace River Frontier* (Orlando: University of Central Florida Press, 1991); John K. Mahon, *History of the Second Seminole War, 1835-1842* (Gainesville: University Press of Florida, 1967); John and Mary Lou Missall, *The Seminole*

HOMICIDE IN FLORIDA

233

Table 5

**Weapons Used by Race of Assailant in Homicides in Florida,
1821-1861**

Race of Assailant ¹	Black	White 1821-45	White 1846-57	White 1858-61
Known assailants	51	122	132	86
Known weapon	24	58	54	55
Percent Known weapon	.47	.48	.41	.64
Percent Victims hanged ²	.00	.04	.04	.24
Percent Victims not hanged who were shot ³	.33	.58	.51	.53
Percent Victims not hanged who were stabbed or cut ²	.38	.17	.24	.32

1 The table does not include the ten known Native American assailants who murdered whites or blacks.

2 The number of known victims of hangings was divided by the number of known assailants. It is doubtful that any known assailants who used unknown weapons hanged their victims.

3 Divided by the number of assailants who used known weapons and who did not hang their victims.

Florida before 1858 was hanged by white vigilantes, who believed they were suppressing outlawry and dispensing justice (Table 5).²²

Wars: America's Longest Indian Conflict (Gainesville: University Press of Florida, 2004); James M. Denham, "Some Prefer the Seminoles': Violence and Disorder Among Soldiers and Settlers in the Second Seminole War, 1835-1842," *Florida Historical Quarterly* 70 (July 1991): 38-54.

22. There were ten known victims of vigilantes before 1858: 8 whites and 2 blacks. All were killed in the Western Judicial District or the Middle Judicial District, but that pattern may not be significant, since those districts had larger populations, better newspapers, and fewer lost court records. The victims included a convicted arsonist, a convicted rapist, a suspected murderer, and 6 suspected members of criminal gangs.

Political instability and persistent lawlessness had a corrosive effect on everyday life. They made Floridians fatalistic about crime and violence, so they refused to pay for the jails and law enforcement officers they needed. At least a quarter of all homicide suspects jumped bail, escaped from jail, or were never caught; and because there was no state prison, judges and jurors could not sentence murderers to long prison terms. Three of every hundred white murderers were hanged, but the rest suffered no more than 39 lashes, a year in jail, and a \$1000 fine (which was routinely rescinded for those who could not pay). That was not enough to deter homicide in a society in which outlaws had lost their fear of the law and law-abiding citizens had lost their faith in it. Outlaws thought little of murdering potential witnesses.²³ Vigilantes attacked anti-regulators who tried to put an end to lynching.²⁴ Citizens who had their property attached killed the justices of the peace who issued writs and the deputies who served them.²⁵ Neighbors killed neighbors over the placement of a fence, crop damage, the ownership of a canoe, or a contract to supply shingles to the government, usually without seeking legal redress first.²⁶ Floridians did not believe the government would protect them, so they protected themselves. That is why such killings were far more

23. See the murder of William Raffensburgh by Charles Passmore and others in Calhoun County in 1839, *St. Joseph Times*, 21 April 1840; and the murder of James Fish by Samuel Holloman and others in Gadsden County in 1846, *Jacksonville Florida News*, 3-23 October 1846, and *Tallahassee Florida Sentinel*, 11 and 18 August 1846.
24. See the killing of a man named Dowling by William Hollingsworth and his son in New River County in 1860, *Fernandina East Floridian*, 2 and 9 August 1860; and the murder of Samuel Wester by Regulators in Columbia County in 1861, *Washington Ives Journal*, State Library of Florida, pp. 15, 19, 50-2, 58, 68, 73, 76.
25. See the murder of Peter Alba by Robert Breen in Escambia County, 1833: Affidavit and Trial Testimony, *Territory v. Robert Breen*, Sept. 1833, correspondence of Governor Duval, RG 101, Ser. 177, Box 1, Folders 2 and 5, Florida State Archives; *St. Augustine Florida Herald*, 31 October 1833; and *Tallahassee Floridian*, 25 January 1834.
26. See, for example, the murder of Wildman Hines by Hugh Duncan in Jefferson County in *Territory v. Duncan* 1838, Jefferson County Case File; the murder of James Mallett by Robert Mellon in Walton County in 1841, *Pensacola Gazette*, 29 May 1841; and the "Murder of Felix Livingston by Flavious Peacock in Madison County in 1855," *Jacksonville Florida News*, 14 April 1855; *Tallahassee Floridian and Journal*, 14 April, 1855; *The Testimony, Proceedings, &c., &c.*, in the case of the State of Florida vs. Flavius M. Peacock for the murder of Felix Glenn Livingston, held at the Fall term of the Madison Circuit Court, held 21st, 22^d, 23^d, and 24th of November, 1855, J. Wayles Baker, presiding Judge (Madison Court House, Florida: *The Madison Messenger*, 1855).

common in Texas and Florida than they were in the rest of the slave South.²⁷

Another consequence of the lack of political stability and the breakdown in law and order was that many citizens carried guns, either to defend themselves or to get a jump on their enemies. Fifty-five percent of the victims of white assailants in Florida (excluding those who were lynched) were shot (Table 5), in comparison to 38 percent in antebellum Georgia and South Carolina and 28 percent in Virginia. Having to be prepared to fight took a heavy toll.

Florida's divisive political history also played a role in instigating homicides. Although we cannot yet put a number on it, the homicide rate probably declined in the early 1820s, when Florida became a territory of the United States and the chaos caused by the Patriot War, the First Seminole War, and campaigns against fugitive slave communities (like the "Negro Fort" on the Apalachicola River) came to an end. But the new territorial government lacked legitimacy in the eyes of many citizens, so the homicide rate remained high among whites. Control of the government remained in the hands of small cadres of federal appointees, such as the "Nucleus," a faction associated with Andrew Jackson. These factions, unresponsive and unaccountable to the territory's voters, enriched themselves at public expense. They chartered banks, such as the Union Bank of Florida, that issued hundreds of thousands of dollars in ill-secured loans to faction leaders and their political cronies, then held Florida taxpayers responsible for paying off the bonds that secured the loans if the banks defaulted.²⁸

Faction leaders also got rich by controlling the survey and sale of land. Under federal law, people who had settled in Florida by 1825 could register and purchase between 80 and 160 acres of the land they occupied for \$1.25 an acre before it came up for public auction. It was difficult enough for the poor to come up with the cash they needed. The faction leaders who controlled land offices

27. Homicide rates were relatively high in Ohio and Georgia in the early national period, but when law and order were established at the end of the War of 1812, the homicide rate plummeted in those states to the same level it had reached in Virginia.

28. Baptist, *Creating an Old South*, 111-19, 159-65; and Herbert J. Doherty, "Political Factions in Territorial Florida," *Florida Historical Quarterly* 28 (October 1949): 131-42.

made the registration process next to impossible. They dismissed squatters' claims on technicalities, demanded "proof" of occupancy that illiterate farmers found hard to come by, and closed land offices illegally in the weeks before public auctions so squatters had no place to register their claims. The consequences were stark in Middle Florida, where land was most valuable: by 1829, only 19 percent of non-planters owned land in Leon County and 13 percent in Jackson County.²⁹ Sectional rivalries between East and West Florida compounded the difficulty of creating a responsive, accountable government, and politics became personal—a matter of currying favor with the federal government and defaming opponents, which led to whippings, duels, and assassinations among political leaders.³⁰ Florida's not-quite-democracy was failing miserably.

The homicide rate among whites climbed to 71 per 100,000 adults per year during the Second Seminole War, 1835-42, and the depression of 1839-43, when faith in both the territorial and federal government reached a new low (Figure 1). Floridians questioned the federal government's commitment to removing the Seminoles. President Andrew Jackson, angry at criticism of his administration, added fuel to the fire in 1837 by blaming Floridians themselves: "Let the damned cowards defend their country. . . . They ought to have crushed [the Seminoles] at once if they had been men of spirit and character."³¹ The Panic of 1837, which led to the depression of 1839-43, made matters worse. As banks failed and poor farmers faced foreclosure, Floridians decided they had had enough: they repudiated the political establishment, and dissidents promising bank regulation and an end to Land Office corruption won control of the government.³²

The political crisis finally passed in the early 1840s, and the homicide rate among whites fell once again to 39 per 100,000

29. Baptist, *Creating an Old South*, 46-7, 53-8, 91-6. These political practices and their economic consequences were not uncommon on the post-revolutionary frontier. See, for example, Thomas P. Abernethy, *From Frontier to Plantation in Tennessee: A Study in Frontier Democracy* (Chapel Hill: University of North Carolina Press, 1932).

30. Herbert J. Doherty, *Richard Keith Call: Southern Unionist* (Gainesville: University of Florida Press, 1961), 16-92; and Baptist, *Creating an Old South*, 120-5, 151-3.

31. Quoted in Baptist, *Creating an Old South*, 158. Jackson added that the men of Florida "had better run off or let the Indians shoot them, that the women might get husbands of courage, and breed up men who would defend the country." See also Mahon, *History of the Second Seminole War*.

32. *Richard Keith Call*, 93-117; and Baptist, *Creating an Old South*, 154-90.

adults per year. The end of the Second Seminole War, the arrival of statehood in 1845, and the creation of a more responsive two-party system allayed public anger, and Florida leaders began to behave, at least publicly, as if they were working for the good of the people.³³ But cynicism toward the government endured for generations.

That cynicism bore murderous fruit in the mid-1850s, when the homicide rate jumped to its highest level since the Patriot War. The homicide problem was worst in eastern Florida,³⁴ where the Third Seminole War, 1855-7, reduced the region to lawlessness once again, and a crime wave instigated by demobilized soldiers in 1858 prompted vigilantes in Tampa and other communities to form "Regulator" societies that fought crime by lynching suspects or gunning them down. But vigilante violence appeared again throughout the state. Militant defenders of Southern rights, disillusioned with the Union, fearful for the future of slave society, and alarmed at threats to public order, killed Know Nothings and suspected abolitionists, slave rebels, and criminals white and black.³⁵ Statewide, the rate at which whites murdered blacks doubled in 1858-60 from 9 to 20 per 100,000 adults per year, and the rate at

33. Herbert J. Doherty, *The Whigs of Florida, 1845-54*, University of Florida Monographs Social Sciences, No. 1 (Gainesville: University of Florida Press, 1959); and Arthur William Thompson, *Jacksonian Democracy on the Florida Frontier*, University of Florida Monographs Social Sciences, No. 9 (Gainesville: University of Florida Press, 1961).
34. The data are not complete enough to allow precise regional estimates of homicide rates. Using regional-level matching list estimates of the number of homicides, the rate at which whites murdered blacks may have reached 65 per 100,000 adults per year in the Southern and Eastern Judicial Circuits, 1855-61, and the rate at which whites murdered whites 110 per 100,000. See Denham, *Rogue's Paradise*, 37-58, on the boundaries of Florida's antebellum judicial circuits. These homicide estimates are statistically less reliable than the state-level estimates, because they rest on fewer cases, and they appear to be too high for the Southern and Eastern Circuits and too low for the Western and Middle Circuits to square with the state-level estimates. Several methods were used, however, to detect regional differences in homicide rates, and each one indicated that whites committed homicide at substantially higher rates in the Southern and Eastern Circuits.
35. Canter Brown explores the violence of 1858-61 at length in the following works, *Peace River Frontier*, idem, *Tampa in the Civil War and Reconstruction* (Tampa: University of Tampa Press, 2000); and *Ossian Bingley Hart: Florida's Loyalist, Reconstruction Governor* (Baton Rouge: Louisiana State University Press, 1997), 81-120. The violence is also covered in Denham, *Rogue's Paradise*, 185-204; Baptist, *Creating an Old South*, 265-75; and David Grimsted, *American Mobbing, 1828-1861: Toward Civil War* (New York: Oxford University Press, 1998), 118-26, 173-8.

which whites murdered whites more than doubled to 86 per 100,000 adults per year (Figures 1 and 2). A quarter of all victims of white murderers were lynched (Table 5).³⁶

The political crisis over slavery and the loss of faith in the federal government led to non-political murders as well by creating an angry, hostile, and defensive mood among white men. Many believed that they had been betrayed by their government, that they had no say in it, and that they would have to fight for what was rightfully theirs. Many Floridians would proudly proclaim that they were ready to kill Yankee sympathizers and troublesome blacks, but they were also willing to kill any fellow Floridian who crossed them, whether they were strangers, friends, or casual acquaintances. The immediate causes of these murders may appear trivial, but the ultimate cause was not. Floridians felt humiliated. The rest of the nation despised them. They were back where they started, saddled with a government that did not represent them and would not look out for their interests.

36. Twenty known lynchings and 4 probable lynchings occurred in 1858-61. Eleven of the victims were slaves and thirteen were whites. The white victims included 4 Know Nothings, 3 train robbers, 2 thieves, and 1 murderer. The slave victims included 3 murderers and 3 slaves who had allegedly plotted the murder of their master. The reasons that the other victims were targeted are unknown.

All of the known lynchings of blacks occurred in the Eastern Judicial District or on the northern edge of the Southern Judicial District, so vigilantism against blacks appears to have been confined to counties in or near the theatre of the Third Seminole War. Known lynchings of whites, however, occurred in every judicial district, and they were not confined to counties of a particular type—e.g., cotton-growing counties, counties where secessionist Democrats were in the minority or a bare majority, etc. None of these patterns is certain, however, given that there is no surviving record of an estimated 47% of homicides committed by whites, 1858-61 (Table 4). Lynching in antebellum Florida is covered in Denham, *Rogue's Paradise*, 185-204, 209-11.

While viewed primarily as a post-emancipation phenomena, lynching did exist in Antebellum Florida and the South. By the 1880s Florida led the nation in lynchings proportional to population and this dubious distinction certainly owed much to the pre-war state's grisly heritage for homicidal violence. Studies of lynching are numerous and ever-growing. See for example Steward E. Tolney and E. M. Beck, *Festival of Violence: An Analysis of Southern Lynchings, 1882-1930* (Urbana: University of Illinois Press, 1995); Fitzhugh Brundage, *Lynching in the New South: Georgia and Virginia, 1880-1930* (Urbana: University of Illinois Press, 1993); Christopher Waldrep, *The Many Faces of Judge Lynch: Extra Legal Violence and Punishment in America* (New York: Palgrave MacMillan, 2002); Margaret Vandiver, *Lethal Punishment: Lynching and Legal Executions in the South* (New Brunswick, NJ: Rutgers University Press, 2006); William W. Rogers and James M. Denham, *Florida Sheriffs: A History, 1821-1945* (Tallahassee: Sentry Press, 2001), 160-77.

HOMICIDE IN FLORIDA

239

The pattern of homicides in Florida was thus typical of patterns that have prevailed throughout American history. Homicide rates among unrelated men rise during periods of political instability and conflict, and decline during periods of political harmony. They rise when the bonds of race or nationality or community are weak, and fall when those bonds are strong. Like Texas and California, Florida never enjoyed the degree of political harmony that other states did in the antebellum period. Floridians experienced divisive political battles, corrupt territorial government, and persistent struggles for control among Anglos, Hispanics, and Native Americans. They were on the "wrong" side of the crisis over slavery and were scorned by the federal government. Their homicide rates reflected their political history.



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HOMICIDE RATES IN THE OLD WEST

RANDOLPH ROTH, MICHAEL D. MALTZ, AND DOUGLAS L. ECKBERG

This article describes the methods that social scientists use to measure and compare the risks that various populations face of being murdered. It demonstrates that the West was unusually homicidal compared to the rest of the Western world, except for the most violent areas of the South during Reconstruction.

SINCE THE MID-1960S, A small group of scholars has tried to reconstruct the history of violence in the United States in an effort to understand why the country sees far more violent crimes today than any other affluent nation. Most of these scholars have studied homicides, which leave the most traces in the historical record and can be counted with the greatest precision. Historians cannot uncover every murder that occurred in the past, but they have many sources to work with—court records, coroner’s inquests, vital records, newspapers, diaries, and local histories based on oral testimony or tradition—and even if they consult only a single source, such as an indictment roll or a local newspaper, they can create useful minimum counts of the number of willful, non-negligent assaults that ended in death. If both legal and non-legal sources are available, historians can estimate the actual number of homicides that came to the attention of the public, even if there are gaps or omissions in the surviving records.¹

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¹ On sources for studying homicide, see Roger Lane, *Murder in America: A History* (Columbus, 1997), 1–7; Eric H. Monkkonen, *Murder in New York City* (Berkeley, 2001), 1–5, 185–99; and Randolph Roth, *American Homicide* (Cambridge, MA, 2009), 477–95. On estimating the number of homicides from incomplete records, see Douglas L. Eckberg, “Stalking the Elusive Homicide: A Capture-Recapture Approach to the Estimation of Post-Reconstruction South Carolina Killings,” *Social Science History* 25 (Spring 2001): 67–91; Eric H. Monkkonen, “Estimating the Accuracy of Historic Homicide Rates: New York City and Los Angeles,” *Social Science History* 25 (Spring 2001): 53–66; Randolph Roth, “Child Murder in New England,” *Social*

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Quantitative historians of homicide analyze their data with the same techniques that criminologists use to analyze the Federal Bureau of Investigation's crime data and that epidemiologists use to analyze the Centers for Disease Control and Prevention's mortality data. They measure the rates at which people in a given locale or demographic group are murdered and the risks that people face of being murdered over the course of their lives (or a particular span of years). They then use statistical methods to assess the reliability of their calculations, which depends on the size of the population at risk and the number of years that population was exposed to that risk. Once these standard measures are in place, it is possible to compare the rates and risks of homicide that various social or geographical groups faced in the past. And if proper attention is paid to changes in trauma care, emergency services, nutrition, and the lethality of weapons (which can affect the ability of individuals to survive assaults) these standard measures make it possible to compare rates and risks over time.²

The work of quantitative scholars of homicide has produced many surprising results, but one widely accepted notion about America's violent past turns out to be true. According to the findings of the preeminent quantitative historians of western violence—Roger D. McGrath, David Peterson del Mar, Clare V. McKanna, Jr., Eric Monkkenon, John Boessenecker, Kevin J. Mullen, Sherburne F. Cook, Lawrence M. Friedman, and Robert V. Percival—the West was extraordinarily violent in the mid-nineteenth century, and it continued to be more homicidal than the rest of the United States until the 1930s.³ The West may not have been as homicidal as movies and dime

Science History 25 (Spring 2001): 101–47; and C. Chandra Sekar and W. E. Deming, “On a Method of Estimating Birth and Death Rates and the Extent of Registration,” *Journal of the American Statistical Association* 44 (March 1949): 101–15.

² The Bureau of Justice Statistics, Department of Justice, supports an online database which allows researchers to calculate homicide rates in the United States from 1976 to the present. See Bureau of Justice Statistics, “Homicide-State Level: State-by-State Trends,” <http://bjs.ojp.usdoj.gov/dataonline/Search/Homicide/State/StatebyState.cfm> (accessed 10 February 2010). Rates can be calculated by year, state, age, race, and gender. The Centers for Disease Control and Prevention (CDCP) supports a similar database called *CDC WONDER*, which allows researchers to calculate mortality rates in the United States for various causes of death, including homicide, from 1979 to the present. See CDCP, “Compressed Mortality File: Underlying Cause of Death,” *CDC WONDER*, <http://wonder.cdc.gov/mortSQL.html> (accessed 10 February 2010). On the impact of emergency services, trauma care, and changes in weaponry on homicide rates, see Douglas L. Eckberg, “Coroner's Records and Estimates of ‘Excessive’ Homicide Deaths in Charleston, South Carolina, 1885–1912” and Randolph Roth, “Are Modern and Early Modern Homicide Rates Comparable? The Impact of Modern Non-Emergency Medical Care on Homicide Rates” (papers, Social Science History Association convention, Chicago, 16 November 2007).

³ Roger D. McGrath, *Gunfighters, Highwaymen, and Vigilantes: Violence on the Frontier* (Berkeley, 1984); David Peterson del Mar, *What Trouble I Have Seen: A History of Violence against Wives* (Cambridge, MA, 1996); David Peterson del Mar, *Beaten Down: A History of Interpersonal Violence in the West* (Seattle, 2002); Clare V. McKanna, Jr., *Homicide, Race, and Justice in the American West, 1880–1920* (Tucson, 1997); Clare V. McKanna, Jr., *Race and Homicide in Nineteenth-Century California* (Reno, 2002); Eric H. Monkkenon, “Homicide in Los Angeles, 1830–2001,” Historical Violence Database (HVD), Criminal Justice Research Center, Ohio State

novels would suggest, but compared with the rest of the Western world in the nineteenth century and by the standards criminologists and epidemiologists use today, it was very violent.

Robert R. Dykstra, who has dedicated his career to debunking the “myth” of western violence, is not persuaded. He doubts that the Trans-Mississippi West was a peculiarly violent place: “despite all the mythologizing, violent fatalities in the Old West tended to be rare rather than common.” In a series of reviews and articles written over the past fifteen years, the most recent in *Western Historical Quarterly*, Dykstra claims that quantitative historians are wrong about the West being “murderous.” He argues that settlers moved quickly to establish law and order through voluntary organizations and by hiring sheriffs and deputies to enforce the law. He also believes that the homicide statistics gathered by new western historians do not prove their case.⁴ But Dykstra’s argument against these scholars rests on misunderstandings of the methods of criminology and epidemiology and of the work of quantitative historians of homicide. When those misunderstandings are removed, the evidence shows that the mid-nineteenth-century West had extremely high homicide rates.

In this article, we will first discuss the methods that criminologists and epidemiologists use to measure homicide and decide whether a particular risk of homicide is high or low compared to those in other places or social groups. Second, we will describe errors that have been commonly made in analyzing historical homicide data. Third, we will show that the data historians have gathered to date from places with small populations (cattle towns and mining towns) and from places with larger populations (counties,

University, <http://cjrc.osu.edu/researchprojects/hvd/usa/la/> (accessed 30 October 2009); John Boessenecker, *Gold Dust and Gunsmoke: Tales of Gold Rush Outlaws, Gunfighters, Lawmen, and Vigilantes* (New York, 1999); Kevin J. Mullen, *Let Justice Be Done: Crime and Politics in Early San Francisco* (Reno, 1989); Kevin J. Mullen, *Dangerous Strangers: Minority Newcomers and Criminal Violence in the Urban West, 1850–2000* (New York, 2005); Sherburne F. Cook, *The Conflict between the California Indian and White Civilization* (Berkeley, 1976); and Lawrence M. Friedman and Robert V. Percival, *The Roots of Justice: Crime and Punishment in Alameda County, California, 1870–1910* (Chapel Hill, 1981). State-level homicide rates for the United States, 1907–1941, are available in Randolph Roth, “American Homicide Supplemental Volume (AHSV): American Homicides in the Twentieth Century (AHTC),” figures 1–8, HVD, <http://cjrc.osu.edu/research-projects/hvd/AHSV/tables/AHSV%20American%20Homicides%20Twentieth%20Century.pdf> (accessed 15 November 2009).

⁴ Robert R. Dykstra, “Overdosing on Dodge City,” *Western Historical Quarterly* 27 (Winter 1996): 514. See also Robert R. Dykstra, “Quantifying the Wild West: The Problematic Statistics of Frontier Violence,” *Western Historical Quarterly* 40 (Autumn 2009), 321–47; Robert R. Dykstra, “To Live and Die in Dodge City: Body Counts, Law and Order, and the Case of *Kansas v. Gill*,” in *Lethal Imagination: Violence and Brutality in American History*, ed. Michael A. Bellesiles (New York, 1998), 210–26; Robert R. Dykstra, “Violence, Gender, and Methodology in the ‘New’ Western History,” *Reviews in American History* 27 (March 1999): 79–86; and Robert R. Dykstra, “Body Counts and Murder Rates: The Contested Statistics of Western Violence,” *Reviews in American History* 31 (December 2003): 554–63. See also Robert R. Dykstra, *The Cattle Towns* (New York, 1968), 112–48, for his first statement of the idea that scholars have overstated the violence of the nineteenth-century West.

cities, and states) demonstrate that the West was unusually violent compared to Canada, Europe, and the rest of the United States (with the exception of Florida in the antebellum period and parts of the South in the postbellum period). Finally, we will discuss a concept at the heart of Dykstra's argument that he calls the "fallacy of small numbers." Although it may call to mind the well-known "law of small numbers," this notion has a substantially different meaning that is both mathematically and empirically false.

It is possible to draw powerful inferences from small populations—a point we make in this article by reanalyzing the data from Dykstra's famous 1968 study of five small cattle towns on the Kansas frontier. In fact, Dykstra's data do not support his conclusion in *The Cattle Towns*; they prove that the towns in his study had exceptionally high homicide rates. Moreover, if those towns were generally representative of other cattle towns of the period, it is highly probable that the cattle towns he did not study were also exceptionally violent by the standards of the time and in comparison with today's rates.

Criminologists and epidemiologists measure and compare the risks that various communities, social groups, or age groups face of being murdered by calculating the homicide rate for particular places or groups over a period of one or more years. The rate is simply the proportion of the population that is murdered in a year, and if a period longer than a year is used (as it often is for small places or populations), then the formula is just the yearly average of homicides divided by the average population for that period. Since that proportion is (usually) very small, we multiply it by 100,000 to make it easier to read. The resulting figure is then "the annual number of homicides per 100,000 people."

$$\text{Homicide rate} = 100,000 * [\text{yearly average of homicides}] / [\text{average population}]$$

For example, the proportion of the population that was murdered in greater Miami for the year 1980 is obtained by dividing the number of homicides in Dade County, Florida (574), by the county's average annual population (1,625,781).⁵

$$574 / 1,625,781 = 0.000353 \text{ or } 0.0353 \text{ percent}$$

If we multiply this number by 100,000, we arrive at the homicide rate: 35.3 persons were killed for every 100,000 persons at risk in Miami that year. We can see at a glance that

⁵ Dykstra, "Quantifying," 332–5. Dykstra uses data for the city of Miami in 1980 to illustrate the computation of homicide rates. The data in this essay are for the slightly larger population of Dade County, Florida (greater Miami), because a wider range of statistics are available at the county level. The homicide data are from the CDCP, Division of Vital Statistics, "Mortality Multiple Cause Files," http://www.cdc.gov/nchs/data_access/Vitalstatsonline.htm (accessed 2 January 2010). The population data are from the U.S. Census or from the 5 percent household sample of the 1980 census. See "Population of Counties by Decennial Census: 1900 to 1990, Florida," comp. and ed. by Richard L. Forstall, <http://www.census.gov/population/cencounts/fl190090.txt> (accessed 2 January 2010) and Steven Ruggles et al., *Integrated Public Use Microdata Series: Version 3.0* [machine readable database] (Minneapolis, 2010), <http://usa.ipums.org/usa/> (data requested 2 January 2010).

Miami's inhabitants were murdered at over three times the rate for the entire United States, which was 10.7 per 100,000 persons for 1980. Put another way, there was one homicide in Miami for every 2,832 residents (the population at risk divided by the number of homicides: $1,625,781 / 574 = 2,832$).

The denominator in the equation for the homicide rate does not have to be the average annual population of a particular *place*. The population at risk could be any sort of population: a population of children, a population of women, or a population of African Americans. We can calculate homicide rates for a variety of demographic groups in greater Miami in 1980 simply by plugging their populations and homicide counts into the equation for the homicide rate. For instance, we would understate the risk of violence that African Americans faced in greater Miami if we compared only the *number* of homicides of African Americans (241) to the *number* of homicides of non-African Americans (333). That comparison shows that only 72 percent as many African Americans were murdered as non-African Americans. However, when we compare the rate at which the 414,574 African Americans were murdered (58.1 per 100,000 African Americans per year) with the rate at which the 1,211,207 non-African Americans were murdered (27.5 per 100,000 non-African Americans per year), we see correctly that African Americans were over twice as likely to be murdered as non-African Americans (58.1 and 27.5).

These same calculations hold even when the populations are small. However, in those cases it is preferable to average homicide rates over a number of years. An unusual homicide rate drawn from a single year could leave a false impression of the general level of violence in a community or social group. And a homicide rate drawn from a single year has a smaller number of "person-years" of exposure in its denominator. This makes it harder to draw statistical inferences about the risk of violence in a community or social group or to infer statistically the risk of violence in comparable communities or groups that have not yet been studied. For instance, the homicide rate in Dodge City, Kansas, varied greatly between 1876 and 1885. It ranged from 401 per 100,000 persons per year (5 homicides in 1878 with a population of 1,248) to zero (in 1877 and 1882). The average rate during this period (129 per 100,000 per year) is more representative than any single year's homicide rate. (See Figure 1.)⁶

Homicide rates for small populations are not necessarily higher than rates for large populations, but they are certainly *less stable* from year to year. For example, the homicide rate for greater Miami varied from 22 to 38 persons per 100,000 per year, which is a substantial variation (a 72 percent increase) but still much less than that for Dodge City. (See Figure 2.)

Of course, the resulting rates for places with small populations will be averages. Scholars must be careful to note how volatile the rates are from year to year and whether

⁶ The homicide data for Dodge City are from Dykstra, *Cattle Towns*, 144. They do not include two additional Dodge City homicides that Dykstra discovered since publishing *Cattle Towns*. See Dykstra, "Quantifying," 330n27. Dykstra graciously shared with the authors the dates of the additional homicides, which occurred in 1876 and 1884.

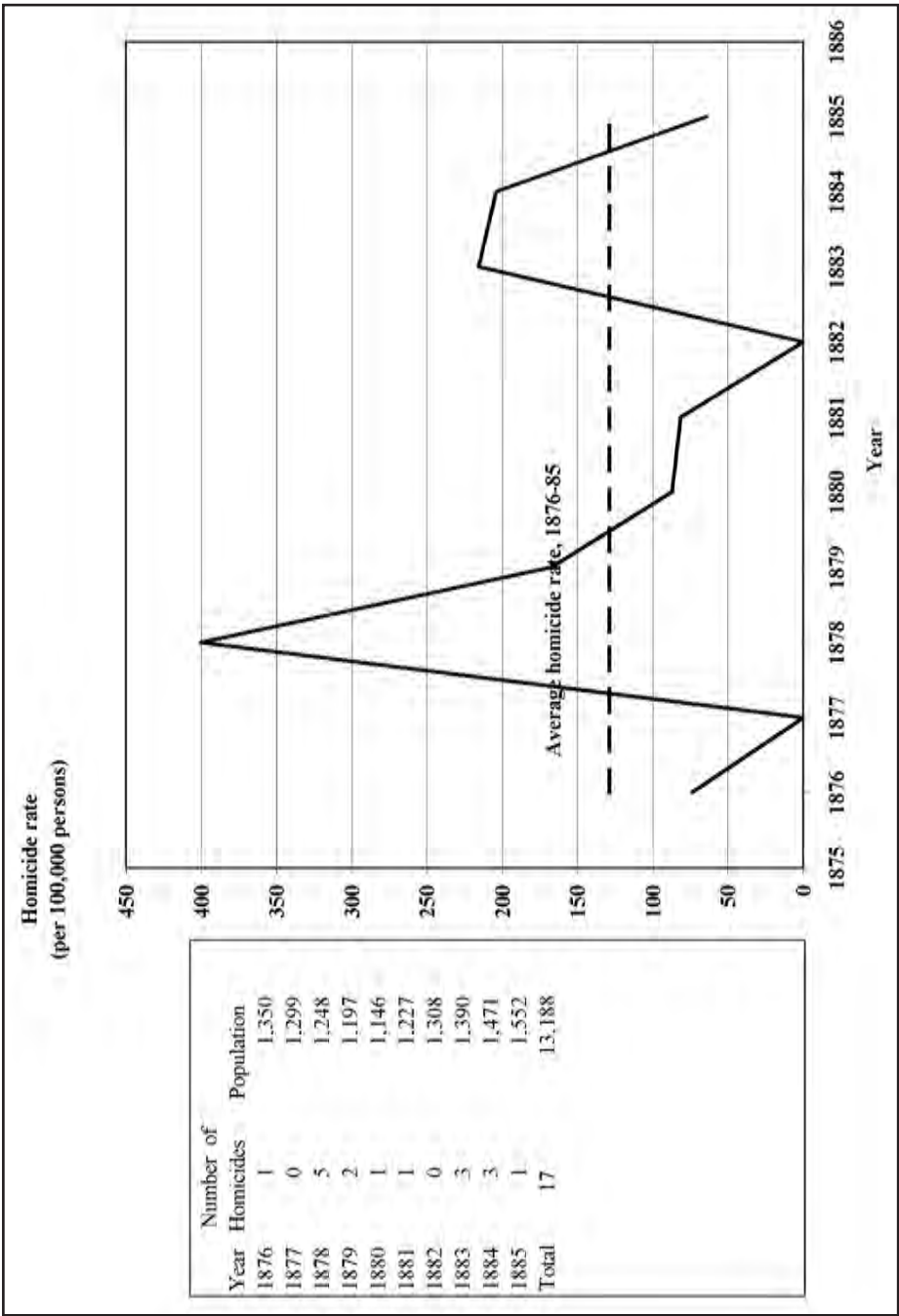


Figure 1. Homicide Data for Dodge City, KS, 1876–1885. Graph by Michael Maltz. See Dykstra, *Cattle Towns*, 144 and Dykstra, “Quantifying,” 330n27.

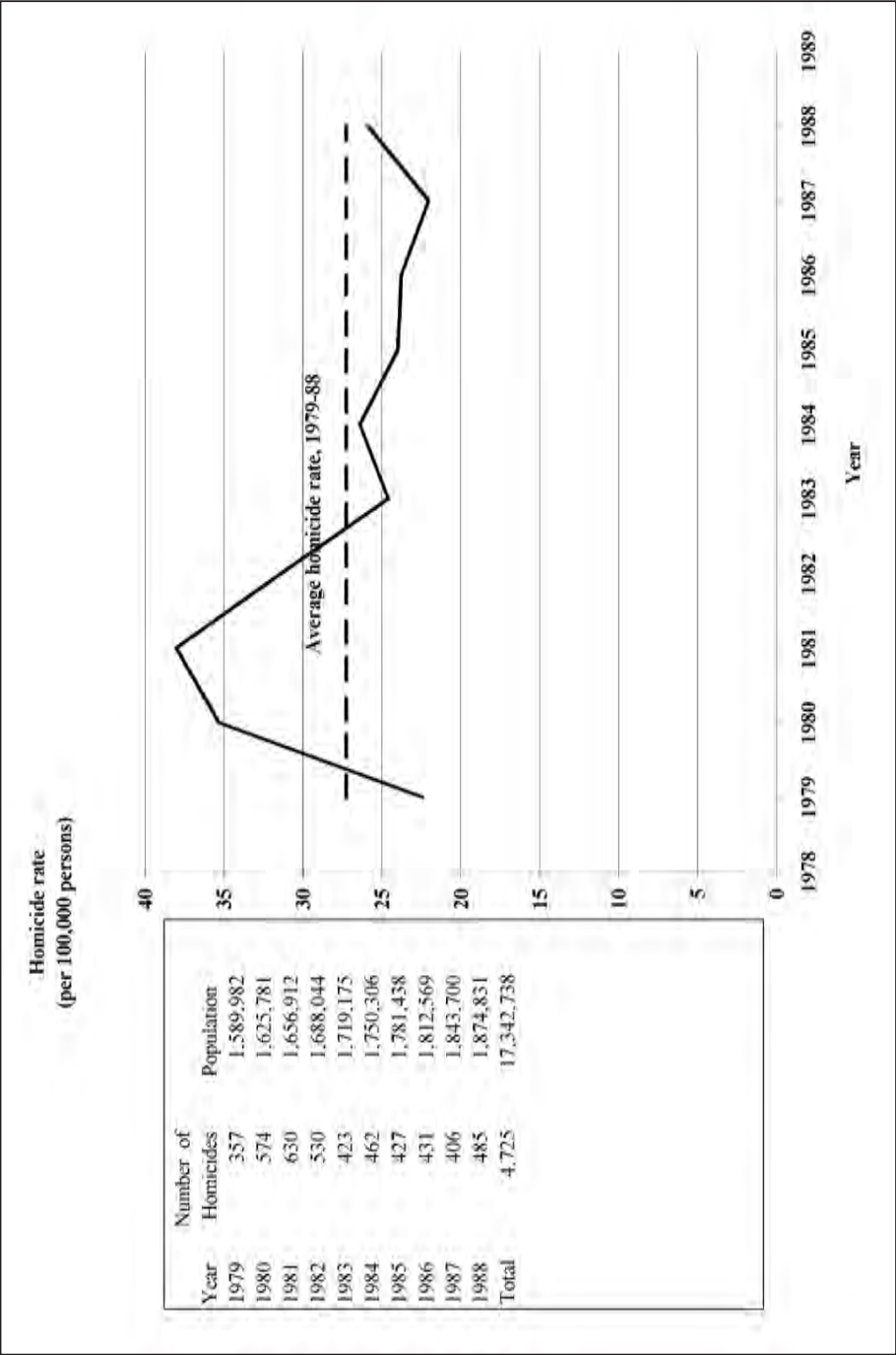


Figure 2. Homicide Data for Greater Miami, 1979–1988. Graph by Randolph Roth and Michael Maltz. Data adapted from CDCP, “Mortality Multiple Cause Files” and Ruggles et al., *Integrated Public Use*.

averages mask important trends, such as a persistent rise or decline in the annual rates. But homicide rates are *always* averages across time and space; even a rate for a single year is itself an average of rates for violent and less violent months and for violent and non-violent neighborhoods.

Scholars also assess homicide risks comparatively. For most of the period since World War II, the homicide rate in the United States has been three to fifteen times the rates in other affluent democracies—a startling difference. And most of the world’s population—60 to 70 percent—has lived in societies that are less homicidal than the United States, even though many of those societies are undemocratic and desperately poor.⁷ That is another reason why criminologists and epidemiologists consider homicide rates of 9 per 100,000 persons per year high and rates of 35 per 100,000 per year extremely high.

Quantitative historians use the same techniques to decide whether homicide rates in the past were comparatively high. Was the risk of homicide in a particular population high, given that life expectancy was lower? Was the rate of homicide in a particular population high compared to the rates for other contemporary populations, given that none had the benefit of modern emergency services, trauma surgery, wound care, antibiotics, or antiseptics? Assessing whether a rate or risk was high is not subjective but comparative. Straightforward comparisons show that the Trans-Mississippi West was homicidal *both by the standards of the nineteenth century and by today’s standards*, even if we were to assume that half of the homicide victims in the West would survive today with the benefit of modern medicine and emergency services.

There are a number of basic statistical errors in Dykstra’s analysis of homicide in the West, which stem from his misunderstanding of the tools that criminologists and epidemiologists use to measure violence. First, understanding homicide, in whatever era, requires an understanding of homicide rates. One cannot compare the dangerousness of two cities simply by comparing their homicide counts. To elaborate upon an example Dykstra uses, Los Angeles had 1,731 homicides within its city limits in 1980, and Miami had 515. But their homicide rates tell a different story: 23.3 per 100,000 persons were murdered in 1980 in Los Angeles versus 32.7 per 100,000 in Miami. Dykstra assumes that “[t]he reason for this statistical inequity was simply that in 1980 Los Angeles had almost five times as many residents as Miami.”⁸ What may be driving his conjecture is the land use pattern in those cities; Miami is a relatively compact city that did not annex far beyond its core, whereas Los Angeles is a sprawling, highly suburbanized city. However, the fact remains that 0.0327 percent of Miami’s residents were murdered in 1980 (one of every 3,058), compared to only 0.0233 percent of Los Angeles’s (one of every 4,292).⁹ Homicide rates tell the truth about comparative levels

⁷ Roth, *American Homicide*, 7–8.
⁸ Dykstra, “Quantifying,” 335.
⁹ Homicide rates, of course, do not explain why Los Angeles was less violent than Miami. The difference may have been that Los Angeles had annexed more aggressively than Miami, so

of violence in each city because they take into account the number of murders *and* the size of the population at risk. They tell us what proportion of a city’s population was murdered in a given year. Homicide numbers do not.

Second, there are good reasons why quantitative historians sometimes prefer to compare homicide rates for adults rather than rates for the general population. The proportion of adults in the populations of local communities varied widely in the United States in the nineteenth century. Consider, for instance, a hypothetical nineteenth-century America in which the homicide rate was 20.0 per 100,000 adults per year and 2.0 per 100,000 children per year, regardless of where those adults or children lived. What would happen if we were to compare the homicide rate for a mining boom town, where only 5 percent of the inhabitants were children, with the rate for a typical small town in the South or the Midwest, where roughly 35 percent of the inhabitants were children, or for a newly settled farming community, where roughly 50 percent of the inhabitants were children? (See Table 1.) We would conclude that mining towns were far more deadly than typical small towns and that frontier farming communities were slightly less deadly, even though the underlying rates for adults and for children were everywhere the same. Since the question of western violence is a question about violence among adults, it makes sense to compare homicide rates for adults, not homicide rates for general populations.

Table 1. How the Proportion of Children in a Population Can Affect the Homicide Rate.
Table by Randolph Roth and Michael Maltz, hypothetical data provided by Roth and Maltz.

Type of Place	Percent Children	Homicide Rate (per 100,000 persons)
Mining Town	5	(5% * 2.0) + (95% * 20.0) = 19.1
Small Town	35	(35% * 2.0) + (65% * 20.0) = 13.7
Frontier Farming Community	50	(50% * 2.0) + (50% * 20.0) = 11.0

Dykstra maintains that “this is flawed logic. Removing *any* residents from populations being examined does not counter an upward bias [in the homicide rates for cattle or mining towns], but just the opposite: it *inflates* murder rates by making populations smaller.” He believes that calculating adult homicide rates is an inappropriate way of inflating the West’s homicide rates in order to claim that the West was more homicidal

that its population contained a higher proportion of residents who lived in non-violent suburbs. There is no doubt, however, that Los Angeles’s citizens faced a lesser chance of being murdered than the citizens of Miami. A more useful way of looking at homicide might be to analyze homicide not only with respect to total population but with respect to the population in each city at or below the poverty level, since these are the residents with the greatest risk of being killed.

than it was.¹⁰ But there is nothing inappropriate in calculating adult homicide rates. It is simply a matter of comparing apples with apples. If we ignore the impact of demography on homicide rates, we will exaggerate the level of violence among adults in communities with few children and understate the level of violence among adults in communities with many children. Murder rates for adults are higher than rates for the general population simply because a higher percentage of adults rather than children are murdered each year, not because they have been artificially inflated by “reducing” the base population. As long as historians draw comparisons only among adult rates and judge by adult standards whether those rates are high or low, there is no bias, only greater comparability from community to community. And there is nothing “unorthodox” about calculating age-specific homicide rates: controlling for the effect of age distributions on mortality and crime rates is standard operating procedure.¹¹

Third, it is not exactly true that “[t]he formula for homicide rates is simple enough: 100,000 divided by population multiplied by killings.”¹² This overlooks a key point—that the denominator is the *average annual population at risk times the number of years those persons are exposed to that risk*. This goes to the heart of the error in Dykstra’s claim that quantitative studies of western violence suffer from the “fallacy of small numbers.” Many of the populations that he assumes to be too small are in fact large enough to yield reliable measures of the risk of homicide *if rates are calculated for a sufficient number of years*. The number of “person-years-at-risk” can become quite large, even for towns or counties with small populations, and those person-years-at-risk, not the average annual population, determine the statistical stability and reliability of homicide rates. Because homicide rates become more stable and reliable as the number of person-years increases, quantitative historians prefer to average homicide rates over a number of years. Averaging is *not* done to conceal the declines in homicide that most frontier communities experienced after the first years of settlement. On the contrary, quantitative historians are careful to note that the homicide rate declined gradually in California from the early days of the gold rush through the end of the nineteenth century, a decline that they display statistically by showing that the average annual homicide rate stepped down from decade to decade or from period to period. These historians are also careful to note that in certain counties, such as San Diego and Santa Barbara, the homicide rate rose after the first years of the gold rush, counter to the general trend.¹³

¹⁰ Dykstra, “Quantifying,” 339 (italics in original). In fact, however, Dykstra used only “Dodge City’s adult homicides” in his analysis. Dykstra, “Quantifying,” 330.

¹¹ For example, the CDC WONDER mortality database, “Compressed Mortality File,” allows users to calculate age-specific homicide rates, as does the online database of the Bureau of Justice Statistics, “Homicide State-Level.”

¹² Dykstra, “Quantifying,” 332.

¹³ Ibid., 342. For an accurate representation of the work of the scholars Dykstra criticizes, see McKanna, *Race and Homicide* and Roth, *American Homicide*, 354–85, 403–11. Friedman and Percival note a decline in the rate in Alameda County, California, from 25 per 100,000 adults per

Fourth, it is important to remember when calculating the homicide rate for a group of towns or counties that towns or counties with larger populations will have a greater impact on the “combined” homicide rate than those with smaller populations. For instance, the nine counties in California that were studied by McKanna, Monkkonen, and Mullen had a total of 1,108 homicides and an average annual population of 105,802 adults from 1850 through 1865. (See Table 2.) Their combined adult homicide rate for the 16 years of exposure is thus 65.45 per 100,000 [$100,000 * 1,108 / (105,802 * 16)$].

Table 2: Homicide Data for Nine California Counties in the Sixteen-Year Period 1850–1865. Data and table by Randolph Roth, “Guns, Murder, and Probability,” 171.

County	Number of Homicides	Average Population	Person-Years (Avg. Pop. * 16)	Homicide Rate
San Luis Obispo	40	1,095	17,523	228.27
Los Angeles	221	6,984	111,741	197.78
Tuolumne	273	13,582	217,304	125.63
Santa Barbara	36	1,953	31,245	115.21
San Joaquin	62	6,344	101,500	61.08
Calaveras	133	15,483	247,729	53.69
Sacramento	117	15,592	249,474	46.90
San Diego	27	4,401	70,415	38.34
San Francisco	199	40,368	645,888	30.81
Total	1,108	105,802	1,692,819	65.45

Dykstra states that this calculation is “in error” and that the homicide rate in the nine counties is 99.8 per 100,000 adults per year.¹⁴ He arrived at that figure by simply adding the homicide rates for the nine counties and dividing by nine: $(198 + 38 + 228 + 115 + 54 + 126 + 47 + 61 + 31) / 9 = 99.8$). However, that method does not take into account the huge disparities in the counties’ average populations, which ranged from just over 1,000 in San Luis Obispo to over 40,000 in San Francisco. The combined homicide rate is not a simple average of town or county rates, as Dykstra believes, but a weighted average of those rates based on population.

This means, of course, that San Francisco had a disproportionate effect on the combined homicide rate of the nine California counties because it had by far the largest

year in 1878 (9 homicides and an adult population of 36,013) to 5.8 per 100,000 (4 homicides and an adult population of 69,307). See Friedman and Percival, *Roots of Justice*, 27–8.

¹⁴ Dykstra, “Quantifying,” 341–2. The data and the correct calculation appear in Randolph Roth, “Guns, Murder, and Probability: How Can We Decide Which Figures to Trust?,” *Reviews in American History* 35 (June 2007): 170–2.

population and the lowest homicide rate (30.8 per 100,000 adults per year). The combined homicide rate for the other eight counties is 86.8 per 100,000 adults per year. The correct calculation shows why scholars of western violence have been careful to note both combined rates of homicide (which measure the general level of violence) and the rates for particular jurisdictions. Both measures are important.

Fifth, it is important to understand the role of the risk of death in assessing the magnitude of a society's homicide problem. Greater Miami's homicide rate in 1980 was not "modest," as Dykstra claims, and South Florida officials were correct to react strongly to the increased homicide rate.¹⁵ The jump in greater Miami's homicide rate—from 22.5 per 100,000 persons per year in 1979 to 35.3 per 100,000 in 1980 to 38.0 per 100,000 in 1981—meant that the annual risk of homicide went from 1 in 4,454 to 1 in 2,630: an increase that any responsible official would find unacceptable. (See Figure 2.)

If a homicide rate of 35 per 100,000 persons per year is unacceptably high, surely we can agree that homicide rates of 60 or more per 100,000 in the nineteenth-century West are unacceptably high. And those rates are not inflated, unrepresentative, or implausible, as Dykstra suggests. In fact, the opposite is true. McGrath found that the mining town of Bodie, California, had a rate of 116 per 100,000 persons per year in its heyday, 1877–1883. McKanna showed that Gila County, Arizona, had a rate of 156 per 100,000 in 1880–1884, and Monkkonen calculated the Los Angeles rate at 331 per 100,000 in 1852–1855.¹⁶ These rates do not overstate the level of violence in the nineteenth-century West or the risk that a person would be murdered. The formula for risk—the chance that a person would be murdered in a particular place over a particular number of years—is:

$$100,000 / (\text{homicide rate} * \text{number of years of exposure})$$

McGrath's calculation means that 0.116 percent of the population was murdered each year for seven years: 1 of every 123 persons who lived in Bodie over those seven years [$100,000 / (116 * 7) = 123$]. McKanna's calculation means that 0.156 percent of the population was murdered each year for five years: 1 of every 128 persons. And Monkkonen's calculation means that 0.331 percent of the population was murdered each year in Los Angeles for four years: 1 of every 76 persons.

¹⁵ Dykstra, "Quantifying," 332, 334. Dykstra cites an essay that clearly states the importance of calculating homicide risks in addition to their rates. See Roth, "Guns, Murder, and Probability," 169, 171.

¹⁶ McGrath, *Gunfighters*, 253–5; McKanna, *Homicide, Race, and Justice*, 39, 41, 122; and Monkkonen, "Homicide in Los Angeles." Bodie had 31 homicides and an average population of 3,818 over seven years; Gila County, 13 homicides and an average population of 1,670 over five years; and Los Angeles, 81 homicides and an average population of 6,125 over four years. Dykstra cites McGrath's and McKanna's figures in "Quantifying," 332–3. For McKanna's data, see Clare V. McKanna, Jr., "Homicide in the Trans-Mississippi West," HVD, <http://cjrc.osu.edu/research-projects/hvd/usa/mississippi/> (accessed 30 October 2009).

Such rates and risks are all too common in violent times and places. Gilles Vandal found, for instance, that the homicide rate in the populous Red River Delta of northwestern Louisiana during Reconstruction was at least 193 per 100,000 persons per year.¹⁷ Each of these historians acknowledges that the homicide rates in the places they studied were extreme even by the standards of the nineteenth-century West or the Reconstruction South. But those rates are not an artifact, as Dykstra insists, of statistical methods. They reflect the very real violence that gripped parts of the United States in the mid-nineteenth century.

Homicide rates were extraordinarily high in the nineteenth century in mining towns, cattle towns, and places like Los Angeles and the Red River Delta that were beset with racial violence. But homicide rates are just as high today in urban neighborhoods beset with drug violence, police violence, gang violence, and racial violence. Should we compare homicide rates in the most violent places in the nineteenth-century West and the Reconstruction South to the rate in greater Miami, which had a rate of 35 per 100,000 persons per year in 1980; or in the city of Miami (population 335,718), which had a rate of 66 per 100,000; or in the city's most murderous police zones, some of which had murder rates in the hundreds per 100,000, despite having populations of 5,000 or more?¹⁸ Homicides are not distributed randomly in modern metropolitan areas. Greater Miami included twenty-four different cities and towns in 1980 as well as unincorporated areas policed by the Dade County (now Miami-Dade) Police Department. Homicide rates ranged from zero (in ten of those cities and towns) to 700 per 100,000 persons per year in the town of Medley, which had 4 homicides in a population of about 570. If we draw the proper comparisons between violent places in the past and present, we see at once that the extreme homicide rates in the past are not exaggerated in the least. Just as the rates in Miami reflect the real violence that prompted officials there to "initiat[e] a desperate flurry of state and local emergency measures" in its poorest neighborhoods in the early 1980s, the rates in old mining and cattle towns reflect the real violence that gave those towns their notorious reputations in the nineteenth century.¹⁹

It may be true that most inhabitants of the West's cattle and mining towns were resigned to or complacent about the violence that surrounded them, as are most inhabitants of modern inner cities today, because they accept or underestimate the risks or,

¹⁷ Gilles Vandal, *Rethinking Southern Violence: Homicides in Post-Civil War Louisiana, 1866–1884* (Columbus, 2000), 45–8. The Red River Delta, as defined by Vandal, includes seven parishes: Bossier, Caddo, De Soto, Grant, Natchitoches, Rapides, and Red River. According to the U.S. Census, the combined population in 1870 was 90,148.

¹⁸ In 2009, there were eleven police districts in Miami, which were divided into sixty-two police zones (beats). If the beat structure was the same in 1980 as it is now, the average population of these zones exceeded 5,000—two to five times the population of nineteenth-century cattle towns. See Miami Police Department, "District Maps," http://www.miami-police.org/district_maps.html (accessed 10 February 2010).

¹⁹ Dykstra, "Quantifying," 334.

in the case of so many inner city residents (and probably many of the residents of the cattle and mining towns), because they have nowhere else to go. That does not mean, however, that such places were and are not deadly.

Once we peel away the mathematical errors, what does the evidence say about homicide in the nineteenth-century West? It is a matter of rates, risks, and probabilities. For instance, the number of homicides that occurred in the five Kansas cattle towns in Dykstra's study was small, as we would expect for towns with average annual adult populations of 1,500 or fewer (including transients and seasonal residents). Once law and order was established, Wichita had only 4 adult homicides in five years; Ellsworth, 6 in four years; Abilene, 7 in three years; Caldwell, 13 in seven years; and Dodge City, 17 in ten years. These small numbers were large, however, in relation to the adult populations of these towns. The homicide rates in these towns ranged from 53 per 100,000 adults per year in Wichita to 317 per 100,000 in Abilene over the years studied. Their combined homicide rate was 155 per 100,000 adults per year, nearly identical to the rate for Dodge City alone, where 0.165 percent of the adult population was murdered each year for ten years—1 of every 61 adults who lived in Dodge City over those ten years. By any measure, these towns were extremely homicidal.²⁰

Can we infer from such data that cattle towns across the West were also extremely homicidal? Yes, *if these towns were representative of similar western cattle towns*. Dykstra did not draw a random sample of homicides from all cattle towns in the Trans-Mississippi West. Such an approach would have been impractical, given the difficulty of working through local records. But there is every reason to think that the towns in Dykstra's study were representative of western cattle towns in their boom years. And although the sum of the annual average adult populations of the five towns in Dykstra's study was small (4,998), the sum of the number of person-years-at-risk was substantial (30,238) because he counted the number of homicides in each of these towns over a number of years. Their combined homicide rate was extraordinarily high—155 per 100,000 adults per year (100,000 * 47 homicides / 30,238 person-years-at-risk).

If these towns are representative of similar cattle towns, how confident are we that this value is close to that of the other towns? Is this sample really large enough?

To determine the answers to those questions, we need to make use of statisticians' "confidence intervals."²¹ If we assume that the residents of Dykstra's five cattle towns

²⁰ The data are from Dykstra, *Cattle Towns*, 144 and "Quantifying," 330n27. All of the data in this section are in Randolph Roth, "Homicide Rates in the American West," HVD, <http://cjrc.osu.edu/researchprojects/hvd/hom%20rates%20west.html> (accessed 12 October 2010).

²¹ Confidence intervals are used in dealing with random events, but the number of homicides a city experiences is hardly considered random, as it is not likely that someone flipped a coin to decide whether to pull the trigger. But consider that a homicide is the concatenation of a series of events, all of which must co-occur: two people encountering each other, where one is bent on harming the other, at a time when one has a weapon, in a place conducive to a confrontation, in which the result is a fatal injury. That is, randomness is inherent in every social inter-

were “typical” of residents of western cattle towns in the 1870s and early 1880s—and hence selected “randomly,” for all intents and purposes, from the inhabitants of all cattle towns—we can use a standard formula to estimate the 99 percent confidence interval for the combined homicide rate for all western cattle towns, including those that Dykstra did not study. There were 47 homicides during the period in question, with a population at risk of 30,238. The 99 percent confidence interval for this number of homicides is 2.58 times the square root of 47, or 17.7, so we would expect that this population would experience between 29.3 and 64.7 homicides. Divide that confidence interval by the population at risk and multiply by 100,000, and there is a 99 percent chance that the homicide rate for all cattle towns was between 97 and 214 homicides per 100,000 adults per year.²² The sample size from Dykstra’s data is sufficiently large to show a very high homicide rate.

action, including homicide.

Rather than give a purely mathematical explanation of confidence intervals, we can use logic to explain them. Let us suppose there are 5 homicides in a city in one year, and the next year sees only 4 homicides. We would not ordinarily trumpet the achievement of a 20 percent decrease because a year-to-year change of one homicide is hardly determinative of anything. If, however, a city’s homicide count drops from 100 to 80, we would be more inclined to say that the decrease is real and is probably close to 20 percent.

This is where the confidence interval comes into play. The measure of the expected yearly variation is approximately the square root of the annual number of homicides, called the standard deviation, see Michael D. Maltz, “From Poisson to the Present: Applying Operations Research to Problems of Crime and Justice,” *Journal of Quantitative Criminology* 12, no. 2 (1996): 3–61. That is, we should not be surprised if a city with 100 homicides in one year has between 90 and 110 in the next year (since the square root of 100 is 10). In fact, even when the only reason for year-to-year variation is the random nature of homicide, the standard deviation (in this case, ± 10) is exceeded only about 68 percent of the time. That is, in much the same way that a flipped coin can turn up heads ten times in a row (with probability 1/1,024), it is also possible, but not too likely, that the number of homicides in a city with an average homicide count of 100 falls below 90 or above 110 in one year, just due to the luck of the draw.

Social scientists like to be more certain than just 68 percent (about 2:1 odds) that a year-to-year change is not due to chance. In this essay, we are using 99 percent to set our confidence interval, which requires us to multiply the standard deviation by 2.58. That is, if a city has a homicide count of 100 per year, we recognize that the “true” city homicide count may actually be between 74.2 and 125.8 homicides per year and will be within those bounds 99 percent of the time. We cannot be sure that a subsequent year’s total might be under 75 (or over 125) any more than we cannot guarantee that ten coin flips will all be heads, but it is likely to happen less than 1 percent of the time. If it does occur, we can be very certain that the result is not due to chance and that it signifies that the number of homicides has truly changed.

²² The standard formula to estimate a 99 percent confidence interval is: $\pi = p \pm 2.58 (\sqrt{\text{homicides} / n})$. Here “ π ” stands for the real, but unknown, proportion of the population that was murdered in a given year in all cattle towns in the West; “ p ” stands for the proportion of the population that was murdered in a given year in the five cattle towns Dykstra studies, which is the ratio of the number of homicides to the number of person-years-at-risk in those same towns ($47 / 30,238 = 0.00155$); “ n ” stands for the number of person-years-at-risk in those counties (again, 30,238); and “2.58” stands for the t-value, a multiplier used to calculate a 99 percent confidence interval if “ n ” is large, as it is in this case. $\pi = .00155 \pm .00058 [2.58 \sqrt{(47 / 30,238)}]$. Multiply these proportions by 100,000, and the confidence interval is 155 per 100,000 adults per year *plus or minus* 58 per 100,000 adults per year.

The adult homicide rate in western cattle towns was comparable to the extreme rates that gripped whites in Florida before the Civil War (40 to 90 per 100,000 white adults per year) and that plagued places where political or racial violence spiraled out of control during the Civil War or Reconstruction (25 per 100,000 in plantation counties in Georgia; 40 per 100,000 in Williamson County in southern Illinois; 50 to 60 per 100,000 in the mountain South; and 90 per 100,000 in rural Louisiana). But these rates were unusual in the nineteenth century. The homicide rate in plantation counties in Georgia was 10 per 100,000 adults per year before the Civil War and 17 per 100,000 after Reconstruction. The rate in plantation counties in Virginia never rose above 9 per 100,000 adults per year, even during Reconstruction, and rates in the mountain South were near zero before the Civil War. Adult homicide rates peaked in the northern United States from the Mexican War to the end of the Civil War, but they, too, were low compared to the rate in western cattle towns: 2 per 100,000 adults per year in New Hampshire and Vermont; 8 per 100,000 in rural Ross County, Ohio, and Henderson County, Illinois; 10 per 100,000 in Cleveland and Boston; and 15 per 100,000 in New York City. And rates were lower still in Canada and Western Europe. The homicide rate in England and Wales was a moderate 4 per 100,000 adults per year prior to the Second Reform Act of 1867 and 2.5 per 100,000 adults in the years after. The rates in France, Ireland, and central and eastern Canada were low—about 2 or 3 per 100,000 adults per year—and rates in the Netherlands, Sweden, and Norway were even lower. By contemporary standards, homicide rates of 15 per 100,000 adults per year were high, 30 per 100,000 adults per year very high, and 60 or more per 100,000 extraordinarily high. Western cattle towns were extremely homicidal.²³

The five western mining towns that have been studied to date had homicide rates that ranged from a low of 68 per 100,000 adults per year in Central City, Colorado, 1862–1872, to 442 per 100,000 adults per year for the first seven months of settlement in and around Deadwood, South Dakota. One of every 134 adult residents was murdered over eleven years in Central City; 1 of every 111 over seven years in Bodie, California; and 1 of every 193 over four years in Aurora, Nevada. The combined homicide rate for the five towns was 119 per 100,000 adults per year. And if we assume these five towns were typical of mining towns during their boom years, we can estimate that there was a 99.5 percent chance that the combined homicide rate for all western mining towns, including those that have not yet been studied, was at least 88 per 100,000 adults per year. Thus, we can be assured that the adult homicide rate across all western mining towns was extraordinarily high, not simply because the number of homicides that occurred in the five towns studied to date (97) was high relative to their populations, but because the combined number of person-years-at-risk in those towns was substantial: 81,200. That figure, rather than the sum

²³ Adult homicide rates in the United States, Canada, and Western Europe in the nineteenth century can be found in Roth, *American Homicide*.

of the towns' average annual adult populations (17,685), determines the width of the confidence interval.²⁴

But even these extreme rates understate the violence that cattle and mining towns experienced. As Dykstra notes, Ellsworth and Dodge City were most homicidal during their initial year of settlement, when law and order had yet to be established. Ellsworth had 8 homicides and Dodge City had 15. Their combined adult homicide rate was roughly 1,400 per 100,000 adults in the first year; 1 in every 72 adult residents (including transients and seasonal residents) was murdered in just twelve months.²⁵ If the initial years of settlement in Ellsworth and Dodge City are added to the rest of Dykstra's data, the combined homicide rate for the five cattle towns would jump to 220 per 100,000 adults per year. Furthermore, the number of homicides in at least one of the mining areas Dykstra studied was more than triple what he cites. Dykstra says that only eight adults were murdered in Montana in the year and a half after the gold strike of May 1862. But his source for that statement, historian Frederick Allen, acknowledges that the tally of eight includes only murders that occurred in the immediate vicinity of Bannack, a town that served miners along Grasshopper Creek. Allen omits from his count all homicides that occurred beyond the borders of this small part of Montana.²⁶ He does not include any of the murders that occurred along the trails to Bannack, nor does he count lynchings or murders of Native Americans. What if we were to add the murder of a Native American who was shot dead in the street in Bannack for no apparent reason, or three Bannack Indians who were shot dead in their camp on the outskirts of town by a settler who was trying to reclaim his estranged wife? What if we were to add the murder of a thief who was killed at a way station on the trail to Bannack by the head of a criminal gang who suspected him of being an informant for the authorities? And what if we were to add the lynchings of five suspected thieves in Bannack in January 1864? The homicide total would climb from 8 to 18.²⁷ What if we were to add the five members of a pack train headed to Idaho who were murdered and

²⁴ The data for Aurora, NV, and Bodie, CA, are from McGrath, *Gunfighters*, 70, 76, 253–4; for Central City, CO, from Lynn I. Perrigo, "Law and Order in Early Colorado Mining Camps," *Mississippi Valley Historical Review* 28 (June 1941): 41–62; and for Deadwood, SD, from Harry H. Anderson, "Deadwood: An Effort at Stability," *Montana The Magazine of Western History* 20 (Winter 1970): 40–7.

²⁵ Dykstra, *Cattle Towns*, 112–3. If their adult populations were substantial during those years, when they were not yet prominent cattle towns (780 and 870, respectively), their respective adult homicide rates were 1,026 per 100,000 adults per year and 1,724 per 100,000, or a combined 1,394 per 100,000.

²⁶ Allen, Frederick, *A Decent, Orderly Lynching: The Montana Vigilantes* (Norman, 2004), 9, states that there were only 8 homicides in early Montana. They appear to include the homicides of the following adult settlers: George Edwards (pp. 73–4), Jack Cleveland (pp. 74–6), a French fur trader (pp. 77–81), George Carrhart and an unknown man (p. 88), an unknown man (p. 91), D. H. Dillingham (pp. 101–8), and Lawrence Keely (p. 117). The eight murders do not appear to include the only child murder to receive mention, that of Nicholas Tiebolt (pp. 3–16).

²⁷ Allen, *Decent*, 78–81, 88, 179, 365.

robbed of \$12,000 by men from Bannack, or three men from Bannack who were killed by Crow Indians while on a prospecting expedition to the south? These eight victims were murdered some distance from Bannack, but all were part of Bannack's resident or transient population. If their homicides are included, the total would climb to 26, and the homicide rate for the residents of Grasshopper Creek (including the area's transient population, Native Americans, and settlers who lived at ranches or way stations along its trails) would rise to nearly 1,200 per 100,000 adults per year.²⁸ In reality, 1 of every 50 residents or transients was murdered in or around Bannack or along its trails in the twenty months from June 1862 to January 1864—a staggering toll. Had Dykstra included all of these murders (every one of which appears in Allen's book) and had he reduced the population at risk to the population for which evidence is available, the risk of homicide in early Montana would have looked very large indeed.

Few scholars question whether cattle towns or mining towns were homicidal during their boom years. But what about more typical, more populous areas of the West, which have been studied for longer periods? Were they homicidal as well? We can consider the nine counties in California, 1850–1865, that have been studied by McKanna, Monkkonen, and Mullen.²⁹ Estimating the homicide rate for all of central and southern California using the data from these nine counties is problematic because the largest and only urban county in the state, San Francisco, had the lowest homicide rate of any county. Including San Francisco County with the other eight counties will lead, in all likelihood, to an underestimate of the homicide rate. But together, the nine counties studied to date had a homicide rate of 65 per 100,000 adults per year. An adult exposed to that rate for sixteen years stood a 1 in 96 chance of being murdered. And if we assume these counties were representative of counties in central and southern California, we can be 99.5 percent certain that the homicide rate was at least 60 per 100,000 adults per year. Even more telling, however, the nine counties studied to date included 57 percent of central and southern California's adult population. The homicide rate in central and southern California would have been at least 37 per 100,000 adults

²⁸ Ibid., 119–20, 133–7, 212, 233–4. The rate assumes that the population of the Grasshopper Creek mining region, including the transient population, Native Americans, and the settlers who lived on ranches or at way stations along the trails to Bannack, was twice the population of Bannack, as it was in the summer of 1864. The population of the town of Bannack was 500 from the fall of 1862 through the winter of 1863 and roughly 1,000 from the summer of 1863 through the winter of 1864.

²⁹ The data are available through the HVD for McKanna, "Homicide in the Trans-Mississippi West"; Monkkonen, "Homicide in Los Angeles"; and Kevin Mullen, "Homicide in San Francisco, 1849–2003," <http://cjrc.osu.edu/researchprojects/hvd/usa/sanfran/> (accessed 10 February 2010). The data are victim-based. The data for the seven counties studied by McKanna integrate the data on homicide victims from his indictment databases and his inquest databases, so the counts here are slightly higher than the counts in either of those databases alone. The data for Los Angeles have been modified for this essay because Monkkonen did not have time to polish his database before his untimely death in 2005. Homicides of children aged fifteen or younger are not included in the homicide totals here.

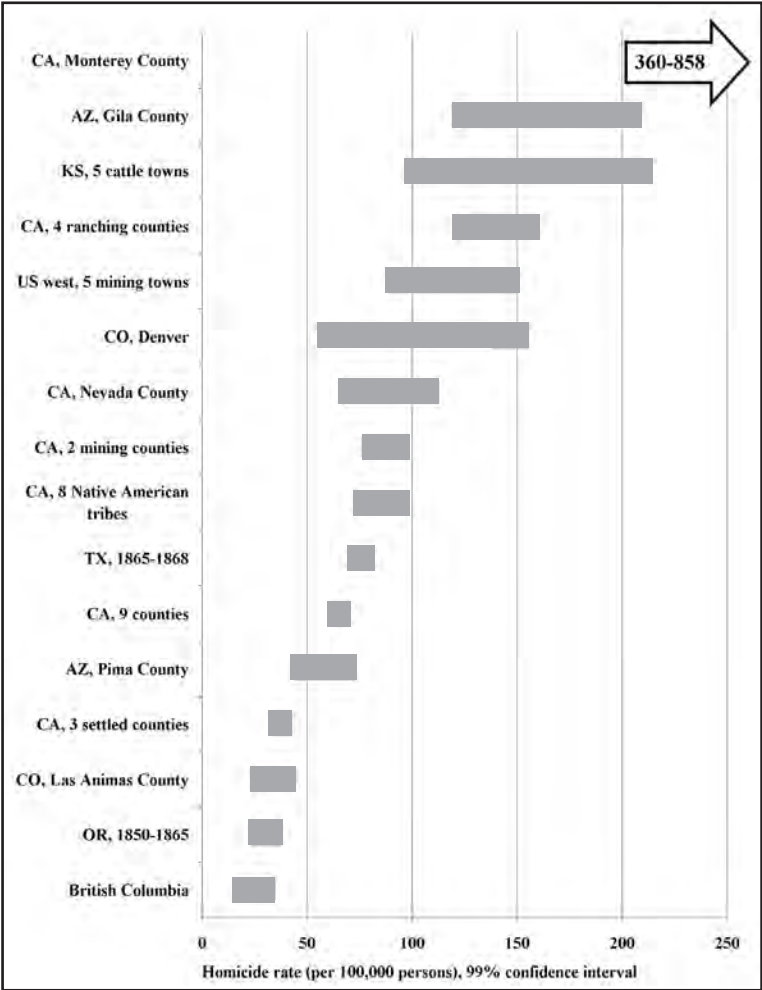


Figure 3: Homicide Rates in Mid-Nineteenth-Century Western Places. Graph by Randolph Roth and Michael Maltz. The data for (a) Monterey Co. and Nevada Co., CA, from Boessenecker, *Gold Dust*, 323–4; (b) five Kansas cattle towns, from Dykstra, *Cattle Towns*, 144 and Dykstra, “Quantifying,” 330n27; (c) nine ranching, mining, or settled counties in California, from McKanna, *Race and Homicide*; Monkkonen, “Homicide in Los Angeles”; and Mullen, *Dangerous Strangers*; (d) five western mining towns, from Anderson, “Deadwood”; Perrigo, “Law and Order”; McGrath, *Gunfighters*, 70, 76, 253–4; and Allen, *Decent*, 9; (e) Las Animas Co., CO, and Gila Co., AZ, from McKanna, *Homicide, Race*; (f) eight Native American tribes in northern and central California, from Cook, *Conflict*, 358–61; (g) Texas, from Hollen, *Frontier Violence*, 52; (h) Denver, from Stephen J. Leonard, *Lynching in Colorado, 1859–1919* (Boulder, 2002), 32, 187n7; (i) Pima Co., AZ, from Paul T. Hietter, “How Wild Was Arizona: An Examination of Pima County’s Criminal Court, 1882–1909,” *Western Legal History* 12 (Summer–Fall 1999), 183–209; and (j) Oregon and British Columbia, from Peterson del Mar, *Beaten Down*, 51. Including lynchings in Denver’s 1859–1865 total would raise the homicide rate to 144 per 100,000 adults per year. Hietter finds 76 homicides in Pima Co. court records from a random sample of years, but using other sources he estimates the total at 106.

per year even if not a single homicide occurred in any other county between 1850 and 1865. And the data available from other counties for shorter periods show that there were plenty of homicides elsewhere. (See Figure 3.)³⁰ Thus, the evidence is overwhelming that central and southern California were unusually homicidal.

What of the homicide rate in the Pacific Northwest, which today has one of the lowest homicide rates in the West? It was not as homicidal as central or southern California in the mid-nineteenth century, but its adult homicide rate was still high compared to rates outside the West. Peterson del Mar found evidence in newspapers of at least 114 homicides of settlers in Oregon, 1850–1865, not including lynchings or homicides by Indians.³¹ The average adult population was 23,373, so the homicide rate in Oregon over those sixteen years was at least 30 per 100,000 adults per year. An adult exposed to a murder rate of 30 per 100,000 adults per year for those sixteen years would have stood a 1 in 208 chance of being murdered. According to the federal mortality census of 1860, the homicide rate in Oregon and Washington was at least 24 per 100,000 adults per year; and Peterson del Mar’s study of newspapers and coroners’ inquests in British Columbia, 1859–1871, shows that the homicide rate there for non-Native people was at least 25 per 100,000 adults per year.³² Even the “peaceful” corner of the nineteenth-century West was violent.

High homicide rates also prevailed elsewhere in the West. According to official data, the adult homicide rate in Texas was at least 76 per 100,000 adults per year from June 1865 to June 1868.³³ According to the mortality schedules of the 1870 census, which undercount the actual number of deaths by a considerable margin, homicide rates (including homicides by Native Americans) ranged at a minimum from 55 per 100,000 adults per year in Nevada, 93 per 100,000 in New Mexico, 137 per 100,000 in Colorado, and 167 per 100,000 in Wyoming to 212 per 100,000 in Montana and 577 per 100,000 in Arizona. The combined homicide rate in these six states in 1870 was at least 134 per 100,000 adults per year (64 per 100,000 committed by Native Americans and 71 per 100,000 committed by others).³⁴ These rates will go higher once historians consult both legal and non-legal sources and estimate the probable number of

³⁰ The five Kansas cattle towns are Abilene, Caldwell, Dodge City, Ellsworth, and Wichita. The nine counties in California include four ranching counties (Los Angeles, San Diego, San Luis Obispo, and Santa Barbara); two mining counties (Calaveras and Tuolumne); and three commercial or agricultural (i.e., more settled) counties (Sacramento, San Francisco, and San Joaquin). The Native American tribes in California include the Maidu, Miwok, Pomo, Wintu, Yokuts, Northwestern tribes, and Mission Indians. The five mining towns are Aurora, NV; Bannack, MT; Bodie, CA; Central City, CO; and Deadwood, SD.

³¹ Peterson del Mar, *Beaten Down*, 51.

³² Ibid. The federal mortality census recorded 9 homicides in Oregon and Washington in 1860. Peterson del Mar found 43 non-Native homicides in British Columbia, 1859–1871, which had an average adult population of 13,204, or 171,653 person-years-at-risk.

³³ See W. Eugene Hollon, *Frontier Violence: Another Look* (New York, 1974), 52.

³⁴ See Bureau of the Census, *Ninth Census—Volume II, The Vital Statistics of the United States* (Washington, DC: GPO, 1872).

homicides that came to the attention of the public, including those that do not appear in the surviving records. Even if we exclude lynchings and homicides of or by Native Americans, the West was homicidal by the standards of the nineteenth century. And even if we assume that half of all homicide victims in the nineteenth century would have survived with the benefit of modern medicine and emergency services, the West was homicidal by today's standards.

Finally, we must consider the statistical “theory” that Dykstra invented to support his claim that the West was not homicidal. In his article, Dykstra stated that there is a “fallacy of small numbers.” This sounds like the “law of small numbers,” which states that conclusions based on small samples can be misleading or, in statistical terms, “unreliable.” However, this is *not* what he means by that term. He believes there is a “fixed principle governing homicide rates,” and according to that principle, small populations invariably yield high homicide rates: “modest body count + small population = large homicide rate.”³⁵

The most important consequence of our findings is that this “fallacy of small numbers” must be discarded in favor of a straightforward, mathematically sound principle: the laws of probability, not arbitrary numerical thresholds, determine whether the number of person-years-at-risk is large enough to support a hypothesis about the homicide rate of particular locales or social groups or about the comparative homicide rates of two or more locales or social groups. Dykstra claims incorrectly that we cannot calculate homicide rates for small populations (which he defines as anything below 100,000) and compare them with homicide rates for large populations. As we have seen, it is possible to draw strong inferences about homicide rates from data on relatively small locales or social groups, as long as those locales or groups are studied for a sufficient number of years.

Certainly, a relatively small number of killings will generate a high homicide rate if the base population is small. But Dykstra argues incorrectly that “the larger the population of a place, the lower its homicide rate will tend to be.” The problem of a small base population is that, mathematically, it makes rates unreliable, *not* that it pushes them upward. Large homicide rates are possible only if the ratio of the number of homicides to the number of person-years-at-risk is high—that is, where a high percentage of the population is murdered each year. Populous places like the Red River Delta of Louisiana during Reconstruction or New York City from the Mexican War through the Civil War had high adult homicide rates because a high percentage of adults was murdered each year. Small towns in places like Vermont and New Hampshire had low adult homicide rates in the nineteenth century because an infinitesimal percentage of their adult population was murdered each year: only 0.002 percent, or 1 of every 50,000 adults. Cattle towns had high adult homicide rates because a large percentage of their adult population was murdered each year: 0.155 percent, or 1 of every 643 adults. Some sparsely settled frontiers were non-homicidal, like Pennsylvania’s in the 1680s and 1690s,

³⁵ Dykstra, “Quantifying,” 333.

where the adult homicide rate was only 1 or 2 per 100,000 adults per year.³⁶ But others had high homicide rates, like Oregon and California in the mid-nineteenth century. Size of place does not determine whether a homicide rate or risk is high or low—the character of the place does.

Dykstra supports his contention by observing that in 1980, Los Angeles had a lower homicide rate than did smaller Miami; that the Detroit metro area had a lower rate than did the city of Detroit; and that Flint, Michigan, had a larger rate than did the surrounding county.³⁷ However, the fact is that larger places tend not *merely* to have more homicides but to have substantially higher homicide *rates*. Although there are exceptions, homicide rates have long tended to be highest in the largest central cities and decrease steadily as the city size decreases, as shown by FBI data from 2008.³⁸ (See Figure 4.) Yet Dykstra claims an increase in San Luis Obispo's population from 1850 to 1890 "*guaranteed*" a decreased murder rate.³⁹ To say that is to ignore the available evidence.

Murder clusters do occur, and when they occur in a small town they can generate dramatic homicide rates. But such clusters are rare. When Dykstra presents 19 homicides in San Luis Obispo in the 1850s, he never questions how likely it is that so many killings would occur in a town of only 356 people. Essentially he treats that number as what one might expect from a place with so few people. But how likely is it? In 2008, the FBI reported the number of crimes in almost every town in the United States with a population of no more than 1,000. There were 708 such towns reporting crimes that year (excluding 3 with zero populations). Of them, only 9 (1.3 percent) experienced any criminal homicides at all, all but one of them a single killing; the other town had two killings. For each small town with a murder, there are dozens whose number has not yet come up. With only a 1.3 percent chance of experiencing a killing in a given year, one can expect a homicide in any given town about once every 76 years. The actual homicide rate for the whole set of towns was only 2.1 per 100,000 persons per year, or 1 killing for every 46,560 people. Contrast that with San Luis Obispo in the 1850s or the other small places Dykstra mentions. The study of murder in most small towns would be boring indeed. Historic San Luis Obispo is interesting from a criminological standpoint because deadly violence was so much more common there.

Establishing that the West was extremely homicidal in the nineteenth century is an important first step, but the work of historians of western violence is far from done. More towns and counties should be studied so that scholars can be more confident that their

³⁶ Dykstra, "Quantifying," 334. Homicide rates for colonial Pennsylvania are from Jack D. Marietta and Gail S. Rowe, *Troubled Experiment: Crime and Justice in Pennsylvania, 1682–1800* (Philadelphia, 2006), 36–7. The homicide rate rose during the years 1718–1732 as the population burgeoned.

³⁷ Dykstra, "Quantifying," 334–5.

³⁸ Federal Bureau of Investigation, *Crime in the United States*, 2008, Table 16, http://www.fbi.gov/ucr/cius2008/data/table_16.html (accessed 10 February 2010). Data for places under 1,000 population were calculated from Table 8.

³⁹ Dykstra, "Quantifying," 335 (*italics in original*).

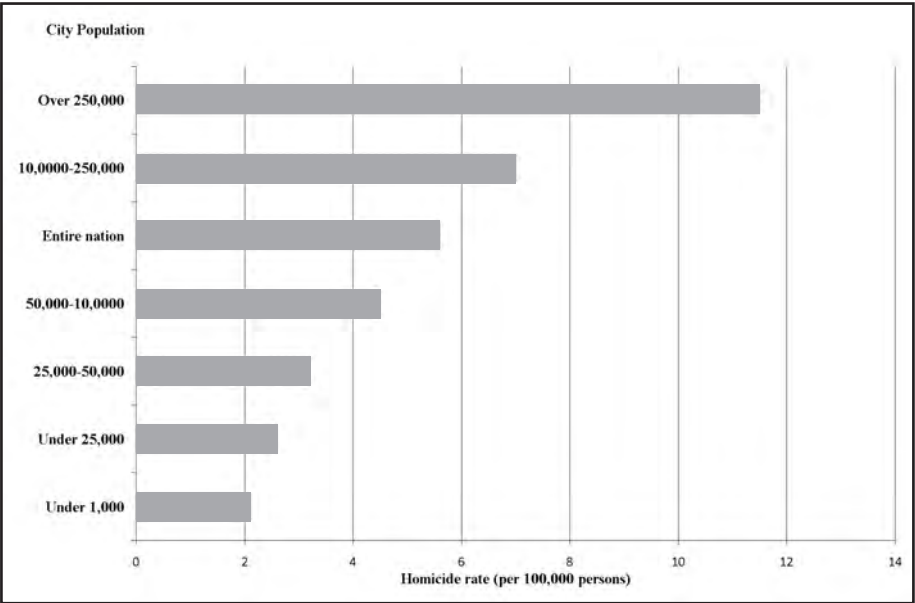
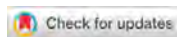


Figure 4. Relationship between City Size and Homicide Rate, 2008 FBI Data. Graph by Douglas Eckberg. See Federal Bureau of Investigation, *Crime*, Table 16.

samples are representative and so they can better understand why some areas of the West were more violent than others. Where legal and non-legal sources have survived, scholars should consult both so that they can estimate the number of publicly recognized homicides that occurred rather than depend on minimum counts of homicides from a single source. Homicides discovered by historians of lynching and of genocidal violence against Native Americans should be studied together with other kinds of homicide to determine whether rates of genocidal, extralegal, and everyday homicides go up and down together, or whether they have distinctive patterns and causes.⁴⁰ And greater attention should be paid to the homicide rates of particular social and demographic groups to determine if their experiences with violence were unusual. It is an important first step to prove that the nineteenth-century West was extraordinarily homicidal. But it is more important to know how and why the rates of various kinds of homicide have varied over time, from place to place, and from group to group. That work has only just begun.

⁴⁰ See, for example, Paul W. Black, “Lynchings in Iowa,” *Iowa Journal of History and Politics* 10 (April 1912): 151–254; Lynwood Carranco and Estle Beard, *Genocide and Vendetta: The Round Valley Wars of Northern California* (Norman, 1981); Allen, *Decent*; Leonard, *Lynching in Colorado*; William D. Carrigan and Clive Webb, “Muerto por Unos Desconocidos (Killed by Persons Unknown): Mob Violence against Blacks and Mexicans,” in *Beyond Black and White: Race, Ethnicity, and Gender in the U.S. South and Southwest*, ed. Stephanie Cole and Alison M. Parker (College Station, 2004), 35–74; and Ken Gonzales-Day, *Lynching in the West, 1850–1935* (Durham, 2006).



Research Note

Measuring Feelings and Beliefs that May Facilitate (or Deter) Homicide: A Research Note on the Causes of Historic Fluctuations in Homicide Rates in the United States

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Abstract

The essay seeks to construct measures of feelings and beliefs that may facilitate or deter homicides among unrelated adults. The measures try to quantify political stability, government legitimacy, and fellow feeling along national, religious, or racial lines in the United States from colonial times through the 19th century.

Keywords

child, comparative, crosscultural, historical, intimate partner, trends

As every social science historian who studies homicide knows, it can sometimes be as difficult to measure the potential correlates of homicide as it is to measure the level of homicide in a given society. Of course, some kinds of homicide have relatively straightforward economic and demographic correlates that can be measured with great precision. For instance, homicide rates for children followed a clear pattern from the mid-sixteenth through the nineteenth centuries in locations that have been studied to date in North America and Western Europe (Roth, 2011). The rates moved up and down in long, smooth curves that are visible only when traced over a hundred years or more. The rates at which children were murdered by parents or guardians followed the

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inverse of the birth rate. Low murder rates for neonates, infants, and children correlated with:

1. Higher birth rates
2. Lower ages of mothers at the births of their first children
3. Higher proportions of women who marry at least once
4. Higher rates of premarital pregnancy
5. Longer life expectancy for children
6. Higher adult heights (a function of net nutrition)

How were birth rates, premarital pregnancy, marriage, life expectancy, and height related to murders of children by parents or guardians? The child murder rate and the fertility rate appear to have been driven by the same forces. The child murder rate was a function of the cost of children relative to parental resources and to parental ambitions for themselves and their children. When real wages dropped by more than a third for the poorest 40 percent of the population in England in the late sixteenth and early seventeenth centuries, young women and men found it harder to marry and raise families. The birth rate dropped, life expectancy dropped, heights fell, premarital pregnancy rates fell, the age of the mother at first birth rose, fewer women married, and the neonaticide indictment rate jumped five-fold. When real wages rose in the late seventeenth and early eighteenth century, the trends reversed, and the neonaticide indictment rate fell to its previous level (Roth, 2001a).

The rise in child homicides in the mid-nineteenth century was driven more by rising ambitions, however, than economic want, even though most parents who killed their children were poor. Real wages rose among the poor, but ambitions rose faster. Women in particular embraced new educational opportunities, sought economic independence through work outside the home in teaching, needle trades, and factory work, became more active in community affairs and voluntary organizations, and raised their economic expectations for themselves and their children.¹ These rising ambitions made children more costly in terms of time and money, so parents limited their child-rearing duties and financial obligations by beginning childbearing later and ending it sooner through abstinence, contraception, and abortion. And when unrealized ambition led to frustration and stress, parents killed newborns, infants, and older children (Roth, 2001b). Historians have yet to measure ambition or the degree to which the failure to realize a particular ambition led to frustration, but there are enough good proxies for ambition, such as the level of female education and female participation in the work force, to support the evidence of rising ambition that humanistic historians have gathered from letters, diaries, novels, and periodicals.

The correlates of intimate partner homicides are more difficult to measure. The rates of romance homicides jumped suddenly in the northern United States in the 1830s and 1840s, and probably in northwestern Europe as well (Roth, 2009a, pp. 250-290). The increase in romance homicide rates correlated with a shift in the economic balance of power between men and women, which gave women the ability to delay marriage and to be more selective in the suitors they entertained. But the increase was

also correlated with changes in feelings and beliefs associated with marriage and romance. The increase in murders of lovers appears to have been caused by changes in the ideal of romantic love, which led young men and women to invest more of their energies in intimate relationships, especially if they believed they had found their “one and only” true love, and left them at sea when those relationships ended.

Thanks to the content analysis of American periodicals by H. H. Lantz and his associates (Lantz, Schmitt, Britton, & Snyder, 1968; Lantz, Schmitt, & Herman, 1973; Lantz, Keyes, & Schultz, 1975), it is possible to measure the changes in ideas about marriage and romance that humanistic historians have identified (Rothman, 1984; Lystra, 1989). The changes correlate precisely with the change in the romance murder rate. The rate rose as soon as practical considerations gave way to “happiness” as the sole reason for marrying, and young men embraced the potentially dangerous illusions that love can conquer all—even differences of class and race—and that we are each uniquely destined for one and only one person (Table 1). Most perpetrators of romance homicides and attempted homicides were respected, well-educated, native-born Protestants who were likely to be well versed in romantic literature, with its emphasis on passion, self-expression, and the idea that true lovers were destined for each other. An alarming proportion of the assaults occurred when young men tried to reach above their “station” and win the love of a woman of a different class or race, or refused to let go when a relationship failed or did not progress beyond friendship (Roth, 2009a, pp. 279-290).

It is more difficult, however, to obtain accurate measures of the potential correlates of homicides among unrelated adults. As Gary LaFree, Manuel Eisner, Roger Gould, and I discovered independently in the 1990s, homicide rates among unrelated adults—nearly all of which have been committed historically by males—appear to be determined by feelings toward government and society, rather than by more easily measured phenomena like the performance of the economy or the number of police on the street (LaFree, 1998, Eisner, 2001, Gould, 2003, and Roth, 2009a). As I put it in my own work, there have been four correlates of low rates in North America and Western Europe over the past 450 years:

1. The belief that government is stable and that its legal and judicial institutions are unbiased and will redress wrongs and protect lives and property
2. A feeling of trust in government and the officials who run it, and a belief in their legitimacy
3. Patriotism, empathy, and fellow feeling arising from racial, religious, or political solidarity
4. The belief that the social hierarchy is legitimate, that one’s position in society is or can be satisfactory and that one can command the respect of others without resorting to violence

When these correlates are in place, the homicide rate among unrelated adults can fall below 1 per 100,000 per year. When they are not, the homicide rate can soar to tens or hundreds per 100,000.

Table 1. Content Analysis of Articles on Marriage, Romance, and Male–Female Power Relationships in American Magazines, 1741–1850

	1741–1824	1825–1850
Important considerations when marrying		
Happiness	.58	.89
Wealth	.33	.08
Status	.09	.03
N =	184	1315
Qualities of romantic love		
The one and only	.18	.33
Love wins out over all	.10	.22
Love at first sight	.04	.08
Idealization of loved one	.22	.18
Glorification of emotions	.46	.18
N =	1,089	2,261

Source: Lantz, Schmitt, Britton, and Snyder (1968); Lantz, Schmitt, and Herman (1973); and Lantz, Keyes, and Schultz (1975).

But these correlates are hard to measure. Humanistic histories of political instability, government legitimacy, and nationalism, racism, and class relations offer great insight into these feelings and beliefs. In fact, I believe they can tell us more about such feelings and beliefs than any opinion poll or panel study ever could, because they are based on a wide variety of sources and an intimate understanding of a particular time and place. But we cannot place the historical study of homicide on a scientific basis unless we find ways to quantify the shifts in feelings and beliefs that humanistic historians have identified. Then those shifts can be correlated more precisely with changes in homicide rates, and we can defend humanistic historical scholarship against skeptics who believe it is too impressionistic or subjective to offer reliable, reproducible insights into the past.

How, for instance, can we measure feelings toward government and society in the United States? For the colonial and revolutionary period, a number of quantifiable indicators of political instability, government legitimacy, and fellow feeling are available that can serve as potential correlates of the homicide rate among unrelated European American adults. First, thanks to Hearn (1997, 1999, 2005) and Teeters (1963), near-complete lists of legal executions are available for New England, New Jersey, New York, and Pennsylvania, and those can be supplemented with less-complete lists for other jurisdictions compiled by Espy and Smykla (2004). These lists identify persons who were executed for treason or sedition—a measure of political instability and of challenges to the legitimacy of government. They also identify persons who were executed for heresy, witchcraft, or moral offenses (adultery, bestiality, pederasty, etc.)—a measure of hostility, division, and distrust within communities.

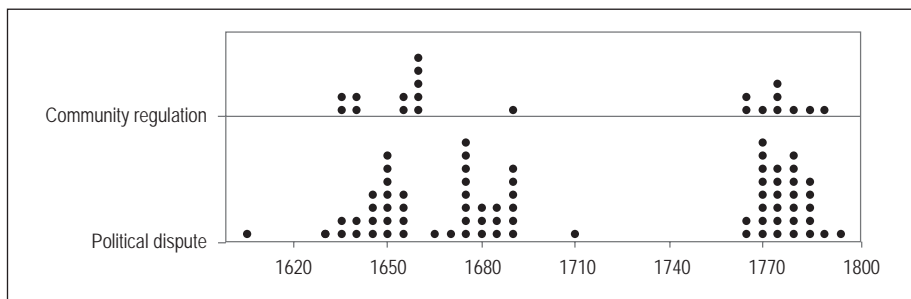


Figure 1. Incident-based counts of rebellions, riots, and persecutions that led to homicides, executions, or banishments, 1607-1798

Note: Banishments include sending prisoners to England in chains for trial, forced exiles by nonjudicial means, transportation, and life imprisonment.

Second, Gilje (1996, 2011) has created a database of over 4,000 riots and rebellions in the United States from colonial times to the present, which can be supplemented with accounts on riots and rebellions available in other historical works, such as the colonial and state histories commissioned for the bicentennial by Scribners and KTO Press. Of course, as Gilje observes, not all riots are symptomatic of deep divisions within communities or polities, but those that led to fatalities (mob violence, vigilantism, retaliation by authorities, etc.) usually were. If we divide deadly riots and rebellions, as Gilje does, into those that were political (involving contests for power or protests against the abuse of power by the government or its officials) and those that sought to regulate the behavior of members of the community (involving the persecution of persons suspected of witchcraft, heresy, or moral offenses), we can develop a second measure of political stability, government legitimacy, and fellow feeling.²

We can also supplement the time series on executions and on deadly riots and rebellions with a third series that enumerates conflicts that led to the banishment or forced exile of persons who were on the losing end of community or political conflicts, such as the expulsion of Antinomians from Puritan Massachusetts or of Tories during the American Revolution.

What happens when we track these three indicators of political stability, government legitimacy, and fellow feeling through the seventeenth and eighteenth centuries? Legal executions, deadly riots and rebellions, and banishments and forced exiles caused by political or community conflicts followed the same pattern, whether the counts are incident-based or victim-based (Figures 1 through 4). The counts were high through the Glorious Revolution, negligible from the end of the Glorious Revolution through the French and Indian War, and high during the American Revolution, tapering up during the Imperial crisis, 1765-1774, exploding during the Revolution itself, and tapering down in the 1790s. That is precisely the pattern followed by the homicide rate among unrelated European American adults in the places that have been

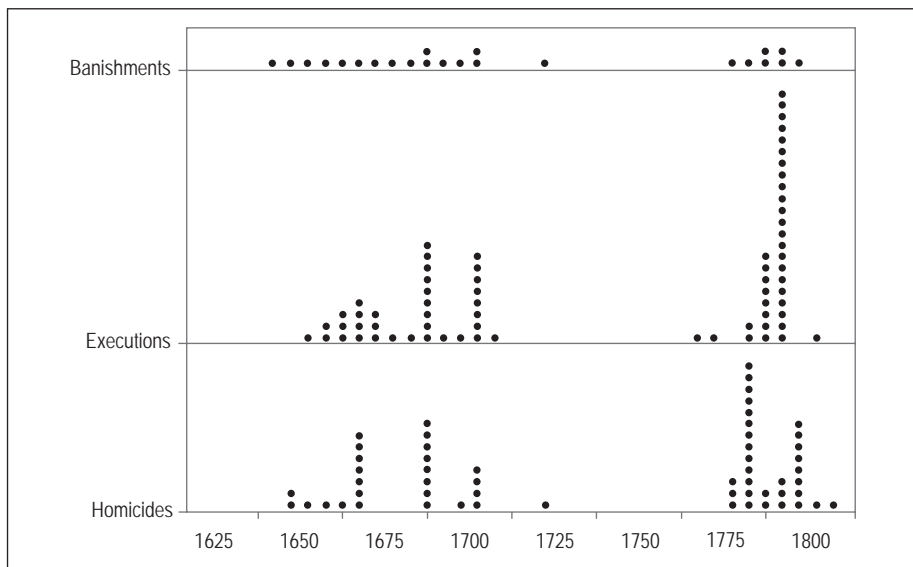


Figure 2. Counts of rebellions, riots, and persecutions that led to homicides, executions, or banishments, 1607-1798

Note: Counts of homicides and executions are victim based, and banishments incident based. Each symbol represents up to 3 observations.

studied to date: New England, Pennsylvania, and the Chesapeake (Roth, 2009a, pp. 27-107, 145-179). Only five incidents occurred between 1693 and 1765, and two of those (a homicide and a forced exile) were related to Cary's Rebellion in North Carolina, 1710-1711. The others involved an execution for bestiality in Penn's Neck, New Jersey, an execution for treason in South Carolina during the French and Indian War, and a homicide by militiamen in New York City who were trying to bar British soldiers from rescuing a comrade who was jailed for debt. Only one deadly incident occurred after 1788: the Whiskey Rebellion. Otherwise, these executions, homicides, and banishments coincided with periods of high homicide rates among unrelated European American adults. It appears that political stability, government legitimacy, and fellow feeling did indeed hold the key to low homicide rates in colonial and revolutionary America.

These correlations are not mere artifacts of the number of deadly acts of collective violence that occurred during periods of political instability or communal strife. It is important to distinguish among various types of homicide and to calculate rates separately for each kind of homicide, to determine whether particular rates go up and down together and are likely to have the same causes. But these correlations hold whether we include or exclude from the homicide rate those homicides that occurred during riots or rebellions. In every jurisdiction studied to date, the number of deadly acts of collective violence that stemmed from political or communal conflict was negligible

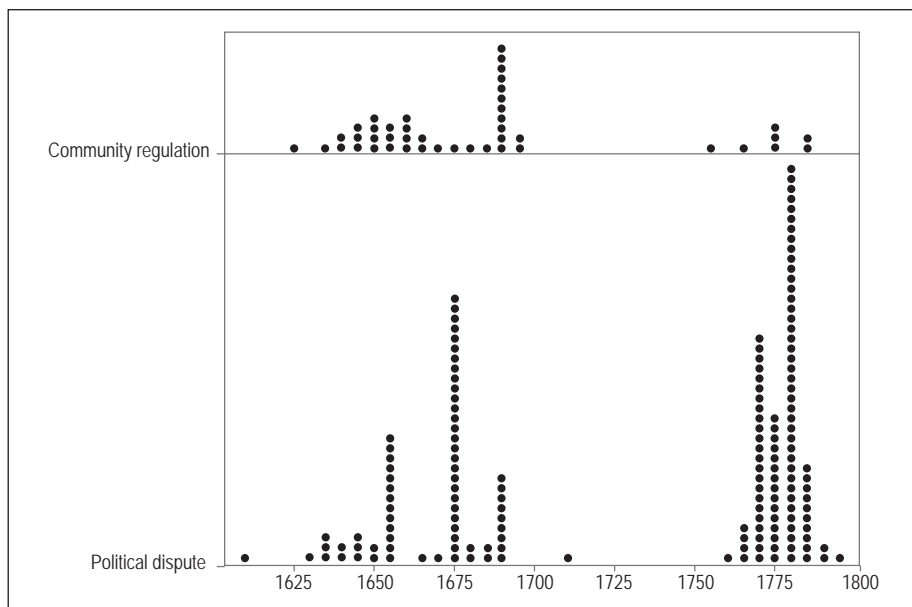


Figure 3. Counts of rebellions, riots, and persecutions that led to homicides, executions, or banishments, 1607-1798

Note: Counts of homicides and executions are victim based, and banishments incident based. Each symbol represents up to 2 observations.

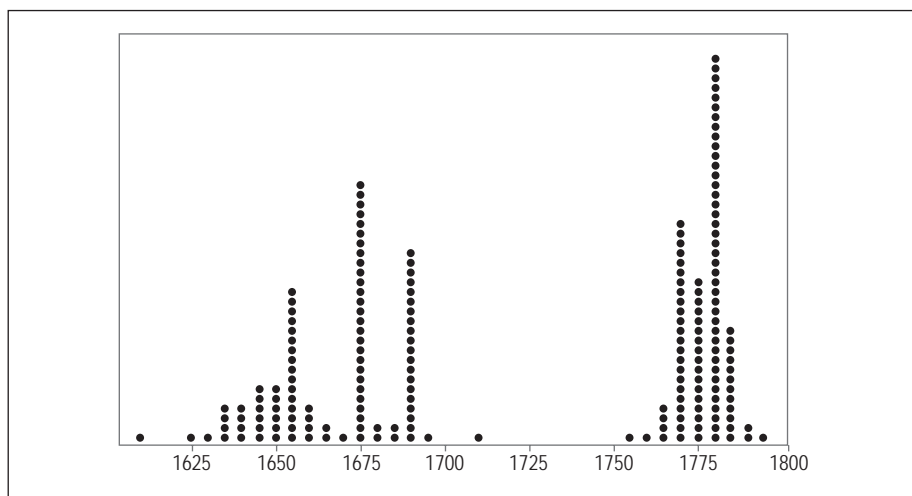


Figure 4. Consolidated counts of rebellions, riots, and persecutions that led to homicides, executions, or banishments, 1607-1798

Note: Each symbol represents up to 2 observations.

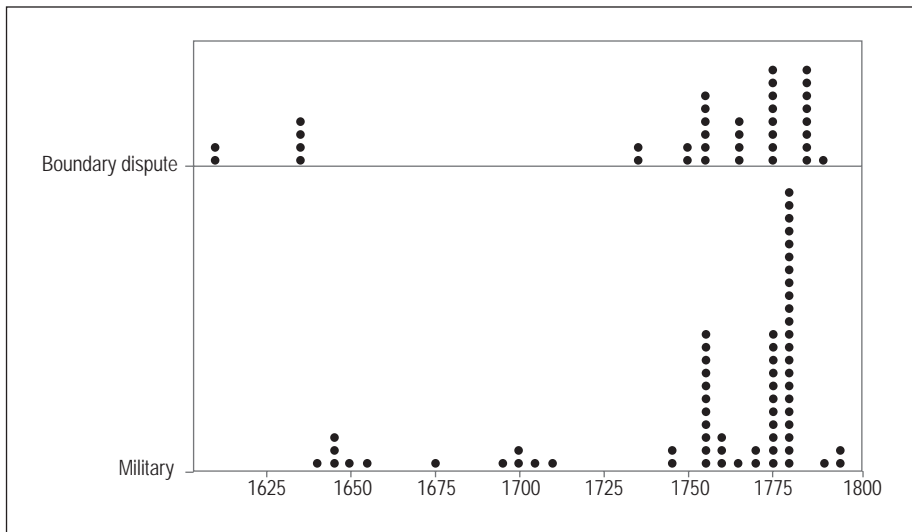


Figure 5. Homicides and executions for military offenses or during boundary disputes, 1607-1798
Note: Military offenses include homicides of deserters, homicides caused by resistance to press gangs, and homicides between gangs of sailors from rival nations.

compared to the number of everyday homicides between individuals, except in Maryland in the seventeenth century, and even there the rate of everyday homicides correlated with measures of political instability and community strife.³

Nor are these correlations mere artifacts of the general rate of executions. For instance, executions for military offenses (mutiny, treason, dereliction of duty) and homicides caused by resistance to press gangs or by fights between gangs of sailors from rival nations followed a different pattern. They occurred with frequency during wartime, even if the homicide rate among unrelated adults was low (as it was during the latter years of King William's War, 1689-1697, or during the War of the Spanish Succession, 1701-1714, King George's War, 1740-1748, and the French and Indian War, 1754-1763). And they were rare during times of peace, even if the homicide rate was high (Figure 5). Furthermore, there was one type of deadly collective violence identified by Gilje that did not follow the homicide rate among unrelated adults: homicides that stemmed from land disputes between colonies. But these disputes—such as the border war between Maryland and Pennsylvania in the 1730s and between Massachusetts and New York in the 1750s and early 1760s—were localized. They involved only persons who claimed or lived on land in the disputed areas, so they did not always coincide with or contribute to broader protests or rebellions against authority. These disputes always had the potential to turn deadly, however, which is why they claimed lives even during the periods of political stability and low homicide rates among unrelated adults (Figure 6).



Figure 6. Percentage of new counties named after national heroes, 1634-1800

Source: Zelinsky (1988, pp. 124-125) modified with new period breaks.

It is also possible to study feelings and beliefs about government and society more directly. For example, thanks to Zelinsky (1988) and Merritt (1966), excellent measures are available of the degree to which citizens identified with the British Empire or the American nation and with national heroes—proxies for patriotic feeling and government legitimacy. Zelinsky traced the naming patterns of new counties from colonial times to 1920, including the proportion of new counties named for British notables or American notables; and Merritt traced the incidence of explicit or royal British symbols in American newspapers during the imperial crisis, 1735-1775. When the number of counties named for British heroes soared after the Glorious Revolution (a sign of patriotic solidarity), the homicide rate among unrelated European Americans fell. And when the number of counties named for British heroes fell during the imperial crisis (a sign of a decline in patriotic solidarity), the homicide rate rose (Figures 6 and 7).⁴ The homicide rate also correlated with a decline in references to explicit British symbols such as the lion. At this time the number of counties named for American heroes had yet to rise to a high level (a sign that a new kind of patriotic solidarity had yet to form),

It is possible to trace changes in feeling and belief even more finely, thanks to Google Ngrams, which can measure the incidence of particular words or phrases in the catalogue of books that Google has digitized from 1500 to the present (Michel et al., 2011). Ngrams in its first iteration has limitations: the selection of books is far from

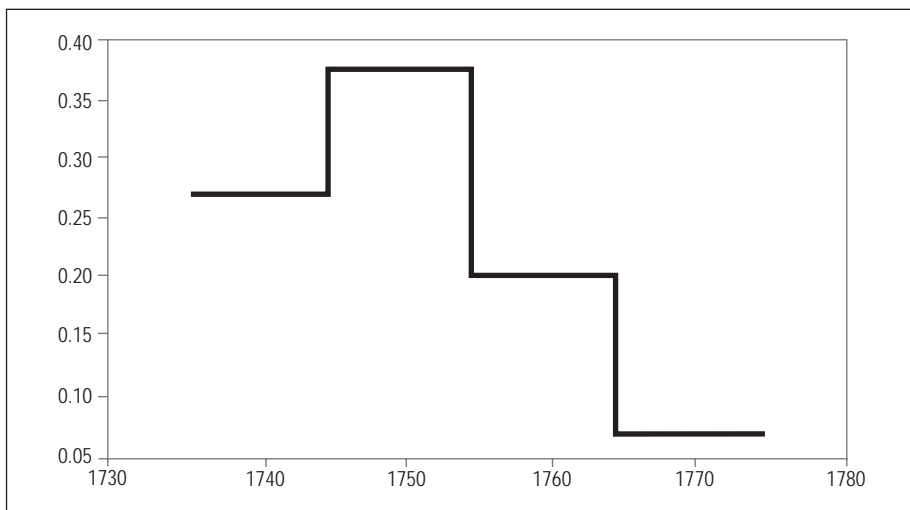


Figure 7. Symbols of national identity in American newspapers, 1735-1775: Percentage of explicit or royal British symbols
Source: Merritt (1966, p. 215)

complete before 1800, and it is impossible as yet to pull out strings of words that could reveal the context in which particular words were used. Ngrams cannot yet distinguish between a word used 100 times in a single book and a word used once in 100 books, nor can it account for the impact of new genres (novels, technical manuals, etc.) on the incidence of words that remain common in older genres. Ngrams is nonetheless a valuable new tool for tracing the incidence of words or phrases that constitute “hate speech” or “identity speech” in a particular time or place—yet another marker of division or unity within polities or communities.

The sudden decline in the homicide rate among unrelated European Americans at the end of the seventeenth century coincided with what humanistic historians have identified as a sudden upsurge in racial solidarity among whites, caused by the rise of racial slavery and the disastrous Indian wars of the 1670s, 1680s, and 1690s, and a lessening of hostility among whites along religious or class lines, caused by the decline in sectarian strife and a change in attitude toward the laboring poor, who were treated with contempt in the early and mid-seventeenth century.⁵ Ngrams shows that these shifts in feeling occurred precisely when humanistic historians said they did: in the 1670s and 1680s, when the homicide rate began to fall. Words like “heretic” and “zealot” and casual references to poor men and women as “rogue” or “whore” nearly disappeared from the lexicon as whites drew together across religious and class lines. Words like “slave” and “negro,” which bespoke a new kind of racial consciousness and solidarity, came to the fore (Figures 8 through 10). At the same time, colonists

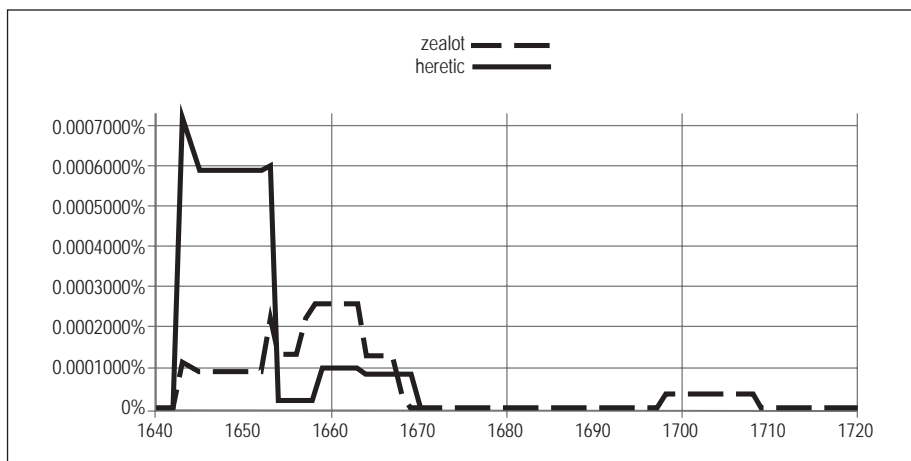


Figure 8. NGRAM of "heretic" and "zealot" in American English, 1640-1720
Note: Smooth of 5.

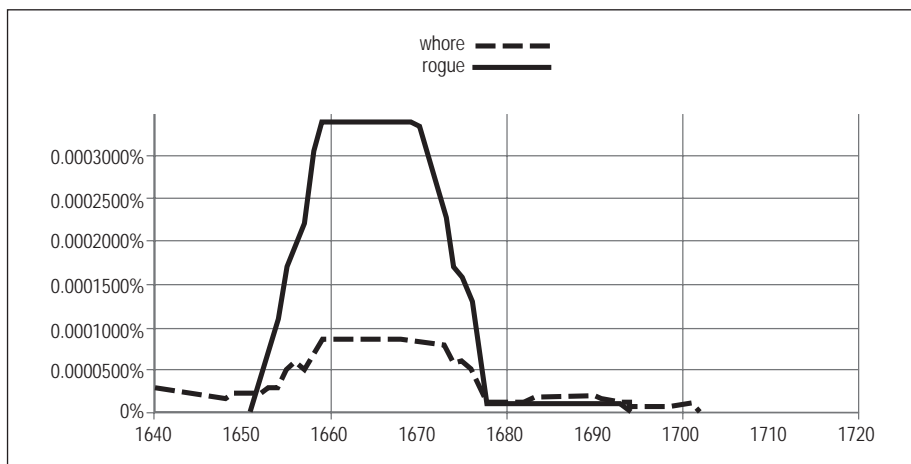


Figure 9. NGRAM of "rogue" and "whore" in American English, 1640-1720
Note: Smooth of 9.

stopped naming new counties with aboriginal terms, yet another sign of intensifying racial feeling. Prior to the disastrous conflicts with Native Americans in New England and the Chesapeake in 1675-1676, twelve percent of all new counties were named with aboriginal terms. But in the seventy-five years following King Philip's War and Bacon's Rebellion, only one new county—Nantucket—bore an aboriginal name, and

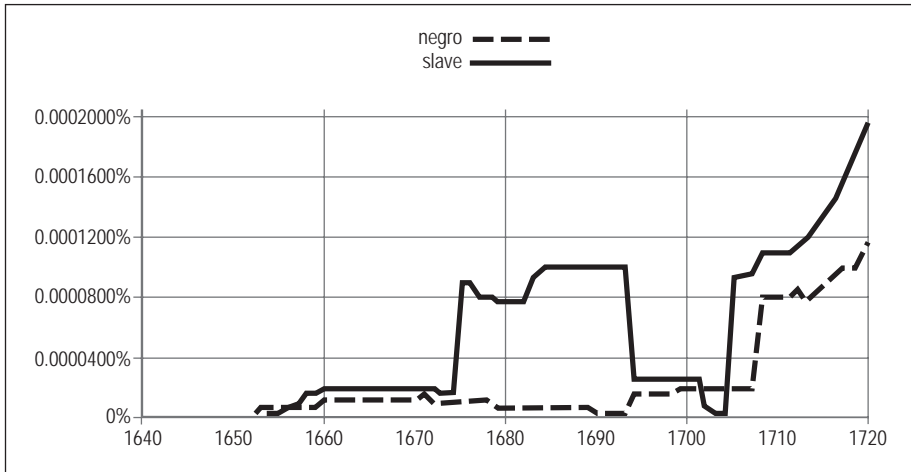


Figure 10. NGRAM of “negro” and “slave” in American English, 1640-1720
Note: Smooth of 9.

that island had been named before those conflicts.⁶ Once again, it appears that fellow feeling was essential for a low homicide rate within a particular group.

Similar indicators can be used to measure the degree of political stability and fellow feeling in the nineteenth century. Turchin (2010) has developed an incident-based indicator of political stability and instability based on extra-legal killings by vigilantes and on homicides during riots or rebellions (drawn from Gilje, 2011 and from reports of riots in several electronically searchable newspapers; Figure 11). Turchin’s indicator remains low through the early 1840s, except for a brief increase in the mid-1830s. But it turns suddenly upward during the Mexican War, spikes to its highest level during the Civil War, recedes slowly as Reconstruction came to a close, and rises again in the 1890s. That is precisely the course taken by the homicide rate among unrelated adults in the United States as a whole, which in the early nineteenth century had an extraordinarily low homicide rate in the North and the mountain South, and only a moderate homicide rate in the slave South (Roth, 2009a, pp. 180-249, 297-434). The Turchin index of political stability supports the hypothesis that political polarization and instability caused the homicide rate to soar in the mid-nineteenth century and remain high through 1900.

The incidence of politically or racially charged words follows the same pattern in the 19th century. For example, consider the word “nigger,” which in daily use represented contempt and hostility both for African Americans and for whites who opposed the extension of slavery to the territories or favored the abolition of slavery and racial equality (Figure 12). Or consider the phrase “slave power,” which represented hostility toward slave owners and toward politicians and political organizations that sought to secure or strengthen the institution of slavery within the Union (Figure 13).⁷ The

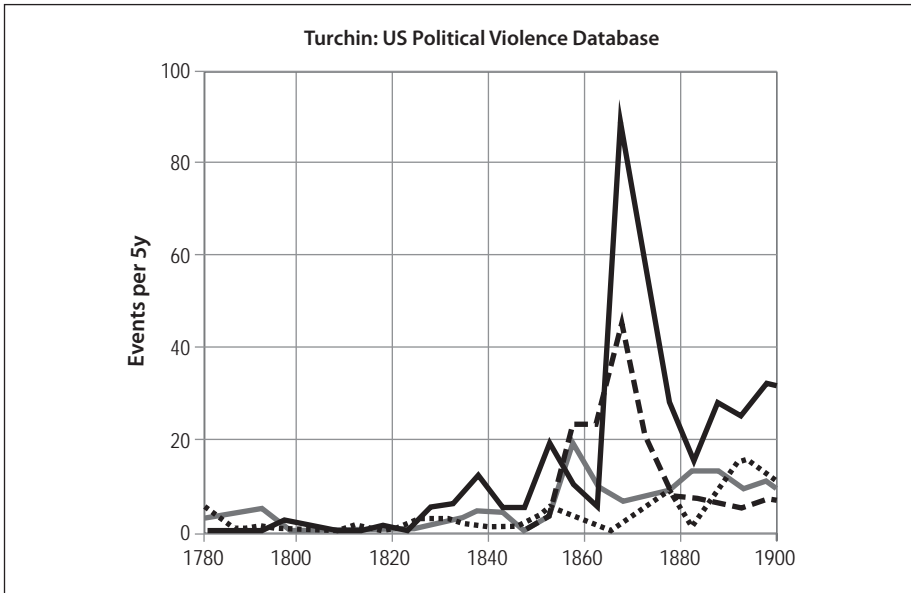


Figure 11. Instability events in the United States, 1780-1900
Source: Turchin (2010, p. 25).

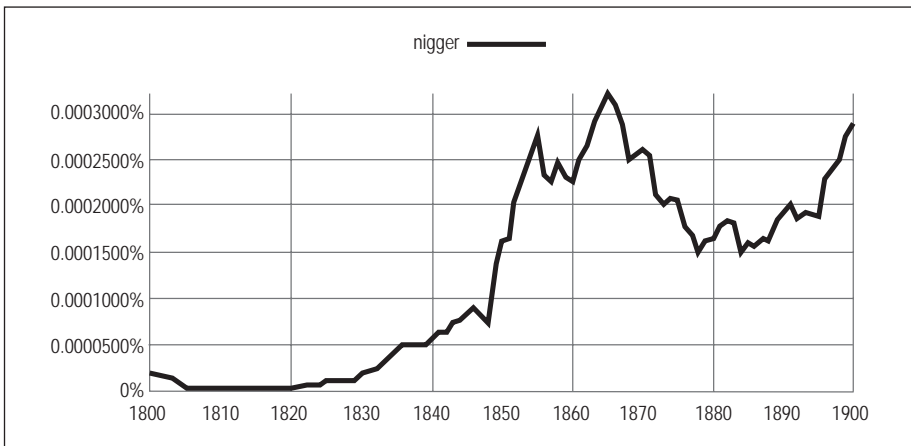


Figure 12. NGRAM of the N-word in American English, 1800-1900
Note: Smooth of 3.

spike in the use of these terms occurred during the Mexican War, which is precisely the point at which the homicide rate among unrelated adults jumped. This pattern also appears in the naming of new counties. The proportion of counties named for American

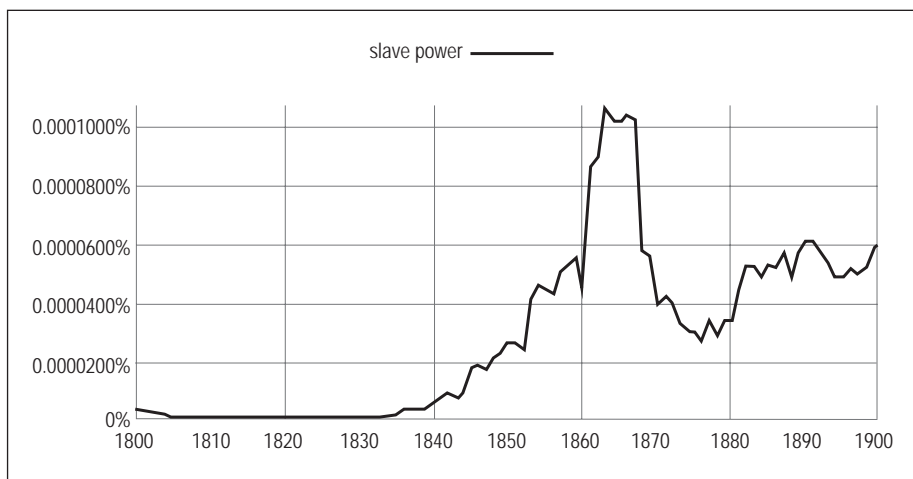


Figure 13. NGRAM of “slave power” in American English, 1800-1900

Note: Smooth of 3.

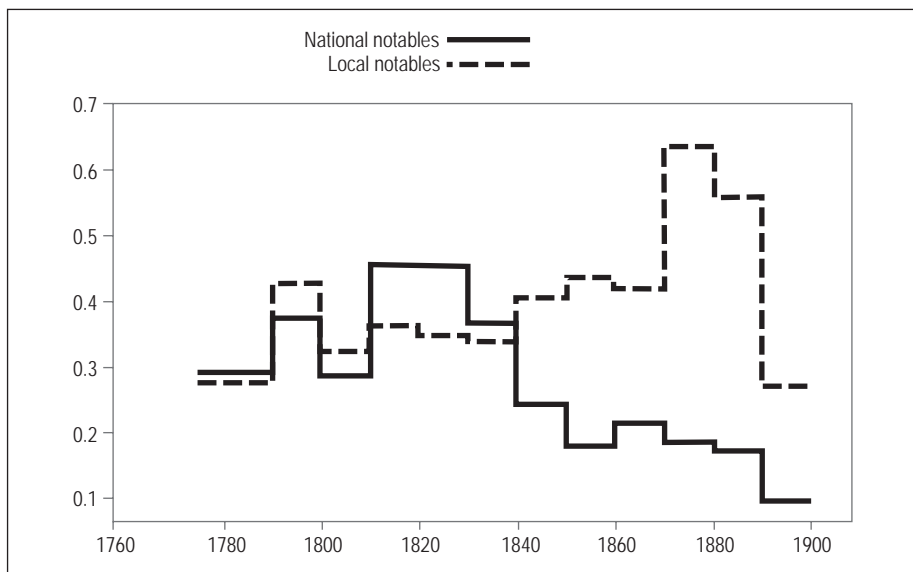


Figure 14. Percentage of new counties named after national or local notables, 1775-1900

Source: Zelinsky (1988, pp. 124-125).

heroes—a measure of faith in the nation and of a feeling of kinship with fellow Americans—peaked in the early nineteenth century, when the homicide rate in the United States was low. But the proportion fell sharply beginning in the 1840s, as the nation disintegrated, national feeling declined, and the homicide rate surged (Figure 14).⁸

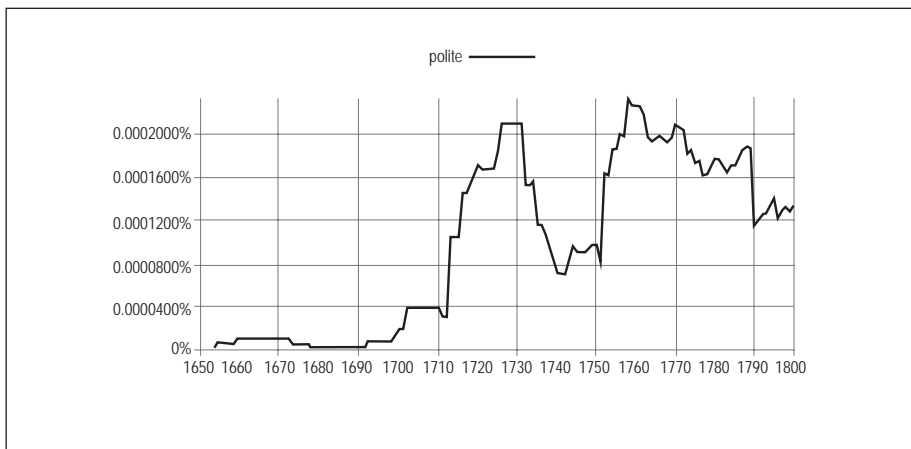


Figure 15. NGRAM of “polite” in American English, 1650-1800

Note: Smooth of 9.

Quantitative measures are also available to test rival theories of homicide. Proponents of Norbert Elias’s “civilization thesis” argue, among other things, that the improvement of manners after the Middle Ages led to a higher degree of self-control and restraint, which in turn caused a gradual decline in the homicide rate (Mennell 2007, Spierenburg 2008). Elias, in Mennell’s words, “linked changes in people’s everyday behavior, in the codes of manners they followed and in their typical feelings and emotions, to the formation of states with relatively effective monopolies of violence.” Over time, “social pressure towards self-constraint” tilted the balance “in favour of more demanding social standards of habitual self-control” and encouraged people to feel shame, embarrassment, disgust, or repugnance when those standards were violated (Mennell, 2007, pp. 1, 6-11). However, the diffusion of refined manners and the rhetoric of self-mastery and restraint, which Elias considered both causes and consequences of the civilizing process, had little impact on the level of violence in the United States. These cultural changes took hold in colonial America in the early and mid-eighteenth century, after the homicide rate had already fallen, and they failed to restrain interpersonal violence when the political order lost legitimacy and destabilized in the late 1760s and early 1770s. In the eighteenth century, words like “polite,” “manners,” and “refinement” assumed a more prominent place in British and American print, according to Google Ngrams (Figures 15 through 17). Colonists turned increasingly to civil courts to resolve disputes over slander, trespass, assault (which included threats and verbal abuse), and assault and battery (which included physical violence; Roth, 2009a, pp. 88-90). The movement toward restraint and refinement was evident as well in quantifiable changes in daily habits and material culture. Between the 1720s and the 1760s, colonists of all classes gradually stopped throwing their garbage into their yards and began to bury it neatly in deep garbage pits. They began to purchase

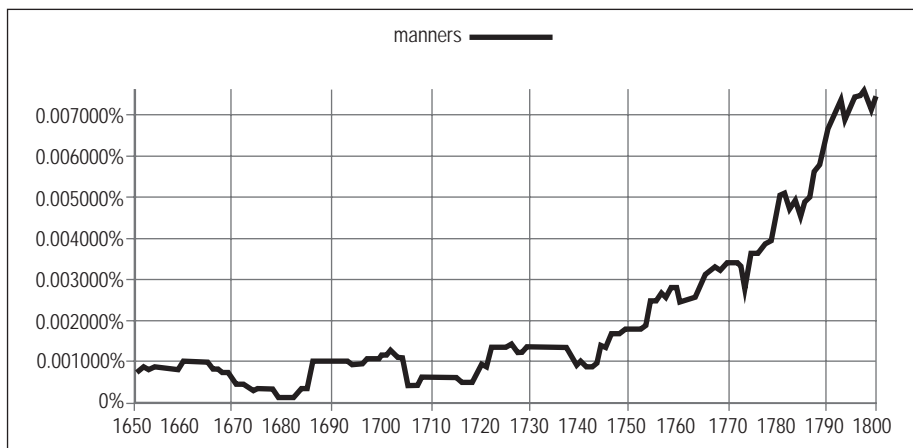


Figure 16. NGRAM of “manners” in American English, 1650-1800
Note: Smooth of 9.

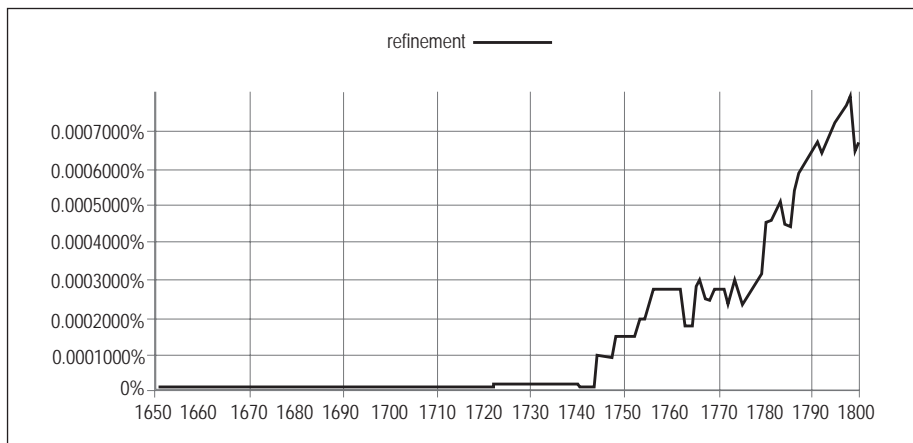


Figure 17. NGRAM of “refinement” in American English, 1650-1800
Note: Smooth of 9.

chamber pots for the disposal of human waste. They moved away from the practice of eating with spoons out of communal trenchers and drinking out of communal cups, and embraced the modern practice of eating with forks and using individualized plates and cups. They ate fewer stews and potages, and more tripartite meals with discrete portions of meat, starch, and vegetables. Archaeologist James Deetz associates these

changes with a movement toward “order, control, and balance”—away from the “medieval” emphasis on community and toward a modern emphasis on the individual, which he associates with the adoption of the cultural style of the Georgian-era British elite (Deetz, 1996, pp. 63, 86, 185).

Elias’s theory associates these changes with a decrease in interpersonal violence, caused by the increase in self-monitoring and restraint. But as noted, these changes followed the sudden decrease in violence in the late 17th century, and they were powerless to prevent an increase in violence during the revolutionary period. Improvements in manners may have been a consequence of successful nation-building and a decline in interpersonal violence, rather than a cause. It may be that manners improved most rapidly during periods of political stability, government legitimacy, patriotic feeling, and low homicide rates, when members of the middle class and working class, because they felt an attachment to the nation’s elites, were more willing to adopt the elites’ “civilized” behaviors, purchase inexpensive copies of the elites’ “civilized” possessions, and turn to legal institutions run by the elites to redress their personal grievances.

Humanistic histories will remain, I believe, our best gauges of feelings and belief in the past. Social science history can progress only if it is committed to the humanities as well as the sciences. But quantitative measures of feelings and beliefs are important as well, not only because they can verify the findings of humanistic historians, but because they allow us to test theories of behavior more rigorously, whenever those theories suggest that changes in feeling or belief can change behavior, including the propensity to violence.

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Notes

1. The literature on the rising ambitions of women in the Western World in the late-eighteenth and early-19th centuries is voluminous. Ambitions rose when it came to work, marriage, family, romance, education, fertility control, and civic involvement. On the United States, for example, see Cott (1977), Mohr (1978), Dublin (1979), Ryan (1981), Hewitt (1984), Rothman (1984), Stansell (1986), Graff (1987), Gilmore-Lehne (1989), Lystra (1989), and Faust (1996).

2. The method here for measuring political instability was created by Peter Turchin, who scanned Gilje's data cards, entered most of the riots into a spreadsheet, and made them available to scholars. I am in his debt. See Turchin (2010).
3. The disaggregated homicide rates are available in Roth (2009b): American Homicides, tables 1-4, 10, and 21.
4. Humanistic histories of the course of British and American patriotism confirm the patterns in Zelinsky's and Merritt's time series. See, for instance, Lovejoy (1972), Colley (1992), Waldstreicher (1997), and Pincus (1998, 2009).
5. Humanistic histories of religious, racial, and class conflict in the colonial period confirm these changes in identity, vocabulary, and feeling. See, for instance, Miller (1961), Morgan (1975), and Brown (1996).
6. Six of fifty new counties bore aboriginal names, 1634-1675, but only 1 of 79, 1676-1749.
7. I owe the idea of tracing the incidence of the word "slave power" to John Brooke, who is studying the relationship between political instability and creativity in political rhetoric and theory.
8. Again, humanistic histories of political and racial antagonism confirm these changes in feeling. See, for instance, Frederickson (1971) and McPherson (1988).

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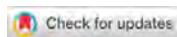
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Bio

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Research Note

Measuring Feelings and Beliefs that May Facilitate (or Deter) Homicide: A Research Note on the Causes of Historic Fluctuations in Homicide Rates in the United States

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Randolph Roth¹

Abstract

The essay seeks to construct measures of feelings and beliefs that may facilitate or deter homicides among unrelated adults. The measures try to quantify political stability, government legitimacy, and fellow feeling along national, religious, or racial lines in the United States from colonial times through the 19th century.

Keywords

child, comparative, crosscultural, historical, intimate partner, trends

As every social science historian who studies homicide knows, it can sometimes be as difficult to measure the potential correlates of homicide as it is to measure the level of homicide in a given society. Of course, some kinds of homicide have relatively straightforward economic and demographic correlates that can be measured with great precision. For instance, homicide rates for children followed a clear pattern from the mid-sixteenth through the nineteenth centuries in locations that have been studied to date in North America and Western Europe (Roth, 2011). The rates moved up and down in long, smooth curves that are visible only when traced over a hundred years or more. The rates at which children were murdered by parents or guardians followed the

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inverse of the birth rate. Low murder rates for neonates, infants, and children correlated with:

1. Higher birth rates
2. Lower ages of mothers at the births of their first children
3. Higher proportions of women who marry at least once
4. Higher rates of premarital pregnancy
5. Longer life expectancy for children
6. Higher adult heights (a function of net nutrition)

How were birth rates, premarital pregnancy, marriage, life expectancy, and height related to murders of children by parents or guardians? The child murder rate and the fertility rate appear to have been driven by the same forces. The child murder rate was a function of the cost of children relative to parental resources and to parental ambitions for themselves and their children. When real wages dropped by more than a third for the poorest 40 percent of the population in England in the late sixteenth and early seventeenth centuries, young women and men found it harder to marry and raise families. The birth rate dropped, life expectancy dropped, heights fell, premarital pregnancy rates fell, the age of the mother at first birth rose, fewer women married, and the neonaticide indictment rate jumped five-fold. When real wages rose in the late seventeenth and early eighteenth century, the trends reversed, and the neonaticide indictment rate fell to its previous level (Roth, 2001a).

The rise in child homicides in the mid-nineteenth century was driven more by rising ambitions, however, than economic want, even though most parents who killed their children were poor. Real wages rose among the poor, but ambitions rose faster. Women in particular embraced new educational opportunities, sought economic independence through work outside the home in teaching, needle trades, and factory work, became more active in community affairs and voluntary organizations, and raised their economic expectations for themselves and their children.¹ These rising ambitions made children more costly in terms of time and money, so parents limited their child-rearing duties and financial obligations by beginning childbearing later and ending it sooner through abstinence, contraception, and abortion. And when unrealized ambition led to frustration and stress, parents killed newborns, infants, and older children (Roth, 2001b). Historians have yet to measure ambition or the degree to which the failure to realize a particular ambition led to frustration, but there are enough good proxies for ambition, such as the level of female education and female participation in the work force, to support the evidence of rising ambition that humanistic historians have gathered from letters, diaries, novels, and periodicals.

The correlates of intimate partner homicides are more difficult to measure. The rates of romance homicides jumped suddenly in the northern United States in the 1830s and 1840s, and probably in northwestern Europe as well (Roth, 2009a, pp. 250-290). The increase in romance homicide rates correlated with a shift in the economic balance of power between men and women, which gave women the ability to delay marriage and to be more selective in the suitors they entertained. But the increase was

also correlated with changes in feelings and beliefs associated with marriage and romance. The increase in murders of lovers appears to have been caused by changes in the ideal of romantic love, which led young men and women to invest more of their energies in intimate relationships, especially if they believed they had found their “one and only” true love, and left them at sea when those relationships ended.

Thanks to the content analysis of American periodicals by H. H. Lantz and his associates (Lantz, Schmitt, Britton, & Snyder, 1968; Lantz, Schmitt, & Herman, 1973; Lantz, Keyes, & Schultz, 1975), it is possible to measure the changes in ideas about marriage and romance that humanistic historians have identified (Rothman, 1984; Lystra, 1989). The changes correlate precisely with the change in the romance murder rate. The rate rose as soon as practical considerations gave way to “happiness” as the sole reason for marrying, and young men embraced the potentially dangerous illusions that love can conquer all—even differences of class and race—and that we are each uniquely destined for one and only one person (Table 1). Most perpetrators of romance homicides and attempted homicides were respected, well-educated, native-born Protestants who were likely to be well versed in romantic literature, with its emphasis on passion, self-expression, and the idea that true lovers were destined for each other. An alarming proportion of the assaults occurred when young men tried to reach above their “station” and win the love of a woman of a different class or race, or refused to let go when a relationship failed or did not progress beyond friendship (Roth, 2009a, pp. 279-290).

It is more difficult, however, to obtain accurate measures of the potential correlates of homicides among unrelated adults. As Gary LaFree, Manuel Eisner, Roger Gould, and I discovered independently in the 1990s, homicide rates among unrelated adults—nearly all of which have been committed historically by males—appear to be determined by feelings toward government and society, rather than by more easily measured phenomena like the performance of the economy or the number of police on the street (LaFree, 1998, Eisner, 2001, Gould, 2003, and Roth, 2009a). As I put it in my own work, there have been four correlates of low rates in North America and Western Europe over the past 450 years:

1. The belief that government is stable and that its legal and judicial institutions are unbiased and will redress wrongs and protect lives and property
2. A feeling of trust in government and the officials who run it, and a belief in their legitimacy
3. Patriotism, empathy, and fellow feeling arising from racial, religious, or political solidarity
4. The belief that the social hierarchy is legitimate, that one’s position in society is or can be satisfactory and that one can command the respect of others without resorting to violence

When these correlates are in place, the homicide rate among unrelated adults can fall below 1 per 100,000 per year. When they are not, the homicide rate can soar to tens or hundreds per 100,000.

Table 1. Content Analysis of Articles on Marriage, Romance, and Male–Female Power Relationships in American Magazines, 1741–1850

	1741–1824	1825–1850
Important considerations when marrying		
Happiness	.58	.89
Wealth	.33	.08
Status	.09	.03
N =	184	1315
Qualities of romantic love		
The one and only	.18	.33
Love wins out over all	.10	.22
Love at first sight	.04	.08
Idealization of loved one	.22	.18
Glorification of emotions	.46	.18
N =	1,089	2,261

Source: Lantz, Schmitt, Britton, and Snyder (1968); Lantz, Schmitt, and Herman (1973); and Lantz, Keyes, and Schultz (1975).

But these correlates are hard to measure. Humanistic histories of political instability, government legitimacy, and nationalism, racism, and class relations offer great insight into these feelings and beliefs. In fact, I believe they can tell us more about such feelings and beliefs than any opinion poll or panel study ever could, because they are based on a wide variety of sources and an intimate understanding of a particular time and place. But we cannot place the historical study of homicide on a scientific basis unless we find ways to quantify the shifts in feelings and beliefs that humanistic historians have identified. Then those shifts can be correlated more precisely with changes in homicide rates, and we can defend humanistic historical scholarship against skeptics who believe it is too impressionistic or subjective to offer reliable, reproducible insights into the past.

How, for instance, can we measure feelings toward government and society in the United States? For the colonial and revolutionary period, a number of quantifiable indicators of political instability, government legitimacy, and fellow feeling are available that can serve as potential correlates of the homicide rate among unrelated European American adults. First, thanks to Hearn (1997, 1999, 2005) and Teeters (1963), near-complete lists of legal executions are available for New England, New Jersey, New York, and Pennsylvania, and those can be supplemented with less-complete lists for other jurisdictions compiled by Espy and Smykla (2004). These lists identify persons who were executed for treason or sedition—a measure of political instability and of challenges to the legitimacy of government. They also identify persons who were executed for heresy, witchcraft, or moral offenses (adultery, bestiality, pederasty, etc.)—a measure of hostility, division, and distrust within communities.

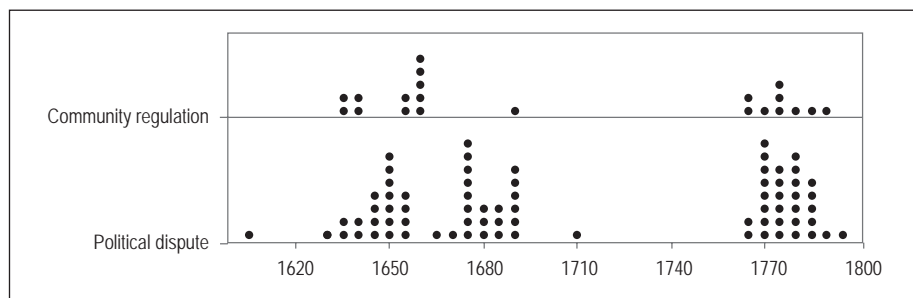


Figure 1. Incident-based counts of rebellions, riots, and persecutions that led to homicides, executions, or banishments, 1607-1798

Note: Banishments include sending prisoners to England in chains for trial, forced exiles by nonjudicial means, transportation, and life imprisonment.

Second, Gilje (1996, 2011) has created a database of over 4,000 riots and rebellions in the United States from colonial times to the present, which can be supplemented with accounts on riots and rebellions available in other historical works, such as the colonial and state histories commissioned for the bicentennial by Scribners and KTO Press. Of course, as Gilje observes, not all riots are symptomatic of deep divisions within communities or polities, but those that led to fatalities (mob violence, vigilantism, retaliation by authorities, etc.) usually were. If we divide deadly riots and rebellions, as Gilje does, into those that were political (involving contests for power or protests against the abuse of power by the government or its officials) and those that sought to regulate the behavior of members of the community (involving the persecution of persons suspected of witchcraft, heresy, or moral offenses), we can develop a second measure of political stability, government legitimacy, and fellow feeling.²

We can also supplement the time series on executions and on deadly riots and rebellions with a third series that enumerates conflicts that led to the banishment or forced exile of persons who were on the losing end of community or political conflicts, such as the expulsion of Antinomians from Puritan Massachusetts or of Tories during the American Revolution.

What happens when we track these three indicators of political stability, government legitimacy, and fellow feeling through the seventeenth and eighteenth centuries? Legal executions, deadly riots and rebellions, and banishments and forced exiles caused by political or community conflicts followed the same pattern, whether the counts are incident-based or victim-based (Figures 1 through 4). The counts were high through the Glorious Revolution, negligible from the end of the Glorious Revolution through the French and Indian War, and high during the American Revolution, tapering up during the Imperial crisis, 1765-1774, exploding during the Revolution itself, and tapering down in the 1790s. That is precisely the pattern followed by the homicide rate among unrelated European American adults in the places that have been

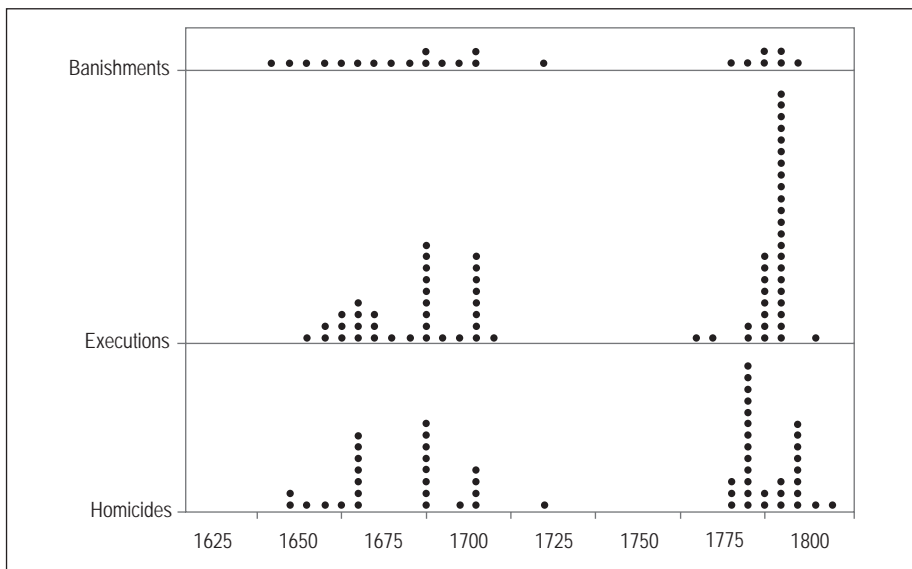


Figure 2. Counts of rebellions, riots, and persecutions that led to homicides, executions, or banishments, 1607-1798

Note: Counts of homicides and executions are victim based, and banishments incident based. Each symbol represents up to 3 observations.

studied to date: New England, Pennsylvania, and the Chesapeake (Roth, 2009a, pp. 27-107, 145-179). Only five incidents occurred between 1693 and 1765, and two of those (a homicide and a forced exile) were related to Cary's Rebellion in North Carolina, 1710-1711. The others involved an execution for bestiality in Penn's Neck, New Jersey, an execution for treason in South Carolina during the French and Indian War, and a homicide by militiamen in New York City who were trying to bar British soldiers from rescuing a comrade who was jailed for debt. Only one deadly incident occurred after 1788: the Whiskey Rebellion. Otherwise, these executions, homicides, and banishments coincided with periods of high homicide rates among unrelated European American adults. It appears that political stability, government legitimacy, and fellow feeling did indeed hold the key to low homicide rates in colonial and revolutionary America.

These correlations are not mere artifacts of the number of deadly acts of collective violence that occurred during periods of political instability or communal strife. It is important to distinguish among various types of homicide and to calculate rates separately for each kind of homicide, to determine whether particular rates go up and down together and are likely to have the same causes. But these correlations hold whether we include or exclude from the homicide rate those homicides that occurred during riots or rebellions. In every jurisdiction studied to date, the number of deadly acts of collective violence that stemmed from political or communal conflict was negligible

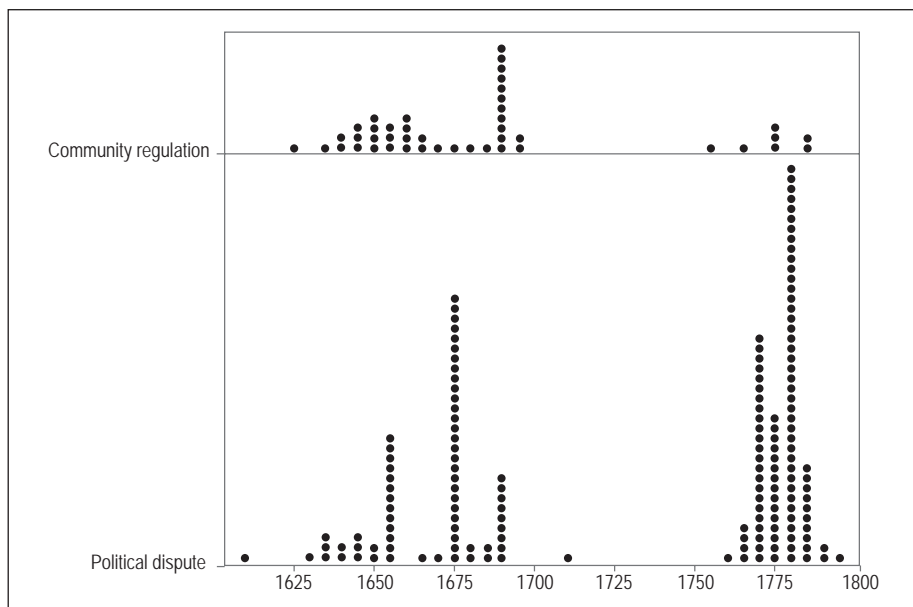


Figure 3. Counts of rebellions, riots, and persecutions that led to homicides, executions, or banishments, 1607-1798

Note: Counts of homicides and executions are victim based, and banishments incident based. Each symbol represents up to 2 observations.

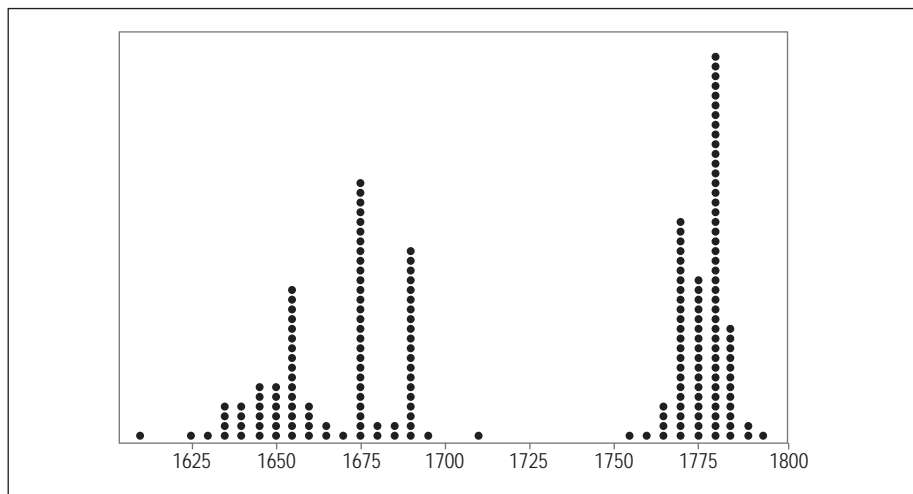


Figure 4. Consolidated counts of rebellions, riots, and persecutions that led to homicides, executions, or banishments, 1607-1798

Note: Each symbol represents up to 2 observations.

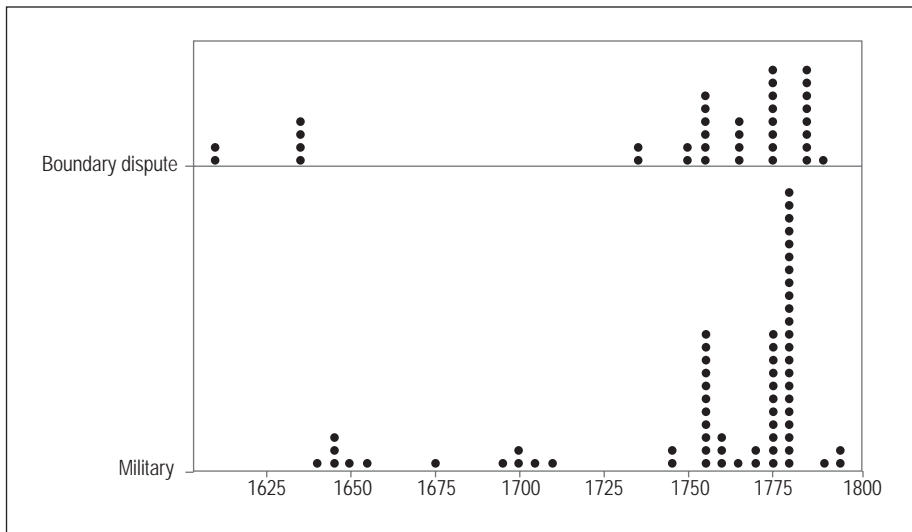


Figure 5. Homicides and executions for military offenses or during boundary disputes, 1607-1798
Note: Military offenses include homicides of deserters, homicides caused by resistance to press gangs, and homicides between gangs of sailors from rival nations.

compared to the number of everyday homicides between individuals, except in Maryland in the seventeenth century, and even there the rate of everyday homicides correlated with measures of political instability and community strife.³

Nor are these correlations mere artifacts of the general rate of executions. For instance, executions for military offenses (mutiny, treason, dereliction of duty) and homicides caused by resistance to press gangs or by fights between gangs of sailors from rival nations followed a different pattern. They occurred with frequency during wartime, even if the homicide rate among unrelated adults was low (as it was during the latter years of King William's War, 1689-1697, or during the War of the Spanish Succession, 1701-1714, King George's War, 1740-1748, and the French and Indian War, 1754-1763). And they were rare during times of peace, even if the homicide rate was high (Figure 5). Furthermore, there was one type of deadly collective violence identified by Gilje that did not follow the homicide rate among unrelated adults: homicides that stemmed from land disputes between colonies. But these disputes—such as the border war between Maryland and Pennsylvania in the 1730s and between Massachusetts and New York in the 1750s and early 1760s—were localized. They involved only persons who claimed or lived on land in the disputed areas, so they did not always coincide with or contribute to broader protests or rebellions against authority. These disputes always had the potential to turn deadly, however, which is why they claimed lives even during the periods of political stability and low homicide rates among unrelated adults (Figure 6).



Figure 6. Percentage of new counties named after national heroes, 1634-1800

Source: Zelinsky (1988, pp. 124-125) modified with new period breaks.

It is also possible to study feelings and beliefs about government and society more directly. For example, thanks to Zelinsky (1988) and Merritt (1966), excellent measures are available of the degree to which citizens identified with the British Empire or the American nation and with national heroes—proxies for patriotic feeling and government legitimacy. Zelinsky traced the naming patterns of new counties from colonial times to 1920, including the proportion of new counties named for British notables or American notables; and Merritt traced the incidence of explicit or royal British symbols in American newspapers during the imperial crisis, 1735-1775. When the number of counties named for British heroes soared after the Glorious Revolution (a sign of patriotic solidarity), the homicide rate among unrelated European Americans fell. And when the number of counties named for British heroes fell during the imperial crisis (a sign of a decline in patriotic solidarity), the homicide rate rose (Figures 6 and 7).⁴ The homicide rate also correlated with a decline in references to explicit British symbols such as the lion. At this time the number of counties named for American heroes had yet to rise to a high level (a sign that a new kind of patriotic solidarity had yet to form),

It is possible to trace changes in feeling and belief even more finely, thanks to Google Ngrams, which can measure the incidence of particular words or phrases in the catalogue of books that Google has digitized from 1500 to the present (Michel et al., 2011). Ngrams in its first iteration has limitations: the selection of books is far from

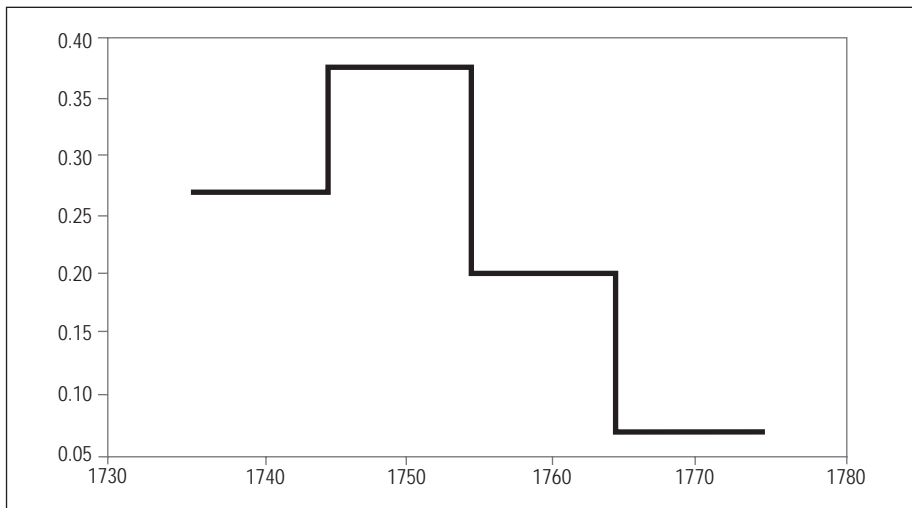


Figure 7. Symbols of national identity in American newspapers, 1735-1775: Percentage of explicit or royal British symbols
Source: Merritt (1966, p. 215)

complete before 1800, and it is impossible as yet to pull out strings of words that could reveal the context in which particular words were used. Ngrams cannot yet distinguish between a word used 100 times in a single book and a word used once in 100 books, nor can it account for the impact of new genres (novels, technical manuals, etc.) on the incidence of words that remain common in older genres. Ngrams is nonetheless a valuable new tool for tracing the incidence of words or phrases that constitute “hate speech” or “identity speech” in a particular time or place—yet another marker of division or unity within polities or communities.

The sudden decline in the homicide rate among unrelated European Americans at the end of the seventeenth century coincided with what humanistic historians have identified as a sudden upsurge in racial solidarity among whites, caused by the rise of racial slavery and the disastrous Indian wars of the 1670s, 1680s, and 1690s, and a lessening of hostility among whites along religious or class lines, caused by the decline in sectarian strife and a change in attitude toward the laboring poor, who were treated with contempt in the early and mid-seventeenth century.⁵ Ngrams shows that these shifts in feeling occurred precisely when humanistic historians said they did: in the 1670s and 1680s, when the homicide rate began to fall. Words like “heretic” and “zealot” and casual references to poor men and women as “rogue” or “whore” nearly disappeared from the lexicon as whites drew together across religious and class lines. Words like “slave” and “negro,” which bespoke a new kind of racial consciousness and solidarity, came to the fore (Figures 8 through 10). At the same time, colonists

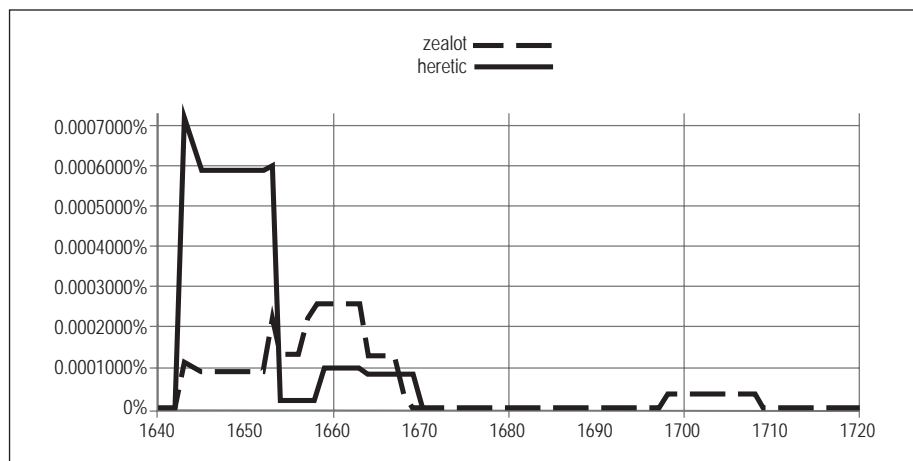


Figure 8. NGRAM of “heretic” and “zealot” in American English, 1640-1720
Note: Smooth of 5.

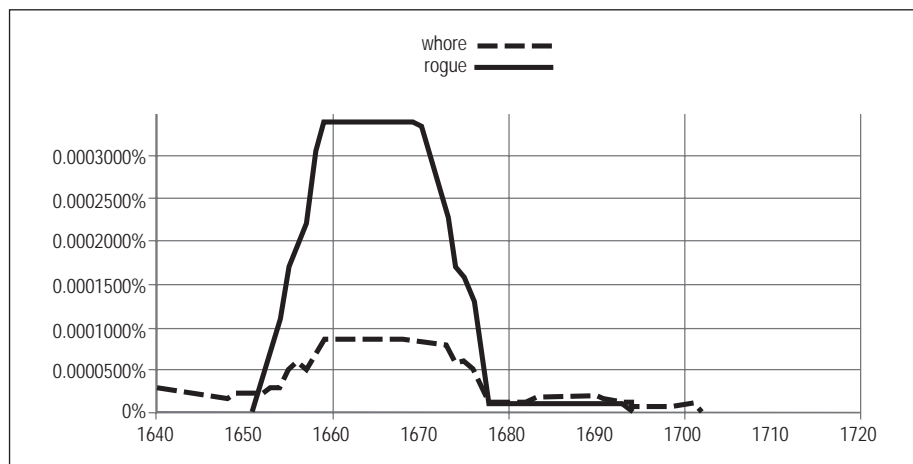


Figure 9. NGRAM of “rogue” and “whore” in American English, 1640-1720
Note: Smooth of 9.

stopped naming new counties with aboriginal terms, yet another sign of intensifying racial feeling. Prior to the disastrous conflicts with Native Americans in New England and the Chesapeake in 1675-1676, twelve percent of all new counties were named with aboriginal terms. But in the seventy-five years following King Philip’s War and Bacon’s Rebellion, only one new county—Nantucket—bore an aboriginal name, and

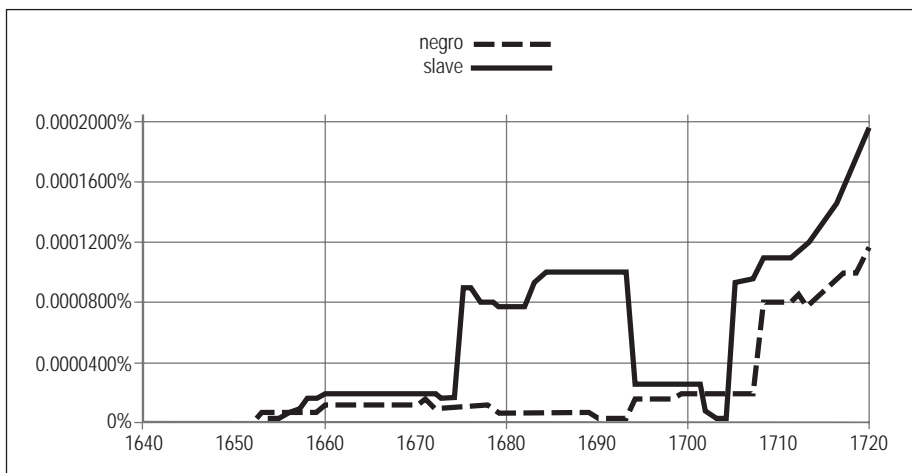


Figure 10. NGRAM of “negro” and “slave” in American English, 1640-1720
Note: Smooth of 9.

that island had been named before those conflicts.⁶ Once again, it appears that fellow feeling was essential for a low homicide rate within a particular group.

Similar indicators can be used to measure the degree of political stability and fellow feeling in the nineteenth century. Turchin (2010) has developed an incident-based indicator of political stability and instability based on extra-legal killings by vigilantes and on homicides during riots or rebellions (drawn from Gilje, 2011 and from reports of riots in several electronically searchable newspapers; Figure 11). Turchin’s indicator remains low through the early 1840s, except for a brief increase in the mid-1830s. But it turns suddenly upward during the Mexican War, spikes to its highest level during the Civil War, recedes slowly as Reconstruction came to a close, and rises again in the 1890s. That is precisely the course taken by the homicide rate among unrelated adults in the United States as a whole, which in the early nineteenth century had an extraordinarily low homicide rate in the North and the mountain South, and only a moderate homicide rate in the slave South (Roth, 2009a, pp. 180-249, 297-434). The Turchin index of political stability supports the hypothesis that political polarization and instability caused the homicide rate to soar in the mid-nineteenth century and remain high through 1900.

The incidence of politically or racially charged words follows the same pattern in the 19th century. For example, consider the word “nigger,” which in daily use represented contempt and hostility both for African Americans and for whites who opposed the extension of slavery to the territories or favored the abolition of slavery and racial equality (Figure 12). Or consider the phrase “slave power,” which represented hostility toward slave owners and toward politicians and political organizations that sought to secure or strengthen the institution of slavery within the Union (Figure 13).⁷ The

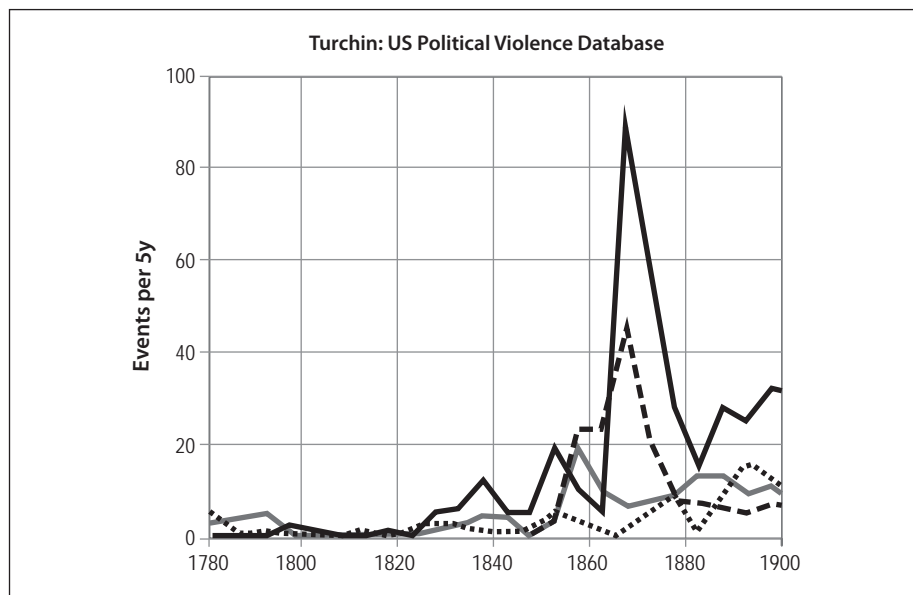


Figure 11. Instability events in the United States, 1780-1900
Source: Turchin (2010, p. 25).

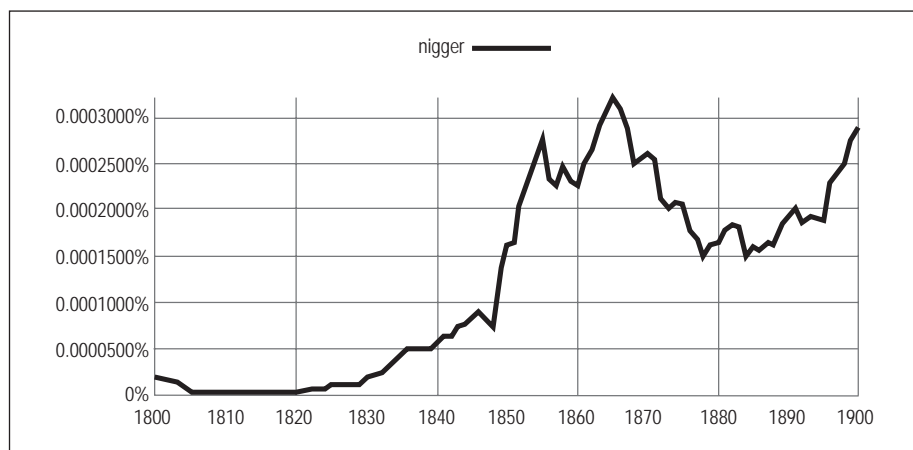


Figure 12. NGRAM of the N-word in American English, 1800-1900
Note: Smooth of 3.

spike in the use of these terms occurred during the Mexican War, which is precisely the point at which the homicide rate among unrelated adults jumped. This pattern also appears in the naming of new counties. The proportion of counties named for American

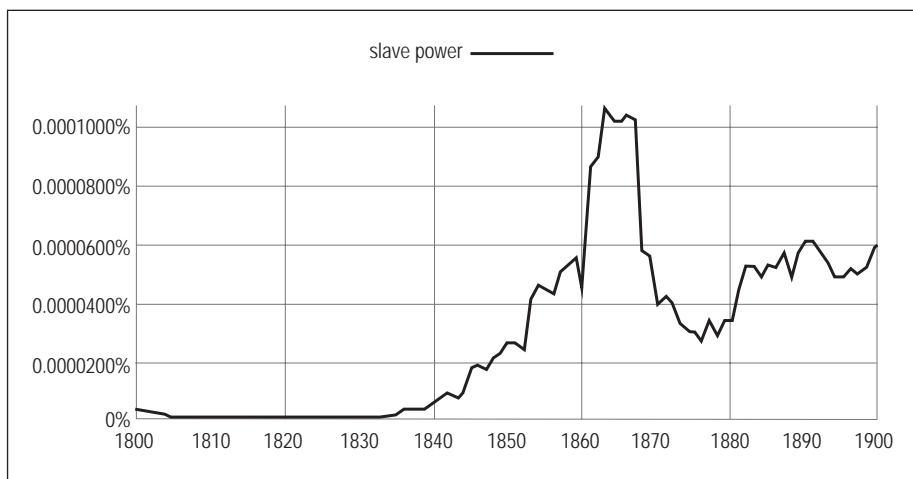


Figure 13. NGRAM of “slave power” in American English, 1800-1900

Note: Smooth of 3.

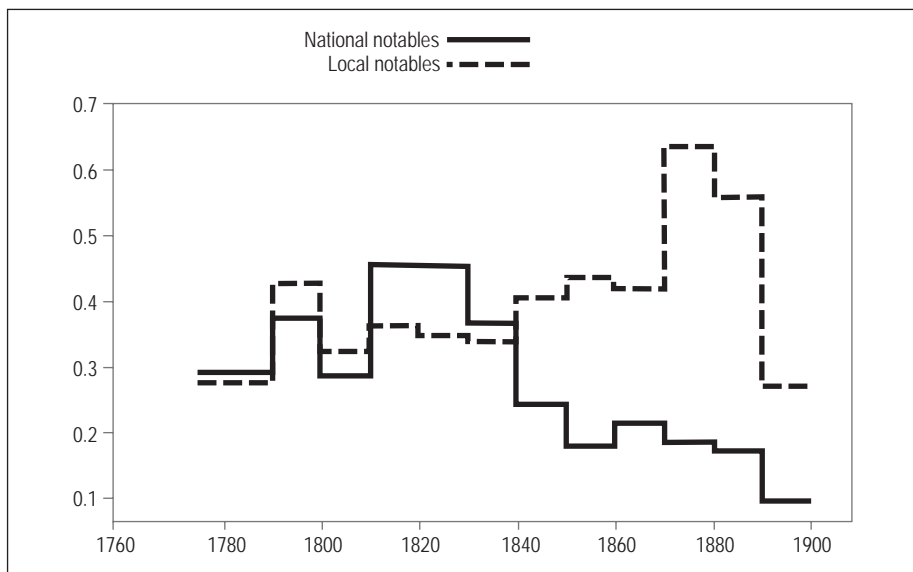


Figure 14. Percentage of new counties named after national or local notables, 1775-1900

Source: Zelinsky (1988, pp. 124-125).

heroes—a measure of faith in the nation and of a feeling of kinship with fellow Americans—peaked in the early nineteenth century, when the homicide rate in the United States was low. But the proportion fell sharply beginning in the 1840s, as the nation disintegrated, national feeling declined, and the homicide rate surged (Figure 14).⁸

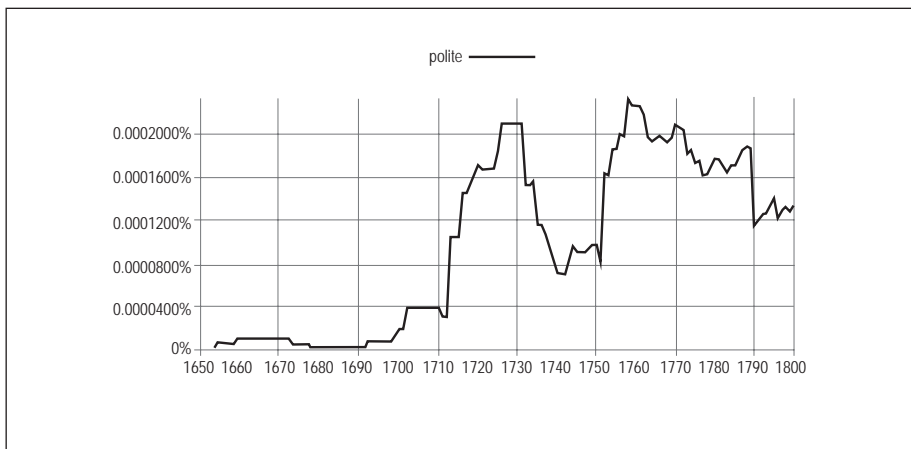


Figure 15. NGRAM of “polite” in American English, 1650-1800

Note: Smooth of 9.

Quantitative measures are also available to test rival theories of homicide. Proponents of Norbert Elias’s “civilization thesis” argue, among other things, that the improvement of manners after the Middle Ages led to a higher degree of self-control and restraint, which in turn caused a gradual decline in the homicide rate (Mennell 2007, Spierenburg 2008). Elias, in Mennell’s words, “linked changes in people’s everyday behavior, in the codes of manners they followed and in their typical feelings and emotions, to the formation of states with relatively effective monopolies of violence.” Over time, “social pressure towards self-constraint” tilted the balance “in favour of more demanding social standards of habitual self-control” and encouraged people to feel shame, embarrassment, disgust, or repugnance when those standards were violated (Mennell, 2007, pp. 1, 6-11). However, the diffusion of refined manners and the rhetoric of self-mastery and restraint, which Elias considered both causes and consequences of the civilizing process, had little impact on the level of violence in the United States. These cultural changes took hold in colonial America in the early and mid-eighteenth century, after the homicide rate had already fallen, and they failed to restrain interpersonal violence when the political order lost legitimacy and destabilized in the late 1760s and early 1770s. In the eighteenth century, words like “polite,” “manners,” and “refinement” assumed a more prominent place in British and American print, according to Google Ngrams (Figures 15 through 17). Colonists turned increasingly to civil courts to resolve disputes over slander, trespass, assault (which included threats and verbal abuse), and assault and battery (which included physical violence; Roth, 2009a, pp. 88-90). The movement toward restraint and refinement was evident as well in quantifiable changes in daily habits and material culture. Between the 1720s and the 1760s, colonists of all classes gradually stopped throwing their garbage into their yards and began to bury it neatly in deep garbage pits. They began to purchase

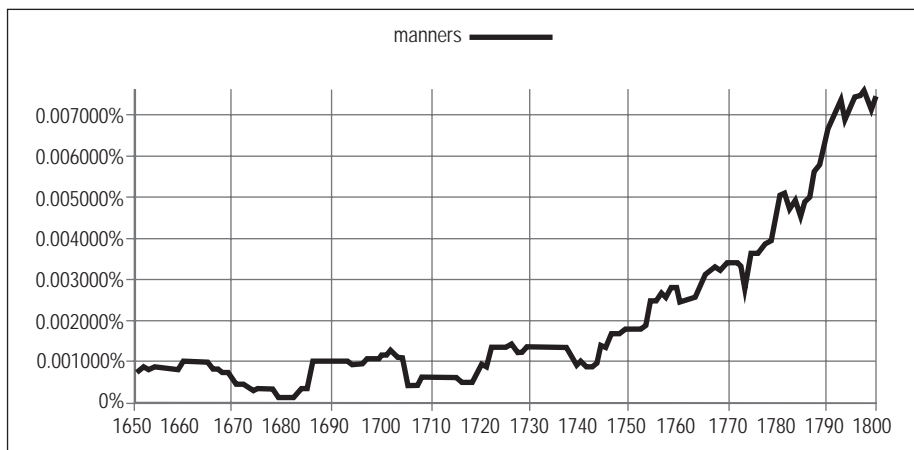


Figure 16. NGRAM of “manners” in American English, 1650-1800

Note: Smooth of 9.

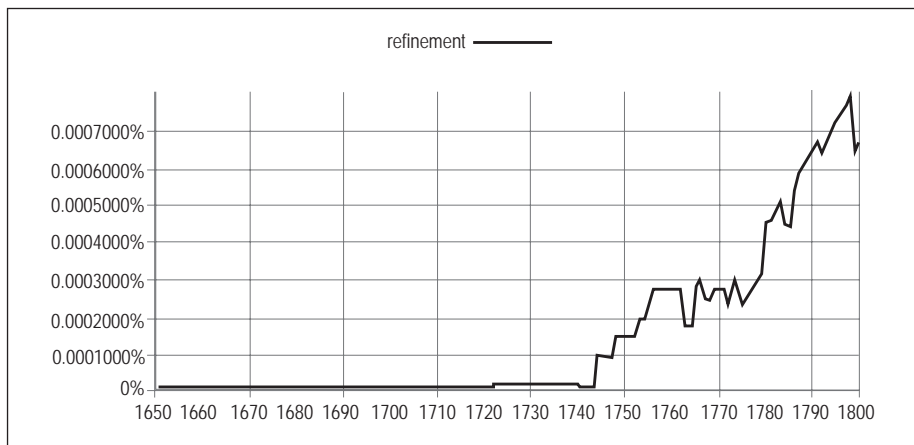


Figure 17. NGRAM of “refinement” in American English, 1650-1800

Note: Smooth of 9.

chamber pots for the disposal of human waste. They moved away from the practice of eating with spoons out of communal trenchers and drinking out of communal cups, and embraced the modern practice of eating with forks and using individualized plates and cups. They ate fewer stews and potages, and more tripartite meals with discrete portions of meat, starch, and vegetables. Archaeologist James Deetz associates these

changes with a movement toward “order, control, and balance”—away from the “medieval” emphasis on community and toward a modern emphasis on the individual, which he associates with the adoption of the cultural style of the Georgian-era British elite (Deetz, 1996, pp. 63, 86, 185).

Elias’s theory associates these changes with a decrease in interpersonal violence, caused by the increase in self-monitoring and restraint. But as noted, these changes followed the sudden decrease in violence in the late 17th century, and they were powerless to prevent an increase in violence during the revolutionary period. Improvements in manners may have been a consequence of successful nation-building and a decline in interpersonal violence, rather than a cause. It may be that manners improved most rapidly during periods of political stability, government legitimacy, patriotic feeling, and low homicide rates, when members of the middle class and working class, because they felt an attachment to the nation’s elites, were more willing to adopt the elites’ “civilized” behaviors, purchase inexpensive copies of the elites’ “civilized” possessions, and turn to legal institutions run by the elites to redress their personal grievances.

Humanistic histories will remain, I believe, our best gauges of feelings and belief in the past. Social science history can progress only if it is committed to the humanities as well as the sciences. But quantitative measures of feelings and beliefs are important as well, not only because they can verify the findings of humanistic historians, but because they allow us to test theories of behavior more rigorously, whenever those theories suggest that changes in feeling or belief can change behavior, including the propensity to violence.

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Notes

1. The literature on the rising ambitions of women in the Western World in the late-eighteenth and early-19th centuries is voluminous. Ambitions rose when it came to work, marriage, family, romance, education, fertility control, and civic involvement. On the United States, for example, see Cott (1977), Mohr (1978), Dublin (1979), Ryan (1981), Hewitt (1984), Rothman (1984), Stansell (1986), Graff (1987), Gilmore-Lehne (1989), Lystra (1989), and Faust (1996).

2. The method here for measuring political instability was created by Peter Turchin, who scanned Gilje's data cards, entered most of the riots into a spreadsheet, and made them available to scholars. I am in his debt. See Turchin (2010).
3. The disaggregated homicide rates are available in Roth (2009b): American Homicides, tables 1-4, 10, and 21.
4. Humanistic histories of the course of British and American patriotism confirm the patterns in Zelinsky's and Merritt's time series. See, for instance, Lovejoy (1972), Colley (1992), Waldstreicher (1997), and Pincus (1998, 2009).
5. Humanistic histories of religious, racial, and class conflict in the colonial period confirm these changes in identity, vocabulary, and feeling. See, for instance, Miller (1961), Morgan (1975), and Brown (1996).
6. Six of fifty new counties bore aboriginal names, 1634-1675, but only 1 of 79, 1676-1749.
7. I owe the idea of tracing the incidence of the word "slave power" to John Brooke, who is studying the relationship between political instability and creativity in political rhetoric and theory.
8. Again, humanistic histories of political and racial antagonism confirm these changes in feeling. See, for instance, Frederickson (1971) and McPherson (1988).

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Bio

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83 Law & Contemp. Probs. 231

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Gun Rights and Regulation Outside the Home

Joseph Blocher, Jacob D. Charles and Darrell A. H. Miller, Special Editors

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GUN ACCESSORIES AND THE SECOND AMENDMENT: ASSAULT WEAPONS, MAGAZINES, AND SILENCERS

I

INTRODUCTION

Legal challenges to gun laws are nothing new, including laws restricting access to assault weapons. Such challenges have often included objections to restrictions regarding bullet magazines. In general, ammo magazine restrictions have been consistently upheld, with a couple of recent exceptions.¹

In 2013, New York State enacted a tough new gun law, the New York SAFE Act.² This measure, enacted in the wake of the Sandy Hook school shooting in Connecticut, implemented a variety of new gun regulations, including new restrictions on assault weapons, and a reduction from ten to seven in the maximum number of bullets or rounds a legally owned magazine could hold.³ The law also eliminated the grandfathering of older magazines, requiring that noncompliant magazines be disposed of regardless of their age.⁴ The law's constitutionality was challenged in federal court, where a federal district judge upheld the law, but did strike down the lower limit, concluding that the number seven set in the new law was “a largely arbitrary number” as the state failed to explain why it settled on that number from the previous ten.⁵ On appeal, the law was upheld, including the elimination of the lower magazine limit of seven.⁶

***232** A challenge to California's two-decade old magazine limit of ten resulted in a different outcome.⁷ In the 2019 case of *Duncan v. Becerra*,⁸ a federal district court judge struck down the ten bullet magazine limit, although the ruling was stayed pending a hearing by the Ninth Circuit. The decision is notable for three reasons. First, it struck down both the verdict of the state referendum that eliminated the legality of owning pre-2000 large capacity magazines (LCMs) and the ten round limit itself. Second, it concluded that there is a Second Amendment right to own magazines holding more than ten rounds, repeatedly calling it a “core” right of the Second Amendment.⁹ Third, it was a departure from previous federal courts of appeals holdings which, as noted, up until this time had consistently upheld magazine restrictions.¹⁰ Whether this ruling prevails or not,¹¹ it raises some key issues about the regulation of magazines and its relationship, if any, to the Second Amendment. In addition, arguments using *Duncan's* logic have surfaced, claiming that the ownership of gun silencers might also be protected under the Second Amendment. These are not purely contemporary questions, as the history of gun laws reveals.

Recent analyses of the history of gun laws in America have excavated a surprisingly rich, diverse, and prolific number and variety of gun laws, extending back to the country's beginnings. It is commonplace to think of gun regulation as an artifact of the late twentieth century. Yet nothing could be further from the truth: gun ownership is as old as the country, and so are gun laws.

This Article examines the little-known roots of gun magazine regulation and its relationship to the regulation of semi-automatic and fully automatic weapons, dating to early in the previous century. It also examines the history and modern debate over gun

silencers. Since their invention over a century ago, silencers have been subject to strict regulation. In recent years, however, both magazines and ^{*233} silencers have been a deregulatory pressure point for gun rights activists. For reasons of history, policy, and law, a fuller understanding of this regulatory history is essential to inform these modern debates.

Part II examines the history of bullet magazine¹² regulation and the functionality of magazines, as that history is inextricably tied to the regulation of semi-automatic and fully automatic weapons. Part III examines the history of and contemporary debate over the regulation of gun silencers. Part IV offers a short conclusion.

II

ASSAULT WEAPONS AND BULLET MAGAZINES

A. The Story of Assault Weapons

The modern civilian guns labeled as assault weapons and assault rifles are derived from military weapons designed for use on the battlefield. The firearm known today as the assault weapon first arose during World War II when the Germans developed the STG 44, also known as the *Sturmgewehr*.¹³ That weapon was studied by the Soviets, who produced the well-known Soviet AK-47 in 1947, the most successful and prolific soldier-held battlefield weapon in modern times.¹⁴ The AK-47 gave rise to the American AR-15, which then became the military M16. The AR-15 was eventually sold in the civilian market, which led in turn to many copycat variations.¹⁵

^{*234} The terms “assault weapon” and “assault rifle” are neither a “public relations stunt” nor ginned-up labels invented by gun control organizations.¹⁶ In fact, these were the very terms used by the companies that first produced, marketed, and sold such weapons to the American public.¹⁷ Industry use of the terms “assault weapons” and “assault rifles” appeared in the early 1980s, before political efforts to regulate them emerged in the late 1980s.¹⁸ The use of military terminology, and the weapons’ military character and appearance, were key to marketing the guns to the public.¹⁹

By the early 1990s, both the gun industry and the National Rifle Association (NRA) abruptly changed course in their labeling of such weapons as pressure built on Congress and in some states to enact restrictions, which led to the rebranding of such weapons as being no different from typical, traditional hunting weapons that also fired in semi-automatic fashion. That effort has persisted to the present, where terms like “tactical rifles” and “modern sporting rifles” are typically offered by gun organizations including the NRA and the National Shooting Sports Foundation (NSSF) as preferred terms for such weapons.²⁰

Persistent efforts at rebranding--and parallel denials of assault weapons’ military past--accelerated through 2012 and 2013 as national concern about assault weapons escalated. For example, a widely-circulated NSSF “Modern Sporting Rifle Pocket Fact Card” says that such weapons are “widely misunderstood” because of their cosmetic resemblance to military weapons (an intentional design feature).²¹ It urges gun owners to use the information on the card and website “to correct misconceptions about these rifles.”²² Among the “corrections” it offers: “AR-15-style rifles are NOT ‘assault weapons’ or ‘assault rifles.’ An assault rifle is fully automatic--a machine gun.”²³ It adds “Please correct them” if they use the term “assault weapon” and further claims that the phrase “assault weapon” “is a political term” created in the 1980s.²⁴ (As noted above, this assertion is incorrect.) An article in *Outdoor Life* belies the claim that ^{*235} assault weapons are limited only to those that fire fully automatically: it, too, urges its readers to share its information with non-shooting friends to dispel “myths” about “assault weapons.”²⁵ The effort to rebrand the term “assault weapon” as something more benign and severed from its military origins is further seen in the publication struggles of Phillip Peterson, whose book, titled as recently as 2008, *Gun Digest Buyer's Guide to Assault Weapons*, is a well-known reference work on the subject.²⁶ As Peterson explained to the New York Times, the gun industry “moved to shame or ridicule” those who used the phrase “assault weapons,” insisting that the term should now only apply to fully automatic weapons, even though the origin of the term “assault weapon” was the industry itself.²⁷ He found that the NRA refused to sell his book until he changed the title, which in 2010 he renamed *Gun Digest Buyer's Guide to Tactical Rifles*.²⁸

B. The Regulatory History of Semi-Automatic and Fully Automatic Firearms

Mass shootings in the late 1980s and early 1990s raised public concern about whether to regulate assault weapons. California became the first state to enact restrictions on assault weapons in 1989,²⁹ shortly after a mass shooting at an elementary school earlier that year where the shooter used an AK-47 semiautomatic assault rifle. Then, after several years of pressure, Congress enacted a limited national assault weapons ban in 1994.³⁰ Written into the bill was a sunset provision that called for the bill to lapse in 2004.³¹ Congress did not renew the ban. Despite the law's limitations, at least three studies concluded that it reduced the rate of mass shootings and fatalities, which then climbed after the law lapsed.³²

*236 As of 2019, six states (California, Connecticut, Maryland, Massachusetts, New Jersey, and New York) plus the District of Columbia (D.C.) ban assault weapons.³³ A seventh state, Hawaii, bans assault pistols only.³⁴ Two more states, Minnesota and Virginia, regulate but do not ban assault weapons.³⁵ Relevant to this discussion, nine states (California, Colorado, Connecticut, Hawaii, Maryland, Massachusetts, New Jersey, New York, and Vermont) and D.C. ban high-capacity bullet magazines.³⁶ All of these states limit capacity to a ten round maximum except Colorado, which puts the limit at fifteen.³⁷ Yet the regulation of semi-automatic weapons and magazines dates not just to the 1980s, but to the 1920s.

At least twenty-eight states enacted laws to bar fully automatic weapons from the 1920s through 1934.³⁸ In 1934, Congress responded by enacting the first significant national gun law, the National Firearms Act.³⁹ It imposed restrictions on weapons like the Tommy gun and other fully automatic weapons, sawed-off shotguns, and silencers.

In addition to the regulation of fully automatic weapons, between 1927 and 1934 at least seven states enacted laws to restrict or bar all semi-automatic weapons.⁴⁰ Each of these states also barred fully automatic weapons, often lumping semi-automatic and fully automatic weapons (usually referred to as “machine guns” and “submachine guns”) under the same regulatory rubric.⁴¹

For example, a Massachusetts law enacted in 1927 stated: “Any gun of small arm calibre designed for rapid fire and operated by a mechanism, or any gun which operates automatically after the first shot has been fired, either by gas action or recoil action, shall be deemed to be a machine gun”⁴² A 1927 Rhode Island measure defined the prohibited “machine gun” to include “any weapon which shoots automatically and any weapon which shoots more than twelve shots semi-automatically without reloading.”⁴³ Michigan's 1927 law prohibited machine guns or any other firearm if they fired more than sixteen times without reloading.⁴⁴ Minnesota's 1933 law outlawed “[a]ny firearm capable of automatically reloading after each shot is fired, whether firing singly by separate trigger pressure or firing continuously by continuous trigger pressure.”⁴⁵ It went on to penalize the modification of weapons that were altered to accommodate such extra firing capacity.⁴⁶

Ohio restricted to permit holders both fully automatic and semi-automatic weapons in a 1933 law, incorporating any gun that “shoots automatically, or any firearm which shoots more than eighteen shots semi-automatically without reloading.”⁴⁷ The law defined semi-automatic weapons as those that fired one shot with each pull of the trigger.⁴⁸ Around the same time, South Dakota restricted access to machine guns by defining them as weapons “from which more than five shots or bullets may be rapidly, or automatically, or semi-automatically discharged from a magazine, by a single function of the firing device.”⁴⁹ Similarly, in 1934 Virginia restricted weapons

from which more than seven shots or bullets may be rapidly, or automatically, or semi-automatically discharged from a magazine, by a single function of the firing device, and also ... from which more than sixteen shots or bullets may be rapidly, automatically, semi-automatically, or otherwise discharged without reloading.⁵⁰

Aside from these seven states, statutes in another three--Illinois, Louisiana, and South Carolina--included language that may also have extended regulations to semi-automatic weapons and to fully automatic weapons.⁵¹

C. Regulating Bullet Feeding Devices

As an examination of these laws shows, restrictions on fully automatic and semi-automatic firearms are closely tied to the regulation of bullet magazines or their equivalent, as both types of weapons are predicated on some kind of reloading function or device that automatically feeds new rounds into the firing chamber after the previous round is fired. As is the case with contemporary state regulations restricting bullet magazine capacity, eight of the historic state laws discussed above imposed regulations based on the number of rounds that could be fired without reloading, ranging from more than one (Massachusetts and Minnesota) up to eighteen (Ohio).

Bullet magazine firing limits were imposed in three categories of state laws:⁵² (1) those regulating semi-automatic and fully automatic firearms; (2) those regulating fully automatic weapons only, where the regulation was defined by the *238 number of rounds that could be fired without reloading or by the ability to receive bullet feeding devices; and (3) those restricting all device fed guns that could receive any type of bullet feeding mechanism or round feeding device and fire them continuously in a fully automatic manner.

For example, a 1927 California law, falling into the third category, was titled this way:

An Act to Prohibit the Possession of Machine Rifles, Machine Guns and Submachine guns Capable of Automatically and Continuously Discharging Loaded Ammunition of any Caliber in which Ammunition is Fed to such Guns from or by means of Clips, Disks, Drums, Belts or other Separable Mechanical Device⁵³

The other three states in California's category utilized this same description.⁵⁴ In all, at least eighteen states enacted gun restrictions based on the regulation of ammunition magazines or similar feeding devices, and/or round capacity.⁵⁵ Without question, one may reasonably conclude that regulations concerning removable magazines and magazine capacity were in fact common as early as the 1920s.

Table 1. Ammunition Magazine Firing Limits in 18 State Laws, 1927-1934⁵⁶

SEMI-AUTOMATIC AND FULLY AUTOMATIC FIREARMS	FULLY AUTOMATIC FIREARMS	ALL DEVICE FED FIREARMS
Louisiana (8 round maximum)	Illinois (8 round maximum)	California
Massachusetts (more than one round)	New Jersey (any removable device holding rounds)	Hawaii
Michigan (16 round maximum)		Missouri
Minnesota (more than one round)	North Dakota (loadable bullet reservoir)	Washington State
Ohio (18 round maximum)		
Rhode Island (12 round maximum)	Texas (5 round maximum)	
South Carolina (8 round maximum)	Vermont (6 rounds)	
South Dakota (5 round maximum)		

Virginia (7 round maximum)		
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As this discussion demonstrates, the regulation of semi-automatic weapons and magazines predates the modern debate over these questions by 70 years. This fact is notable because it uncovers a hitherto unknown gun regulatory past, and because, as the Supreme Court noted in *District of Columbia v. Heller*, historical gun law provenance is relevant to determining the constitutionality of modern gun laws.⁵⁷

History aside, the debate over contemporary gun regulations is also directly shaped by access to firearms like assault weapons, and accessories like LCMs and silencers. I consider each in turn.

***239 D. Contemporary Assault Weapons Concerns**

No precise count of the number of assault weapons owned in America is maintained. In 1994, when Congress enacted the federal assault weapons ban, there were roughly 1.5 million such weapons in the country.⁵⁸ Several estimates in 2012 pegged the number at about four million.⁵⁹ A 2016 estimate put the number at about five million.⁶⁰ In 2018, the NSSF, a pro-gun industry group, suggested that between 15-20 million assault weapons were in circulation.⁶¹ This estimate is likely unreliably high, however, because it included weapons produced for law enforcement, because the NSSF did not offer any explanation or methodology as to how it produced that number, and because of the NSSF's pro-industry orientation.⁶² If, for the sake of argument, we take a number of ten million assault weapons in the country and divide by roughly the 300 million guns in civilian hands today, it equals about three percent of all guns in America. While there is general agreement that assault weapons, led by the AR-15, are the most frequently sold type of gun in recent years, this math confirms that they still represent a very small percentage of all guns in America. And assault weapons sales only began to rise dramatically in the United States after the expiration of the federal assault weapons ban in 2004.⁶³ This date also coincided with an increase in assault weapons' and LCMs' use in crime.⁶⁴

Assault weapons' use in crime continues to be relatively small in relation to all gun crime in America. Most gun crime is committed with handguns. For example, roughly eighty percent of all annual gun murders and gun robberies are committed with handguns.⁶⁵ Yet as noted, assault weapons' use in crime has increased since 2004, as has the use of LCMs. According to a recent study, firearms capable of receiving LCMs (including, but not limited to, assault weapons, which constitute an estimated 2-12 percent of guns used in crimes, and also many handguns) account for 22-36 percent of guns used in crime, and over 40 percent of guns used in cases of "serious violence."⁶⁶ Beyond overall gun crime, assault weapons play a disproportionately large role in three types of criminal activity: mass shootings, police killings, and gang activity.

1. Mass Shootings

Mass shootings are defined by the Federal Bureau of Investigation (FBI) as those where four or more people are killed, excluding the perpetrator.⁶⁷ Among mass shootings that have garnered significant national attention, such as the Columbine High School shooting in 1999, the Orlando night club shooting in 2016, the Las Vegas shooting in 2017, and the Parkland shooting in 2018, all involved the use of assault weapons. From 2009-2019, the five deadliest mass shootings in the United States involved assault weapons with LCMs.⁶⁸

Studies illustrate the large role played by assault weapons in public mass shooting events in the United States. A study of 62 public mass shootings from 1982-2012 found that of the 143 firearms used in these events, 34 percent of them were assault weapons that could have been banned under a proposed federal law;⁶⁹ 50 percent of those were semi-automatic handguns, and another 14 percent were revolvers.⁷⁰ Similarly, a Congressional Research Service study of mass shootings from 1999-2013 concluded that assault rifles were used in 27 percent of public mass shootings; taking the data back to 1982, they were used in 24 percent of mass shootings.⁷¹ A more recent study notes that from 2000-2017, semiautomatic assault rifles were used in 25 percent of active shooter events.⁷² Handguns continued to be used in over half of such incidents, more frequently than any

other type of firearm,⁷³ but assault rifles are over-represented in these *241 incidents compared with all gun crime and the percentage of assault weapons in society.⁷⁴

2. Police Killings

Assault weapons are more likely to be used in police murders than civilian murders. Using FBI data, the Violence Policy Center (VPC) reported that from 1998-2001, 41 of 211 police officers (20 percent) killed in the line of duty with firearms were shot with assault weapons (in all, 224 police officers during this period were killed in the line of duty from all causes).⁷⁵ An updated VPC study also found that 20 percent of police officers killed in the line of duty in 2016 and 2017 died from assault weapons fire.⁷⁶ Data from 2009 found that of 45 officers killed by firearms nationwide, eight (18 percent) were shot with assault weapons.⁷⁷ While this represents a minority of all police gun deaths, it is a far higher proportion than that of death via assault weapons in society. A 2018 study reported that assault weapons and LCMs were disproportionately more likely to be used in murders of police: 13-16 percent of police murders used assault weapons, and over 40 percent involved LCMs.⁷⁸

3. Gang and Criminal Activity

Assault weapons are also preferred weapons for gang activity. A report by the International Association of Chiefs of Police recommended “[e]nacting an effective ban on military-style assault weapons ... and other weapons that enable criminals to outgun law enforcement.”⁷⁹ A report by the Police Executive Research Forum (PERF) noted “significant support for the proposition that the expiration of the law [the 1994 assault weapons ban] has caused problems for local police. Thirty-seven percent of the police agencies responding to PERF’s survey reported that they had seen noticeable increases in criminals’ use of *242 assault weapons.”⁸⁰ The New York State Police were animated by similar concerns when their counsel filed a brief on behalf of the 2013 SAFE Act, defending in particular the strengthened assault weapons ban and magazine limit provisions.⁸¹ The 2013 law included a provision (upheld by the courts) that pre-banned magazines capable of holding more than ten rounds be destroyed, turned in to police, or sold out of state.⁸²

Widely noted prolific gun trafficking between the United States and Mexico has been motivated in large part by the appeal of assault weapons to Mexican drug gangs.⁸³ A National Gang Crime Research Center study of 1206 respondents in the American Midwest, including 505 gang members, found that over 43 percent reported owning an assault rifle, as compared with 15 percent of non-gang member criminals. Gang members were also much more likely to report having used an assault rifle in a crime (28 percent) than non-gang members (4 percent).⁸⁴ Other analyses note the appeal of assault weapons to American crime gangs and extremist paramilitary militias.⁸⁵

4. Large Capacity Magazines

Prodigious evidence supports the concern that LCMs are widely used in criminal gun activity and that they increase gun mayhem. A study of sixty-two mass shootings found that LCMs were used in at least thirty-one of these instances.⁸⁶ The shooters’ preference for magazines holding more rather than fewer rounds underscores the utility of less reloading for those seeking to kill *243 multiple people.⁸⁷ A study of mass shootings from 2009 to 2018 found that shooting incidents involving high-capacity magazines resulted in five times as many people shot, and more than twice as many deaths, than in instances where the perpetrators did not use such magazines.⁸⁸ Similarly, a study conducted in 2017 for the 2012-2016 period found that states with LCM bans in place had a 63 percent lower rate of mass shootings, controlling for other factors.⁸⁹ A 2018 study found that over 40 percent of guns used in murders of police were LCM compatible.⁹⁰ A 2019 study examined high-fatality mass shootings from 1990-2017, and concluded that attacks with LCMs resulted in a 62 percent higher death toll than when LCMs were not used.⁹¹ It also found that states without LCM bans had gun death totals three times higher than states with such bans in place.

The shooting of then-Arizona Congresswoman Gabrielle Giffords in 2011 provides an example of LCMs’ potential to cause more devastating impact than firearms without such capacity. Although Giffords was shot in the head by a deranged man at a

public event, she survived the attack.⁹² In 2013, Giffords' husband, Mark Kelly (a former Navy captain and astronaut), offered this account of his wife's shooting in congressional testimony, indicating how the shooter's LCMs resulted in more deaths and injuries:

The shooter in Tucson showed up with two 33-round magazines, one of which was in his 9 millimeter. He unloaded the contents of that magazine in 15 seconds The first bullet went into Gabby's head. Bullet number 13 went into a nine-year old girl named Christina Taylor Green When he tried to reload one 33-round magazine with another 33-round magazine, he dropped it. And a woman named Patricia Maisch grabbed it, and it gave bystanders a time to tackle him. I contend if that same thing happened when he was trying to reload one 10-round magazine with another 10-round magazine, meaning he did not have access to a high-capacity magazine, and the same thing happened, Christina Taylor Green would be alive today.⁹³

Opponents of LCM limits often argue that a minimally skilled person can rapidly interchange an empty magazine for a full one, suggesting the futility of *244 any magazine limits as an impediment to lethal criminality.⁹⁴ In a live shooting situation, however, shooters often succumb to the tension and confusion of the moment and take extra time, fumble or drop a magazine (as did the man who shot Giffords), or commit other errors that open the door to intervention. But even some gun rights supporters draw the line at LCMs. For example, one gun rights supporter, who is otherwise critical of the assault weapons ban, asked: "Can anyone think of a really good reason to have a magazine that holds more than ten rounds?"⁹⁵

5. Assault Weapons and Self-Defense

In theory, any firearm can be used for self-defense, including assault weapons. Yet even if all assault weapons disappeared, Americans would still have thousands of models and hundreds of millions of guns to choose from for self-defense purposes. Handguns are the clear choice for those citizens seeking a gun for self-protection.⁹⁶

For self-defense purposes, an assault weapon has some obvious limitations. Its length, compared with a handgun, makes it more unwieldy to deploy in the often tight confines of a home. It requires two hands to handle and operate. The higher velocity of the smaller caliber bullets assault weapons fire means that it is more likely that rounds fired may enter nearby buildings, automobiles, and the like, resulting in unintended damage, injury, and even death. And within the confines of a person's home, long guns contribute nothing to accuracy of fire, which is largely determined by the ability of the shooter to deal successfully with the stress and surprise of an actual confrontation with an intruder. A handgun is also preferable in such situations because only one hand is necessary to train the weapon on a target, whereas an assault weapon or other long gun requires two hands, a fact noted by Justice Scalia, writing for the majority in *Heller*.⁹⁷

Further, actual civilian gun self-defense situations do not involve anything resembling a protracted firefight necessitating the ability to fire many rounds without reloading. A study of self-defense shootings based on data cumulated by the NRA's Institute for Legislative Action conducted by National Economic Research Associates (NERA) examined data from the NRA's "armed citizen" stories--accounts compiled in a database of private citizens who use guns for self-defense. Data compiled from 1997-2001 found that, during the this time period, defenders fired an average of 2.2 shots, and in 28 percent of these instances, defenders fired no shots (that is, mere display of a weapon stopped or thwarted *245 the incident).⁹⁸ For the period of 2011-2013, the average number of shots was 2.1, and no shots were fired in 16 percent of the instances.⁹⁹ For this later time period, there were no instances in which the defender fired as many as ten shots or more where the self-defense incident occurred in the home.¹⁰⁰ Given the NRA's well-known positions favoring gun ownership and use for self-defense, and the nonrandom, self-selecting nature of the data, one may assume that it likely represents the upper bound of gun self-defense uses.

Assault weapons offer, at best, no advantages for personal self-defense uses, and in certain respects, are less useful for personal self-defense than handguns.

III

GUN SILENCERS

In 2017, the Hearing Protection Act was introduced in Congress as part of a larger piece of legislation.¹⁰¹ The purpose of the Act was to deregulate the process for obtaining gun silencers (also referred to as “suppressors”).¹⁰² Under the terms of the National Firearms Act of 1934, the process for obtaining a gun silencer was (and is) the same as for acquiring an automatic weapon: the applicant needs to pay a \$200 fee, submit fingerprints and a photograph, and undergo a background check.¹⁰³ The government also keeps track of silencer ownership. As of early 2017, the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) reported civilian ownership of 1.36 million silencers registered with the agency.¹⁰⁴ In 2010, Americans registered 285,000 silencers.¹⁰⁵ The 2017 bill would have eliminated these regulations, making silencer purchase legal as long as the prospective purchaser passed an instant background check--the same check applied to gun purchasers. Hearings on the bill were scheduled for 2017, but were eventually canceled in the face of public dismay over contemporaneous mass shootings. Thus, the bill died at the end of 2018. A similar bill was introduced in the U.S. Senate at the start of the new Congress in 2019. That bill, according to its sponsors, will not affect eight state laws that restrict silencer purchase.¹⁰⁶

In 2018, the U.S. Court of Appeals for the Tenth Circuit ruled that possession of a silencer was not a protected Second Amendment right.¹⁰⁷ Yet, groups like Gun Owners of America argue that the right to own “bearable arms” under the Second Amendment includes the right to own gun accessories like silencers.¹⁰⁸ Eight state attorneys general agree, and argued as much in a 2019 brief before the Supreme Court appealing the Tenth Circuit ruling.¹⁰⁹

Leaving aside constitutional arguments, why the recent effort to roll back a federal regulation that has been in effect for over eighty years, and that has, with the rarest exceptions, successfully kept silencers out of the hands of criminals? Before addressing this question, it is useful to begin with some history of silencers and early efforts at regulation.

A. History

Engineer Hiram Maxim invented the gun silencer in the early 1900s and patented it in 1908.¹¹⁰ Maxim immediately sought to sell his invention to the American military, as well as to those of European nations.¹¹¹ Objections to civilian use of silencers appeared almost immediately. In 1909, *Scientific American* reported on a direct demonstration of the device, discussing in detail its technological traits and value for military use. But the piece also noted “the menace” of silencers because they “greatly enlarged the opportunities for the commission of undetected crime.”¹¹² “It is well understood,” the editorial continued, “that the fear of detection is one of the most powerful deterrents to the commission of crime.”¹¹³ Similarly, a 1909 newspaper article asked, “Who shall be authorized to carry and use firearms” equipped with silencers?¹¹⁴ “No private person, surely. A true sportsman,” opined the author, “would not use it The burglar, the highway robber, and the Black Hand assassin are the only other persons to whom it could be of advantage.”¹¹⁵

The first state law outlawing silencers' sale or possession came within a year of their invention, when Maine enacted a ban in 1909.¹¹⁶ Pittsburgh moved against silencers that same year: the city's superintendent of police warned that “[t]he risk of shooting is too great; the discharge of the weapon makes too much noise and attracts too many people. But with a silencer in use this would be different.”¹¹⁷ Two years later, New Jersey outlawed the use of “any silencer, when hunting for game or fowl, on any gun, rifle or firearm”¹¹⁸

These early restrictions underscored the two primary concerns about unregulated possession of silencers: that they would be used by criminals seeking to avoid detection, and that they would be used by hunters with a similar motivation. A news article from 1916 noted both of these concerns: “The Silencer is an incentive to crime” and “it is believed that [silencers] give[] too great an advantage to poachers and to those who are shooting out of season.”¹¹⁹ In 1913, the director of the New York Zoological Park, William T. Hornaday, published a book decrying the imminent extinction of many animal species throughout the country.¹²⁰ One of the chief causes, he argued, was the enhanced firepower of ever-more people engaged in indiscriminate hunting. Included in his list of weaponry technology that allowed for mass slaughter of animals was “silencers,” which he dubbed “grossly unfair,” and argued that they “should immediately be prohibited.”¹²¹ Chicago police discovered as early as

1922 that “the city’s lawbreakers were ordering sales catalogs from the Maxim Silencer Company,” and New York authorities reported similar criminal interest in silencers around the same time. ¹²²

*248 From 1909 to 1936, at least fifteen states enacted silencer restrictions, ¹²³ with eight of them specifically barring their use in hunting. ¹²⁴ In 1930, Maxim and his company “discontinued manufacturing silencers because of the popular impression that this invention was an aid to crime” and turned his attention to the development of automobile mufflers and other sound-deadening technologies. ¹²⁵

No comprehensive statistics are available on early silencer ownership and use, but an examination of the *New York Times* archive during this period revealed a number of news stories where silencers were used in gun crimes in the New York City area. One early case in 1915 involved a triple murder and suicide in New York City. ¹²⁶ Herman Auerbach, who had recently purchased a Winchester repeating rifle equipped with a silencer, killed his wife and two daughters before turning the gun on himself. (Auerbach was reportedly despondent over financial troubles.) The family lived in several adjacent rooms in a nine story apartment building bordering Central Park. The dead family members were discovered the morning after the shootings by the family’s fourteen-year-old son, who found the bodies when he went to check on his family members. The boy slept through the shootings, according to the account, because “the Maxim silencer had prevented even the boy from hearing the shots that killed his sisters in the next room.” ¹²⁷ Within days of this killing, members of the State Legislature introduced a bill, enacted the following year, to bar the manufacture or sale of silencers in the state. ¹²⁸

Among other reports of silencer crimes, the *Times* reported that silencers were used in the suicide of a New Jersey man in 1917, ¹²⁹ the murder-robbery of a city jewelry store in 1920, ¹³⁰ a 1921 jewelry store robbery, ¹³¹ a bootlegger murder in a tenement house in 1921, ¹³² and a gangster murder in 1930 where the victim, *249 known to carry a gun with a silencer, was killed with his own weapon. ¹³³ The *Times* also reported the 1926 arrest of a man in Omaha charged with committing random killings in a dozen cities in the Midwest who used a silencer. ¹³⁴

Given the close association of the use of silencers with criminal acts, Congress moved to subject their purchase to a substantial fee and background check in the National Firearms Act of 1934. ¹³⁵ Aside from passing mention of silencers as commodities to be subject to new regulation, along with fully automatic weapons and sawed-off shotguns, there was no discussion of the justification for including silencers in the bill’s 166 pages of committee hearings and testimony in the House of Representatives. ¹³⁶

B. Arguments For Repealing the Current Law

Those who seek to repeal the 1934 standards for silencer purchase have hung their hats primarily on the health benefits associated with the suppression of the noise that accompanies gunfire--ergo, the name of the proposed legislation, the Hearing Protection Act. Clearly, the noise generated when a weapon like an assault-style AR-15 is fired generates enough noise to harm hearing, especially when that firing is repetitive, such as at a firing range. It has been frequently reported that many guns produce noise levels of between 140-160 decibels, at which level hearing can be permanently impaired. ¹³⁷ For example, the National Institute for Occupational Safety and Health (NIOSH) studied firearms instructors’ exposure to firearms noise and found that they were subject to noise levels exceeding 150 decibels, whereas the NIOSH recommends exposure to no more than 140 decibels. ¹³⁸

Those and similar reports typically focus on the noise of a small number of weapons, especially assault weapons. ¹³⁹ Yet it is important to remember that firearms come in thousands of models, sizes, and styles, from derringers to elephant guns, which in turn generate a far wider range of noise than that in the 140-160 decibel range. Thus, many firearms do not pose the degree of threat to hearing that others do.

*250 In this connection, as silencer advocates point out, silencers do not eliminate all or even most of the noise caused by gun firing, but do reduce the noise to roughly 135 decibels, below the 140 decibel threshold. ¹⁴⁰ Hearing experts advise that shooters should wear proper hearing protection, even when using less noisy weapons and those with attached silencers. The chief reason, according to the National Hearing Conservation Association (NHCA), is that “[s]uppressors cannot reduce the noise caused by the supersonic flight of the projectile breaking the sound barrier once it leaves the barrel of the firearm.” ¹⁴¹

Operators can use subsonic ammunition to address this problem, but even with that, the NHCA recommends that shooters “wear hearing protection whenever shooting firearms, including when employing a noise suppressor device.”¹⁴² The American Speech-Language-Hearing Association (ASHA) also recommends to “[a]lways use some type of hearing protection any time you fire a gun.”¹⁴³ Both the NHCA and the ASHA note that, for hunters or others disturbed by the prospect of wearing ear plugs or earmuffs while in the field, some hearing protection devices are available that allow for the audibility of soft sounds while still blocking out the loud, sharp crack of firearm discharge.

The only instance where time constraints would not allow a gun user to employ hearing protection is in an emergency self-defense situation, such as a home intrusion, when an individual would not only deploy but also actually discharge a weapon in defense of person or property. Yet, as discussed above, such events are extremely rare, and involve few shots fired. In addition, one study based on data from the FBI and the National Crime Victimization Survey (NCVS) noted that from 2008-2012, there were a total of 1018 justifiable homicides by civilians (about 204 per year).¹⁴⁴ According to NCVS data, from 2007-2011, there were a total of 235,700 self-protection actions involving firearms.¹⁴⁵ This number (yielding a yearly average of 47,140) does not distinguish the type of firearm involved, and does not indicate whether it was actually fired or not.¹⁴⁶ Yet it is clear that the number of self-defense firing events is tiny relative to the gun-owning population, that the number of rounds fired is few, and that such events rarely, if ever, repeat themselves among those who do fire in self-defense.

***251** In short, hearing experts always recommend the use of properly fitted ear protection devices, whether the shooter is using a silencer or not. What, then, would be the consequence of silencer use for those around a shooter? Might it not be beneficial if bystanders were exposed to less noise?

C. The Safety Value of Noise

Proponents of silencers argue that, since silencers do not eliminate noise but merely reduce it, the residual noise can provide any warning to others that might be required. But this downplays the importance of gunshot noise as a critical safety component. In fact, the noise caused by gunfire is a key, even vital, de facto safety feature of firearms--not for the operator, but for those nearby.¹⁴⁷ Anything that reduces the alert value of gunfire sound is an impediment to bystanders taking effective defensive action. Almost without exception, bystanders who find themselves near a shooting--whether a mass shooting, a robbery, a gang shootout, or any other instance of pernicious gunfire--know instinctively that people's best warning of danger is the sound of shots being fired. Yet such critical notice is not limited to the commission of a gun crime. The same applies in a lawful hunting situation, especially when it occurs in places where line of sight is limited. Other hunters, sportspeople, recreationists, and residents are best warned of gunfire when it is loud. Given that rounds travel hundreds of yards in the blink of an eye, anything that inhibits gunshot sound decreases awareness and therefore increases the danger to bystanders. This by itself is a powerful argument on behalf of the protective value of gunshot noise.

The idea of sound as a protective warning is not limited to firearms. For example, in 2016, the federal government issued a new rule requiring hybrid and electric cars to “make noise when traveling at low speeds” so that pedestrians or those with poor eyesight can hear them coming.¹⁴⁸ The rule is set to be put fully into place by late 2020.¹⁴⁹

D. Silencers and Crime

Many have pointed out that silencers are rarely used in crimes, and thus suggest or imply that criminals are little interested in utilizing silencers, whether easy to obtain or not. A report by the ATF noted that “expanding demand and acceptance of silencers” by the public might warrant elimination of the current background check process for silencer applicants as an increase in applications ***252** has produced a backlog,¹⁵⁰ even though the ATF and the Department of Justice have historically opposed altering federal requirements. The report also notes the relative rarity of silencer crime, saying that, in recent years, the ATF has averaged only about forty-four prosecutions per year for silencer violations.¹⁵¹ In 2015, the ATF traced 125 registered silencers connected with crimes.¹⁵²

But there are several problems with this argument. The first is that the backlog problem is a thin reed upon which to change existing law. The devotion of more staff to background investigations would resolve that problem. Second, and more importantly, the history of silencers tells us that they were utilized by criminals almost from the time that they were available, dating to the

1910s. The very fact that silencers were included in the National Firearms Act of 1934, along with other gangster weapons, demonstrates the clear sense that silencers had an undeniable appeal to those seeking to conceal gun-related crime. Given that criminals do pretty much the same things in the modern era as they did in the last century, why should there be less criminal interest now? As if to punctuate that point, the man who shot up a Virginia Beach municipal building on May 31, 2019 used a silencer attached to one of the two handguns he used to kill twelve people and injure four. According to one expert, “a suppressor will distort the sound in such a way that it would not immediately be recognizable as gunfire”¹⁵³ Consistent with this observation, Virginia Beach survivors reported that “they were caught off guard and initially puzzled by what was happening.”¹⁵⁴

Third, silencers have indeed been used in a small number of crimes in recent years. The VPC chronicled sixteen serious criminal cases since 2011 involving the use of silencers.¹⁵⁵ Does this small number mean that criminals would have no interest in silencers if they were more easily available and not subject to careful record-keeping? Or does it mean that the 1934 federal law has been successful in mostly keeping them out of the hands of criminals? The criminal record before 1934 suggests it is the latter, especially because the federal database of silencer owners provides a valuable source to trace and track criminal silencer use.

Fourth, the use of silencers in crime would surely escalate for one reason alone: more and more cities are installing ShotSpotter technology, designed to pinpoint the location of gunfire. Anything that modifies or muffles that sound could impede or even defeat that technology, a concern expressed by the *253 Minnesota Chiefs of Police Association when its State Legislature was considering a bill to make them available to state residents.¹⁵⁶ By one account, “if the sound of a gunshot is suppressed, it may not trigger gunshot alert systems.”¹⁵⁷ And a rogue hunter who is hunting out of season, or on posted or private land, would have an obvious and powerful incentive to use a silencer in hopes of avoiding detection.

E. Other Considerations

One additional reason explains the push to make silencer purchase easier and quicker, and it has nothing to do with safety or hearing. Like accessories for any commercial product, an explosion of silencer sales offers the prospect of enhanced revenues for manufacturers. According to Josh Waldron, founder and CEO of Utah-based SilencerCo, the silencer industry is “the highest-growth niche of the firearms industry right now.”¹⁵⁸ Since 2013, when Waldron was quoted, silencer sales have increased significantly, even with current restrictions (silencer possession increased by 400,000 from 2015 to 2016).¹⁵⁹ From 2014 to 2017, SilencerCo's business increased 600 percent, according to the company's chief revenue officer. The company anticipates that with deregulation, the silencer market could expand ten-fold.¹⁶⁰

F. Hearing Protection Policy

It is important to remind ourselves of three pertinent facts. First, silencers today are perfectly legal to purchase, except for the eight states that otherwise prohibit them. Second, silencers are an accessory, not a gun. No firearm requires a silencer for its operation. The federal government determined decades ago that a system of background checks and registration was an appropriate step to discourage their use for criminal purposes. Third, the chief stated purpose behind the drive to make silencers easier to acquire--the protection of shooters' hearing--is best achieved not by using silencers, but by using proper hearing protection gear. The legislation in question would be truer to its stated purpose of protecting shooters' hearing if it subsidized the purchase and dissemination of high-quality hearing protective devices and promoted a public service campaign to remind shooters to wear proper protective hearing gear. As hearing experts recommend, hearing protection should be worn even for firearms fitted with silencers.

*254 IV

CONCLUSION

In a dissenting opinion written in response to the Supreme Court's denial of certiorari to a gun rights case in 2018, Justice Clarence Thomas opined that the courts had treated the Second Amendment “cavalierly,” as “a disfavored right,” and as a

“constitutional orphan.”¹⁶¹ While it is clear that Justice Thomas is unhappy with the way in which Second Amendment rights have been defined compared to the rest of the Bill of Rights, he offers no particular reason to believe that the Amendment's interpretation since *Heller* warrants these cartoonish labels, which seem designed mostly to provide a rallying cry for Second Amendment absolutists.

If anything is true about the rights protected by the Bill of Rights, it is that they were not produced in some cookie-cutter-like fashion designed to treat each of them identically. They were, after all, the product of many state recommendations and much bargaining and haggling during the First Congress of 1789. If all the amendments warrant the same dignity and treatment, where is Justice Thomas' umbrage at the sad and ignored Third Amendment, protecting citizens against the quartering of troops in people's homes in times of peace? Or the Seventh Amendment's ignored protection of the right of jury trial for suits at common law where the value exceeds twenty dollars? Or the Ninth Amendment's largely slighted enumeration clause? Throughout the history of constitutional interpretation, it is clear that some rights really are more important than others, a principle reflected in the “preferred freedoms” doctrine. Is there any argument to be made that the First Amendment's protections of free speech and press are no more important than any other Bill of Rights protections? As one constitutional scholar has noted, the preferred freedoms doctrine “has been absorbed in the concepts of strict scrutiny, fundamental rights, and selective incorporation.”¹⁶²

Perhaps Justice Thomas and others believe that the Second Amendment does--or should--protect a right to own LCMs and silencers. After all, firearms that accept detachable magazines must have a magazine inserted in order for the firearm to function. Yet magazines can be easily modified to limit the number of rounds they hold; alternately, magazines for firearms like assault weapons can be modified to fix a magazine in place and then feed in new rounds when it is depleted.¹⁶³ In both instances, these simple technical modifications retain firearms' ability to function yet also comply with the public policy recommendations of many criminologists, health and medical professionals, political leaders, and others to limit the ability of guns to fire many rounds without rapid reloading through the use of removable magazines.

*255 In the minds of some, Second Amendment rights would exist whenever a human hand comes in contact with a firearm. The idea that this right should further extend to a gun accessory like a magazine or silencer would lead us to a constitutional theory that would apply a right to something because, well, some people really, really want it, and it has something to do with firearms.

One can easily make the argument that the Court's reinterpretation of the Second Amendment in *Heller* was deeply problematic, both as history and law.¹⁶⁴ Yet, problematic or not, it is the law, and courts have made a good faith effort to follow it. After all, in the years since *Heller*, the Supreme Court has to date declined to hear over 150 appeals of lower federal court rulings on the Second Amendment. Moreover, over 1,300 legal challenges to gun laws have resulted in a vast majority of the laws being upheld.¹⁶⁵ When taken together, this record surely suggests that the relationship between gun laws and gun rights has been reasonably balanced with the result that both remain intact. The Second Amendment is no “cavalierly disfavored orphan.” While there continue to be areas where its legal application needs clarification, the *Heller* rubric made a more or less sensible effort to reconcile the newly established right to bear arms with the legitimate policy concerns of a nation plagued by persistent gun violence.

Footnotes

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¹ See, e.g., Fred Barbash, *Gun Rights Groups Celebrate Win as Judge Rejects California's Ban on High-Capacity Magazines*, WASH. POST (Apr. 1, 2019), https://www.washingtonpost.com/world/national-security/gun-rights-groups-celebrate-win-as-judge-cuts-down-californias-ban-on-high-capacity-magazines/2019/04/01/0dc5830e-549d-11e9-9136-f8e636f1f6df_story.html?utm_term=.487f87caf9bf [<https://perma.cc/YQ6G-7W39>].

- ² NY Secure Ammunition and Firearms Enforcement (SAFE) Act, Ch. 1, § 48(5) 2013 N.Y. Laws 1, 22 (2013) (codified as amended in scattered sections).
- ³ See ROBERT J. SPITZER, GUNS ACROSS AMERICA: RECONCILING GUN RULES AND RIGHTS 148 (2015).
- ⁴ *Id.* at 151.
- ⁵ N.Y. State Rifle & Pistol Ass'n v. Cuomo, 990 F. Supp. 2d 349, 372 (W.D.N.Y. 2013).
- ⁶ N.Y. State Rifle & Pistol Ass'n v. Cuomo, 804 F.3d 242, 269 (2d Cir. 2015).
- ⁷ California's statute was first enacted in 2000, and then was expanded by a state referendum in 2016. Whereas originally owners of magazines holding more than ten rounds could maintain ownership if they had obtained the magazines before the restriction's enactment, the 2016 expansion required owners to dispose of or destroy them.
- ⁸ 366 F. Supp. 1131 (S.D. Cal. 2019).
- ⁹ *Id.* at 14, 49, 114, 121.
- ¹⁰ See, e.g., Worman v. Healey, 922 F.3d 26 (1st Cir. 2019); Ass'n of N.J. Rifle & Pistol Clubs v. Attorney Gen., 910 F.3d 106 (3d Cir. 2018); Kolbe v. Hogan, 849 F.3d 114 (4th Cir. 2017); Heller v. District of Columbia, 670 F.3d 1244 (D.C. Cir. 2011).
- ¹¹ The *Duncan* ruling is extremely aggressive and expansive in its definition of Second Amendment rights. These traits appear from the outset of the decision, when Judge Roger Benitez begins his decision with the breathless retelling of three cases of self-defense which purport to show that actual instances of self-defense with a gun were or could have been effective only with the defender's possession of a LCM. Yet the veracity of the judge's claims that those were instances where the individuals could have defended themselves better or more effectively with LCMs was immediately challenged; in the first case referenced by Judge Benitez, the news article from the *Jacksonville Times-Union* he cited as the source of the story purporting to report on the incident could not be found. In the other two cases, "high capacity magazines were not an issue." Press Release, Americans Against Gun Violence, Americans Against Gun Violence Condemns District Court Judge's Ruling in *Duncan v. Becerra* Invalidating California High Capacity Magazine Ban (Apr. 2, 2019), <https://aagunv.org/americans-against-gun-violence-condemns-district-court-judges-ruling-in-duncan-v-becerra-invalidating-california-high-capacity-magazine-ban/> [<https://perma.cc/ME4C-6A52>].
- ¹² The term "bullet magazine," strictly speaking, is incorrect, in that the term bullet refers to that portion of a cartridge that leaves the barrel of a gun when it is fired, whereas magazines hold an entire cartridge. But the term bullet is more clearly understood in general parlance as a synonym for round, so both terms will be used here.
- ¹³ LARRY KAHANER, AK-47: THE WEAPON THAT CHANGED THE FACE OF WAR 16-19 (2007).
- ¹⁴ See *id.* at 19-24.
- ¹⁵ The AR-15 was first produced by the ArmaLite Company in the late 1950s. Tim Dickinson, *All-American Killer: How the AR-15 Became Mass Shooters' Weapon of Choice*, ROLLING STONE (Feb. 22, 2018), <https://www.rollingstone.com/politics/politics-features/all-american-killer-how-the-ar-15-became-mass-shooters-weapon-of-choice-107819/> [<https://perma.cc/EZS3-BUZ3>]. According to one of its designers, Jim Sullivan, the weapon was "designed for full automatic

military use. It wasn't really designed as a sporting rifle.” *America's Gun: The Rise of the AR-15* (CNBC television broadcast Apr. 24, 2013). ArmaLite sold the rights to the gun to the Colt Company in 1959. A few years later, the weapon was adopted by the American military and re-produced as the M16, where it came in to use during the Vietnam War in the 1960s. Dickinson, *supra*. These military weapons came to have three firing capabilities: fully automatic, semi-automatic, and “selective fire,” or three-round bursts. Civilian versions, both in the past and presently, can fire only in a semi-automatic fashion. PHILLIP PETERSON, GUN DIG., BUYER'S GUIDE TO ASSAULT WEAPONS 11 (2008). Colt received permission to market a semi-automatic version of the AR-15 to civilians, but these weapons did not catch on in the American market in a significant way until the late 1980s, when China flooded the market with cheap weapons, including its own semi-automatic version of the AK-47. See SPITZER, *supra* note 3, at 143; Jay Mathews, *AK47 Rifles Flood Into U.S. From Chinese Sales War*, WASH. POST (Feb. 2, 1989), <https://www.washingtonpost.com/archive/politics/1989/02/02/ak47-rifles-flood-into-us-from-chinese-sales-war/6a509816-0602-45f6-a4db-d347c0cb7802/> [https://perma.cc/VPD3-HFM6]. Today, the AR-15-type weapon is manufactured and sold by over thirty companies, including Smith and Wesson, Bushmaster, and Sig Sauer.

¹⁶ Peter Ferrara, ‘Assault Weapon’ is Just a PR Stunt Meant to Fool the Gullible, FORBES (Dec. 28, 2012), <http://www.forbes.com/sites/peterferrara/2012/12/28/assault-weapon-is-just-a-pr-stunt-meant-to-fool-the-gullible> [https://perma.cc/UJS6-29D6].

¹⁷ PETERSON, *supra* note 15, at 11.

¹⁸ VIOLENCE POL'Y CTR., THE MILITARIZATION OF THE U.S. CIVILIAN ARMS MARKET 30 (2011), <http://www.vpc.org/studies/militarization.pdf> [https://perma.cc/Q2FB-D8K3]; see generally VIOLENCE POL'Y CTR., ASSAULT WEAPONS AND ACCESSORIES IN AMERICA (1988), <http://www.vpc.org/studies/awacont.htm> [https://perma.cc/4GDD-KB8U].

¹⁹ See TOM DIAZ, THE LAST GUN 142-43 (2013) [hereinafter DIAZ, THE LAST GUN]; see also TOM DIAZ, MAKING A KILLING: THE BUSINESS OF GUNS IN AMERICA 124-28, 230-31 (2000) [hereinafter DIAZ, MAKING A KILLING].

²⁰ DIAZ, THE LAST GUN, *supra* note 19, at 144.

²¹ *Modern Sporting Rifle Pocket Fact Card*, NAT'L SHOOTING SPORTS FOUND. (on file with author).

²² *Id.*

²³ *Id.*

²⁴ *Id.*

²⁵ John Haughey, *Five Things You Need to Know About ‘Assault Weapons’*, OUTDOOR LIFE (Mar. 19, 2013), <http://www.outdoorlife.com/blogs/gun-shots/2013/03/five-things-you-need-know-about-assault-weapons> [https://perma.cc/UB3E-LSPN].

²⁶ See generally PETERSON, *supra* note 15.

- ²⁷ Erica Goode, *Even Defining 'Assault Weapons' is Complicated*, N.Y. TIMES (Jan. 17, 2013), <https://www.nytimes.com/2013/01/17/us/even-defining-assault-weapons-is-complicated.html> [<https://perma.cc/W8KB-CHM9>].
- ²⁸ See generally PETERSON, *supra* note 15.
- ²⁹ Jane Gross, *California Becomes the First State to Vote Curbs on Assault Rifles*, N.Y. TIMES (Mar. 4, 1989), <https://timesmachine.nytimes.com/timesmachine/1989/03/14/667789.html?pageNumber=1> [<https://perma.cc/S9CX-EW3J>].
- ³⁰ Violent Crime Control and Law Enforcement Act of 1994, Pub. L. No. 103-322, 108 Stat. 1796 (codified as amended at 42 U.S.C. § 136).
- ³¹ See ROBERT J. SPITZER, *THE POLITICS OF GUN CONTROL* 195-201 (7th ed. 2018).
- ³² See generally Christopher S. Koper et al., *An Updated Assessment of the Federal Assault Weapons Ban: Impacts on Gun Markets and Gun Violence, 1994-2003*, at 2-3 (U.S. Dep't of Justice Report No. 204431, 2004), <https://www.ncjrs.gov/pdffiles1/nij/grants/204431.pdf> [<https://perma.cc/GAX7-TDEN>]; Charles DiMaggio et al., *Changes in US Mass Shooting Deaths Associated with the 1994-2004 Federal Assault Weapons Ban*, 86 J. TRAUMA & ACUTE CARE SURGERY 11 (2019); John Donohue & Theodora Boulouta, *That Assault Weapons Ban Worked*, N.Y. TIMES (Sept. 5, 2019), <https://www.nytimes.com/2019/09/04/opinion/assault-weapon-ban.html> [<https://perma.cc/L75M-RFLM>]. Christopher S. Koper cites five additional studies that found the 1994 law to have reduced public mass shooting deaths and injuries from assault weapons. See Christopher S. Koper, *Assessing the Potential to Reduce Deaths and Injuries from Mass Shootings Through Restrictions on Assault Weapons and Other High-Capacity Semiautomatic Firearms*, 19 CRIMINOLOGY & PUB. POL'Y 147, 157 (2020).
- ³³ *Assault Weapons: Summary of State Law*, GIFFORDS LAW CTR., <https://lawcenter.giffords.org/gun-laws/policy-areas/hardware-ammunition/assault-weapons/#state> [<https://perma.cc/QRY6-9X9J>].
- ³⁴ *Id.*
- ³⁵ *Id.*
- ³⁶ *Large Capacity Magazines*, GIFFORDS LAW CTR., <https://lawcenter.giffords.org/gun-laws/policy-areas/hardware-ammunition/large-capacity-magazines> [<https://perma.cc/Z3H8-4XNY>].
- ³⁷ *Id.*
- ³⁸ See Robert J. Spitzer, *Gun Law History in the United States and Second Amendment Rights*, 80 LAW & CONTEMP. PROBS., no. 2, 2017, at 55, 67. It is possible that other states enacted laws like the ones discussed here after 1934.
- ³⁹ Pub. L. No. 73-474, 48 Stat. 1236 (1934).
- ⁴⁰ SPITZER, *supra* note 3, at 50-51.
- ⁴¹ *Id.*

- ⁴² Act of Apr. 27, 1927, ch. 326, 1927 Mass. Acts 413, 413-14.
- ⁴³ Act of Apr. 22, 1927, ch. 1052, 1927 R.I. Pub. Laws 256, 256.
- ⁴⁴ Act of June 2, 1927, no. 372, 1927 Mich. Pub. Acts 887, 888.
- ⁴⁵ Act of Apr. 10, 1933, ch. 190, 1933 Minn. Laws 231, 232.
- ⁴⁶ *Id.*
- ⁴⁷ Act of Apr. 8, 1933, no. 64, 1933 Ohio Laws 189, 189.
- ⁴⁸ *Id.*
- ⁴⁹ Uniform Machine Gun Act, 1933 S.D. Sess. Laws ch. 206 § 1, at 245, 245.
- ⁵⁰ Act of Mar. 7, 1934, ch. 96, 1934 Va. Acts 137, 137.
- ⁵¹ *See* Act of July 2, 1931, 1931 Ill. Laws 452, 452; Act of July 7, 1932, no. 80, 1932 La. Acts 336; Act of Mar. 2, 1934, no. 731, 1934 S.C. Acts 1288.
- ⁵² *See infra* Table 1.
- ⁵³ Act of May 16, 1927, ch. 552, 1927 Cal. Stat. 938.
- ⁵⁴ *See* Act of Apr. 27, 1933, no. 120, § 2, 1933 Haw. Sess. Laws 117, 117; Act of June 1, 1929, § 2, 1929 Mo. Laws 170, 170; Machine Guns, ch. 64, § 2, 1933 Wash. Sess. Laws 335, 335.
- ⁵⁵ *See infra* Table 1.
- ⁵⁶ The data in this Table are sourced from *Repository of Historical Gun Laws*, DUKE LAW CTR. FOR FIREARMS LAW, <https://law.duke.edu/gunlaws/> [<https://perma.cc/8RRH-MSEN>]. The dataset ended in 1934, so it does not include any states that might have enacted similar restrictions after 1934.
- ⁵⁷ [District of Columbia v. Heller, 554 U.S. 570, 627 \(2008\).](#)
- ⁵⁸ Brad Plumer, *Everything You Need to Know About the Assault Weapons Ban, in One Post*, WASH. POST (Dec. 17, 2012), https://www.washingtonpost.com/news/wonk/wp/2012/12/17/everything-you-need-to-know-about-banning-assault-weapons-in-one-post/?utm_term=.6244243b2e1c [<https://perma.cc/YT77-U5VM>].
- ⁵⁹ SPITZER, *supra* note 3, at 93.

- ⁶⁰ John W. Schoen, *Owned by Five Million Americans, AR-15 Under Renewed Fire After Orlando Massacre*, CNBC.COM (June 13, 2016), <https://www.cnbc.com/2016/06/13/owned-by-5-million-americans-ar-15-under-renewed-fire-after-orlando-massacre.html> [<https://perma.cc/8UNM-WRQ4>].
- ⁶¹ Alex Yablon, *How Many Assault Weapons Do Americans Own?*, TRACE (Sept. 22, 2018), <https://www.thetrace.org/2018/09/how-many-assault-weapons-in-the-us/> [<https://perma.cc/4Q9S-EGYE>].
- ⁶² *Id.*
- ⁶³ David Heath et al., *How an 'Ugly,' Unwanted Weapon Became the Most Popular Rifle in America*, CNN.COM (Dec. 14, 2017), <https://www.cnn.com/2017/12/14/health/ar15-rifle-history-trnd/index.html> [<https://perma.cc/2YF6-B37X>].
- ⁶⁴ Christopher S. Kopel et al., *Criminal Use of Assault Weapons and High-Capacity Semiautomatic Firearms: An Updated Examination of Local and National Sources*, 95 J. URB. HEALTH 313, 319 (2018). The 1994 assault weapons ban also restricted bullet magazines to those that could hold up to ten rounds.
- ⁶⁵ SPITZER, *supra* note 3, at 80.
- ⁶⁶ Koper et al., *supra* note 63, at 319.
- ⁶⁷ The FBI definition, set in the 1980s, is by no means universally accepted by researchers for several reasons, including the simple fact that expeditious police and medical intervention may succeed in reducing the number of deaths to below four, even if many people are injured. Surely such an event is no less a mass shooting than one where four or more are killed. *Mass Shootings: Definitions and Trends*, RAND CORP. (Mar. 2, 2018), <https://www.rand.org/research/gun-policy/analysis/supplementary/mass-shootings.html> [<https://perma.cc/ZA3D-CTMF>].
- ⁶⁸ *Assault Weapons and High-Capacity Magazines*, EVERYTOWN FOR GUN SAFETY (Mar. 22, 2019), <https://everytownresearch.org/assault-weapons-high-capacity-magazines/> [<https://perma.cc/B26S-2FN8>].
- ⁶⁹ A bill introduced in the U.S. Senate by Sen. Dianne Feinstein (D-Cal.) in 2013 laid out a definition of assault weapons that would have banned the 34 percent of assault weapons used in the crimes studied. That bill was defeated in a Senate vote.
- ⁷⁰ Mark Follman et al., *A Guide to Mass Shootings in America*, MOTHER JONES, (Feb. 19, 2019), <https://www.motherjones.com/politics/2012/07/mass-shootings-map/> [<https://perma.cc/T4ZV-VJMF>].
- ⁷¹ WILLIAM J. KROUSE & DANIEL J. RICHARDSON, CONG. RESEARCH SERV., *MASS MURDER WITH FIREARMS* 29 (2015), <https://fas.org/sgp/crs/misc/R44126.pdf> [<https://perma.cc/BAW3-W7CP>]; *see also* Michael S. Rosenwald, *Why Banning AR-15s and Other Assault Weapons Won't Stop Mass Shootings*, WASH. POST (June 16, 2016), https://www.washingtonpost.com/news/local/wp/2016/06/16/why-banning-ar-15s-and-other-assault-weapons-wont-stop-massshootings/?utm_term=.7dffcadbb47b [<https://perma.cc/G9BS-T44J>].
- ⁷² Bloomberg, *Assault Rifles Are Linked to Only 25% of 'Active Shooter' Events*, FORTUNE (Sept. 11, 2018), <https://fortune.com/2018/09/11/assault-rifles-active-shooter-study/> [<https://perma.cc/3FG9-ACFT>].

- ⁷³ Alex Yablon, *Most Active Shooters Use Pistols, Not Rifles, According to FBI Data*, TRACE (Aug. 28, 2018), <https://www.thetrace.org/rounds/mass-shooting-gun-type-data/> [<https://perma.cc/68V7-K2B3>].
- ⁷⁴ Polly Mosendz, *Assault Rifles Aren't the Weapon of Choice for 'Active Shooters'*, BLOOMBERG (Sept. 11, 2018), <https://www.bloomberg.com/news/articles/2018-09-11/semi-autos-aren-t-the-weapon-of-choice-for-active-shooters> [<https://perma.cc/7LG7-XASF>].
- ⁷⁵ See VIOLENCE POL'Y CTR., OFFICER DOWN 5 (2003), <http://vpc.org/studies/officer%20down.pdf> [<https://perma.cc/7784-DE4P>].
- ⁷⁶ See *New Data Shows One in Five Law Enforcement Officers Slain in the Line of Duty in 2016 and 2017 Were Felled by an Assault Weapon*, VIOLENCE POL'Y CTR. (Sept. 25, 2019), <https://vpc.org/press/new-data-shows-one-in-five-law-enforcement-officers-slain-in-the-line-of-duty-in-2016-and-2017-were-felled-by-an-assault-weapon/> [<https://perma.cc/9MPU-4D3Y>]. Of 109 officers slain, 25 were killed by assault weapons fire. *Id.*
- ⁷⁷ Lori Robertson, *Biden Wrong on Police Deaths*, FACTCHECK.ORG (Jan. 30, 2013), <http://www.factcheck.org/2013/01/biden-wrong-on-police-deaths/> [<https://perma.cc/N4P8-H8JG>]. The FBI data categorizes gun shootings by types of guns (handguns, rifles, shotguns) but does not have a separate category for assault weapons, meaning that the data must be reanalyzed or obtained in some other way.
- ⁷⁸ Koper et al., *supra* note 63, at 319.
- ⁷⁹ INT'L ASS'N OF CHIEFS OF POLICE, TAKING A STAND: REDUCING GUN VIOLENCE IN OUR COMMUNITIES 6 (2007) <https://www.theiacp.org/sites/default/files/all/a/ACF1875.pdf> [<https://perma.cc/AGL9-YCQG>].
- ⁸⁰ POLICE EXEC. RESEARCH FORUM, GUNS AND CRIME 2 (2010), http://www.policeforum.org/assets/docs/Critical_Issues_Series/guns%20and%20crime%20-%20breaking%20new%20ground%20by%20focusing%20on%20the%20local%20impact%202010.pdf [<https://perma.cc/CL9V-ZM9P>].
- ⁸¹ Declaration of Kevin Bruen at 16-17, *N.Y. State Rifle & Pistol Ass'n v. Cuomo*, 990 F. Supp. 2d 349 (2013) (1:13-cv-00291 (WMS)).
- ⁸² SPITZER, *supra* note 3, at 164. This law was upheld by the Second Circuit. See *N.Y. State Rifle & Pistol Ass'n v. Cuomo*, 804 F.3d 242, 264 (2d Cir. 2015).
- ⁸³ See *Assault Weapons Ban of 2013: Hearing on S. 150 Before the S. Comm. on the Judiciary*, 113th Cong. 7-8 (2013) (statement of John F. Walsh, Att'y Gen. of Colorado); see also POLICE EXEC. RESEARCH FORUM, *supra* note 80; VIOLENCE POL'Y CTR., TARGET: LAW ENFORCEMENT (2010), <http://vpc.org/studies/targetle.pdf> [<https://perma.cc/J2P8-EPXF>]; Arindrajit Dube et al., *Cross-Border Spillover: U.S. Gun Laws and Violence in Mexico*, 107 AM. POL. SCI. REV. 397 (2013).
- ⁸⁴ GEORGE W. KNOX ET AL., NAT'L GANG CRIME RESEARCH CTR., GANGS AND GUNS 36 (2001), <https://ngcrc.com/ngcrc/ggunsp.pdf> [<https://perma.cc/V5PG-4PK3>]. According to the Report: "Four social contexts were used for the survey: eight county jails from the farmland to the urban central area (891 inmates), matched pair design samples from a Chicago public high school and an inner-city program, and a sample of gang members in a private suburban probation program." *Id.* at i.

- ⁸⁵ See, e.g., PHILIP J. COOK & KRISTIN A. GOSS, *THE GUN DEBATE* 13 (2014) (“Handguns are also the weapon of choice for criminal use The exception may be for gang wars and militia activities, where military-style weapons are more the norm.”); DIAZ, *MAKING A KILLING*, *supra* note 19, at 131 (quoting a Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) spokesman as stating: “We’ve seen a proliferation because of the drug trade More and more people want to have increased firepower and the status of having the semiautomatic assault type weapon. It looks dangerous”).
- ⁸⁶ Mark Follman & Gavin Aronsen, “*A Killing Machine*”: *Half of All Mass Shooters Used High-Capacity Magazines*, *MOTHER JONES* (Jan. 30, 2013), <http://www.motherjones.com/politics/2013/01/high-capacity-magazines-mass-shootings> [<https://perma.cc/UR8U-7B6Z>].
- ⁸⁷ See ASHLEY CANNON, *CITIZENS CRIME COMM’N OF N.Y.C., MAYHEM MULTIPLIED: MASS SHOOTERS AND LARGE-CAPACITY MAGAZINES* (2014), <http://www.nycrimecommission.org/pdfs/CCC-MayhemMultiplied-2014.pdf> [<https://perma.cc/9CDJ-FKST>]; Follman & Aronsen, *supra* note 86; see also Alain Stephens, *The Gun Industry Is Betting on Bigger High-Capacity Magazines*, *TRACE* (June 19, 2019), <https://www.thetrace.org/2019/06/gun-industry-high-capacity-magazine-size/> [<https://perma.cc/8UKX-XC7M>].
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- ⁹⁰ Koper, et al., *supra* note 63, at 318.
- ⁹¹ Louis Klarevas et al., *The Effect of Large-Capacity Magazine Bans on High-Fatality Mass Shootings, 1990-2017*, 109 *AM. J. PUB. HEALTH* 1754, 1755. They defined high-fatality mass shootings as those that resulted in six or more deaths. *Id.*
- ⁹² *What Should America do About Gun Violence?: Hearing Before the S. Comm. on the Judiciary*, 113th Cong. 68-69 (2013) (statement of Captain Mark E. Kelly, husband of Rep. Gabrielle Giffords).
- ⁹³ *Id.*
- ⁹⁴ See, e.g., Jacob Paulsen, *Why Magazine Capacity Limitations are a Bad Idea*, *CONCEALED CARRY.COM* (Dec. 4, 2015), <https://www.concealedcarry.com/law/magazine-capacity-limitations/> [<https://perma.cc/HPK4-4GY5>].
- ⁹⁵ Jim Barrett, *Assault Weapons Bans: Are You Ready?*, *THETRUTHABOUTGUNS.COM* (June 8, 2012), <http://www.thetruthaboutguns.com/2012/06/jim-barrett/assault-weapons-bans-are-you-ready/> [<https://perma.cc/DEN3-VCJN>].
- ⁹⁶ They were identified specifically by the Supreme Court as the self-defense firearm of choice for use in the home. *District of Columbia v. Heller*, 554 U.S. 570, 629 (2008).
- ⁹⁷ *Id.*

- ⁹⁸ Declaration of Lucy P. Allen, [Kolbe v. O'Malley](#), 42 F. Supp. 3d 768 (D. Md. 2014) (No. 1:13-cv-02841) ECF No. 44-9. The data reported in this declaration did not include the maximum number of rounds fired in incidents reported and compiled from 1997-2001. *Id.* at 3. It also did not report the number of incidents on which the 1997-2001 study was based, but did report that the 2011-2013 study was based on 279 incidents. *Id.* at 3-4.
- ⁹⁹ *Id.*
- ¹⁰⁰ *Id.* at 4.
- ¹⁰¹ Sportsmen's Heritage and Recreational Enhancement Act, H.R. 3668, 115th Cong. (2017).
- ¹⁰² I use the term “silencer” here rather than “suppressor,” as silencer was the term used by the device's inventor, and it is the universally known term referencing devices added to the end of gun barrels to reduce the noise of firing. The devices have been also sometimes called “mufflers.”
- ¹⁰³ [I.R.C. §§ 5811-12](#) (2018).
- ¹⁰⁴ BUREAU OF ALCOHOL, TOBACCO, FIREARMS & EXPLOSIVES, FIREARMS COMMERCE IN THE UNITED STATES: ANNUAL STATISTICAL UPDATE 15 (2017).
- ¹⁰⁵ BUREAU OF ALCOHOL, TOBACCO, FIREARMS & EXPLOSIVES, FIREARMS COMMERCE IN THE UNITED STATES 24 (2011).
- ¹⁰⁶ Press Release, Deb Fischer U.S. Senator for Neb., Senators Introduce Hearing Protection Act (Mar. 15, 2019), <https://www.fischer.senate.gov/public/index.cfm/2019/3/senators-introduce-hearing-protection-act> [<https://perma.cc/DWV2-53GL>].
- ¹⁰⁷ [United States v. Cox](#), 906 F.3d 1170 (10th Cir. 2018).
- ¹⁰⁸ Press Release, Gun Owners of Am., Gun Owners of America Funds Challenge to National Firearms Act in U.S. Supreme Court (Jan. 14, 2019), <https://gunowners.org/gun-owners-of-america-funds-challenge-to-national-firearms-act-in-u-s-supreme-court/> [<https://perma.cc/Z9RU-37HW>]. Given a now more conservative and potentially gun friendly Supreme Court majority, gun rights activists clearly see a new opportunity to expand the scope of gun rights. *See generally* Stephen P. Halbrook, *Firearm Sound Moderators: Issues of Criminalization and the Second Amendment*, 46 CUMB. L. REV. 33, 75 (2015).
- ¹⁰⁹ Awr Hawkins, *Eight Attorneys General to SCOTUS: Second Amendment Protects Suppressors Too*, BREITBART (Feb. 21, 2019), <https://www.breitbart.com/politics/2019/02/21/eight-attorneys-general-to-scotus-second-amendment-protects-suppressors-too/> [<https://perma.cc/2SFY-3ZKA>]. The basis for silencer regulations, the National Firearms Act of 1934, [I.R.C. §§ 5801-22](#) (2018), was upheld by the Supreme Court in a 1939 Second Amendment challenge. *See generally* [United States v. Miller](#), 307 U.S. 174 (1939). In June 2019, the Supreme Court refused to hear appeals from two cases that challenged the law. *See* [United States v. Cox](#), 757 F. App'x 527 (9th Cir. 2018), *cert. denied*, 140 S. Ct. 634 (2019); *Kettler v. United States*, 906 F.3d 1170 (10th Cir. 2018), *cert. denied*, 139 S. Ct. 2691 (2019).
- ¹¹⁰ Michael Marinaro, *A Diversified Mind: Hiram Percy Maxim*, CONN. HIST., <https://connecticuthistory.org/hiram-percy-maxim/> [<https://perma.cc/PK9N-M22N>]; *see also* Silent Firearm, [U.S. Patent No. 916,885 \(filed June 26, 1908\)](#) (issued Mar. 30, 1909).

- [111](#) Representatives of England, France, Russia, Germany, and Italy all purchased silencers and sent them back for testing to the militaries of their respective countries. *See To Try Maxim's Silencer*, N.Y. TIMES, Mar. 11, 1909, at 1. The American military also tested the silencer. *See Maxim Silencer Tests Successful*, N.Y. TIMES, July 4, 1909, at C2.
- [112](#) *The Menace of the Noiseless Gun*, 100 SCI. AM. 218, 218 (1909).
- [113](#) *Id.* According to Stephen P. Halbrook's analysis of early silencer regulations, including congressional hearings held for what became the National Firearms Act of 1934, silencer restrictions were enacted "without evidence of criminal misuse." Halbrook, *supra* note 108, at 36. Yet as the *Scientific American* article makes clear, actual criminal silencer use and related concerns arose and persisted from the time of the device's invention up to enactment of the 1934 law.
- [114](#) *The 'Silencer' for Firearms*, N.Y. TIMES, Mar. 18, 1909, at 8.
- [115](#) *Id.*
- [116](#) Act of Mar. 24, 1909, ch. 129, 1909 Me. Laws 141.
- [117](#) *Bars Maxim Silent Gun*, N.Y. TIMES, Mar. 8, 1909, at 1.
- [118](#) Act of Apr. 7, 1911, ch. 128, 1911 N.J. Laws 185.
- [119](#) *Would Suppress Silencers*, N.Y. TIMES, Feb. 3, 1916.
- [120](#) *See generally* WILLIAM T. HORNADAY, OUR VANISHING WILD LIFE (1913).
- [121](#) *Id.* at 146.
- [122](#) LEE KENNETT & JAMES LAVERNE ANDERSON, THE GUN IN AMERICA 202 (1975).
- [123](#) *See* § 1543, 1936 Ariz. Sess. Laws 204; Act of Mar. 29, 1927, ch. 169, 35 Del. Laws 516 (1927); Act of July 1, 1933, no. 36, 1933 Haw. Sess. Laws 38, 38-39; Act of July 3, 1918, no. 88, § 3, 1918 La. Acts 131, 132; Act of Apr. 16, 1926, ch. 261, 1926 Mass. Acts 256; Act of Mar. 24, 1909, ch. 129, 1909 Me. Laws 141; Act of May 7, 1913, no. 250, 1913 Mich. Pub. Acts 472; Act of Mar. 13, 1913, ch. 64, 1913 Minn. Laws 55; Act of Mar. 7, 1925, ch. 460, § 4, 1925 N.C. Sess. Laws 529, 530; Act of Apr. 7, 1911, ch. 128, 1911 N.J. Laws 185; Act of Apr. 6, 1919, ch. 137, 1916 N.Y. Laws 338, 338-39; Act of May 24, 1923, no. 228, § 704, 1923 Pa. Laws 359, 386; Act of Apr. 22, 1927, ch. 1052, § 8, 1927 R.I. Pub. Laws 256, 259; Act of Nov. 14, 1912, no. 237, 1912 Vt. Acts & Resolves 310; § 97, ch. 83, 1921 Wyo. Sess. Laws 112-13.
- [124](#) *See* § 1543, 1936 Ariz. Sess. Laws 204; ch. 169, 35 Del. Laws, 516 (1927); no. 88, § 3, 1918 La. Acts at 132; ch. 460, § 4, 1925 N.C. Sess. Laws at 530 (applying to both hunting and general use); ch. 128, 1911 N.J. Laws at 185; no. 228, § 704, 1923 Pa. Laws at 386; no. 237, 1912 Vt. Acts & Resolves at 310; § 97, ch. 83, 1921 Wyo. Sess. Laws 112-13.
- [125](#) *Maxim Bans Gun Silencer*, N.Y. TIMES, May 8, 1930, at 27.

- ¹²⁶ *Silent Gun Kills a Family of Four*, N.Y. TIMES, Feb. 1, 1915, at 1. The narrative in this paragraph also comes from this article.
- ¹²⁷ *Id.*
- ¹²⁸ Ch. 137, 1916 N.Y. Laws at 338-39.
- ¹²⁹ *See generally Trace Lewis's Movements*, N.Y. TIMES, Jan. 6, 1917, at 6.
- ¹³⁰ *See generally Slayers Escape Police Net*, N.Y. TIMES, Dec. 17, 1920, at 1.
- ¹³¹ *See generally \$80,000 Robbery Just Off 5th Av.*, N.Y. TIMES, Mar. 17, 1921, at 1.
- ¹³² *See generally Murderer Decoys Victim By Phone*, N.Y. TIMES, Dec. 11, 1921, at 8.
- ¹³³ *See generally Slain With Own Gun, Say Veasey's Friends*, N.Y. TIMES, Jan. 12, 1930, at 20.
- ¹³⁴ *Other Cities Want Omaha Sniper*, N.Y. TIMES, Feb. 24, 1926, at 3.
- ¹³⁵ *See supra* note 103.
- ¹³⁶ *See generally National Firearms Act: Hearings on H.R. 9066 Before the H. Comm. on Ways & Means*, 173rd Cong. (1934). Franklin D. Roosevelt's Attorney General Homer S. Cummings reported that in the first three years of the law's enactment, it had resulted in the registration of 769 silencers. SELECTED PAPERS OF HOMER CUMMINGS 88 (Carl Brent Swisher ed., 1939).
- ¹³⁷ Nick Wing & Jessica Carro, *What If Millions of People Get Gun Silencers?*, HUFFINGTON POST (Mar. 13, 2017), http://www.huffingtonpost.com/entry/gun-silencers-hearing-protection-act_us_58c6b59fe4b0ed71826e1be0 [<https://perma.cc/4T3N-ZT5F>].
- ¹³⁸ *See* SCOTTE E. BRUECK ET AL., NAT'L INST. FOR OCCUPATIONAL HEALTH, MEASUREMENT OF EXPOSURE TO IMPULSIVE NOISE AT INDOOR AND OUTDOOR FIRING RANGES DURING TACTICAL TRAINING EXERCISES 14 (2014).
- ¹³⁹ *See, e.g.,* James K. Williamson, *How Easy Should It Be to Buy a Silencer for a Gun?*, TRACE (June 14, 2017), <https://www.thetrace.org/2017/06/gun-silencer-deregulation-congress/> [<https://perma.cc/V8VD-6ME2>].
- ¹⁴⁰ Sean Davis, *Progressives Don't Understand How Gun 'Silencers' Work*, FEDERALIST (Jan. 9, 2017), <http://thefederalist.com/2017/01/09/progressives-dont-understand-how-gun-silencers-work-here-are-some-facts-to-help-them/> [<https://perma.cc/M86B-GL9V>].
- ¹⁴¹ MICHAEL STEWART ET AL., NAT'L HEARING CONSERVATION ASS'N, NHCA POSITION STATEMENT: RECREATIONAL FIREARM NOISE 5 (2017), https://www.hearingconservation.org/assets/docs/NHCA_position_paper_on_firea.pdf [<https://perma.cc/7QZW-W4ZN>].

[142](#) *Id.*

[143](#) Michael Stewart, *Recreational Firearm Noise Exposure*, AM. SPEECH-LANGUAGE-HEARING ASS'NN, <http://www.asha.org/public/hearing/Recreational-Firearm-Noise-Exposure/> [<https://perma.cc/72GM-UUT8>].

[144](#) VIOLENCE POL'Y CTR., FIREARM JUSTIFIABLE HOMICIDES AND NON-FATAL SELF-DEFENSE GUN USE 1-2 (2015), <https://biotech.law.lsu.edu/blog/justifiable15.pdf> [<https://perma.cc/KZ7F-86QN>].

[145](#) *Id.* at 5.

[146](#) *Id.*

[147](#) Robert J. Spitzer, *The NRA Wants to Suppress One of Guns' Most Important Safety Features*, WASH. POST (Jan. 22, 2017), https://www.washingtonpost.com/opinions/the-nra-wants-to-suppress-one-of-guns-most-important-safety-features/2017/01/22/5a7140fc-dcd7-11e6-ad42-f3375f271c9c_story.html?utm_term=.3f3e6a0dae3e [<https://perma.cc/FP4S-DAU3>]. I do not mean to suggest that guns are somehow deliberately manufactured to make more noise than they would otherwise as a safety feature.

[148](#) *Quiet Hybrid and Electric Cars Must Make Noise under New U.S. Safety Rule*, PBS NEWSHOUR (Nov. 14, 2016), <http://www.pbs.org/newshour/runtdown/quiet-hybrid-electric-cars-must-make-noise-new-u-s-safety-rule/> [<https://perma.cc/FJY7-L5AC>].

[149](#) [49 C.F.R. § 571.141](#) S9.

[150](#) RONALD TURK, BUREAU OF ALCOHOL, TOBACCO, FIREARMS, & EXPLOSIVES, FEDERAL FIREARMS REGULATIONS: OPTIONS TO REDUCE OR MODIFY FIREARMS REGULATIONS 6 (2017).

[151](#) *Id.*

[152](#) Williamson, *supra* note 139.

[153](#) Lisa Marie Pane, *Did 'Silencer' Make a Difference in Virginia Beach Carnage?*, ASSOCIATED PRESS (June 2, 2019), <https://www.wwlp.com/news/top-stories/did-gunmans-silencer-make-a-difference-in-the-carnage/> [<https://perma.cc/W8DA-27C2>].

[154](#) *Id.* A 2013 mass shooter, Christopher Dorner, employed silencers in a mass shooting in California that killed four and wounded three, including police officers. Claudia Koerner & Alejandra Molina, *Dorner Amassed Arsenal for Rampage*, ORANGE CTY. REG. (Feb. 28, 2013), <https://www.oregister.com/2013/02/28/dorner-amassed-arsenal-for-rampage/> [<https://perma.cc/RV3L-GEGR>].

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- ¹⁵⁹ Wing & Carro, *supra* note 137.
- ¹⁶⁰ *Id.*
- ¹⁶¹ [Sylvester v. Becerra, 138 S. Ct. 945, 945, 952 \(2018\)](#) (Thomas, J., dissenting from denial of certiorari).
- ¹⁶² C. Herman Pritchett, *Preferred Freedoms Doctrine*, in *THE OXFORD COMPANION TO THE SUPREME COURT OF THE UNITED STATES* 663, 664 (Kermit L. Hall et al. eds., 1992).
- ¹⁶³ SPITZER, *supra* note 3, at 145.
- ¹⁶⁴ For such an argument, see generally SPITZER, *supra* note 31, at 54-61.
- ¹⁶⁵ *Protecting Strong Gun Laws: The Supreme Court Leaves Lower Court Victories Untouched*, GIFFORDS LAW CTR. (May 31, 2019), <https://lawcenter.giffords.org/protecting-strong-gun-laws-the-supreme-court-leaves-lower-court-victories-untouched/> [<https://perma.cc/4B6A-XJ9T>].

83 LCPR 231

LEGISLATIVE MATERIALS AND GOVERNMENT RECORDS

MANUFACTURES

(911)

CONTENTS.

Page.	
914	DEFINITIONS AND EXPLANATIONS OF TERMS.....
GENERAL STATISTICS.	
SUMMARY.	
	Table.
916	1. Continental United States and noncontiguous territory: 1919.....
916	2. Comparative summary: 1919, 1914, 1909, and 1904.....
917	3. Summary: 1849 to 1919.....
INDIVIDUAL INDUSTRIES.	
918	4. Principal industries, ranked by value of products: 1919.....
DIVISIONS AND STATES.	
920	5. Rank of geographic divisions and states in manufacturing industries: 1919.....
STATISTICS OF CITIES.	
921	6. Leading cities: 1919.....
924	7. Statistics of cities by population groups: 1919, 1914, and 1909.....
PERSONS ENGAGED IN INDUSTRIES.	
925	8. Persons engaged in manufacturing industries: 1919, 1914, and 1909.....
926	9. Sex and age distribution of wage earners in the 85 leading industries: 1919 and 1914.....
930	10. Wage earners, by months: males and females, by industries: 1919.....
966	11. Wage earners, by months, by geographic divisions and states: 1919, 1914, and 1909.....
PREVAILING HOURS OF LABOR.	
970	12. Average number of wage earners, by prevailing hours of labor per week, by industries: 1919 and 1914.....
984	13. Average number of wage earners, by prevailing hours of labor per week, by geographic divisions and states: 1919, 1914, and 1909.....
ESTABLISHMENTS ACCORDING TO SIZE.	
986	14. Size of establishments, by average number of wage earners, by industries: 1919.....
998	15. Size of establishments, by average number of wage earners, for geographic divisions and states: 1919, 1914, and 1909.....
1002	16. Number and size of establishments by value of products, by industries: 1919.....
1016	17. Geographic divisions and states, establishments grouped by value of products: 1919, 1914, 1909, and 1904.....
1020	18. Establishments grouped by value of products: 1919, 1914, 1909, and 1904.....
CHARACTER OF OWNERSHIP.	
1021	19. Character of ownership: 1919, 1914, 1909, and 1904.....
1022	20. Character of ownership, by industries: 1919.....
1030	21. Character of ownership, by geographic divisions and states: 1919, 1914, 1909, and 1904.....
POWER USED IN MANUFACTURING.	
1034	22. Power used in manufacturing industries: 1879 to 1919.....
1035	23. Horsepower in leading industries: 1919, 1914, 1909, and 1904.....
1043	24. Horsepower in geographic divisions and states: 1899 to 1919.....
CONSUMPTION OF FUEL.	
1051	25. Consumption of fuel in 47 leading fuel-consuming industries: 1919, 1914, and 1909.....
SUMMARY FOR GROUPS OF INDUSTRIES.	
1034	26. Comparative summary for 14 general groups of industries: 1919, 1914, 1909, and 1904.....
SPECIAL STATISTICS.	
FOOD AND KINDRED PRODUCTS.	
1055	27. Butter, cheese, and condensed milk: 1919, 1914, 1909, and 1904.....
1057	28. Canning and preserving, fish and oysters: 1919, 1914, 1909, and 1904.....
1058	29. Canning and preserving, fruits and vegetables: 1919, 1914, 1909, and 1904.....
1060	30. Flour-mill and gristmill products (merchant mills): 1919, 1914, 1909, and 1904.....
1061	31. Glucose and starch: 1919, 1914, and 1909.....
1062	32. Rice, cleaning and polishing: 1919, 1914, 1909, and 1904.....
1062	33. Beet and cane sugar: 1919, 1914, and 1909.....
1063	34. Slaughtering and meat packing: 1919, 1914, 1909, and 1904.....

CONTENTS.

913

TEXTILES AND THEIR PRODUCTS.

	Page.
35. Cotton manufactures: 1919, 1914, and 1909.....	1065
36. Knit goods: 1919, 1914, 1909, and 1904.....	1067
37. Silk goods, including throwsters: 1919, 1914, 1909, and 1904.....	1071
38. Woolen and worsted goods: 1919, 1914, 1909, and 1904.....	1074
39. Felt goods: 1919, 1914, 1909, and 1904.....	1077
40. Hats, fur-felt: 1919, 1914, and 1909.....	1078
41. Hats, wool-felt: 1919, 1914, 1909, and 1904.....	1079
42. Carpets and rugs: 1919, 1914, 1909, and 1904.....	1080
43. Oilcloth and linoleum: 1919, 1914, and 1909.....	1080
44. Woolshoddy: 1919, 1914, and 1909.....	1081
45. Cordage and twine, and jute and linen goods: 1919, 1914, and 1909.....	1082

IRON AND STEEL AND THEIR PRODUCTS.

46. Iron and steel, blast furnaces: 1919, 1914, and 1909.....	1084
47. Ferroalloys.....	1086
48. Steel works and rolling mills: 1919, 1914, and 1909.....	1087
49. Tin plate and ternauplate: 1919, 1914, and 1909.....	1092
50. The wire industry: 1919 and 1914.....	1093

LUMBER AND TIMBER PRODUCTS.

51. Production of lumber, lath, and shingles: 1919, 1914, 1909, and 1904.....	1095
52. Production of tight staves and heading: 1919 and 1909.....	1095
53. Production of slack staves, heading, and hoops: 1919 and 1909.....	1096
54. Wood consumed in the manufacture of veneers: 1919, 1911, and 1909.....	1096

LEATHER AND ITS FINISHED PRODUCTS.

55. Leather, tanned, curried, and finished: 1919, 1914, 1909, and 1904.....	1097
56. Boots, shoes, slippers, and other footwear, by classes: 1919, 1914, and 1904.....	1099
57. Leather gloves and mittens: 1919, 1914, 1909, and 1904.....	1100

PAPER AND PRINTING.

58. Paper and wood pulp: 1919, 1914, 1909, and 1904.....	1101
59. Printing and publishing: 1919, 1914, and 1909.....	1105
60. Books and pamphlets—Number: 1919, 1914, and 1909.....	1107

CHEMICALS.

61. Chemicals—Detailed statistics of products, by groups: 1919, 1914, and 1909.....	1108
62. Coke: 1919, 1914, and 1909.....	1123
63. Druggists' preparations, patent and proprietary medicines and compounds, perfumery and cosmetics: 1919 and 1914.....	1124
64. Natural dyestuffs and extracts: 1919, 1914, and 1909.....	1125
65. Explosives: 1919, 1914, and 1909.....	1126
66. Fertilizers: 1919, 1914, and 1909.....	1127
67. Gas, illuminating and heating: 1919, 1914, and 1909.....	1129
68. Paint and varnish: 1919, 1914, and 1909.....	1133
69. Petroleum refining: 1919, 1914, and 1909.....	1134
70. Soap: 1919, 1914, and 1909.....	1137

STONE, CLAY, AND GLASS PRODUCTS.

71. Brick, tile, pottery, and other clay products: 1919, 1914, 1909, and 1904.....	1139
72. Cement products: 1919, 1914, 1909, and 1904.....	1140
73. Glass products: 1919, 1914, 1909, and 1904.....	1141

VEHICLES FOR LAND TRANSPORTATION.

74. Automobiles: 1919, 1914, and 1909.....	1142
75. Motorcycles, bicycles, and parts: 1919, 1914, 1909, and 1904.....	1142
76. Carriages, wagons, and repairs: 1919, 1914, 1909, and 1904.....	1143
77. Cars, steam and electric railroad: 1919, 1914, 1909, and 1904.....	1144

RAILROAD REPAIR SHOPS.

78. Steam-railroad repair shops: 1919, 1914, 1909, and 1904.....	1145
79. Electric-railroad repair shops: 1919, 1914, 1909, and 1904.....	1145

MISCELLANEOUS INDUSTRIES.

80. Pianos and organs: 1919, 1914, and 1909.....	1146
81. Phonographs and graphophones: 1919, 1914, 1909, and 1904.....	1147
82. Agricultural implements: 1919, 1914, 1909, and 1904.....	1148
83. Electrical machinery, apparatus, and supplies: 1919, 1914, 1909, and 1904.....	1150
84. Ice manufactured: 1919, 1914, 1909, and 1904.....	1153
85. Rubber goods: 1919.....	1154
86. Number and gross tonnage of vessels launched, and number of power boats: 1919, 1916, 1914, and 1909.....	1155
87. Kind and value of shipbuilding work: 1919, 1916, 1914, and 1909.....	1156

GENERAL TABLES.

COMPARATIVE SUMMARY.

88. Comparative summary for the United States, by industries: 1919, and 1914.....	1157
89. Comparative summary, by geographic divisions and states: 1919, 1914, 1909, and 1904.....	1168

DETAIL STATEMENT.

90. Detail statement for the United States, by industries: 1919.....	1172
91. Detail statement, by geographic divisions and states: 1919.....	1256

1126 ABSTRACT OF THE CENSUS—MANUFACTURES.

TABLE 65.—EXPLOSIVES: 1919, 1914, AND 1909.

(Ton, 2,000 pounds.)

	1919	1914	1909
Number of establishments.....	118	111	86
Number of plants represented.....	122	116	124
MATERIALS.			
Total cost.....	\$45,911,049	\$25,626,539	\$22,511,548
Sulphur or brimstone:			
Tons.....	25,797	15,832	17,380
Cost.....	\$659,219	\$372,763	\$367,896
Pyrites:			
Tons.....	6,812	25,885	36,544
Cost.....	\$46,147	\$139,496	\$183,509
Nitrate of soda:			
Tons.....	174,742	190,960	188,889
Cost.....	\$13,154,353	\$8,079,877	\$7,892,330
Glycerin:			
Tons.....	11,535	14,501	(¹)
Cost.....	\$5,756,319	\$5,439,405	(¹)
Sulphuric acid:			
Consumption, tons.....	2,106,256	83,605	65,056
Purchased—			
Tons.....	62,069	52,398	22,501
Cost.....	\$976,293	\$723,795	\$403,204
Produced in works where consumed, tons.....	43,187	31,207	42,555
Recovered and used, tons.....	41,583		
Nitric acid:			
Consumption, tons.....	47,112	51,460	35,280
Purchased—			
Tons.....	1,537	4,347	3,795
Cost.....	\$200,267	\$476,404	\$541,314
Produced in works where consumed, tons.....	46,575	47,113	31,484
Mixed acid:			
Consumption, tons.....	77,982	88,653	
Purchased—			
Tons.....	16,637	19,255	25,882
Cost.....	\$1,597,691	\$1,047,377	\$1,512,620
Produced in works where consumed, tons.....	61,345	69,398	
All other materials, cost.....	\$23,551,778	\$8,447,422	\$11,907,693
Nitrate of ammonia produced in works where consumed, pounds.....	43,254,887	29,891,837	10,904,319
PRODUCTS.			
Total value.....	\$92,474,813	\$41,432,970	\$40,139,661
Explosives, total:			
Pounds.....	554,193,405	481,752,040	487,481,152
Value.....	\$82,233,391	\$39,645,382	\$37,983,858
Dynamite—			
Number of establishments.....	27	26	26
Pounds.....	212,529,733	223,697,630	220,145,791
Value.....	\$37,230,704	\$20,553,653	\$20,998,820
Permissible explosives—			
Number of establishments.....	15	20	13
Pounds.....	30,622,923	18,113,601	9,607,448
Value.....	\$5,499,177	\$1,004,072	\$933,209
Nitroglycerin—			
Number of establishments.....	70	58	49
For sale as such.....	11	32	23
For consumption.....	67	27	26
Production, pounds.....	56,361,210	65,302,883	74,212,980
Sold as such—			
Pounds.....	714,684	3,785,474	3,923,313
Value.....	\$301,883	\$950,611	\$833,360
Consumed in shooting wells, pounds.....	7,621,915	(¹)	(¹)
Consumed in works where produced, pounds.....	48,024,611	61,517,409	70,289,667
Blasting powder—			
Number of establishments.....	44	48	38
Tons (25 pounds).....	7,406,991	8,296,947	9,339,087
Value.....	\$12,168,473	\$8,459,113	\$9,098,265
Gunpowder, black—			
Number of establishments.....	7	8	8
Pounds.....	11,730,094	7,685,036	12,862,700
Value.....	\$2,099,579	\$977,455	\$1,736,427
Other explosives, in order named, as to value, 1919:			
Smokeless powder, guncotton, nitrogelatin, nitro-starch, fuse powder, trinitrotoluol, ammonium ni-trate, and fulminating mercury—			
Pounds.....	57,744,670	21,076,624	7,464,725
Value.....	\$24,936,595	\$7,100,478	\$3,013,787
Amount received for contract work, shooting wells.....	\$3,434,835	(¹)	(¹)
All other products, value.....	\$6,806,587	\$1,787,588	\$2,155,763

¹ Figures not available.

² Strength 66°; varying strength in prior years.

³ In addition, explosives (guncotton and fulminating mercury) to the value of \$129,514 were produced by establishments not primarily engaged in the manufacture of explosives.

⁴ Included above with "nitroglycerin—sold as such."

who hoped that state intervention would force their husbands to reform. They were *de facto* civil suits.

Before the mid-eighteenth century, divorce and separation could not have played much of a role in deterring marital violence in the Anglo-American world. England's divorce laws were then more restrictive than those of any other Protestant nation, and the colonies generally followed English precedent. Throughout the colonial period the only permissible grounds for divorce in Virginia and Maryland were adultery, desertion, impotence, or neglect. The courts did not grant divorces on the grounds of cruelty, but they did permit separations in extreme cases. In 1676, for instance, Sarah Gibson was "Left to her Liberty" by the General Court of Virginia "Either to goe for England or Stay with her husband" as she thought "best for her Safety," after her husband beat and maimed her. The same court granted Mrs. Burt "seaprate maintenance" in 1679 because her husband was "a terrible fellow" who "ill treated" her.²⁵

The colonial governments of New England were more likely to permit separations on the grounds of cruelty, but they, too, stopped short of granting divorces on those grounds, even when they were afraid that one spouse might kill the other. They viewed marriage, in the tradition of radical or reformed Protestantism, as a civil contract that could be voided by civil authorities if one party failed to live up to the terms of the contract, but the only grounds recognized for voiding the contract were adultery, desertion, and impotence. Marital violence was too commonplace to be considered as grounds for divorce, and, as in England, men were allowed to discipline their wives by beating them, just as they would their children, servants, and slaves. Violence could be prosecuted only as an assault—that is, as a violation of the general civil contract.²⁶

By the end of the eighteenth century circumstances had changed. Vermont and New Hampshire were the first states to sanction divorce on the grounds of marital violence. The American Revolution led authorities in northern New England to conclude that spouses had a right to live free from violence and that marriage, like any other civil compact among freeborn citizens, should rest only on consent, not coercion. In 1787 Vermont made "intolerable severity" grounds for divorce, and in 1791 New Hampshire followed suit with a less sweeping but still forceful law against "extreme cruelty." These laws were not

dead letters. Abused spouses used them freely to protect themselves against violence, and the courts used them to punish violent spouses by granting victims property, alimony, and child custody.²⁷

The Massachusetts and Connecticut legislatures also recognized the need to protect spouses, especially wives, against abuse. In 1786 Massachusetts passed a law that allowed abused spouses to seek legal separation "from bed and board." The law did not permit divorces on the grounds of cruelty, but it allowed victims to leave troubled marriages, taking their children and property with them, and freed them from debts incurred by their spouses after the separation. Connecticut did not officially amend its divorce law, but in 1790 the state assembly began to rule favorably on petitions for divorce on the grounds of cruelty. Equally important, in the late 1760s every jurisdiction in New England began granting a substantially greater number of divorces on the grounds of adultery, desertion, and neglect. Many of the marriages dissolved on those grounds were violent, and public officials were willing to hear testimony about abuse as long as the bulk of the testimony pertained to legal grounds for divorce.²⁸

The changes in divorce proceedings in Massachusetts and Connecticut did not protect as many victims of chronic abuse as the antiabuse statutes in Vermont and New Hampshire, but they were indicative of the broad consensus that began to take hold in New England after the Revolution: in marriage as in government, tyranny was unacceptable. The ability of abused spouses to dissolve violent marriages may well have become a deterrent to violence and may even have been the primary reason that the spouse murder rate fell by half in New England after the Revolution.

Abused women in the colonies had other resources besides the state, however: their neighbors and relatives. Public scorn for abusers and the intervention of neighbors to protect victims—both of which had their roots in the culture of early modern England—did more than criminal prosecution or the threat of divorce to restrain marital violence. Intervention by third parties was common not only in the seventeenth century, when families enjoyed little privacy and when friends and neighbors had few qualms about interfering in other people's affairs, but also in the nineteenth century, when modern notions of privacy were emerging. Neighbors, servants, and relatives even stepped in when marital violence was mutual.²⁹

51. Amelia County (Va.) Court Order Book, 27 July 1815 and 24 March 1825; and inquest on the body of Tom, 20 June 1815, Amelia County Court files. See also Amelia County Court Order Book, 25 September and 1 October 1823.
52. Rockbridge County (Va.) Court Order Book, 1804–1805: 415–421.
53. Rockbridge County Court Order Book, 1846–1848: 212; and *Lexington Gazette*, 3 June 1847.
54. Edgefield County (S.C.) Coroner's Book of Inquisitions, 1859–1868: 39–40, South Caroliniana Library; Oates (1975: 132–133); and Grimsted (1998: 122).
55. AHSV (2009: AH, tables 23 and 25).
56. Wyatt-Brown (1982), Ayers (1984), K. S. Greenberg (1996), Longstreet (1992: 35), Denham and Huneycutt (2004: 126), and Denham and Brown (2000: 46).
57. Rockbridge County Court Order Book, 1840–1843, 28 October and 3 November 1842; and Amelia County Court Order Book, 2 December 1828.
58. State v. Richard V. Gregory, October 1836 term, Jasper County (Ga.) Court files; and State v. Turner Horton, October 1838 term, *ibid.*
59. On homicides over games of chance or strength, see inquest on Thomas Shelly, 17 March 1814, Surry County (Va.) Court files; *New Hampshire Patriot*, 30 July 1821; *Lexington Gazette*, 9 October 1835 and 23 November 1854; State v. Samuel McDaniel, April 1834 term, Jasper County Court files; State v. David V. Palmer, October 1838 term, *ibid.*; State v. Jefferson Clay et al., April 1843 term, *ibid.*; State v. John Hoard, October 1844 term, *ibid.*; *Union Recorder*, 17 January 1854; and Edgefield County Coroner's Book of Inquisitions, 1851–1859: 2–5, 121–122; 1859–1868: 35–36. On homicides over property, see Grimsted (1998: 88); Edgefield County Coroner's Book of Inquisitions, 1844–1850: 17–20, 25–28, 49–52; 1851–1859: 34–36, 152–158; and 1859–1868: 51–52; Rockbridge County Court Order Book, 1802–03, 22 November 1802, and 1807–1809, 9 and 10 November 1807; Amelia County Court Order Book, 1825–1827, 28 July and 25 August 1825; and *Lexington Gazette*, 24 August 1838.
60. Longstreet (1992: 224–229).
61. Steward (2000), J. K. Williams (1980), Bruce (1979), and Gamble (1923).
62. Writers' Program of the Works Progress Administration (1941: 47–48) and Franklin (1961: 50).
63. Shade (1996: 222), Stevens (1940: 84–86), Franklin (1961: 57–58), Oates (1975: 136–139), Crofts (1992: 118–119), and Ayers (1984: 114).

- See also *Augusta Chronicle*, 11 September 1802; *Virginia Telegraph* (Lexington), 26 April 1803; and *Lexington News-Letter* (Va.), 20 March 1819.
64. K. S. Greenberg (1985).
 65. *Lexington News-Letter*, 17 April 1819; and *American Constellation* (Petersburg, Va.), 22 July 1834. See also *Daily Republican* (Petersburg, Va.), 2, 5, 12, and 26 April 1843; and Franklin (1961: 55–56).
 66. *Burlington Free Press*, 29 March 1839.
 67. Franklin (1961: 36–39), Stevens (1940: 111–128), and Wyatt-Brown (1982: 359–360).
 68. Longstreet (1992: 61, 197).
 69. MacIntyre (1923, 1: 8–9), Morris (1995: 121–131), Gilje (1996: 82), and Grimsted (1998: 103).
 70. For interregional comparisons of the number of deaths that resulted from collective violence, see Grimsted (1998) and R. M. Brown (1975).
 71. Ignatiev (1995: 125–133).
 72. G. W. Harris (1987: 20–28, 134–148), Mayfield (2000), and Grimsted (1998: 105–107).
 73. Grimsted (1998: 87–88, 92–93).
 74. Stevens (1940: 38–41, 46, 79, 90–91), Cramer (1999: 57, 60, 79, 105, 113–114, 117), and Steward (2000: 79–99).
 75. AHSV (2009: Weapons).
 76. Cramer (1999: 76, 84, 111, 121, 132) and Jasper County Superior Court minutes, Grand Jury presentments, March 1808, October 1833, April 1834.
 77. Cramer (1999: 1–8, 47–142). The South Carolina legislature did not pass a concealed-weapons law, but it received numerous petitions on behalf of such a law (Grimsted 1998: 97).
 78. Wyatt-Brown (1982: 364–365), Franklin (1961: vii, ix, xi), and Ayers (1984: 17).
 79. Cusick (2003: 174–177, 303–304).
 80. Baptist (2002: 46–47, 53–58, 91–96, 111–119, 159–165) and Doherty (1949). These political practices and their economic consequences were not uncommon on the postrevolutionary frontier (Abernethy 1932).
 81. Denham and Roth (2007); *St. Joseph Times* (Fla.), 21 April 1840; *Jacksonville Florida News*, 3 and 10 October 1846; and *Tallahassee Florida Sentinel*, 11 and 18 August 1846.
 82. Denham and Roth (2007). On property disputes, see the murder of Wildman Hines, Jefferson County (Fla.) Court files, 1838, Jefferson County Circuit Court, Monticello, Fla.; of Felix Livingston, *Jacksonville*

U.S. Department of Justice

Bureau of Alcohol, Tobacco, Firearms and Explosives

Enforcement Programs and Services

ATF

Federal Explosives Law and Regulations

2012





U.S. Department of Justice

Bureau of Alcohol, Tobacco,
Firearms and Explosives

Office of the Director

APR 27 2012

Washington, DC 20226

www.atf.gov

Dear Federal Explosives Licensee or Permittee:

We are pleased to provide you with the latest edition of the Federal Explosives Law and Regulations. We hope this guide is useful for you as we continue our shared goal of ensuring the safe and secure storage of explosive materials. ATF values each and every licensee and permittee as a vital partner in pursuit of this mission, and we appreciate your cooperation.


This edition of the Federal Explosives Law and Regulations reflects changes and developments in response to the Safe Explosives Act of 2002. Federal explosives laws have evolved greatly since the enactment of Title XI of the Organized Crime Act of 1970, and we at ATF want to keep industry members informed about the developments that affect them and their businesses.

Ensuring the safety of explosive materials can be accomplished through proper construction of magazines, adherence to the Tables of Distances, and appropriate housekeeping. Safety is also achieved through effective employee training, proper handling procedures, and compliance with all State and local requirements.

Security of all explosive materials helps protect Americans from violent crime and is an essential tool in the war against terrorism. ATF combats the criminal diversion or misuse of explosive materials by verifying required records, ensuring the use of approved locking systems, and conducting background checks on industry applicants and their employees. Licensees and permittees assist us with our mission through internal controls, best practices and ATF-industry security publications.

Your continued vigilance is the most effective means of safety and security. ATF appreciates your cooperation and support in helping us meet our shared goals. As always, if we can be of assistance, please do not hesitate to contact us.

Sincerely yours,



B. Todd Jones
Acting Director

Table of Contents

Organized Crime Control Act of 1970, Title XI	1
Title 18, United States Code, Sec. 1102, Chapter 40. Importation, Manufacture, Distribution and Storage of Explosive Materials	1
841. Definitions.....	1
842. Unlawful Acts	2
843. Licenses and User Permits	5
844. Penalties.....	6
845. Exceptions; Relief From Disabilities	8
846. Additional Powers of the Attorney General.....	9
847. Rules and Regulations	9
848. Effect on State Law	10
Title 27, Code of Federal Regulations, Part 555—Commerce in Explosives	11
Subpart A—Introduction	13
Subpart B—Definitions	13
Subpart C—Administrative and Miscellaneous Provisions	18
Subpart D—Licenses and Permits.....	22
Subpart E—License and Permit Proceedings.....	29
Subpart F—Conduct of Business or Operations	32
Subpart G—Records and Reports	38
Subpart H—Exemptions	44
Subpart I—Unlawful Acts, Penalties, Seizures and Forfeitures	46
Subpart J—Marking of Plastic Explosives.....	47
Subpart K—Storage	49
Tables of Distances for Storage	55
Questions and Answers	59
ATF Explosives Rulings.....	73
Appendices To Ruling 77-24, Alternate Magazine Construction Standards for Storage of Electric Blasting Caps with Other Explosive Materials are Prescribed.....	97
Appendix A Diagram: Permanently Mounted Containers For Vehicle Storage	97
Appendix B Diagram: Built-in Compartments For Vehicle Storage.....	97
Appendix C Diagram: Laminate Construction For Vehicle Storage	98
Appendix D Diagram: Alternate Laminate Construction For Permanently Mounted Containers	98
Appendix E Diagram: Portable Wheeled Trailers	98
General Information	99
Effect of 18 U.S.C. Chapter 40 On the Fireworks Industry	99
Explosives Dealer’s and User’s Guide to Federal Explosives Regulation	100
Black Powder Transactions.....	100
Explosives Security	100
Additional Information.....	101
List of Explosive Materials	102

Organized Crime Control Act of 1970, Title XI

Regulation of Explosives

Public Law 91-452, Approved October 15, 1970 (as Amended)

[Note: Any reference to the Internal Revenue Code of 1954 refers to the Internal Revenue Code of 1986 (§ 2, Public Law 99-514, 100 Stat. 2085, October 22, 1986.)]

Purpose

Sec. 1101. The Congress hereby declares that the purpose of this title is to protect interstate and foreign commerce against interference and interruption by reducing the hazard to persons and property arising from misuse and unsafe or insecure storage of explosive materials. It is not the purpose of this title to place any undue or unnecessary Federal restrictions or burdens on law-abiding citizens with respect to the acquisition, possession, storage, or use of explosive materials for industrial, mining, agricultural, or other lawful purposes, or to provide for the imposition by Federal regulations of any procedures or requirements other than those reasonably necessary to implement and effectuate the provisions of this title.

Sec. 1102. Title 18, United States Code, is amended by adding after chapter 39 the following chapter:

Chapter 40. Importation, Manufacture, Distribution and Storage of Explosive Materials

Editor's Note: The sections of law set out herein were added by Public Law 91-452, Title XI, § 1102(a), Oct. 15, 1970, 84 Stat. 952-959, and remain un-changed unless otherwise footnoted.

Sec.

- 841. Definitions
- 842. Unlawful acts
- 843. Licenses and user permits
- 844. Penalties
- 845. Exceptions; relief from disabilities
- 846. Additional powers of the Attorney General
- 847. Rules and regulations
- 848. Effect on State law

§ 841. Definitions

As used in this chapter—

- (a) **“Person”** means any individual, corporation, company, association, firm, partnership, society, or joint stock company.
- (b) **“Interstate or foreign commerce”** means commerce between any place in a State and any place outside of that State, or within any possession of the United States (not including the Canal Zone) or the District of Columbia, and commerce between places within the same State but through any place outside of that State. “State” includes the District of Columbia, the Commonwealth of Puerto Rico, and the possessions of the United States (not including the Canal Zone).

(c) **“Explosive materials”** means explosives, blasting agents, and detonators.

(d) Except for the purposes of subsections (d), (e), (f), (g), (h), (i), and (j) of section 844 of this title, **“explosives”** means any chemical compound mixture, or device, the primary or common purpose of which is to function by explosion; the term includes, but is not limited to, dynamite and other high explosives, black powder, pellet powder, initiating explosives, detonators, safety fuses, squibs, detonating cord, igniter cord, and igniters. The Attorney General shall publish and revise at least annually in the Federal Register a list of these and any additional explosives which he determines to be within the coverage of this chapter. For the purposes of subsections (d), (e), (f), (g), (h), and (i) of section 844 of this title, the term “explosive” is defined in subsection (j) of such section 844.

(e) **“Blasting agent”** means any material or mixture, consisting of fuel and oxidizer, intended for blasting, not otherwise defined as an explosive: Provided, that the finished product, as mixed for use or shipment, cannot be detonated by means of a numbered 8 test blasting cap when unconfined.

(f) **“Detonator”** means any device containing a detonating charge that is used for initiating detonation in an explosive; the term includes, but is not limited to, electric blasting caps of instantaneous and delay types, blasting caps for use with safety fuses and detonating cord delay connectors.

(g) **“Importer”** means any person engaged in the business of importing or bringing explosive materials into the United States for purposes of sale or distribution.

(h) **“Manufacturer”** means any person engaged in the business of manufacturing explosive materials for purposes of sale or distribution or for his own use.

(i) **“Dealer”** means any person engaged in the business of distributing explosive materials at wholesale or retail.

(j) **“Permittee”** means any user of explosives for a lawful purpose, who has obtained either a user permit or a limited permit under the provisions of this chapter.

(k) **“Attorney General”** means the Attorney General of the United States.

(l) **“Crime punishable by imprisonment for a term exceeding one year”** shall not mean (1) any Federal or State offenses pertaining to antitrust violations, unfair trade practices, restraints of trade, or other similar offenses relating to the regulation of business practices as the Attorney General may by regulation designate, or (2) any State offense (other than one involving a firearm or explosive) classified by the laws of the State as a misdemeanor and punishable by a term of imprisonment of two years or less.

(m) **“Licensee”** means any importer, manufacturer, or dealer licensed under the provisions of this chapter.

(n) **“Distribute”** means sell, issue, give, transfer, or otherwise dispose of.

(o) **“Convention on the Marking of Plastic Explosives”** means the Convention on the Marking of Plastic Explosives for the Purpose of Detection, Done at Montreal on 1 March 1991.

(p) **“Detection agent”** means any one of the substances specified in this subsection when introduced into a plastic explosive or formulated in such explosive as a part of the manufacturing process in such a manner as to achieve homogeneous distribution in the finished explosive, including

(1) Ethylene glycol dinitrate (EGDN), $C_2H_4(NO_2)_2$, molecular weight 152, when the minimum concentration in the finished explosive is 0.2 percent by mass;

(2) 2,3-Dimethyl-2,3-dinitrobutane (DMNB), $C_6H_{12}(NO_2)_2$, molecular weight 176, when the minimum concentration in the finished explosive is 0.1 percent by mass;

(3) Para-Mononitrotoluene (p-MNT), $C_7H_7NO_2$, molecular weight 137, when the minimum concentration in the finished explosive is 0.5 percent by mass;

(4) Ortho-Mononitrotoluene (o-MNT), $C_7H_7NO_2$, molecular weight 137, when the minimum concentration in the finished explosive is 0.5 percent by mass; and

(5) any other substance in the concentration specified by the Attorney General, after consultation with the Secretary of State and the Secretary of Defense, that has been added to the table in part 2 of the Technical Annex to the Convention on the Marking of Plastic Explosives.

(q) **“Plastic explosive”** means an explosive material in flexible or elastic sheet form formulated with one or more high explosives which in their pure form has a vapor pressure less than 10^{-4} Pa at a temperature of 25 °C, is formulated with a binder material, and is as a mixture malleable or flexible at normal room temperature.

(r) **“Alien”** means any person who is not a citizen or national of the United States.

(s) **“Responsible person”** means an individual who has the power to direct the management and policies of the applicant pertaining to explosive materials.

(t) **Indian Tribe.** The term “Indian tribe” has the meaning given the term in section 102 of the Federally Recognized Indian Tribe List Act of 1994 (25 U.S.C. 479a).

(Added Pub. L. 91–452, title XI, Sec. 1102(a), Oct. 15, 1970, 84 Stat. 952; amended Pub. L. 104–132, title VI, Sec. 602, Apr. 24, 1996, 110 Stat. 1288; Pub. L. 107–296, title XI, Secs. 1112(e)(1), (3), 1122(a), Nov. 25, 2002, 116 Stat. 2276, 2280; Pub. L. 111–211, title II, Sec. 236(b), July 29, 2010, 124 Stat. 2286.)

§ 842. Unlawful Acts

(a) It shall be unlawful for any person—

(1) to engage in the business of importing, manufacturing, or dealing in explosive materials without a license issued under this chapter;

(2) knowingly to withhold information or to make any false or fictitious oral or written statement or to furnish or exhibit any false, fictitious, or misrepresented identification, intended or likely to deceive for the purpose of obtaining explosive materials, or a license, permit, exemption, or relief from disability under the provisions of this chapter;

(3) other than a licensee or permittee knowingly—

(A) to transport, ship, cause to be transported, or receive any explosive materials; or

(B) to distribute explosive materials to any person other than a licensee or permittee; or

(4) who is a holder of a limited permit—

(A) to transport, ship, cause to be transported, or receive in interstate or foreign commerce any explosive materials; or

(B) to receive explosive materials from a licensee or permittee, whose premises are located outside the State of residence of the limited permit holder, or on more than 6 separate occasions, during the period of the permit, to receive explosive materials from 1 or more licensees or permittees whose premises are located within the State of residence of the limited permit holder.

(b) It shall be unlawful for any licensee or permittee to knowingly distribute any explosive materials to any person other than—

- (1) a licensee;
- (2) a holder of a user permit; or
- (3) a holder of a limited permit who is a resident of the State where distribution is made and in which the premises of the transferor are located.

(c) It shall be unlawful for any licensee to distribute explosive materials to any person who the licensee has reason to believe intends to transport such explosive materials into a State where the purchase, possession, or use of explosive materials is prohibited or which does not permit its residents to transport or ship explosive materials into it or to receive explosive materials in it.

(d) It shall be unlawful for any person knowingly to distribute explosive materials to any individual who:

- (1) is under twenty-one years of age;
- (2) has been convicted in any court of a crime punishable by imprisonment for a term exceeding one year;
- (3) is under indictment for a crime punishable by imprisonment for a term exceeding one year;
- (4) is a fugitive from justice;
- (5) is an unlawful user of or addicted to any controlled substance (as defined in section 102 of the Controlled Substances Act (21 U.S.C. 802));
- (6) has been adjudicated a mental defective or who has been committed to a mental institution;
- (7) is an alien, other than an alien who—
 - (A) is lawfully admitted for permanent residence (as defined in section 101(a)(20) of the Immigration and Nationality Act);

(B) is in lawful nonimmigrant status, is a refugee admitted under section 207 of the Immigration and Nationality Act (8 U.S.C. 1157), or is in asylum status under section 208 of the Immigration and Nationality Act (8 U.S.C. 1158), and—

- (i) is a foreign law enforcement officer of a friendly foreign government, as determined by the Attorney General in consultation with the Secretary of State, entering the United States on official law enforcement business, and the shipping, transporting, possession, or receipt of explosive materials is in furtherance of this official law enforcement business; or
- (ii) is a person having the power to direct or cause the direction of the management and policies of a corporation, partnership, or association licensed pursuant to section 843(a), and the shipping, transporting, possession, or receipt of explosive materials is in furtherance of such power;

(C) is a member of a North Atlantic Treaty Organization (NATO) or other friendly foreign military force, as determined by the Attorney General in consultation with the Secretary of Defense, who is present in the United States under military orders for training or other military purpose authorized by

the United States and the shipping, transporting, possession, or receipt of explosive materials is in furtherance of the authorized military purpose; or

(D) is lawfully present in the United States in cooperation with the Director of Central Intelligence, and the shipment, transportation, receipt, or possession of the explosive materials is in furtherance of such cooperation;

(8) has been discharged from the armed forces under dishonorable conditions;

(9) having been a citizen of the United States, has renounced the citizenship of that person.

(e) It shall be unlawful for any licensee knowingly to distribute any explosive materials to any person in any State where the purchase, possession, or use by such person of such explosive materials would be in violation of any State law or any published ordinance applicable at the place of distribution.

(f) It shall be unlawful for any licensee or permittee willfully to manufacture, import, purchase, distribute, or receive explosive materials without making such records as the Attorney General may by regulation require, including, but not limited to, a statement of intended use, the name, date, place of birth, social security number or taxpayer identification number, and place of residence of any natural person to whom explosive materials are distributed. If explosive materials are distributed to a corporation or other business entity, such records shall include the identity and principal and local places of business and the name, date, place of birth, and place of residence of the natural person acting as agent of the corporation or other business entity in arranging the distribution.

(g) It shall be unlawful for any licensee or permittee knowingly to make any false entry in any record which he is required to keep pursuant to this section or regulations promulgated under section 847 of this title.

(h) It shall be unlawful for any person to receive, possess, transport, ship, conceal, store, barter, sell, dispose of, or pledge or accept as security for a loan, any stolen explosive materials which are moving as, which are part of, which constitute, or which have been shipped or transported in, interstate or foreign commerce, either before or after such materials were stolen, knowing or having reasonable cause to believe that the explosive materials were stolen.

(i) It shall be unlawful for any person—

- (1) who is under indictment for, or who has been convicted in any court of, a crime punishable by imprisonment for a term exceeding one year;
- (2) who is a fugitive from justice;
- (3) who is an unlawful user of or addicted to any controlled substance (as defined in section 102 of the Controlled Substances Act (21 U.S.C. 802));

(4) who has been adjudicated as a mental defective or who has been committed to a mental institution;

(5) who is an alien, other than an alien who—

(A) is lawfully admitted for permanent residence (as that term is defined in section 101(a)(20) of the Immigration and Nationality Act);

(B) is in lawful nonimmigrant status, is a refugee admitted under section 207 of the Immigration and Nationality Act (8 U.S.C. 1157), or is in asylum status under section 208 of the Immigration and Nationality Act (8 U.S.C. 1158), and—

(i) is a foreign law enforcement officer of a friendly foreign government, as determined by the Attorney General in consultation with the Secretary of State, entering the United States on official law enforcement business, and the shipping, transporting, possession, or receipt of explosive materials is in furtherance of this official law enforcement business; or

(ii) is a person having the power to direct or cause the direction of the management and policies of a corporation, partnership, or association licensed pursuant to section 843(a), and the shipping, transporting, possession, or receipt of explosive materials is in furtherance of such power;

(C) is a member of a North Atlantic Treaty Organization (NATO) or other friendly foreign military force, as determined by the Attorney General in consultation with the Secretary of Defense, who is present in the United States under military orders for training or other military purpose authorized by the United States and the shipping, transporting, possession, or receipt of explosive materials is in furtherance of the authorized military purpose; or

(D) is lawfully present in the United States in cooperation with the Director of Central Intelligence, and the shipment, transportation, receipt, or possession of the explosive materials is in furtherance of such cooperation;

(6) who has been discharged from the armed forces under dishonorable conditions;

(7) who, having been a citizen of the United States, has renounced the citizenship of that person to ship or transport any explosive in or affecting interstate or foreign commerce or to receive or possess any explosive which has been shipped or transported in or affecting interstate or foreign commerce.

(j) It shall be unlawful for any person to store any explosive material in a manner not in conformity with regulations promulgated by the Attorney General. In promulgating such regulations, the Attorney General shall take into consideration the class, type, and quantity of explosive materials to be stored, as well as the standards of safety and security recognized in the explosives industry.

(k) It shall be unlawful for any person who has knowledge of the theft or loss of any explosive materials from his stock, to fail to report such theft or loss within twenty-four hours of discovery thereof, to the Attorney General and to appropriate local authorities.

(l) It shall be unlawful for any person to manufacture any plastic explosive that does not contain a detection agent.

(m) (1) It shall be unlawful for any person to import or bring into the United States, or export from the United States, any plastic explosive that does not contain a detection agent.

(2) This subsection does not apply to the importation or bringing into the United States, or the exportation from the United States, of any plastic explosive that was imported or brought into, or manufactured in the United States prior to the date of enactment of this subsection [enacted April 24, 1996] by or on behalf of any agency of the United States performing military or police functions (including any military reserve component) or by or on behalf of the National Guard of any State, not later than 15 years after the date of entry into force of the Convention on the Marking of Plastic Explosives, with respect to the United States.

(n) (1) It shall be unlawful for any person to ship, transport, transfer, receive, or possess any plastic explosive that does not contain a detection agent.

(2) This subsection does not apply to—

(A) the shipment, transportation, transfer, receipt, or possession of any plastic explosive that was imported or brought into, or manufactured in the United States prior to the date of enactment of this subsection [enacted April 24, 1996] by any person during the period beginning on that date and ending 3 years after that date of enactment; or

(B) the shipment, transportation, transfer, receipt, or possession of any plastic explosive that was imported or brought into, or manufactured in the United States prior to the date of enactment of this subsection [enacted April 24, 1996] by or on behalf of any agency of the United States performing a military or police function (including any military reserve component) or by or on behalf of the National Guard of any State, not later than 15 years after the date of entry into force of the Convention on the Marking of Plastic Explosives, with respect to the United States.

(o) It shall be unlawful for any person, other than an agency of the United States (including any military reserve component) or the National Guard of any State, possessing any plastic explosive on the date of enactment of this subsection [enacted April 24, 1996], to fail to report to the Attorney General within 120 days after such date of enactment the quantity of such explosives possessed, the manufacturer or importer, any marks of identification on such explosives, and such other information as the Attorney General may prescribe by regulation.

(p) Distribution of Information Relating to Explosives, Destructive Devices, and Weapons of Mass Destruction.

(1) Definitions. In this subsection—

(A) the term “destructive device” has the same meaning as in section 921(a)(4);

(B) the term “explosive” has the same meaning as in section 844(j); and

(C) the term “weapon of mass destruction” has the same meaning as in section 2332a(c)(2).

(2) Prohibition. It shall be unlawful for any person—

(A) to teach or demonstrate the making or use of an explosive, a destructive device, or a weapon of mass destruction, or to distribute by any means information pertaining to, in whole or in part, the manufacture or use of an explosive, destructive device, or weapon of mass destruction, with the intent that the teaching, demonstration, or information be used for, or in furtherance of, an activity that constitutes a Federal crime of violence; or

(B) to teach or demonstrate to any person the making or use of an explosive, a destructive device, or a weapon of mass destruction, or to distribute to any person, by any means, information pertaining to, in whole or in part, the manufacture or use of an explosive, destructive device, or weapon of mass destruction, knowing that such person intends to use the teaching, demonstration, or information for, or in furtherance of, an activity that constitutes a Federal crime of violence.

(Added Pub. L. 91–452, title XI, Sec. 1102(a), Oct. 15, 1970, 84 Stat. 953; amended Pub. L. 100–690, title VI, Sec. 6474(c), (d), Nov. 18, 1988, 102 Stat. 4380; Pub. L. 101–647, title XXXV, Sec. 3521, Nov. 29, 1990, 104 Stat. 4923; Pub. L. 103–322, title XI, Secs. 110508, 110516, Sept. 13, 1994, 108 Stat. 2018, 2020; Pub. L. 104–132, title VI, Sec. 603, title VII, Sec. 707, Apr. 24, 1996, 110 Stat. 1289, 1296; Pub. L. 106–54, Sec. 2(a), Aug. 17, 1999, 113 Stat. 398; Pub. L. 107–296, title XI, Secs. 1112(e)(3), 1122(b), 1123, Nov. 25, 2002, 116 Stat. 2276, 2280, 2283; Pub. L. 108–177, title III, Sec. 372, Dec. 13, 2003, 117 Stat. 2627.)

§ 843. Licenses and User Permits

(a) An application for a user permit or limited permit or a license to import, manufacture, or deal in explosive materials shall be in such form and contain such information as the Attorney General shall by regulation prescribe, including the names of and appropriate identifying information regarding all employees who will be authorized by the applicant to possess explosive materials, as well as fingerprints and a photograph of each responsible person. Each applicant for a license or permit shall pay a fee to be charged as set by the Attorney General, said fee not to exceed \$50 for a limited permit and \$200 for any other license or permit. Each license or user permit shall be valid for not longer than 3 years from the date of issuance and each limited permit shall be valid for not longer than 1 year from the date of issuance. Each license or permit shall be renewable upon the same conditions and subject to the same restrictions as the original license or permit, and upon payment of a renewal fee not to exceed one-half of the original fee.

(b) Upon the filing of a proper application and payment of the prescribed fee, and subject to the provisions of this chapter and other applicable laws, the Attorney General shall issue to such applicant the appropriate license or permit if—

(1) the applicant (or, if the applicant is a corporation, partnership, or association, each responsible person with respect to the applicant) is not a person described in section 842(i);

(2) the applicant has not willfully violated any of the provisions of this chapter or regulations issued hereunder;

(3) the applicant has in a State premises from which he conducts or intends to conduct business;

(4) (A) the Attorney General verifies by inspection or, if the application is for an original limited permit or the first or second renewal of such a permit, by such other means as the Attorney General determines appropriate, that the applicant has a place of storage for explosive materials which meets such standards of public safety and security against theft as the Attorney General by regulations shall prescribe; and

(B) subparagraph (A) shall not apply to an applicant for the renewal of a limited permit if the Attorney General has verified, by inspection within the preceding 3 years, the matters described in subparagraph (A) with respect to the applicant; and

(5) the applicant has demonstrated and certified in writing that he is familiar with all published State laws and local ordinances relating to explosive materials for the location in which he intends to do business;

(6) none of the employees of the applicant who will be authorized by the applicant to possess explosive materials is any person described in section 842(i); and

(7) in the case of a limited permit, the applicant has certified in writing that the applicant will not receive explosive materials on more than 6 separate occasions during the 12-month period for which the limited permit is valid.

(c) The Attorney General shall approve or deny an application within a period of 90 days for licenses and permits, beginning on the date such application is received by the Attorney General.

(d) The Attorney General may revoke any license or permit issued under this section if in the opinion of the Attorney General the holder thereof has violated any provision of this chapter or any rule or regulation prescribed by the Attorney General under this chapter, or has become ineligible to acquire explosive materials under section 842(d). The Attorney General's action under this subsection may be reviewed only as provided in subsection (e)(2) of this section.

(e) (1) Any person whose application is denied or whose license or permit is revoked shall receive a written notice from the Attorney General stating the specific grounds upon which such denial or revocation is based. Any notice of a revocation of a license or permit shall be given to the holder of such license or permit prior to or concurrently with the effective date of the revocation.

(2) If the Attorney General denies an application for, or revokes a license, or permit, he shall, upon request by the aggrieved party, promptly hold a hearing to review his denial or revocation. In the case of a revocation, the Attorney General may upon a request of the holder stay the effective date of the revocation. A hearing under this section shall be at a location convenient to the aggrieved party. The Attorney General shall give written notice of his decision to the aggrieved party within a reasonable time after the hearing. The aggrieved party may, within sixty days after receipt of the Attorney General's written decision, file a petition with the United States court of appeals for the district in which he resides or has his principal place of business for a judicial review of such denial or revocation, pursuant to sections 701–706 of Title 5, United States Code.

(f) Licensees and holders of user permits shall make available for inspection at all reasonable times their records kept pursuant to this chapter or the regulations issued hereunder, and licensees and permittees shall submit to the Attorney General such reports and information with respect to such records and the contents thereof as he shall by regulations prescribe. The Attorney General may enter during business hours the premises (including places of storage) of any licensee or holder of a user permit, for the purpose of inspecting or examining (1) any records or documents required to be kept by such licensee or permittee, under the provisions of this chapter or regulations issued hereunder, and (2) any explosive materials kept or stored by such licensee or permittee at such premises. Upon the request of any State or any political subdivision thereof, the Attorney General may make available to such State or any political subdivision thereof, any information which he may obtain by reason of the provisions of this chapter with respect to the identification of persons within such State or political subdivision thereof, who have purchased or received explosive materials, together with a description of such explosive materials. The Attorney General may inspect the places of storage for explosive materials of an applicant for a limited permit or, at the time of renewal of such permit, a holder of a limited permit, only as provided in subsection (b)(4).

(g) Licenses and user permits issued under the provisions of subsection (b) of this section shall be kept posted and kept available for inspection on the premises covered by the license and permit.

(h) (1) If the Attorney General receives, from an employer, the name and other identifying information of a responsible person or an employee who will be authorized by the employer to possess explosive materials in the course of employment with the employer, the Attorney General shall determine whether the responsible person or employee is one of the persons described in any paragraph of section 842(i). In making the determination, the Attorney General may take into account a letter or document issued under paragraph (2).

(2) (A) If the Attorney General determines that the responsible person or the employee is not one of the persons described in any paragraph of section 842(i), the Attorney General shall notify the employer in writing or electronically of the determination and issue, to the responsible person or employee, a letter of clearance, which confirms the determination.

(B) If the Attorney General determines that the responsible person or employee is one of the persons described in any paragraph of section 842(i), the Attorney General shall notify the employer in writing or electronically of the determination and issue to the responsible person or the employee, as the case may be, a document that—

- (i) confirms the determination;
- (ii) explains the grounds for the determination;
- (iii) provides information on how the disability may be relieved; and
- (iv) explains how the determination may be appealed.

(i) Furnishing of Samples.

(1) In general. Licensed manufacturers and licensed importers and persons who manufacture or import explosive materials or ammonium nitrate shall, when required by letter issued by the Attorney General, furnish—

- (A) samples of such explosive materials or ammonium nitrate;
- (B) information on chemical composition of those products; and
- (C) any other information that the Attorney General determines is relevant to the identification of the explosive materials or to identification of the ammonium nitrate.

(2) Reimbursement. The Attorney General shall, by regulation, authorize reimbursement of the fair market value of samples furnished pursuant to this subsection, as well as the reasonable costs of shipment.

(Added Pub. L. 91–452, title XI, Sec. 1102(a), Oct. 15, 1970, 84 Stat. 955; amended Pub. L. 107–296, title XI, Secs. 1112(e)(3), 1122(c)–(h), 1124, Nov. 25, 2002, 116 Stat. 2276, 2281, 2282, 2285.)

§844. Penalties

(a) Any person who—

(1) violates any of subsections (a) through (i) or (l) through (o) of section 842 shall be fined under this title, imprisoned for not more than 10 years, or both; and

(2) violates subsection (p)(2) of section 842, shall be fined under this title, imprisoned not more than 20 years, or both.

(b) Any person who violates any other provision of section 842 of this chapter shall be fined under this title or imprisoned not more than one year, or both.

(c) (1) Any explosive materials involved or used or intended to be used in any violation of the provisions of this chapter or any other rule or regulation promulgated thereunder or any violation of any criminal law of the United States shall be subject to seizure and forfeiture, and all provisions of the Internal Revenue Code of 1986 relating to the seizure, forfeiture, and disposition of firearms, as defined in section 5845(a) of that Code, shall, so far as applicable, extend to seizures and forfeitures under the provisions of this chapter.

(2) Notwithstanding paragraph (1), in the case of the seizure of any explosive materials for any offense for which the materials would be subject to forfeiture in which it would be impracticable or unsafe to remove the materials to a place of storage or would be unsafe to store them, the seizing officer may destroy the explosive materials forthwith. Any destruction under this paragraph shall be in the presence of at least 1 credible witness. The seizing officer shall make a report of the seizure and take samples as the Attorney General may by regulation prescribe.

(3) Within 60 days after any destruction made pursuant to paragraph (2), the owner of (including any person having an interest in) the property so destroyed may make application to the Attorney General for reimbursement of the value of the property. If the claimant establishes to the satisfaction of the Attorney General that—

(A) the property has not been used or involved in a violation of law; or

(B) any unlawful involvement or use of the property was without the claimant's knowledge, consent, or willful blindness, the Attorney General shall make an allowance to the claimant not exceeding the value of the property destroyed.

(d) Whoever transports or receives, or attempts to transport or receive, in interstate or foreign commerce any explosive with the knowledge or intent that it will be used to kill, injure, or intimidate any individual or unlawfully to damage or destroy any building, vehicle, or other real or personal property, shall be imprisoned for not more than ten years, or fined under this title, or both; and if personal injury results to any person, including any public safety officer performing duties as a direct or proximate result of conduct prohibited by this subsection, shall be imprisoned for not more than twenty years or fined under this title, or both; and if death results to any person, including any public safety officer performing duties as a direct or proximate result of conduct prohibited by this subsection, shall be subject to imprisonment for any term of years, or to the death penalty or to life imprisonment.

(e) Whoever, through the use of the mail, telephone, telegraph, or other instrument of interstate or foreign commerce, or in or affecting interstate or foreign commerce, willfully makes any threat, or maliciously conveys false information knowing the same to be false, concerning an attempt or alleged attempt being made, or to be made, to kill, injure, or intimidate any individual

or unlawfully to damage or destroy any building, vehicle, or other real or personal property by means of fire or an explosive shall be imprisoned for not more than 10 years or fined under this title, or both.

(f) (1) Whoever maliciously damages or destroys, or attempts to damage or destroy, by means of fire or an explosive, any building, vehicle, or other personal or real property in whole or in part owned or possessed by, or leased to, the United States, or any department or agency thereof, or any institution or organization receiving Federal financial assistance, shall be imprisoned for not less than 5 years and not more than 20 years, fined under this title, or both.

(2) Whoever engages in conduct prohibited by this subsection, and as a result of such conduct, directly or proximately causes personal injury or creates a substantial risk of injury to any person, including any public safety officer performing duties, shall be imprisoned for not less than 7 years and not more than 40 years, fined under this title, or both.

(3) Whoever engages in conduct prohibited by this subsection, and as a result of such conduct directly or proximately causes the death of any person, including any public safety officer performing duties, shall be subject to the death penalty, or imprisoned for not less than 20 years or for life, fined under this title, or both.

(g) (1) Except as provided in paragraph (2), whoever possesses an explosive in an airport that is subject to the regulatory authority of the Federal Aviation Administration, or in any building in whole or in part owned, possessed, or used by, or leased to, the United States or any department or agency thereof, except with the written consent of the agency, department, or other person responsible for the management of such building or airport, shall be imprisoned for not more than five years, or fined under this title, or both.

(2) The provisions of this subsection shall not be applicable to—

(A) the possession of ammunition (as that term is defined in regulations issued pursuant to this chapter) in an airport that is subject to the regulatory authority of the Federal Aviation Administration if such ammunition is either in checked baggage or in a closed container; or

(B) the possession of an explosive in an airport if the packaging and transportation of such explosive is exempt from, or subject to and in accordance with, regulations of the Pipeline and Hazardous Materials Safety Administration for the handling of hazardous materials pursuant to chapter 51 of title 49.

(h) Whoever—

(1) uses fire or an explosive to commit any felony which may be prosecuted in a court of the United States, or

(2) carries an explosive during the commission of any felony which may be prosecuted in a court of the United States, including a felony which provides for an enhanced punishment if committed by the use of a deadly or dangerous weapon or device

shall, in addition to the punishment provided for such felony, be sentenced to imprisonment for 10 years. In the case of a second or subsequent conviction under this subsection, such person shall be sentenced to imprisonment for 20 years. Notwithstanding any other provision of law, the court shall not place on probation or suspend the sentence of any person convicted of a violation of this subsection, nor shall the term of imprisonment imposed under this subsection run concurrently with any other term of imprisonment including that imposed for the felony in which the explosive was used or carried.

(i) Whoever maliciously damages or destroys, or attempts to damage or destroy, by means of fire or an explosive, any building, vehicle, or other real or personal property used in interstate or foreign commerce or in any activity affecting interstate or foreign commerce shall be imprisoned for not less than 5 years and not more than 20 years, fined under this title, or both; and if personal injury results to any person, including any public safety officer performing duties as a direct or proximate result of conduct prohibited by this subsection, shall be imprisoned for not less than 7 years and not more than 40 years, fined under this title, or both; and if death results to any person, including any public safety officer performing duties as a direct or proximate result of conduct prohibited by this subsection, shall also be subject to imprisonment for any term of years, or to the death penalty or to life imprisonment.

(j) For the purposes of subsections (d), (e), (f), (g), (h), and (i) of this section and section 842(p), the term “explosive” means gunpowders, powders used for blasting, all forms of high explosives, blasting materials, fuzes (other than electric circuit breakers), detonators, and other detonating agents, smokeless powders, other explosive or incendiary devices within the meaning of paragraph (5) of section 232 of this title, and any chemical compounds, mechanical mixture, or device that contains any oxidizing and combustible units, or other ingredients, in such proportions, quantities, or packing that ignition by fire, by friction, by concussion, by percussion, or by detonation of the compound, mixture, or device or any part thereof may cause an explosion.

(k) A person who steals any explosives materials which are moving as, or are a part of, or which have moved in, interstate or foreign commerce shall be imprisoned for not more than 10 years, fined under this title, or both.

(l) A person who steals any explosive material from a licensed importer, licensed manufacturer, or licensed dealer, or from any permittee shall be fined under this title, imprisoned not more than 10 years, or both.

(m) A person who conspires to commit an offense under subsection (h) shall be imprisoned for any term of years not exceeding 20, fined under this title, or both.

(n) Except as otherwise provided in this section, a person who conspires to commit any offense defined in this chapter shall be subject to the same penalties (other than the penalty of death) as the penalties prescribed for the offense the commission of which was the object of the conspiracy.

(o) Whoever knowingly transfers any explosive materials, knowing or having reasonable cause to believe that such explosive materials will be used to commit a crime of violence (as defined in section 924(c)(3)) or drug trafficking crime (as defined in section 924(c)(2)) shall be subject to the same penalties as may be imposed under subsection (h) for a first conviction for the use or carrying of an explosive material.

(p) Theft Reporting Requirement.

(1) In general. A holder of a license or permit who knows that explosive materials have been stolen from that licensee or permittee, shall report the theft to the Attorney General not later than 24 hours after the discovery of the theft.

(2) Penalty. A holder of a license or permit who does not report a theft in accordance with paragraph (1), shall be fined not more than \$10,000, imprisoned not more than 5 years, or both.

(Added Pub. L. 91–452, title XI, Sec. 1102(a), Oct. 15, 1970, 84 Stat. 956; amended Pub. L. 97–298, Sec. 2, Oct. 12, 1982, 96 Stat. 1319; Pub. L. 98–473, title II, Sec. 1014, Oct. 12, 1984, 98 Stat. 2142; Pub. L. 99–514, Sec. 2, Oct. 22, 1986, 100 Stat. 2095; Pub. L. 100–690, title VI, Sec. 6474(a), (b), Nov. 18, 1988, 102 Stat. 4379; Pub. L. 101–647, title XXXV, Sec. 3522, Nov. 29, 1990, 104 Stat. 4924; Pub. L. 103–272, Sec. 5(e)(7), July 5, 1994, 108 Stat. 1374; Pub. L. 103–322, title VI, Sec. 60003(a)(3), title XI, Secs. 110504(b), 110509, 110515(b), 110518(b), title XXXII, Secs. 320106, 320917(a), title XXXIII, Sec. 330016(1)(H), (K), (L), (N), Sept. 13, 1994, 108 Stat. 1969, 2016, 2018, 2020, 2111, 2129, 2147, 2148; Pub. L. 104–132, title VI, Sec. 604, title VII, Secs. 701, 706, 708(a), (c)(3), 724, Apr. 24, 1996, 110 Stat. 1289, 1291, 1295–1297, 1300; Pub. L. 104–294, title VI, Sec. 603(a), Oct. 11, 1996, 110 Stat. 3503; Pub. L. 106–54, Sec. 2(b), Aug. 17, 1999, 113 Stat. 399; Pub. L. 107–296, title XI, Secs. 1112(e)(3), 1125, 1127, Nov. 25, 2002, 116 Stat. 2276, 2285; Pub. L. 108–426, Sec. 2(c)(6), Nov. 30, 2004, 118 Stat. 2424.)

§ 845. Exceptions; Relief From Disabilities

(a) Except in the case of subsection (l), (m), (n), or (o) of section 842 and subsections (d), (e), (f), (g), (h), and (i) of section 844 of this title, this chapter shall not apply to:

(1) aspects of the transportation of explosive materials via railroad, water, highway, or air that pertain to safety, including security, and are regulated by the Department of Transportation or the Department of Homeland Security;

(2) the use of explosive materials in medicines and medicinal agents in the forms prescribed by the official United States Pharmacopeia, or the National Formulary;

(3) the transportation, shipment, receipt, or importation of explosive materials for delivery to any agency of the United States or to any State or political subdivision thereof;

(4) small arms ammunition and components thereof;

(5) commercially manufactured black powder in quantities not to exceed fifty pounds, percussion caps, safety and pyrotechnic fuses, quills, quick and slow matches, and friction primers, intended to be used solely for sporting, recreational, or cultural purposes in antique firearms as defined in section 921(a)(16) of title 18 of the United States Code, or in antique devices as exempted from the term “destructive device” in section 921(a)(4) of title 18 of the United States Code;

(6) the manufacture under the regulation of the military department of the United States of explosive materials for, or their distribution to or storage or possession by the military or naval services or other agencies of the United States; or to arsenals, navy yards, depots, or other establishments owned by, or operated by or on behalf of, the United States and

(7) the transportation, shipment, receipt, or importation of display fireworks materials for delivery to a federally recognized Indian tribe or tribal agency.

(b) (1) A person who is prohibited from shipping, transporting, receiving, or possessing any explosive under section 842(i) may apply to the Attorney General for relief from such prohibition.

(2) The Attorney General may grant the relief requested under paragraph (1) if the Attorney General determines that the circumstances regarding the applicability of section 842(i), and the applicant's record and reputation, are such that the applicant will not be likely to act in a manner dangerous to public safety and that the granting of such relief is not contrary to the public interest.

(3) A licensee or permittee who applies for relief, under this subsection, from the disabilities incurred under this chapter as a result of an indictment for or conviction of a crime punishable by imprisonment for a term exceeding 1 year shall not be barred by such disability from further operations under the license or permit pending final action on an application for relief filed pursuant to this section.

(c) It is an affirmative defense against any proceeding involving subsections (l) through (o) of section 842 if the proponent proves by a preponderance of the evidence that the plastic explosive—

(1) consisted of a small amount of plastic explosive intended for and utilized solely in lawful—

(A) research, development, or testing of new or modified explosive materials;

(B) training in explosives detection or development or testing of explosives detection equipment; or

(C) forensic science purposes; or

(2) was plastic explosive that, within 3 years after the date of enactment of the Antiterrorism and Effective Death Penalty Act of 1996 [enacted April 24, 1996], will be or is incorporated in a military device within the territory of the United States and remains an integral part of such military device, or is intended to be, or is incorporated in, and remains an integral part of a military device that is intended to become, or has become, the property of

any agency of the United States performing military or police functions (including any military reserve component) or the National Guard of any State, wherever such device is located.

(3) For purposes of this subsection, the term “military device” includes, but is not restricted to, shells, bombs, projectiles, mines, missiles, rockets, shaped charges, grenades, perforators, and similar devices lawfully manufactured exclusively for military or police purposes.

§846. Additional Powers of the Attorney General

(a) The Attorney General is authorized to inspect the site of any accident, or fire, in which there is reason to believe that explosive materials were involved, in order that if any such incident has been brought about by accidental means, precautions may be taken to prevent similar accidents from occurring. In order to carry out the purpose of this subsection, the Attorney General is authorized to enter into or upon any property where explosive materials have been used, are suspected of having been used, or have been found in an otherwise unauthorized location. Nothing in this chapter shall be construed as modifying or otherwise affecting in any way the investigative authority of any other Federal agency. In addition to any other investigatory authority they have with respect to violations of provisions of this chapter, the Federal Bureau of Investigation, together with the Bureau of Alcohol, Tobacco, Firearms, and Explosives, shall have authority to conduct investigations with respect to violations of subsection (d), (e), (f), (g), (h), or (i) of section 844 of this title.

(b) The Attorney General is authorized to establish a national repository of information on incidents involving arson and the suspected criminal misuse of explosives. All Federal agencies having information concerning such incidents shall report the information to the Attorney General pursuant to such regulations as deemed necessary to carry out the provisions of this subsection. The repository shall also contain information on incidents voluntarily reported to the Attorney General by State and local authorities.

(Added Pub. L. 91–452, title XI, Sec. 1102(a), Oct. 15, 1970, 84 Stat. 959; amended Pub. L. 104–208, div. A, title I, Sec. 101(f) [title VI, Sec. 654(a)], Sept. 30, 1996, 110 Stat. 3009–314, 3009–369; Pub. L. 107–296, title XI, Sec. 1112(e)(2), (3), Nov. 25, 2002, 116 Stat. 2276.)

§847. Rules and Regulations

The administration of this chapter shall be vested in the Attorney General. The Attorney General may prescribe such rules and regulations as he deems reasonably necessary to carry out the provisions of this chapter. The Attorney General shall give reasonable public notice, and afford to interested parties opportunity for hearing, prior to prescribing such rules and regulations.

(Added Pub. L. 91–452, title XI, Sec. 1102(a), Oct. 15, 1970, 84 Stat. 959; amended Pub. L. 107–296, title XI, Sec. 1112(e)(3), Nov. 25, 2002, 116 Stat. 2276.)

§ 848. Effect on State Law

No provision of this chapter shall be construed as indicating an intent on the part of the Congress to occupy the field in which such provision operates to the exclusion of the law of any State on

the same subject matter, unless there is a direct and positive conflict between such provision and the law of the State so that the two cannot be reconciled or consistently stand together.

(Added Pub. L. 91–452, title XI, Sec. 1102(a), Oct. 15, 1970, 84 Stat. 959.)

Title 27 [Code of Federal Regulations]

Part 555—Commerce in Explosives

Section Contents

Subpart A—Introduction

- § 555.1 Scope of regulations.
- § 555.2 Relation to other provisions of law.

Subpart B—Definitions

- § 555.11 Meaning of terms.

Subpart C—Administrative and Miscellaneous Provisions

- § 555.21 Forms prescribed.
- § 555.22 Alternate methods or procedures; emergency variations from requirements.
- § 555.23 List of explosive materials.
- § 555.24 Right of entry and examination.
- § 555.25 Disclosure of information.
- § 555.26 Prohibited shipment, transportation, receipt, possession, or distribution of explosive materials.
- § 555.27 Out-of-State disposition of explosive materials.
- § 555.28 Stolen explosive materials.
- § 555.29 Unlawful storage.
- § 555.30 Reporting theft or loss of explosive materials.
- § 555.31 Inspection of site of accidents or fires; right of entry.
- § 555.32 Special explosive devices.
- § 555.33 Background checks and clearances (effective May 24, 2003).
- § 555.34 Replacement of stolen or lost ATF Form 5400.30 (Intrastate Purchase of Explosives Coupon (IPEC)).

Subpart D—Licenses and Permits

- § 555.41 General.
- § 555.42 License fees.
- § 555.43 Permit fees.
- § 555.44 License or permit fee not refundable.
- § 555.45 Original license or permit.
- § 555.46 Renewal of license or permit.
- § 555.47 Insufficient fee.
- § 555.48 Abandoned application.
- § 555.49 Issuance of license or permit.
- § 555.50 Correction of error on license or permit.
- § 555.51 Duration of license or permit.
- § 555.52 Limitations on license or permit.
- § 555.53 License and permit not transferable.
- § 555.54 Change of address.
- § 555.56 Change in trade name.
- § 555.57 Change of control, change in responsible persons, and change of employees.

- § 555.58 Continuing partnerships.
- § 555.59 Right of succession by certain persons.
- § 555.60 Certain continuances of business or operations.
- § 555.61 Discontinuance of business or operations.
- § 555.62 State or other law.
- § 555.63 Explosives magazine changes.

Subpart E—License and Permit Proceedings

- § 555.71 Opportunity for compliance.
- § 555.72 Denial of initial application.
- § 555.73 Hearing after initial application is denied.
- § 555.74 Denial of renewal application or revocation of license or permit.
- § 555.75 Hearing after denial of renewal application or revocation of license or permit.
- § 555.76 Action by Director, Industry Operations.
- § 555.77 Designated place of hearing.
- § 555.78 Representation at a hearing.
- § 555.79 Appeal on petition to the Director.
- § 555.80 Court review.
- § 555.81 Service on applicant, licensee, or permittee.
- § 555.82 Provisions of part 200 made applicable.
- § 555.83 Operations by licensees or permittees after notice of denial or revocation.

Subpart F—Conduct of Business or Operations

- § 555.101 Posting of license or user permit.
- § 555.102 Authorized operations by permittees.
- § 555.103 Transactions among licensees/permittees and transactions among licensees and holders of user permits.
- § 555.104 Certified copy of license or permit.
- § 555.105 Distributions to nonlicensees, nonpermittees, and limited permittees.
- § 555.106 Certain prohibited distributions.
- § 555.107 Record of transactions.
- § 555.108 Importation.
- § 555.109 Identification of explosive materials.
- § 555.110 Furnishing of samples (Effective on and after January 24, 2003).

Subpart G—Records and Reports

- § 555.121 General.
- § 555.122 Records maintained by licensed importers.
- § 555.123 Records maintained by licensed manufacturers.
- § 555.124 Records maintained by licensed dealers.
- § 555.125 Records maintained by permittees.

- § 555.126 Explosives transaction record for distribution of explosive materials prior to May 24, 2003 and Limited Permittee Transaction Report for distribution of explosive materials on and after May 24, 2003.
- § 555.127 Daily summary of magazine transactions.
- § 555.128 Discontinuance of business.
- § 555.129 Exportation.
- § 555.130 [Reserved]

Subpart H—Exemptions

- § 555.141 Exemptions.
- § 555.142 Relief from disabilities (effective January 24, 2003).

Subpart I—Unlawful Acts, Penalties, Seizures, and Forfeitures

- § 555.161 Engaging in business without a license.
- § 555.162 False statement or representation.
- § 555.163 False entry in record.
- § 555.164 Unlawful storage.
- § 555.165 Failure to report theft or loss.
- § 555.166 Seizure or forfeiture.

Subpart J—Marking of Plastic Explosives

- § 555.180 Prohibitions relating to unmarked plastic explosives.
- § 555.181 Reporting of plastic explosives.
- § 555.182 Exceptions.
- § 555.183 Importations of plastic explosives on or after April 24, 1997.
- § 555.184 Statements of process and samples.
- § 555.185 Criminal sanctions.
- § 555.186 Seizure or forfeiture.

Subpart K—Storage

- § 555.201 General.
- § 555.202 Classes of explosive materials.
- § 555.203 Types of magazines.
- § 555.204 Inspection of magazines.
- § 555.205 Movement of explosive materials.
- § 555.206 Location of magazines.
- § 555.207 Construction of type 1 magazines.

- § 555.208 Construction of type 2 magazines.
- § 555.209 Construction of type 3 magazines.
- § 555.210 Construction of type 4 magazines.
- § 555.211 Construction of type 5 magazines.
- § 555.212 Smoking and open flames.
- § 555.213 Quantity and storage restrictions.
- § 555.214 Storage within types 1, 2, 3, and 4 magazines.
- § 555.215 Housekeeping.
- § 555.216 Repair of magazines.
- § 555.217 Lighting.
- § 555.218 Table of distances for storage of explosive materials.
- § 555.219 Table of distances for storage of low explosives.
- § 555.220 Table of separation distances of ammonium nitrate and blasting agents from explosives or blasting agents.
- § 555.221 Requirements for display fireworks, pyrotechnic compositions, and explosive materials used in assembling fireworks or articles pyrotechnic.
- § 555.222 Table of distances between fireworks process buildings and between fireworks process and fireworks nonprocess buildings.
- § 555.223 Table of distances between fireworks process buildings and other specified areas.
- § 555.224 Table of distances for the storage of display fireworks (except bulk salutes).

Authority: 18 U.S.C. 847.

Source: T.D. ATF–87, 46 FR 40384, Aug. 7, 1981, unless otherwise noted. Redesignated by T.D. ATF–487, 68 FR 3748, Jan. 24, 2003.

Editorial Note: Nomenclature changes to part 555 appear at 68 FR 3748, Jan. 24, 2003. Also, there are several name changes for titles referenced in the regulations, 27 CFR Part 555. The title “Chief, Firearms and Explosives Licensing Center” has been changed to “Chief, Federal Explosives Licensing Center”. The title “Regional director (compliance)” has been changed to “Director, Industry Operations” within the respective ATF Field Divisions. All regulations and rulings contained within this publication were current as of 3/13/12. For more recent information, please refer to the ATF website at www.atf.gov/.

Subpart A—Introduction

§555.1 Scope of regulations.

(a) **In general.** The regulations contained in this part relate to commerce in explosives and implement Title XI, Regulation of Explosives (18 U.S.C. Chapter 40; 84 Stat. 952), of the Organized Crime Control Act of 1970 (84 Stat. 922), Pub. L. 103–322 (108 Stat. 1796), Pub. L. 104–132 (110 Stat. 1214), and Pub. L. 107–296 (116 Stat. 2135).

(b) **Procedural and substantive requirements.** This part contains the procedural and substantive requirements relative to:

- (1) The interstate or foreign commerce in explosive materials;
- (2) The licensing of manufacturers and importers of, and dealers in, explosive materials;
- (3) The issuance of permits;
- (4) The conduct of business by licensees and operations by permittees;
- (5) The storage of explosive materials;
- (6) The records and reports required of licensees and permittees;
- (7) Relief from disabilities under this part;
- (8) Exemptions, unlawful acts, penalties, seizures, and forfeitures; and

(9) The marking of plastic explosives.

[T.D. ATF–87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF–363, 60 FR 17449, Apr. 6, 1995; T.D. ATF–387, 62 FR 8376, Feb. 25, 1997; ATF No. 1, 68 FR 13780, Mar. 20, 2003]

§555.2 Relation to other provisions of law.

The provisions in this part are in addition to, and are not in lieu of, any other provision of law, or regulations, respecting commerce in explosive materials. For regulations applicable to commerce in firearms and ammunition, see Part 478 of this chapter. For regulations applicable to traffic in machine guns, destructive devices, and certain other firearms, see Part 479 of this chapter. For statutes applicable to the registration and licensing of persons engaged in the business of manufacturing, importing or exporting arms, ammunition, or implements of war, see section 38 of the Arms Export Control Act (22 U.S.C. 2778), and regulations of Part 447 of this chapter and in Parts 121 through 128 of Title 22, Code of Federal Regulations. For statutes applicable to nonmailable materials, see 18 U.S.C. 1716 and implementing regulations. For statutes applicable to water quality standards, see 33 U.S.C. 1341.

Subpart B—Definitions

§555.11 Meaning of terms.

When used in this part, terms are defined as follows in this section. Words in the plural form include the singular, and vice versa, and words indicating the masculine gender include the feminine. The terms “includes” and “including” do not exclude other things not named which are in the same general class or are otherwise within the scope of the term defined.

Act. 18 U.S.C. Chapter 40.

Adjudicated as a mental defective. (a) A determination by a court, board, commission, or other lawful authority that a person, as a result of marked subnormal intelligence, or mental illness, incompetency, condition, or disease:

- (1) Is a danger to himself or to others; or
 - (2) Lacks the mental capacity to contract or manage his own affairs.
- (b) The term will include—
- (1) A finding of insanity by a court in a criminal case; and
 - (2) Those persons found incompetent to stand trial or found not guilty by reason of lack of mental responsibility by any court or pursuant to articles 50a and 76b of the Uniform Code of Military Justice, 10 U.S.C. 850a, 876b.

Alien. Any person who is not a citizen or national of the United States.

Ammunition. Small arms ammunition or cartridge cases, primers, bullets, or smokeless propellants designed for use in small arms, including percussion caps, and 3/32 inch and other external burning pyrotechnic hobby fuses. The term does not include black powder.

Appropriate identifying information. The term means, in relation to an individual:

- (a) The full name, date of birth, place of birth, sex, race, street address, State of residence, telephone numbers (home and work), country or countries of citizenship, and position at the employer's business or operations of responsible persons and employees authorized to possess explosive materials;
- (b) The business name, address, and license or permit number with which the responsible person or employee is affiliated;
- (c) If an alien, INS-issued alien number or admission number; and
- (d) Social security number, as optional information (this information is not required but is helpful in avoiding misidentification when a background check is conducted).

Approved storage facility. A place where explosive materials are stored, consisting of one or more approved magazines, conforming to the requirements of this part and covered by a license or permit issued under this part.

Articles pyrotechnic. Pyrotechnic devices for professional use similar to consumer fireworks in chemical composition and construction but not intended for consumer use. Such articles meeting the weight limits for consumer fireworks but not labeled as such and classified by U.S. Department of Transportation regulations in 49 CFR 172.101 as UN0431 or UN0432.

Artificial barricade. An artificial mound or revetted wall of earth of a minimum thickness of three feet, or any other approved barricade that offers equivalent protection.

ATF. (a) Prior to January 24, 2003. The Bureau of Alcohol, Tobacco and Firearms, Department of the Treasury, Washington, DC.

(b) On and after January 24, 2003. The Bureau of Alcohol, Tobacco, Firearms and Explosives, Department of Justice, Washington, DC.

ATF officer. (a) Prior to January 24, 2003. An officer or employee of the Bureau of Alcohol, Tobacco and Firearms (ATF) authorized to perform any function relating to the administration or enforcement of this part.

(b) On and after January 24, 2003. An officer or employee of the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) authorized to perform any function relating to the administration or enforcement of this part.

Authority having jurisdiction for fire safety. The fire department having jurisdiction over sites where explosives are manufactured or stored.

Barricaded. The effective screening of a magazine containing explosive materials from another magazine, a building, a railway, or a highway, either by a natural barricade or by an artificial barricade. To be properly barricaded, a straight line from the top of any sidewall of the magazine containing explosive materials to the eave line of any other magazine or building, or to a point 12 feet above the center of a railway or highway, will pass through the natural or artificial barricade.

Blasting agent. Any material or mixture, consisting of fuel and oxidizer, that is intended for blasting and not otherwise defined as an explosive; if the finished product, as mixed for use or shipment, cannot be detonated by means of a number 8 test blasting cap when unconfined. A number 8 test blasting cap is one containing 2 grams of a mixture of 80 percent mercury fulminate and 20 percent potassium chlorate, or a blasting cap of equivalent strength. An equivalent strength cap comprises 0.40–0.45 grams of PETN base charge pressed in an aluminum shell with bottom thickness not to exceed to 0.03 of an inch, to a specific gravity of not less than 1.4 g/cc., and primed with standard weights of primer depending on the manufacturer.

Bulk salutes. Salute components prior to final assembly into aerial shells, and finished salute shells held separately prior to being packed with other types of display fireworks.

Bullet-sensitive explosive materials. Explosive materials that can be exploded by 150-grain M2 ball ammunition having a nominal muzzle velocity of 2700 fps (824 mps) when fired from

a .30 caliber rifle at a distance of 100 ft (30.5 m), measured perpendicular. The test material is at a temperature of 70 to 75 ° F (21 to 24 ° C) and is placed against a ½ " (12.4 mm) steel backing plate.

Bureau. (a) Prior to January 24, 2003. The Bureau of Alcohol, Tobacco and Firearms, Department of the Treasury, Washington, DC.

(b) On and after January 24, 2003. The Bureau of Alcohol, Tobacco, Firearms and Explosives, Department of Justice, Washington, DC.

Business premises. When used with respect to a manufacturer, importer, or dealer, the property on which explosive materials are manufactured, imported, stored or distributed. The premises include the property where the records of a manufacturer, importer, or dealer are kept if different than the premises where explosive materials are manufactured, imported, stored or distributed. When used with respect to a user of explosive materials, the property on which the explosive materials are received or stored. The premises includes the property where the records of the users are kept if different than the premises where explosive materials are received or stored.

Chief, Federal Explosives Licensing Center. The ATF official responsible for the issuance and renewal of licenses and permits under this part.

Committed to a mental institution. A formal commitment of a person to a mental institution by a court, board, commission, or other lawful authority. The term includes a commitment to a mental institution involuntarily. The term includes commitment for mental defectiveness or mental illness. It also includes commitments for other reasons, such as for drug use. The term does not include a person in a mental institution for observation or a voluntary admission to a mental institution.

Common or contract carrier. Any individual or organization engaged in the business of transporting passengers or goods.

Consumer fireworks. Any small firework device designed to produce visible effects by combustion and which must comply with the construction, chemical composition, and labeling regulations of the U.S. Consumer Product Safety Commission, as set forth in title 16, Code of Federal Regulations, parts 1500 and 1507. Some small devices designed to produce audible effects are included, such as whistling devices, ground devices containing 50 mg or less of explosive materials, and aerial devices containing 130 mg or less of explosive materials. Consumer fireworks are classified as fireworks UN0336, and UN0337 by the U.S. Department of Transportation at 49 CFR 172.101. This term does not include fused set pieces containing components which together exceed 50 mg of salute powder.

Controlled substance. A drug or other substance, or immediate precursor, as defined in section 102 of the Controlled Substances Act, 21 U.S.C. 802. The term includes, but is not limited to, marijuana, depressants, stimulants, and narcotic drugs. The term

does not include distilled spirits, wine, malt beverages, or tobacco, as those terms are defined or used in Subtitle E of the Internal Revenue Code of 1986, as amended.

Crime punishable by imprisonment for a term exceeding one year. Any offense for which the maximum penalty, whether or not imposed, is capital punishment or imprisonment in excess of one year. The term does not include (a) any Federal or State offenses pertaining to antitrust violations, unfair trade practices, restraints of trade, or (b) any State offense (other than one involving a firearm or explosive) classified by the laws of the State as a misdemeanor and punishable by a term of imprisonment of two years or less.

Customs officer. Any officer of the Customs Service or any commissioned, warrant, or petty officer of the Coast Guard, or any agent or other person authorized to perform the duties of an officer of the Customs Service.

Dealer. Any person engaged in the business of distributing explosive materials at wholesale or retail.

Detonator. Any device containing a detonating charge that is used for initiating detonation in an explosive. The term includes, but is not limited to, electric blasting caps of instantaneous and delay types, blasting caps for use with safety fuses, detonating-cord delay connectors, and nonelectric instantaneous and delay blasting caps.

Director. (a) Prior to January 24, 2003. The Director, Bureau of Alcohol, Tobacco and Firearms, Department of the Treasury, Washington, DC. (b) On and after January 24, 2003. The Director, Bureau of Alcohol, Tobacco, Firearms and Explosives, Department of Justice, Washington, DC.

Discharged under dishonorable conditions. Separation from the U.S. Armed Forces resulting from a dishonorable discharge or dismissal adjudged by general court-martial. The term does not include any separation from the Armed Forces resulting from any other discharge, e.g., a bad conduct discharge.

Display fireworks. Large fireworks designed primarily to produce visible or audible effects by combustion, deflagration, or detonation. This term includes, but is not limited to, salutes containing more than 2 grains (130 mg) of explosive materials, aerial shells containing more than 40 grams of pyrotechnic compositions, and other display pieces which exceed the limits of explosive materials for classification as “consumer fireworks.” Display fireworks are classified as fireworks UN0333, UN0334 or UN0335 by the U.S. Department of Transportation at 49 CFR 172.101. This term also includes fused setpieces containing components which together exceed 50 mg of salute powder.

Distribute. To sell, issue, give, transfer, or otherwise dispose of. The term does not include a mere change of possession from a person to his agent or employee in connection with the agency or employment.

Executed under penalties of perjury. Signed with the required declaration under the penalties of perjury as provided on or with respect to the return, form, or other document or, where no form of declaration is required, with the declaration:

“I declare under the penalties of perjury that this—(insert type of document, such as, statement, application, request, certificate), including the documents submitted in support thereof, has been examined by me and, to the best of my knowledge and belief, is true, correct, and complete”.

Explosive actuated device. Any tool or special mechanized device which is actuated by explosives, but not a propellant actuated device.

Explosive materials. Explosives, blasting agents, water gels and detonators. Explosive materials include, but are not limited to, all items in the “List of Explosive Materials” provided for in § 555.23.

Explosives. Any chemical compound, mixture, or device, the primary or common purpose of which is to function by explosion. The term includes, but is not limited to, dynamite and other high explosives, black powder, pellet powder, initiating explosives, detonators, safety fuses, squibs, detonating cord, igniter cord, and igniters.

Fireworks. Any composition or device designed to produce a visible or an audible effect by combustion, deflagration, or detonation, and which meets the definition of “consumer fireworks” or “display fireworks” as defined by this section.

Fireworks mixing building. Any building or area used for mixing and blending pyrotechnic compositions except wet sparkler mix.

Fireworks nonprocess building. Any office building or other building or area in a fireworks plant where no fireworks, pyrotechnic compositions or explosive materials are processed or stored.

Fireworks plant. All land and buildings thereon used for or in connection with the assembly or processing of fireworks, including warehouses used with or in connection with fireworks plant operations.

Fireworks plant warehouse. Any building or structure used exclusively for the storage of materials which are neither explosive materials nor pyrotechnic compositions used to manufacture or assemble fireworks.

Fireworks process building. Any mixing building; any building in which pyrotechnic compositions or explosive materials is pressed or otherwise prepared for finished and assembly; or any finishing or assembly building.

Fireworks shipping building. A building used for the packing of assorted display fireworks into shipping cartons for individual public displays and for the loading of packaged displays for shipment to purchasers.

Flash powder. An explosive material intended to produce an audible report and a flash of light when ignited which includes but is not limited to oxidizers such as potassium chlorate or potassium perchlorate, and fuels such as sulfur or aluminum powder.

Fugitive from justice. Any person who has fled from the jurisdiction of any court of record to avoid prosecution for any crime or to avoid giving testimony in any criminal proceeding.

The term also includes any person who has been convicted of any crime and has fled to avoid imprisonment.

Hardwood. Oak, maple, ash, hickory, or other hard wood, free from loose knots, spaces, or similar defects.

Highway. Any public street, public alley, or public road, including a privately financed, constructed, or maintained road that is regularly and openly traveled by the general public.

Identification document. A document containing the name, residence address, date of birth, and photograph of the holder and which was made or issued by or under the authority of the United States Government, a State, political subdivision of a State, a foreign government, a political subdivision of a foreign government, an international governmental or an international quasi-governmental organization which, when completed with information concerning a particular individual, is of a type intended or commonly accepted for the purpose of identification of individuals.

Importer. Any person engaged in the business of importing or bringing explosive materials into the United States for purposes of sale or distribution.

Indictment. Includes an indictment or information in any court under which a crime punishable by imprisonment for a term exceeding one year may be prosecuted.

Inhabited building. Any building regularly occupied in whole or in part as a habitation for human beings, or any church, school-house, railroad station, store, or other structure where people are accustomed to assemble, except any building occupied in connection with the manufacture, transportation, storage, or use of explosive materials.

Interstate or foreign commerce. Commerce between any place in a State and any place outside of that State, or within any possession of the United States or the District of Columbia, and commerce between places within the same State but through any place outside of that State.

Licensed dealer. A dealer licensed under this part.

Licensed importer. An importer licensed under this part.

Licensed manufacturer. A manufacturer licensed under this part to engage in the business of manufacturing explosive materials for purposes of sale or distribution or for his own use.

Licensee. Any importer, manufacturer, or dealer licensed under this part.

Limited permit. A permit issued to a person authorizing him to receive for his use explosive materials from a licensee or permittee in his state of residence on no more than 6 occasions during the 12-month period in which the permit is valid. A limited permit does not authorize the receipt or transportation of explosive materials in interstate or foreign commerce.

Magazine. Any building or structure, other than an explosives manufacturing building, used for storage of explosive materials.

Manufacturer. Any person engaged in the business of manufacturing explosive materials for purposes of sale or distribution or for his own use.

Mass detonation (mass explosion). Explosive materials mass detonate (mass explode) when a unit or any part of a larger quantity of explosive material explodes and causes all or a substantial part of the remaining material to detonate or explode.

Mental institution. Includes mental health facilities, mental hospitals, sanitariums, psychiatric facilities, and other facilities that provide diagnoses by licensed professionals of mental retardation or mental illness, including a psychiatric ward in a general hospital.

Natural barricade. Natural features of the ground, such as hills, or timber of sufficient density that the surrounding exposures which require protection cannot be seen from the magazine when the trees are bare of leaves.

Number 8 test blasting cap. (See definition of “blasting agent.”)

Permittee. Any user of explosives for a lawful purpose who has obtained either a user permit or a limited permit under this part.

Person. Any individual, corporation, company, association, firm, partnership, society, or joint stock company.

Plywood. Exterior, construction grade (laminated wood) plywood.

Propellant actuated device. (a) Any tool or special mechanized device or gas generator system that is actuated by a propellant or which releases and directs work through a propellant charge.

(b) The term does not include—

(1) Hobby rocket motors consisting of ammonium perchlorate composite propellant, black powder, or other similar low explosives, regardless of amount; and

(2) Rocket-motor reload kits that can be used to assemble hobby rocket motors containing ammonium perchlorate composite propellant, black powder, or other similar low explosives, regardless of amount.

Pyrotechnic compositions. A chemical mixture which, upon burning and without explosion, produces visible, brilliant displays, bright lights, or sounds.

Railway. Any steam, electric, or other railroad or railway which carries passengers for hire.

Region. A geographical region of the Bureau of Alcohol, Tobacco, Firearms and Explosives.

Regional director (compliance). (Changed to “Director, Industry Operations” within the respective ATF Field Divisions.) The principal regional official responsible for administering regulations in this part.

Renounced U.S. citizenship. (a) A person has renounced his U.S. citizenship if the person, having been a citizen of the United States, has renounced citizenship either—

(1) Before a diplomatic or consular officer of the United States in a foreign state pursuant to 8 U.S.C. 1481(a)(5); or

(2) Before an officer designated by the Attorney General when the United States is in a state of war pursuant to 8 U.S.C. 1481(a)(6).

(b) The term will not include any renunciation of citizenship that has been reversed as a result of administrative or judicial appeal.

Responsible person. An individual who has the power to direct the management and policies of the applicant pertaining to explosive materials. Generally, the term includes partners, sole proprietors, site managers, corporate officers and directors, and majority shareholders.

Salute. An aerial shell, classified as a display firework, that contains a charge of flash powder and is designed to produce a flash of light and a loud report as the pyrotechnic effect.

Screen barricade. Any barrier that will contain the embers and debris from a fire or deflagration in a process building, thus preventing propagation of fire to other buildings or areas. Such barriers shall be constructed of metal roofing, ¼ to ½" (6 to 13 mm) mesh screen, or equivalent material. The barrier extends from floor level to a height such that a straight line from the top of any side wall of the donor building to the eave line of any exposed building intercepts the screen at a point not less than 5 feet (1.5 m) from the top of the screen. The top 5 feet (1.5 m) of the screen is inclined towards the donor building at an angle of 30 to 45°.

Softwood. Fir, pine, or other soft wood, free from loose knots, spaces, or similar defects.

State. A State of the United States. The term includes the District of Columbia, the Commonwealth of Puerto Rico, and the possessions of the United States.

State of residence. The State in which an individual regularly resides or maintains his home. Temporary stay in a State does not make the State of temporary stay the State of residence.

Theatrical flash powder. Flash powder commercially manufactured in premeasured kits not exceeding 1 ounce and mixed immediately prior to use and intended for use in theatrical shows, stage plays, band concerts, magic acts, thrill shows, and clown acts in circuses.

Unlawful user of or addicted to any controlled substance. A person who uses a controlled substance and has lost the power of self-control with reference to the use of a controlled substance;

and any person who is a current user of a controlled substance in a manner other than as prescribed by a licensed physician. Such use is not limited to the use of drugs on a particular day, or within a matter of days or weeks before possession of the explosive materials, but rather that the unlawful use has occurred recently enough to indicate that the individual is actively engaged in such conduct. A person may be an unlawful current user of a controlled substance even though the substance is not being used at the precise time the person seeks to acquire explosive materials or receives or possesses explosive materials. An inference of current use may be drawn from evidence of a recent use or possession of a controlled substance or a pattern of use or possession that reasonably covers the present time, e.g., a conviction for use or possession of a controlled substance within the past year; multiple arrests for such offenses within the past 5 years if the most recent arrest occurred within the past year; or persons found through a drug test to use a controlled substance unlawfully, provided that the test was administered within the past year. For a current or former member of the Armed Forces, an inference of current use may be drawn from recent disciplinary or other administrative action based on confirmed drug use, e.g., court-martial conviction, nonjudicial punishment, or an administrative discharge based on drug use or drug rehabilitation failure.

U.S.C. The United States Code.

User-limited permit. A user permit valid only for a single purchase transaction, a new permit being required for a subsequent purchase transaction.

User permit. A permit issued to a person authorizing him (a) to acquire for his own use explosive materials from a licensee in a State other than the State in which he resides or from a foreign country, and (b) to transport explosive materials in interstate or foreign commerce.

Water gels. Explosives or blasting agents that contain a substantial proportion of water.

(18 U.S.C. 847 (84 Stat. 959); 18 U.S.C. 926 (82 Stat. 1226) [T.D. ATF-87, 46 FR 40384, Aug. 7, 1981])

Subpart C—Administrative and Miscellaneous Provisions

§ 555.21 Forms prescribed.

(a) The Director is authorized to prescribe all forms required by this part. All of the information called for in each form shall be furnished as indicated by the headings on the form and the instructions on or pertaining to the form. In addition, information called for in each form shall be furnished as required by this part.

(b) Requests for forms should be mailed to the ATF Distribution Center, 1519 Cabin Branch Drive, Landover, MD 20785.

[T.D. ATF-92, 46 FR 46916, Sept. 23, 1981, as amended by T.D. ATF-249, 52 FR 5961, Feb. 27, 1987; T.D. 372, 61 FR 20724, May 8, 1996; ATF-11F, 73 FR 57242, Oct. 2, 2008]

§ 555.22 Alternate methods or procedures; emergency variations from requirements.

(a) Alternate methods or procedures. The permittee or licensee, on specific approval by the Director as provided by this paragraph, may use an alternate method or procedure in lieu of a method or procedure specifically prescribed in this part. The Director may approve an alternate method or procedure, subject to stated conditions, when he finds that:

(1) Good cause is shown for the use of the alternate method or procedure;

(2) The alternate method or procedure is within the purpose of, and consistent with the effect intended by, the specifically prescribed method or procedure and that the alternate method or procedure is substantially equivalent to that specifically prescribed method or procedure; and

(3) The alternate method or procedure will not be contrary to any provision of law and will not result in an increase in cost to the Government or hinder the effective administration of this part.

Where the permittee or licensee desires to employ an alternate method or procedure, he shall submit a written application to the Director, Industry Operations, for transmittal to the Director. The application shall specifically describe the proposed alternate method or procedure and shall set forth the reasons for it. Alternate methods or procedures may not be employed until the application is approved by the Director. The permittee or licensee shall, during the period of authorization of an alternate method or procedure, comply with the terms of the approved application. Authorization of any alternate method or procedure may be withdrawn whenever, in the judgment of the Director, the effective administration of this part is hindered by the continuation of the authorization. As used in this paragraph, alternate methods or procedures include alternate construction or equipment.

(b) Emergency variations from requirements. The Director may approve construction, equipment, and methods of operation other than as specified in this part, where he finds that an emergency exists and the proposed variations from the specified requirements are necessary and the proposed variations:

(1) Will afford security and protection that are substantially equivalent to those prescribed in this part;

(2) Will not hinder the effective administration of this part; and

(3) Will not be contrary to any provisions of law.

Variations from requirements granted under this paragraph are conditioned on compliance with the procedures, conditions, and limitations set forth in the approval of the application. Failure to comply in good faith with the procedures, conditions, and limitations shall automatically terminate the authority for the variations and the licensee or permittee shall fully comply with the prescribed requirements of regulations from which the variations were authorized. Authority for any variation may be withdrawn whenever, in the judgment of the Director, the effective administration of this part is hindered by the continuation of the variation. Where the licensee or permittee desires to employ an emergency variation, he shall submit a written application to the Director, Industry Operations for transmittal to the Director. The application shall describe the proposed variation and set forth the reasons for it. Variations may not be employed until the application is approved, except when the emergency requires immediate action to correct a situation that is threatening to life or property. Corrective action may then be taken concurrent with the filing of the application and notification of the Director via telephone.

(c) Retention of approved variations. The licensee or permittee shall retain, as part of his records available for examination by ATF officers, any application approved by the Director under this section.

§ 555.23 List of explosive materials.

The Director shall compile a list of explosive materials, which shall be published and revised at least annually in the Federal Register. The “List of Explosive Materials” (ATF Publication 5400.8) is available at no cost upon request from the ATF Distribution Center (See § 555.21).

[T.D. ATF-290, 54 FR 53054, Dec. 27, 1989, as amended by T.D. ATF-446, 66 FR 16602, Mar. 27, 2001; ATF-11F, 73 FR 57242, Oct. 2, 2008]

§ 555.24 Right of entry and examination.

(a) Any ATF officer may enter during business hours the premises, including places of storage, of any licensee or holder of a user permit for the purpose of inspecting or examining any records or documents required to be kept under this part, and any facilities in which explosive materials are kept or stored.

(b) Any ATF officer may inspect the places of storage for explosive materials of an applicant for a limited permit or, in the case of a holder of a limited permit, at the time of renewal of such permit.

(c) The provisions of paragraph (b) of this section do not apply to an applicant for the renewal of a limited permit if an ATF officer has, within the preceding 3 years, verified by inspection that the applicant's place of storage for explosive materials meets the requirements of subpart K of this part.

[ATF No. 1, 68 FR 13781, Mar. 20, 2003]

§ 555.25 Disclosure of information.

Upon receipt of written request from any State or any political subdivision of a State, the Director, Industry Operations may make available to the State or political subdivision any information which the Director, Industry Operations may obtain under the Act with respect to the identification of persons within the State or political subdivision, who have purchased or received explosive materials, together with a description of the explosive materials.

§ 555.26 Prohibited shipment, transportation, receipt, possession, or distribution of explosive materials.

(a) General. No person, other than a licensee or permittee knowingly may transport, ship, cause to be transported, or receive any explosive materials: Provided, that the provisions of this paragraph (a) do not apply to the lawful purchase by a nonlicensee or nonpermittee of commercially manufactured black powder in quantities not to exceed 50 pounds, if the black powder is intended to be used solely for sporting, recreational, or cultural purposes in antique firearms as defined in 18 U.S.C. 921(a)(16), or in antique devices as exempted from the term “destructive device” in 18 U.S.C. 921(a)(4).

(b) Holders of a limited permit. No person who is a holder of a limited permit may—

- (1) Transport, ship, cause to be transported, or receive in interstate or foreign commerce any explosive materials;
- (2) Receive explosive materials from a licensee or permittee, whose premises are located outside the State of residence of the limited permit holder; or
- (3) Receive explosive materials on more than 6 separate occasions, during the period of the permit, from one or more licensees or permittees whose premises are located within the State of residence of the limited permit holder. (See § 555.105(b) for the definition of “6 separate occasions.”)

(c) Possession by prohibited persons. No person may ship or transport any explosive material in or affecting interstate or foreign commerce or receive or possess any explosive materials which have been shipped or transported in or affecting interstate or foreign commerce who:

(1) Is under indictment or information for, or who has been convicted in any court of, a crime punishable by imprisonment for a term exceeding one year;

(2) Is a fugitive from justice;

(3) Is an unlawful user of or addicted to any controlled substance (as defined in section 102 of the Controlled Substances Act (21 U.S.C. 802) and § 555.11);

(4) Has been adjudicated as a mental defective or has been committed to a mental institution;

(5) Is an alien, other than an alien who—

(i) Is lawfully admitted for permanent residence (as that term is defined in section 101(a)(20) of the Immigration and Nationality Act (8 U.S.C. 1101)); or

(ii) Is in lawful nonimmigrant status, is a refugee admitted under section 207 of the Immigration and Nationality Act (8 U.S.C. 1157), or is in asylum status under section 208 of the Immigration and Nationality Act (8 U.S.C. 1158), and—

(A) Is a foreign law enforcement officer of a friendly foreign government, as determined by the Attorney General in consultation with the Secretary of State, entering the United States on official law enforcement business, and the shipping, transporting, possession, or receipt of explosive materials is in furtherance of this official law enforcement business;

(B) Is a person having the power to direct or cause the direction of the management and policies of a corporation, partnership, or association licensed pursuant to section 843(a) of the Act, and the shipping, transporting, possession, or receipt of explosive materials is in furtherance of such power;

(C) Is a member of a North Atlantic Treaty Organization (NATO) or other friendly foreign military force, as determined by the Attorney General in consultation with the Secretary of Defense, (whether or not admitted in a nonimmigrant status) who is present in the United States under military orders for training or other military purpose authorized by the United States, and the shipping, transporting, possession, or receipt of explosive materials is in furtherance of the military purpose; or

(D) Is lawfully present in the United States in cooperation with the Director of Central Intelligence, and the shipment, transportation, receipt, or possession of the explosive materials is in furtherance of such cooperation;

(6) Has been discharged from the armed forces under dishonorable conditions; or

(7) Having been a citizen of the United States, has renounced citizenship.

(d) Distribution to prohibited persons. No person may knowingly distribute explosive materials to any individual who:

(1) Is under twenty-one years of age;

(2) Is under indictment or information for, or who has been convicted in any court of, a crime punishable by imprisonment for a term exceeding one year;

(3) Is a fugitive from justice;

(4) Is an unlawful user of or addicted to any controlled substance (as defined in section 102 of the Controlled Substances Act (21 U.S.C. 802) and § 555.11);

(5) Has been adjudicated as a mental defective or has been committed to a mental institution;

(6) Is an alien, other than an alien who—

(i) Is lawfully admitted for permanent residence (as that term is defined in section 101(a)(20) of the Immigration and Nationality Act (8 U.S.C. 1101)); or

(ii) Is in lawful nonimmigrant status, is a refugee admitted under section 207 of the Immigration and Nationality Act (8 U.S.C. 1157), or is in asylum status under section 208 of the Immigration and Nationality Act (8 U.S.C. 1158), and—

(A) Is a foreign law enforcement officer of a friendly foreign government, as determined by the Attorney General in consultation with the Secretary of State, entering the United States on official law enforcement business, and the shipping, transporting, possession, or receipt of explosive materials is in furtherance of this official law enforcement business;

(B) Is a person having the power to direct or cause the direction of the management and policies of a corporation, partnership, or association licensed pursuant to section 843(a) of the Act, and the shipping, transporting, possession, or receipt of explosive materials is in furtherance of such power;

(C) Is a member of a North Atlantic Treaty Organization (NATO) or other friendly foreign military force, as determined by the Attorney General in consultation with the Secretary of Defense, (whether or not admitted in a nonimmigrant status) who is present in the United States under military orders for training or other military purpose authorized by the United States, and the shipping, transporting, possession, or receipt of explosive materials is in furtherance of the military purpose; or

(D) Is lawfully present in the United States in cooperation with the Director of Central Intelligence, and the shipment, transportation, receipt, or possession of the explosive materials is in furtherance of such cooperation;

(7) Has been discharged from the armed forces under dishonorable conditions; or

(8) Having been a citizen of the United States, has renounced citizenship.

(e) See § 555.180 for regulations concerning the prohibited manufacture, importation, exportation, shipment, transportation, receipt, transfer, or possession of plastic explosives that do not contain a detection agent.

[ATF No. 1, 68 FR 13781, Mar. 20, 2003]

§ 555.27 Out-of-State disposition of explosive materials.

(a) No nonlicensee or nonpermittee may distribute any explosive materials to any other nonlicensee or nonpermittee who the distributor knows or who has reasonable cause to believe does not reside in the State in which the distributor resides.

(b) The provisions of this section do not apply on and after May 24, 2003.

[ATF No. 1, 68 FR 13782, Mar. 20, 2003]

§ 555.28 Stolen explosive materials.

No person shall receive, conceal, transport, ship, store, barter, sell, or dispose of any stolen explosive materials knowing or having reasonable cause to believe that the explosive materials were stolen.

§ 555.29 Unlawful storage.

No person shall store any explosive materials in a manner not in conformity with this part.

§ 555.30 Reporting theft or loss of explosive materials.

(a) Any licensee or permittee who has knowledge of the theft or loss of any explosive materials from his stock shall, within 24 hours of discovery, report the theft or loss by telephoning 1-800-800-3855 (nationwide toll free number) and on ATF F 5400.5 (formerly Form 4712) in accordance with the instructions on the form. Theft or loss of any explosive materials shall also be reported to appropriate local authorities.

(b) Any other person, except a carrier of explosive materials, who has knowledge of the theft or loss of any explosive materials from his stock shall, within 24 hours of discovery, report the theft or loss by telephoning 1-800-800-3855 (nationwide toll free number) and in writing to the nearest ATF office. Theft or loss shall be reported to appropriate local authorities.

(c) Reports of theft or loss of explosive materials under paragraphs (a) and (b) of this section must include the following information, if known:

(1) The manufacturer or brand name.

(2) The manufacturer's marks of identification (date and shift code).

(3) Quantity (applicable quantity units, such as pounds of explosives, number of detonators, etc.).

(4) Description (dynamite, blasting agents, detonators, etc.) and United Nations (UN) identification number, hazard division number, and classification letter, e.g., 1.1D, as classified by the U.S. Department of Transportation at 49 CFR 172.101 and 173.52.

(5) Size (length and diameter).

(d) A carrier of explosive materials who has knowledge of the theft or loss of any explosive materials shall, within 24 hours of discovery, report the theft or loss by telephoning 1-800-800-3855 (nationwide toll free number). Theft or loss shall also be reported to appropriate local authorities. Reports of theft or loss of explosive materials by carriers shall include the following information, if known:

- (1) The manufacturer or brand name.
- (2) Quantity (applicable quantity units, such as pounds of explosives, number of detonators, etc.).
- (3) Description (United Nations (UN) identification number, hazard division number, and classification letter, e.g., 1.1D) as classified by the U.S. Department of Transportation at 49 CFR 172.101 and 173.52.

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-400, 63 FR 45002, Aug. 24, 1998]

§ 555.31 Inspection of site accidents or fires; right of entry.

Any ATF officer may inspect the site of any accident or fire in which there is reason to believe that explosive materials were involved. Any ATF officer may enter into or upon any property where explosive materials have been used, are suspected of having been used, or have been found in an otherwise unauthorized location.

§ 555.32 Special explosive devices.

The Director may exempt certain explosive actuated devices, explosive actuated tools, or similar devices from the requirements of this part. A person who desires to obtain an exemption under this section for any special explosive device, which as designed does not constitute a public safety or security hazard, shall submit a written request to the Director. Each request shall be executed under the penalties of perjury and contain a complete and accurate description of the device, the name and address of the manufacturer or importer, the purpose of and use for which it is intended, and any photographs, diagrams, or drawings as may be necessary to enable the Director to make a determination. The Director may require that a sample of the device be submitted for examination and evaluation. If it is not possible to submit the device, the person requesting the exemption shall advise the Director and designate the place where the device will be available for examination and evaluation.

§ 555.33 Background checks and clearances (effective May 24, 2003).

(a) Background checks.

(1) If the Director receives from a licensee or permittee the names and appropriate identifying information of responsible persons and employees who will be authorized by the employer to possess explosive materials in the course of employment with the employer, the Director will conduct a background check in accordance with this section.

(2) The Director will determine whether the responsible person or employee is one of the persons described in any paragraph of section 842(i) of the Act (see § 555.26). In making such determination, the Director may take into account a letter or document issued under paragraph (a)(3) of this section.

(3) (i) If the Director determines that the responsible person or the employee is not one of the persons described in any paragraph of section 842(i) of the Act (see § 555.26), the Director will notify the employer in writing or electronically of the determination and issue, to the responsible person or employee, as the case may be, a letter of clearance which confirms the determination.

(ii) If the Director determines that the responsible person or employee is one of the persons described in any paragraph of section 842(i) of the Act (see § 555.26), ATF will notify the employer in writing or electronically of the determination and issue to the responsible person or the employee, as the case may be, a document that confirms the determination; explains the grounds for the determination; provides information on how the disability may be relieved; and explains how the determination may be appealed. The employer will retain the notification as part of his permanent records in accordance with § 555.121. The employer will take immediate steps to remove the responsible person from his position directing the management or policies of the business or operations as they relate to explosive materials or, as the case may be, to remove the employee from a position requiring the possession of explosive materials. Also, if the employer has listed the employee as a person authorized to accept delivery of explosive materials, as specified in § 555.103 or § 555.105, the employer must remove the employee from such list and immediately, and in no event later than the second business day after such change, notify distributors of such change.

(b) Appeals and correction of erroneous system information—

(1) In general. A responsible person or employee may challenge the adverse determination set out in the letter of denial, in writing and within 45 days of issuance of the determination, by directing his or her challenge to the basis for the adverse determination, or to the accuracy of the record upon which the adverse determination is based, to the Director. The appeal request must include appropriate documentation or record(s) establishing the legal and/or factual basis for the challenge. Any record or document of a court or other government entity or official furnished in support of an appeal must be certified by the court or other government entity or official as a true copy. In the case of an employee, or responsible person who did not submit fingerprints, such appeal must be accompanied by two properly completed FBI Forms FD-258 (fingerprint card). The Director will advise the individual in writing of his decision and the reasons for the decision.

(2) Employees. The letter of denial, among other things, will advise an employee who elects to challenge an adverse determination to submit the fingerprint cards as described above. The employee also will be advised of the agency name and address that originated the record containing the information causing the adverse determination (“originating agency”). At that time, and where appropriate, an employee is encouraged to apply to the originating agency to challenge the accuracy of the record(s) upon which the denial is based. The originating agency may respond to the individual's application by addressing the individual's specific reasons for the challenge, and by indicating whether additional information or documents are required. If the record is corrected as a result of the application to the originating agency, the individual may so notify ATF which will, in turn, verify the record correction with the originating agency and take all necessary steps to contact the agency responsible for the record system and correct the record. The employee may provide to ATF additional and appropriate documentation or record(s) establishing the legal and/or factual basis for the challenge to ATF's decision to uphold the initial denial. If ATF does not receive such additional documentation or record(s) within 45 days of the date of the decision upholding the initial denial, ATF will close the appeal.

(3) Responsible persons. The letter of denial, among other things, will advise a responsible person of the agency name and address which originated the record containing the information causing the adverse determination (“originating agency”). A responsible person who elects to challenge the adverse determination, where appropriate, is encouraged to apply to the originating agency to challenge the accuracy of the record(s) upon which the denial is based. The originating agency may respond to the

individual's application by addressing the individual's specific reasons for the challenge, and by indicating whether additional information or documents are required. If the record is corrected as a result of the application to the originating agency, the individual may so notify ATF which will, in turn, verify the record correction with the originating agency and take all necessary steps to contact the agency responsible for the record system and correct the record. A responsible person may provide additional documentation or records as specified for employees in paragraph (b)(2) of this section.

(Approved by the Office of Management and Budget under control number 1140-0081)

[ATF No. 1, 68 FR 13783, Mar. 20, 2003]

§ 555.34 Replacement of stolen or lost ATF Form 5400.30 (Intrastate Purchase of Explosives Coupon (IPEC)).

When any Form 5400.30 is stolen, lost, or destroyed, the person losing possession will, upon discovery of the theft, loss, or destruction, immediately, but in all cases before 24 hours have elapsed since discovery, report the matter to the Director by telephoning 1-888-ATF-BOMB (nationwide toll free number). The report will explain in detail the circumstances of the theft, loss, or destruction and will include all known facts that may serve to identify the document. Upon receipt of the report, the Director will make such investigation as appears appropriate and may issue a duplicate document upon such conditions as the circumstances warrant.

(Approved by the Office of Management and Budget under control number 1140-0077)

[ATF No. 1, 68 FR 13783, Mar. 20, 2003]

Subpart D—Licenses and Permits

§ 555.41 General.

(a) Licenses and permits issued prior to May 24, 2003.

(1) Each person intending to engage in business as an importer or manufacturer of, or a dealer in, explosive materials, including black powder, must, before commencing business, obtain the license required by this subpart for the business to be operated. Each person who intends to acquire for use explosive materials from a licensee in a State other than the State in which he resides, or from a foreign country, or who intends to transport explosive materials in interstate or foreign commerce, must obtain a permit under this subpart; except that it is not necessary to obtain a permit if the user intends to lawfully purchase:

(i) Explosive materials from a licensee in a State contiguous to the user's State of residence and the user's State of residence has enacted legislation, currently in force, specifically authorizing a resident of that State to purchase explosive materials in a contiguous State; or

(ii) Commercially manufactured black powder in quantities not to exceed 50 pounds, intended to be used solely for sporting, recreational, or cultural purposes in antique firearms or in antique devices.

(2) Each person intending to engage in business as an explosive materials importer, manufacturer, or dealer must file an application, with the required fee (see § 555.42), with ATF in accordance with the instructions on the form (see § 555.45). A license will, subject to law, entitle the licensee to transport, ship, and receive explosive materials in interstate or foreign commerce, and to engage in the business specified by the license, at the location described on the license. A separate license must be obtained for each business premises at which the applicant is to manufacture, import, or distribute explosive materials except under the following circumstances:

(i) A separate license will not be required for storage facilities operated by the licensee as an integral part of one business premises or to cover a location used by the licensee solely for maintaining the records required by this part.

(ii) A separate license will not be required of a licensed manufacturer with respect to his on-site manufacturing.

(iii) It will not be necessary for a licensed importer or a licensed manufacturer (for purposes of sale or distribution) to also obtain a dealer's license in order to engage in business on his licensed premises as a dealer in explosive materials.

(iv) A separate license will not be required of licensed manufacturers with respect to their on-site manufacture of theatrical flash powder.

(3) Except as provided in paragraph (a)(1) of this section, each person intending to acquire explosive materials from a licensee in a State other than a State in which he resides, or from a foreign country, or who intends to transport explosive materials in interstate or foreign commerce, must file an application, with the required fee (see § 555.43), with ATF in accordance with the instructions on the form (see § 555.45). A permit will, subject to law, entitle the permittee to acquire, transport, ship, and receive in interstate or foreign commerce explosive materials. Only one permit is required under this part.

(b) Licenses and permits issued on and after May 24, 2003—

(1) In general.

(i) Each person intending to engage in business as an importer or manufacturer of, or a dealer in, explosive materials, including black powder, must, before commencing business, obtain the license required by this subpart for the business to be operated.

(ii) Each person who intends to acquire for use explosive materials within the State in which he resides on no more than 6 separate occasions during the 12-month period in which the permit is valid must obtain a limited permit under this subpart. (See § 555.105(b) for definition of “6 separate occasions.”)

(iii) Each person who intends to acquire for use explosive materials from a licensee or permittee in a State other than the State in which he resides, or from a foreign country, or who intends to transport explosive materials in interstate or foreign commerce, or who intends to acquire for use explosive materials within the State in which he resides on more than 6 separate occasions during a 12-month period, must obtain a user permit under this subpart.

(iv) It is not necessary to obtain a permit if the user intends only to lawfully purchase commercially manufactured black powder in quantities not to exceed 50 pounds, intended to be used solely for sporting, recreational, or cultural purposes in antique firearms or in antique devices.

(2) Importers, manufacturers, and dealers. Each person intending to engage in business as an explosive materials importer, manufacturer, or dealer must file an application, with

the required fee (see § 555.42), with ATF in accordance with the instructions on the form (see § 555.45). A license will, subject to law, entitle the licensee to transport, ship, and receive explosive materials in interstate or foreign commerce, and to engage in the business specified by the license, at the location described on the license. A separate license must be obtained for each business premises at which the applicant is to manufacture, import, or distribute explosive materials except under the following circumstances:

(i) A separate license will not be required for storage facilities operated by the licensee as an integral part of one business premises or to cover a location used by the licensee solely for maintaining the records required by this part.

(ii) A separate license will not be required of a licensed manufacturer with respect to his on-site manufacturing.

(iii) It will not be necessary for a licensed importer or a licensed manufacturer (for purposes of sale or distribution) to also obtain a dealer's license in order to engage in business on his licensed premises as a dealer in explosive materials. No licensee will be required to obtain a user permit to lawfully transport, ship, or receive explosive materials in interstate or foreign commerce.

(iv) A separate license will not be required of licensed manufacturers with respect to their on-site manufacture of theatrical flash powder.

(3) Users of explosive materials.

(i) A limited permit will, subject to law, entitle the holder of such permit to receive for his use explosive materials from a licensee or permittee in his state of residence on no more than 6 separate occasions during the 12-month period in which the permit is valid. A limited permit does not authorize the receipt or transportation of explosive materials in interstate or foreign commerce. Holders of limited permits who need to receive explosive materials on more than 6 separate occasions during a 12-month period must obtain a user permit in accordance with this subpart.

(ii) Each person intending to acquire explosive materials from a licensee in a State other than a State in which he resides, or from a foreign country, or who intends to transport explosive materials in interstate or foreign commerce, must file an application for a user permit, with the required fee (see § 555.43), with ATF in accordance with the instructions on the form (see § 555.45). A user permit will, subject to law, entitle the permittee to transport, ship, and receive in interstate or foreign commerce explosive materials. Only one user permit per person is required under this part, irrespective of the number of locations relating to explosive materials operated by the holder of the user permit.

(Approved by the Office of Management and Budget under control number 1140–0083)

[ATF No. 1, 68 FR 13783, Mar. 20, 2003, as amended by ATF 5F, 70 FR 30633, May 27, 2005]

§ 555.42 License fees.

(a) Each applicant shall pay a fee for obtaining a three year license, a separate fee being required for each business premises, as follows:

- (1) Manufacturer-\$200.
- (2) Importer-\$200.
- (3) Dealer-\$200.

(b) Each applicant for a renewal of a license shall pay a fee for a three year license as follows:

- (1) Manufacturer-\$100.
- (2) Importer-\$100.
- (3) Dealer-\$100.

[T.D. ATF-400, 63 FR 45002, Aug. 24, 1998]

§ 555.43 Permit fees.

(a) Each applicant must pay a fee for obtaining a permit as follows:

- (1) User-\$100 for a three-year period.
- (2) User-limited (nonrenewable)-\$75.
- (3) Limited-\$25 for a one-year period.

(b) (1) Each applicant for renewal of a user permit must pay a fee of \$50 for a three-year period.

(2) Each applicant for renewal of a limited permit must pay a fee of \$12 for a one-year period.

[ATF No. 1, 68 FR 13785, Mar. 20, 2003]

§ 555.44 License or permit fee not refundable.

No refund of any part of the amount paid as a license or permit fee will be made where the operations of the licensee or permittee are, for any reason, discontinued during the period of an issued license or permit. However, the license or permit fee submitted with an application for a license or permit will be refunded if that application is denied, withdrawn, or abandoned, or if a license is cancelled subsequent to having been issued through administrative error.

§ 555.45 Original license or permit.

(a) Licenses issued prior to May 24, 2003. Any person who intends to engage in business as an explosive materials importer, manufacturer, or dealer, or who has not timely submitted application for renewal of a previous license issued under this part, shall file with ATF an application for License, Explosives, ATF F 5400.13/5400.16 with ATF in accordance with the instructions on the form. The application must be executed under the penalties of perjury and the penalties imposed by 18 U.S.C. 844(a). The application is to be accompanied by the appropriate fee in the form of a money order or check made payable to the Bureau of Alcohol, Tobacco and Firearms. ATF F 5400.13/5400.16 may be obtained from any ATF office. The Chief, Federal Explosives Licensing Center, will not approve an application postmarked on

or after March 20, 2003, unless it is submitted with a Responsible Person Questionnaire, ATF Form 5400.28. Form 5400.28 must be completed in accordance with the instructions on the form.

(b) Permits issued prior to May 24, 2003. Any person, except as provided in § 555.41(a), who intends to acquire explosive materials from a licensee in a state other than the State in which that person resides, or from a foreign country, or who intends to transport explosive materials in interstate or foreign commerce, or who has not timely submitted application for renewal of a previous permit issued under this part, shall file an application for Permit, Explosives, ATF F 5400.13/5400.16 or Permit, User Limited Special Fireworks, ATF F 5400.21 with ATF in accordance with the instructions on the form. The application must be executed under the penalties of perjury and the penalties imposed by 18 U.S.C. 844(a). The application is to be accompanied by the appropriate fee in the form of a money order or check made payable to the Bureau of Alcohol, Tobacco and Firearms. ATF F 5400.13/5400.16 and ATF F 5400.21 may be obtained from any ATF office. The Chief, Federal Explosives Licensing Center, will not approve an application postmarked on or after March 20, 2003, unless it is submitted with a Responsible Person Questionnaire, ATF Form 5400.28. Form 5400.28 must be completed in accordance with the instructions on the form.

(c) Licenses and permits issued on and after May 24, 2003—

(1) License. Any person who intends to engage in the business as an importer of, manufacturer of, or dealer in explosive materials, or who has not timely submitted an application for renewal of a previous license issued under this part, must file an application for License, Explosives, ATF F 5400.13/5400.16, with ATF in accordance with the instructions on the form. ATF Form 5400.13/5400.16 may be obtained by contacting any ATF office. The application must:

(i) Be executed under the penalties of perjury and the penalties imposed by 18 U.S.C. 844(a);

(ii) Include appropriate identifying information concerning each responsible person;

(iii) Include a photograph and fingerprints for each responsible person;

(iv) Include the names of and appropriate identifying information regarding all employees who will be authorized by the applicant to possess explosive materials by submitting ATF F 5400.28 for each employee; and

(v) Include the appropriate fee in the form of money order or check made payable to the Bureau of Alcohol, Tobacco, Firearms and Explosives.

(2) User permit and limited permit. Except as provided in § 555.41(b)(1)(iv), any person who intends to acquire explosive materials in the State in which that person resides or acquire explosive materials from a licensee or holder of a user permit in a State other than the State in which that person resides, or from a

foreign country, or who intends to transport explosive materials in interstate or foreign commerce, or who has not timely submitted an application for renewal of a previous permit issued under this part, must file an application for Permit, Explosives, ATF F 5400.13/5400.16 or Permit, User Limited Display Fireworks, ATF F 5400.21 with ATF in accordance with the instructions on the form. ATF Form 5400.13/5400.16 and ATF Form 5400.21 may be obtained by contacting any ATF office. The application must:

- (i) Be executed under the penalties of perjury and the penalties imposed by 18 U.S.C. 844(a);
- (ii) Include a photograph, fingerprints, and appropriate identifying information for each responsible person;
- (iii) Include the names of and appropriate identifying information regarding all employees who will be authorized by the applicant to possess explosive materials by submitting ATF F 5400.28 for each employee; and
- (iv) Include the appropriate fee in the form of money order or check made payable to the Bureau of Alcohol, Tobacco, Firearms and Explosives.

(3) The Federal Explosives Licensing Center, will conduct background checks on responsible persons and employees authorized by the applicant to possess explosive materials in accordance with § 555.33. If it is determined that any responsible person or employee is described in any paragraph of section 842(i) of the Act, the applicant must submit an amended application indicating removal or reassignment of that person before the license or permit will be issued.

(Approved by the Office of Management and Budget under control number 1140-0083)

(18 U.S.C. 847 (84 Stat. 959); 18 U.S.C. 926 (82 Stat. 1226))

[T.D. ATF-200, 50 FR 10497, Mar. 15, 1985, as amended by T.D. ATF-400, 63 FR 45002, Aug. 24, 1998; ATF No. 1, 68 FR 13785, Mar. 20, 2003]

§ 555.46 Renewal of license or permit.

(a) If a licensee or permittee intends to continue the business or operation described on a license or permit issued under this part after the expiration date of the license or permit, he shall, unless otherwise notified in writing by the Chief, Federal Explosives Licensing Center, execute and file prior to the expiration of his license or permit an application for license renewal, ATF F 5400.14 (Part III), or an application for permit renewal, ATF F 5400.15 (Part III), accompanied by the required fee, with ATF in accordance with the instructions on the form. In the event the licensee or permittee does not timely file a renewal application, he shall file an original application as required by § 555.45, and obtain the required license or permit in order to continue business or operations.

(b) A user-limited permit is not renewable and is valid for a single purchase transaction. Applications for all user-limited permits must be filed on ATF F 5400.13/5400.16 or ATF F 5400.21, as required by § 555.45.

(18 U.S.C. 847 (84 Stat. 959); 18 U.S.C. 926 (82 Stat. 1226))

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-200, 50 FR 10497, Mar. 15, 1985; T.D. ATF-290, 54 FR 53054, Dec. 27, 1989; T.D. ATF-400, 63 FR 45002, Aug. 24, 1998]

§ 555.47 Insufficient fee.

If an application is filed with an insufficient fee, the application and fee submitted will be returned to the applicant.

(18 U.S.C. 847 (84 Stat. 959); 18 U.S.C. 926 (82 Stat. 1226))

[T.D. ATF-200, 50 FR 10498, Mar. 15, 1985]

§ 555.48 Abandoned application.

Upon receipt of an incomplete or improperly executed application, the applicant will be notified of the deficiency in the application. If the application is not corrected and returned within 30 days following the date of notification, the application will be considered as having been abandoned and the license or permit fee returned.

§ 555.49 Issuance of license or permit.

(a) Issuance of license or permit prior to May 24, 2003.

(1) The Chief, Federal Explosives Licensing Center, will issue a license or permit if—

- (i) A properly executed application for the license or permit is received; and
- (ii) Through further inquiry or investigation, or otherwise, it is found that the applicant is entitled to the license or permit.

(2) The Chief, Federal Explosives Licensing Center, will approve a properly executed application for a license or permit, if:

- (i) The applicant is 21 years of age or over;
- (ii) The applicant (including, in the case of a corporation, partnership, or association, any individual possessing, directly or indirectly, the power to direct or cause the direction of the management and policies of the corporation, partnership, or association) is not a person to whom distribution of explosive materials is prohibited under the Act;
- (iii) The applicant has not willfully violated any provisions of the Act or this part;
- (iv) The applicant has not knowingly withheld information or has not made any false or fictitious statement intended or likely to deceive, in connection with his application;
- (v) The applicant has in a State, premises from which he conducts business or operations subject to license or permit under the Act or from which he intends to conduct business or operations;
- (vi) The applicant has storage for the class (as described in § 555.202) of explosive materials described on the application, unless he establishes to the satisfaction of the Chief, Federal Explosives Licensing Center, that the business or operations to be conducted will not require the storage of explosive materials;

(vii) The applicant has certified in writing that he is familiar with and understands all published State laws and local ordinances relating to explosive materials for the location in which he intends to do business; and

(viii) The applicant for a license has submitted the certificate required by section 21 of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1341).

(3) The Chief, Federal Explosives Licensing Center, will approve or the Director, Industry Operations will deny any application for a license or permit within the 45-day period beginning on the date a properly executed application was received. However, when an applicant for license or permit renewal is a person who is, under the provisions of § 555.83 or § 555.142, conducting business or operations under a previously issued license or permit, action regarding the application will be held in abeyance pending the completion of the proceedings against the applicant's existing license or permit, or renewal application, or final action by the Director on an application for relief submitted under § 555.142, as the case may be.

(4) The license or permit and one copy will be forwarded to the applicant, except that in the case of a user-limited permit, the original only will be issued.

(5) Each license or permit will bear a serial number and this number may be assigned to the licensee or permittee to whom issued for as long as he maintains continuity of renewal in the same region.

(b) Issuance of license or permit on and after May 24, 2003.

(1) The Chief, Federal Explosives Licensing Center, will issue a license or permit if:

(i) A properly executed application for the license or permit is received; and

(ii) Through further inquiry or investigation, or otherwise, it is found that the applicant is entitled to the license or permit.

(2) The Chief, Federal Explosives Licensing Center, will approve a properly executed application for a license or permit, if:

(i) The applicant (or, if the applicant is a corporation, partnership, or association, each responsible person with respect to the applicant) is not a person described in any paragraph of section 842(i) of the Act;

(ii) The applicant has not willfully violated any provisions of the Act or this part;

(iii) The applicant has not knowingly withheld information or has not made any false or fictitious statement intended or likely to deceive, in connection with his application;

(iv) The applicant has in a State, premises from which he conducts business or operations subject to license or permit under the Act or from which he intends to conduct business or operations;

(v) The applicant has storage for the class (as described in § 555.202) of explosive materials described on the application;

(vi) The applicant has certified in writing that he is familiar with and understands all published State laws and local ordinances relating to explosive materials for the location in which he intends to do business;

(vii) The applicant for a license has submitted the certificate required by section 21 of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1341);

(viii) None of the employees of the applicant who will be authorized by the applicant to possess explosive materials is a person described in any paragraph of section 842(i) of the Act; and

(ix) In the case of an applicant for a limited permit, the applicant has certified in writing that the applicant will not receive explosive materials on more than 6 separate occasions during the 12-month period for which the limited permit is valid.

(3) The Chief, Federal Explosives Licensing Center, will approve or the Director, Industry Operations will deny any application for a license or permit within the 90-day period beginning on the date a properly executed application was received. However, when an applicant for license or permit renewal is a person who is, under the provisions of § 555.83 or § 555.142, conducting business or operations under a previously issued license or permit, action regarding the application will be held in abeyance pending the completion of the proceedings against the applicant's existing license or permit, or renewal application, or final action by the Director on an application for relief submitted under § 555.142, as the case may be.

(4) The license or permit and one copy will be forwarded to the applicant, except that in the case of a user-limited permit, the original only will be issued.

(5) Each license or permit will bear a serial number and this number may be assigned to the licensee or permittee to whom issued for as long as he maintains continuity of renewal in the same region.

(Approved by the Office of Management and Budget under control number 1140-0082)

[ATF No. 1, 68 FR 13785, Mar. 20, 2003]

§ 555.50 Correction of error on license or permit.

(a) Upon receipt of a license or permit issued under this part, each licensee or permittee shall examine the license or permit to insure that the information on it is accurate. If the license or permit is incorrect, the licensee or permittee shall return the license or permit to the Chief, Federal Explosives Licensing Center, with a statement showing the nature of the error. The Chief, Federal Explosives Licensing Center, shall correct the error, if the error was made in his office, and return the license or permit. However, if the error resulted from information contained in the licensee's or permittee's application for the license or permit, the Chief, Federal Explosives Licensing Center, shall

require the licensee or permittee to file an amended application setting forth the correct information and a statement explaining the error contained in the application. Upon receipt of the amended application and a satisfactory explanation of the error, the Chief, Federal Explosives Licensing Center, shall make the correction on the license or permit and return it to the licensee or permittee.

(b) When the Chief, Federal Explosives Licensing Center, finds through any means other than notice from the licensee or permittee that an incorrect license or permit has been issued, (1) the Chief, Federal Explosives Licensing Center, may require the holder of the incorrect license or permit to return the license or permit for correction, and (2) if the error resulted from information contained in the licensee's or permittee's application for the license or permit, the Chief, Federal Explosives Licensing Center, shall require the licensee or permittee to file an amended application setting forth the correct information, and a statement satisfactorily explaining the error contained in the application. The Chief, Federal Explosives Licensing Center, then shall make the correction on the license or permit and return it to the licensee or permittee.

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-290, 54 FR 53054, Dec. 27, 1989]

§ 555.51 Duration of license or permit.

(a) Prior to May 24, 2003. An original license or permit is issued for a period of three years. A renewal license or permit is issued for a period of three years. However, a user-limited permit is valid only for a single purchase transaction.

(b) On and after May 24, 2003.

(1) An original license or user permit is issued for a period of three years. A renewal license or user permit is also issued for a period of three years. However, a user-limited permit is valid only for a single purchase transaction.

(2) A limited permit is issued for a period of one year. A renewal limited permit is also issued for a period of one year.

[ATF No. 1, 68 FR 13786, Mar. 20, 2003]

§ 555.52 Limitations on license or permit.

(a) The license covers the business of explosive materials specified in the license at the licensee's business premises (see § 555.41(b)).

(b) The permit is valid with respect to the type of operations of explosive materials specified in the permit.

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-387, 62 FR 8376, Feb. 25, 1997; ATF 5F, 70 FR 30633, May 27, 2005]

§ 555.53 License and permit not transferable.

Licenses and permits issued under this part are not transferable to another person. In the event of the lease, sale, or other transfer of the business or operations covered by the license or permit, the successor must obtain the license or permit required by this part before commencing business or operations. However, for rules on right of succession, see § 555.59.

§ 555.54 Change of address.

(a) During the term of a license or permit, a licensee or permittee may move his business or operations to a new address at which he intends to regularly carry on his business or operations, without procuring a new license or permit. However, in every case, the licensee or permittee shall—

(1) Give notification of the new location of the business or operations to the Chief, Federal Explosives Licensing Center at least 10 days before the move; and

(2) Submit the license or permit to the Chief, Federal Explosives Licensing Center. The Chief, Federal Explosives Licensing Center will issue an amended license or permit, which will contain the new address (and new license or permit number, if any).

(b) Licensees and permittees whose mailing address will change must notify the Chief, Federal Explosives Licensing Center, at least 10 days before the change.

(Paragraph (b) approved by the Office of Management and Budget under control number 1140-0080)

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-290, 54 FR 53054, Dec. 27, 1989; ATF No. 1, 68 FR 13786, Mar. 20, 2003]

§ 555.56 Change in trade name.

A licensee or permittee continuing to conduct business or operations at the location shown on his license or permit is not required to obtain a new license or permit by reason of a mere change in trade name under which he conducts his business or operations. However, the licensee or permittee shall furnish his license or permit and any copies furnished with the license or permit for endorsement of the change to the Chief, Federal Explosives Licensing Center, within 30 days from the date the licensee or permittee begins his business or operations under the new trade name.

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-290, 54 FR 53054, Dec. 27, 1989]

§ 555.57 Change of control, change in responsible persons, and change of employees.

(a) In the case of a corporation or association holding a license or permit under this part, if actual or legal control of the corporation or association changes, directly or indirectly, whether by reason of change in stock ownership or control (in the corporation holding a license or permit or in any other corporation), by operation of law, or in any other manner, the licensee or permittee shall, within 30 days of the change, give written notification

executed under the penalties of perjury, to the Chief, Federal Explosives Licensing Center. Upon expiration of the license or permit, the corporation or association shall file an ATF F 5400.13/5400.16 as required by § 555.45, and pay the fee prescribed in § 555.42(b) or § 555.43(b).

(b) For all licenses or permits issued on and after May 24, 2003, each person holding the license or permit must report to the Chief, Federal Explosives Licensing Center, any change in responsible persons or employees authorized to possess explosive materials. Such report must be submitted within 30 days of the change and must include appropriate identifying information for each responsible person. Reports relating to newly hired employees authorized to possess explosive materials must be submitted on ATF F 5400.28 for each employee.

(c) Upon receipt of a report, the Chief, Federal Explosives Licensing Center, will conduct a background check, if appropriate, in accordance with § 555.33.

(d) The reports required by paragraph (b) of this section must be retained as part of a licensee's or permittee's permanent records for the period specified in § 555.121.

(Approved by the Office of Management and Budget under control number 1140-0074)

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-290, 54 FR 53054, Dec. 27, 1989; ATF No. 1, 68 FR 13786, Mar. 20, 2003]

§ 555.58 Continuing partnerships.

Where, under the laws of the particular State, the partnership is not terminated on death or insolvency of a partner, but continues until the winding up of the partnership affairs is completed, and the surviving partner has the exclusive right to the control and possession of the partnership assets for the purpose of liquidation and settlement, the surviving partner may continue to conduct the business or operations under the license or permit of the partnership. If the surviving partner acquires the business or operations on completion of settlement of the partnership, he shall obtain a license or permit in his own name from the date of acquisition, as provided in § 555.45. The rule set forth in this section will also apply where there is more than one surviving partner.

§ 555.59 Right of succession by certain persons.

(a) Certain persons other than the licensee or permittee may secure the right to carry on the same explosive materials business or operations at the same business premises for the remainder of the term of license or permit. These persons are:

(1) The surviving spouse or child, or executor, administrator, or other legal representative of a deceased licensee or permittee; and

(2) A receiver or trustee in bankruptcy, or an assignee for benefit of creditors.

(b) In order to secure the right of succession, the person or persons continuing the business or operations shall submit the license or permit and all copies furnished with the license or

28

permit for endorsement of the succession to the Chief, Federal Explosives Licensing Center, within 30 days from the date on which the successor begins to carry on the business or operations.

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-290, 54 FR 53054, Dec. 27, 1989]

§ 555.60 Certain continuances of business or operations.

A licensee or permittee who furnishes his license or permit to the Chief, Federal Explosives Licensing Center, for correction, amendment, or endorsement, as provided in this subpart, may continue his business or operations while awaiting its return.

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-290, 54 FR 53054, Dec. 27, 1989]

§ 555.61 Discontinuance of business or operations.

Where an explosive materials business or operations is either discontinued or succeeded by a new owner, the owner of the business or operations discontinued or succeeded shall, within 30 days, furnish notification of the discontinuance or succession and submit his license or permit and any copies furnished with the license or permit to the Federal Explosives Licensing Center. (See also § 555.128.)

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-290, 54 FR 53054, Dec. 27, 1989]

§ 555.62 State or other law.

A license or permit issued under this part confers no right or privilege to conduct business or operations, including storage, contrary to State or other law. The holder of a license or permit issued under this part is not, by reason of the rights and privileges granted by that license or permit, immune from punishment for conducting an explosive materials business or operations in violation of the provisions of any State or other law. Similarly, compliance with the provisions of any State or other law affords no immunity under Federal law or regulations.

§ 555.63 Explosives magazine changes.

(a) General.

(1) The requirements of this section are applicable to magazines used for other than temporary (under 24 hours) storage of explosives.

(2) A magazine is considered suitable for the storage of explosives if the construction requirements of this part are met during the time explosives are stored in the magazine.

(3) A magazine is considered suitable for the storage of explosives if positioned in accordance with the applicable table of distances as specified in this part during the time explosives are stored in the magazine.

(4) For the purposes of this section, notification of the Director, Industry Operations may be by telephone or in writing. However, if notification of the Director, Industry Operations is in writing it must be at least three business days in advance of making changes in construction to an existing magazine or

constructing a new magazine, and at least five business days in advance of using any reconstructed magazine or added magazine for the storage of explosives.

(b) Exception. Mobile or portable type 5 magazines are exempt from the requirements of paragraphs (c) and (d) of this section, but must otherwise be in compliance with paragraphs (a)(2) and (3) of this section during the time explosives are stored in such magazines.

(c) Changes in magazine construction. A licensee or permittee who intends to make changes in construction of an existing magazine shall notify the Director, Industry Operations describing the proposed changes prior to making any changes. Unless otherwise advised by the Director, Industry Operations, changes in construction may commence after explosives are removed from the magazine. Explosives may not be stored in a reconstructed magazine before the Director, Industry Operations has been notified in accordance with paragraph (a)(4) of this section that the changes have been completed.

(d) Magazines acquired or constructed after permit or license is issued. A licensee or permittee who intends to construct or acquire additional magazines shall notify the Director, Industry Operations in accordance with paragraph (a)(4) of this section describing the additional magazines and the class and quantity of explosives to be stored in the magazine. Unless otherwise advised by the Director, Industry Operations, additional magazines may be constructed, or acquired magazines may be used for the storage of explosives. Explosives must not be stored in a magazine under construction. The Director, Industry Operations must be notified that construction has been completed.

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-400, 63 FR 45002, Aug. 24, 1998]

Subpart E—License and Permit Proceedings

§ 555.71 Opportunity for compliance.

Except in cases of willfulness or those in which the public interest requires otherwise, and the Director, Industry Operations so alleges in the notice of denial of an application or revocation of a license or permit, no license or permit will be revoked or renewal application denied without first calling to the attention of the licensee or permittee the reasons for the contemplated action and affording him an opportunity to demonstrate or achieve compliance with all lawful requirements and to submit facts, arguments, or proposals of adjustment. The notice of contemplated action, ATF F 5400.12, will afford the licensee or permittee 15 days from the date of receipt of the notice to respond. If no response is received within the 15 days, or if after consideration of relevant matters presented by the licensee or permittee, the Director, Industry Operations finds that the licensee or permittee is not likely to abide by the law and regulations, he will proceed as provided in § 555.74.

[T.D. ATF-87, 46 FR 40384, Aug. 7 1981, as amended by T.D. ATF-446, 66 FR 16602, Mar. 27, 2001]

§ 555.72 Denial of initial application.

Whenever the Director, Industry Operations has reason to believe that an applicant for an original license or permit is not eligible to receive a license or permit under the provisions of § 555.49, he shall issue a notice of denial on ATF F 5400.11. The notice will set forth the matters of fact and law relied upon in determining that the application should be denied, and will afford the applicant 15 days from the date of receipt of the notice in which to request a hearing to review the denial. If no

request for a hearing is filed within that time, a copy of the application, marked “*Disapproved*”, will be returned to the applicant.

§ 555.73 Hearing after initial application is denied.

If the applicant for an original license or permit desires a hearing, he shall file a request with the Director, Industry Operations within 15 days after receipt of the notice of denial. The request should include a statement of the reasons for a hearing. On receipt of the request, the Director, Industry Operations shall refer the matter to an administrative law judge who shall set a time and place (see § 555.77) for a hearing and shall serve notice of the hearing upon the applicant and the Director, Industry Operations at least 10 days in advance of the hearing date. The hearing will be conducted in accordance with the hearing procedures prescribed in part 71 of this chapter (see § 555.82). Within a reasonable time after the conclusion of the hearing, and as expeditiously as possible, the administrative law judge shall render his recommended decision. He shall certify to the complete record of the proceedings before him and shall immediately forward the complete certified record, together with four copies of his recommended decision, to the Director, Industry Operations for decision.

§ 555.74 Denial of renewal application or revocation of license or permit.

If following the opportunity for compliance under § 555.71, or without opportunity for compliance under § 555.71, as circumstances warrant, the Director, Industry Operations finds that the licensee or permittee is not likely to comply with the law or regulations or is otherwise not eligible to continue operations

authorized under his license or permit, the Director, Industry Operations shall issue a notice of denial of the renewal application or revocation of the license or permit, ATF F 5400.11 or ATF F 5400.10, as appropriate. In either case, the notice will set forth the matters of fact constituting the violations specified, dates, places, and the sections of law and regulations violated. The notice will, in the case of revocation of a license or permit, specify the date on which the action is effective, which date will be on or after the date the notice is served on the licensee or permittee. The notice will also advise the licensee or permittee that he may, within 15 days after receipt of the notice, request a hearing and, if applicable, a stay of the effective date of the revocation of his license or permit.

§ 555.75 Hearing after denial of renewal application or revocation of license or permit.

If a licensee or permittee whose renewal application has been denied or whose license or permit has been revoked desires a hearing, he shall file a request for a hearing with the Director, Industry Operations. In the case of the revocation of a license or permit, he may include a request for a stay of the effective date of the revocation. On receipt of the request the Director, Industry Operations shall advise the licensee or permittee whether the stay of the effective date of the revocation is granted. If the stay of the effective date of the revocation is granted, the Director, Industry Operations shall refer the matter to an administrative law judge who shall set a time and place (see § 555.77) for a hearing and shall serve notice of the hearing upon the licensee or permittee and the Director, Industry Operations at least 10 days in advance of the hearing date. If the stay of the effective date of the revocation is denied, the licensee or permittee may request an immediate hearing. In this event, the Director, Industry Operations shall immediately refer the matter to an administrative law judge who shall set a date and place for a hearing, which date shall be no later than 10 days from the date the licensee or permittee requested an immediate hearing. The hearing will be held in accordance with the applicable provisions of part 71 of this chapter. Within a reasonable time after the conclusion of the hearing, and as expeditiously as possible, the administrative law judge shall render his decision. He shall certify to the complete record of the proceeding before him and shall immediately forward the complete certified record, together with two copies of his decision, to the Director, Industry Operations, serve one copy of his decision on the licensee or permittee or his counsel, and transmit a copy to the attorney for the Government.

§ 555.76 Action by Director, Industry Operations.

(a) Initial application proceedings. If, upon receipt of the record and the recommended decision of the administrative law judge, the Director, Industry Operations decides that the license or permit should be issued, the Director, Industry Operations shall cause the application to be approved, briefly stating, for the

record, his reasons. If he contemplates that the denial should stand, he shall serve a copy of the administrative law judge's recommended decision on the applicant, informing the applicant of his contemplated action and affording the applicant not more than 10 days in which to submit proposed findings and conclusions or exceptions to the recommended decision with supporting reasons. If the Director, Industry Operations, after consideration of the record of the hearing and of any proposed findings, conclusions, or exceptions filed with him by the applicant, approves the findings, conclusions and recommended decision of the administrative law judge, the Director, Industry Operations shall cause the license or permit to be issued or disapproved the application accordingly. If he disapproves the findings, conclusions, and recommendation of the administrative law judge, in whole or in part, he shall by order make such findings and conclusions as in his opinion are warranted by the law and the facts in the record. Any decision of the Director, Industry Operations ordering the disapproval of an initial application for a license or permit shall state the findings and conclusions upon which it is based, including his ruling upon each proposed finding, conclusion, and exception to the administrative law judge's recommended decision, together with a statement of his findings and conclusions, and reasons or basis for his findings and conclusions, upon all material issues of fact, law or discretion presented on the record. A signed duplicate original of the decision will be served upon the applicant and the original copy containing certificate of service will be placed in the official record of the proceedings. If the decision of the Director, Industry Operations is in favor of the applicant, he shall issue the license or permit, to be effective on issuance.

(b) **Renewal application and revocation proceedings.** Upon receipt of the complete certified records of the hearing, the Director, Industry Operations shall enter an order confirming the revocation of the license or permit, or disapproving the application, in accordance with the administrative law judge's findings and decision, unless he disagrees with the findings and decision. A signed duplicate original of the order, ATF F 5400.9, will be served upon the licensee or permittee and the original copy containing certificate of service will be placed in the official record of the proceedings. If the Director, Industry Operations disagrees with the findings and decision of the administrative law judge, he shall file a petition with the Director for review of the findings and decision, as provided in § 555.79. In either case, if the renewal application denial is sustained, a copy of the application marked "*Disapproved*" will be returned to the applicant. If the renewal application denial is reversed, a license or permit will be issued to become effective on expiration of the license or permit being renewed, or on the date of issuance, whichever is later. If the proceedings involve the revocation of a license or permit which expired before a decision is in favor of the licensee or permittee, the Director, Industry Operations shall:

(1) If renewal application was timely filed and a stay of the effective date of the revocation was granted, cause to be issued a license or permit effective on the date of issuance;

(2) If renewal application was not timely filed but a stay of the effective date of the revocation had been granted, request that a renewal application be filed and, following that, cause to be issued a license or permit to be effective on issuance; or

(3) If a stay of the effective date of the revocation had not been granted, request that an application be filed as provided in § 555.45, and process it in the same manner as for an application for an original license or permit.

(c) **Curtailement of stay of revocation effective date.** If, after approval of a request for a stay of the effective date of an order revoking a license or permit but before actions are completed under this subpart, the Director, Industry Operations finds that it is contrary to the public interest for the licensee or permittee to continue the operations or activities covered by his license or permit, the Director, Industry Operations may issue a notice of withdrawal of the approval, effective on the date of issuance. Notice of withdrawal will be served upon the licensee or permittee in the manner provided in § 555.81.

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-290, 54 FR 53054, Dec. 27, 1989]

§ 555.77 Designated place of hearing.

The designated place of hearing set as provided in § 555.73 or § 555.75, will be at the location convenient to the aggrieved party.

§ 555.78 Representation at a hearing.

An applicant, licensee, or permittee may be represented by an attorney, certified public accountant, or other person recognized to practice before the Bureau of Alcohol, Tobacco, Firearms and Explosives as provided in 31 CFR Part 8, if he has otherwise complied with the applicable requirements of 26 CFR 601.521 through 601.527. The Director, Industry Operations shall be represented in proceedings under §§ 555.73 and 555.75 by an attorney in the office of the chief counsel or regional counsel who is authorized to execute and file motions, briefs, and other papers in the proceedings, on behalf of the Director, Industry Operations, in his own name as "*Attorney for the Government*".

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-92, 46 FR 46916, Sept. 23, 1981]

§ 555.79 Appeal on petition to the Director.

An appeal to the Director is not required prior to filing an appeal with the U.S. Court of Appeals for judicial review. An appeal may be taken by the applicant, licensee, or permittee to the Director from a decision resulting from a hearing under § 555.73 or § 555.75. An appeal may also be taken by a Director, Industry Operations from a decision resulting from a hearing under § 555.75 as provided in § 555.76(b). The appeal shall be taken by filing a petition for review on appeal with the Director within 15 days of the service of an administrative law judge's

decision or an order. The petition will set forth facts tending to show (a) action of an arbitrary nature, (b) action without reasonable warrant in fact, or (c) action contrary to law and regulations. A copy of the petition will be filed with the Director, Industry Operations or served on the applicant, licensee, or permittee, as the case may be. In the event of appeal, the Director, Industry Operations shall immediately forward the complete original record, by certified mail, to the Director for his consideration, review, and disposition as provided in subpart I of part 71 of this chapter. When, on appeal, the Director affirms the initial decision of the Director, Industry Operations or the administrative law judge, as the case may be, the initial decision will be final.

§ 555.80 Court review.

An applicant, licensee, or permittee may, within 60 days after receipt of the decision of the administrative law judge or the final order of the Director, Industry Operations or the Director, file a petition for a judicial review of the decision, with the U.S. Court of Appeals for the district in which he resides or has his principal place of business. The Director, upon notification that a petition has been filed, shall have prepared a complete transcript of the record of the proceedings. The Director, Industry Operations or the Director, as the case may be, shall certify to the correctness of the transcript of the record, forward one copy to the attorney for the Government in the review of the case, and file the original record of the proceedings with the original certificate in the U.S. Court of Appeals.

§ 555.81 Service on applicant, licensee, or permittee.

All notices and other formal documents required to be served on an applicant, licensee, or permittee under this subpart will be served by certified mail or by personal delivery. Where service is by personal delivery, the signed duplicate original copy of the formal document will be delivered to the applicant, licensee, or permittee, or, in the case of a corporation, partnership, or association, by delivering it to an officer, manager, or general agent, or to its attorney of record.

§ 555.82 Provisions of part 200 made applicable.

The provisions of subpart G of part 200 of this chapter, as well as those provisions of part 71 relative to failure to appear, withdrawal of an application or surrender of a permit, the conduct of hearings before an administrative law judge, and record of testimony, are hereby made applicable to application, license, and permit proceedings under this subpart to the extent that they are not contrary to or incompatible with this subpart.

§ 555.83 Operations by licensees or permittees after notice of denial or revocation.

In any case where a notice of revocation has been issued and a request for a stay of the effective date of the revocation has not been granted, the licensee or permittee shall not engage in the activities covered by the license or permit pending the outcome of proceedings under this subpart. In any case where notice of revocation has been issued but a stay of the effective date of the revocation has been granted, the licensee or permittee may continue to engage in the activities covered by his license or

permit unless, or until, formally notified to the contrary: Provided, that in the event the license or permit would have expired before proceedings under this subpart are completed, timely renewal application must have been filed to continue the license or permit beyond its expiration date. In any case where a notice of denial of a renewal application has been issued, the licensee or permittee may continue to engage in the activities covered by the existing license or permit after the date of expiration of the license or permit until proceedings under this subpart are completed.

Subpart F—Conduct of Business or Operations**§ 555.101 Posting of license or user permit.**

A license or user permit issued under this part, or a copy of a license or user permit, will be posted and available for inspection on the business premises at each place where explosive materials are manufactured, imported, or distributed.

[T.D. ATF–87, 46 FR 40384, Aug. 7, 1981. Redesignated by T.D. ATF–487, 68 FR 3748, Jan. 24, 2003. ATF No. 1, 68 FR 13786, Mar. 20, 2003]

§ 555.102 Authorized operations by permittees.

(a) **In general.** A permit issued under this part does not authorize the permittee to engage in the business of manufacturing, importing, or dealing in explosive materials. Accordingly, if a permittee's operations bring him within the definition of manufacturer, importer, or dealer under this part, he shall qualify for the appropriate license.

(b) Distributions of surplus stocks—

(1) Distributions of surplus stocks prior to May 24, 2003. Permittees are not authorized to engage in the business of sale or distribution of explosive materials. However, permittees may dispose of surplus stocks of explosive materials to other licensees or permittees in accordance with § 555.103, and to nonlicensees or to nonpermittees in accordance with § 555.105(a)(4).

(2) Distributions of surplus stocks on and after May 24, 2003. Permittees are not authorized to engage in the business of sale or distribution of explosive materials. However, permittees may dispose of surplus stocks of explosive materials to other licensees or permittees in accordance with § 555.103 and § 555.105.

[T.D. ATF–400, 63 FR 45002, Aug. 24, 1998, as amended by ATF No. 1, 68 FR 13787, Mar. 20, 2003]

§ 555.103 Transactions among licensees/permittees and transactions among licensees and holders of user permits.

(a) Transactions among licensees/permittees prior to May 24, 2003—

(1) General.

(i) A licensed importer, licensed manufacturer or licensed dealer selling or otherwise distributing explosive materials (or a permittee disposing of surplus stock to a licensee or another permittee) who has the certified information required by this section may sell or distribute explosive materials to a licensee or permittee for not more than 45 days following the expiration date of the distributee's license or permit, unless the distributor knows or has reason to believe that the distributee's authority to continue business or operations under this part has been terminated.

(ii) A licensed importer, licensed manufacturer or licensed dealer selling or otherwise distributing explosive materials (or a permittee disposing of surplus stock to another licensee or permittee) must verify the license or permit status of the distributee prior to the release of explosive materials ordered, as required by this section.

(iii) Licensees or permittees desiring to return explosive materials to a licensed manufacturer may do so without obtaining a certified copy of the manufacturer's license.

(iv) Where possession of explosive materials is transferred at the distributor's premises, the distributor must in all instances verify the identity of the person accepting possession on behalf of the distributee before relinquishing possession. Before the delivery at the distributor's premises of explosive materials to an employee of a licensee or permittee, or to an employee of a common or contract carrier transporting explosive materials to a licensee or permittee, the distributor delivering explosive materials must obtain an executed ATF F 5400.8, Explosives Delivery Record, from the employee before releasing the explosive materials. The ATF F 5400.8 must contain all of the information required on the form and required by this part.

Example 1. An ATF F 5400.8 is required when:

- a. An employee of the purchaser takes possession at the distributor's premises.
- b. An employee of a common or contract carrier hired by the purchaser takes possession at the distributor's premises.

Example 2. An ATF F 5400.8 is not required when:

a. An employee of the distributor takes possession of the explosives for the purpose of transport to the purchaser.

b. An employee of a common or contract carrier hired by the distributor takes possession of the explosives for the purpose of transport to the purchaser.

(2) License/permit verification of individuals.

(i) The distributee must furnish a certified copy (or, in the case of a user-limited, the original) of the license or permit. The certified copy need be furnished only once during the current term of the license or permit. Also, a licensee need not furnish certified copies of licenses to other licensed locations operated by such licensee.

(ii) The distributor may obtain any additional verification as the distributor deems necessary.

(3) License/permit verification of business organizations.

(i) A business organization may (in lieu of furnishing a certified copy of a license) furnish the distributor a certified list which contains the name, address, license number and date of license expiration of each licensed location. The certified list need be furnished only once during the current term of the license or permit. Also, a business organization need not furnish a certified list to other licensed locations operated by such business organization.

(ii) A business organization must, prior to ordering explosive materials, furnish the licensee or permittee a current certified list of the representatives or agents authorized to order explosive materials on behalf of the business organization showing the name, address, and date and place of birth of each representative or agent. A licensee or permittee may not distribute explosive materials to a business organization on the order of a person who does not appear on the certified list of representatives or agents and, if the person does appear on the certified list, the licensee or permittee must verify the identity of such person.

(4) Licensee/permittee certified statement.

(i) A licensee or permittee ordering explosive materials from another licensee or permittee must furnish a current, certified statement of the intended use of the explosive materials, e.g., resale, mining, quarrying, agriculture, construction, sport rocketry, road building, oil well drilling, seismographic research, to the distributor.

(ii) For individuals, the certified statement of intended use must specify the name, address, date and place of birth, and social security number of the distributee.

(iii) For business organizations, the certified statement of intended use must specify the taxpayer identification number, the identity and the principal and local places of business.

(iv) The licensee or permittee purchasing explosive materials must revise the furnished copy of the certified statement only when the information is no longer current.

(5) User-limited permit transactions. A user-limited permit issued under the provisions of this part is valid for only a single purchase transaction and is not renewable (see § 555.51). Accordingly, at the time a user-limited permittee orders explosive materials, the licensed distributor must write on the front of the user-limited permit the transaction date, his signature, and the distributor's license number prior to returning the permit to the user-limited permittee.

(b) Transactions among licensees/permittees on and after May 24, 2003—

(1) General.

(i) A licensed importer, licensed manufacturer or licensed dealer selling or otherwise distributing explosive materials (or a holder of a user permit disposing of surplus stock to a licensee; a holder of a user permit; or a holder of a limited permit who is within the same State as the distributor) who has the certified information required by this section may sell or distribute explosive materials to a licensee or permittee for not more than 45 days following the expiration date of the distributee's license or permit, unless the distributor knows or has reason to believe that the distributee's authority to continue business or operations under this part has been terminated.

(ii) A licensed importer, licensed manufacturer or licensed dealer selling or otherwise distributing explosive materials (or a holder of a user permit disposing of surplus stock to another licensee or permittee) must verify the license or permit status of the distributee prior to the release of explosive materials ordered, as required by this section.

(iii) Licensees or permittees desiring to return explosive materials to a licensed manufacturer may do so without obtaining a certified copy of the manufacturer's license.

(2) Verification of license/user permit.

(i) Prior to or with the first order of explosive materials, the distributee must provide the distributor a certified copy (or, in the case of a user-limited, the original) of the distributee's license or user permit. However, licensees or holders of user permits that are business organizations may (in lieu of a certified copy of a license or user permit) provide the distributor with a certified list that contains the name, address, license or user permit number, and date of the license or user permit expiration of each location.

(ii) The distributee must also provide the distributor with a current list of the names of persons authorized to accept delivery of explosive materials on behalf of the distributee. The distributee ordering explosive materials must keep the list current and provide updated lists to licensees and holders of user permits on a timely basis. A distributor may not transfer possession of explosive materials to any person whose name does not appear on the current list of names of persons authorized to accept delivery

of explosive materials on behalf of the distributee. Except as provided in paragraph (b)(3) of this section, in all instances the distributor must verify the identity of the distributee, or the employee of the distributee accepting possession of explosive materials on behalf of the distributee, by examining an identification document (as defined in § 555.11) before relinquishing possession.

(iii) A licensee or holder of a user permit ordering explosive materials from another licensee or permittee must provide to the distributor a current, certified statement of the intended use of the explosive materials, e.g., resale, mining, quarrying, agriculture, construction, sport rocketry, road building, oil well drilling, seismographic research, etc.

(A) For individuals, the certified statement of intended use must specify the name, address, date and place of birth, and social security number of the distributee.

(B) For business organizations, the certified statement of intended use must specify the taxpayer identification number, the identity and the principal and local places of business.

(C) The licensee or holder of a user permit purchasing explosive materials must revise the furnished copy of the certified statement only when the information is no longer current.

(3) Delivery of explosive materials by common or contract carrier. When a common or contract carrier will transport explosive materials from a distributor to a distributee who is a licensee or holder of a user permit, the distributor must take the following actions before relinquishing possession of the explosive materials:

(i) Verify the identity of the person accepting possession for the common or contract carrier by examining such person's valid, unexpired driver's license issued by any State, Canada, or Mexico; and

(ii) Record the name of the common or contract carrier (i.e., the name of the driver's employer) and the full name of the driver. This information must be maintained in the distributor's permanent records in accordance with § 555.121.

(4) User-limited permit transactions. A user-limited permit issued under the provisions of this part is valid for only a single purchase transaction and is not renewable (see § 555.51). Accordingly, at the time a user-limited permittee orders explosive materials, the licensed distributor must write on the front of the user-limited permit the transaction date, his signature, and the distributor's license number prior to returning the permit to the user-limited permittee.

(Approved by the Office of Management and Budget under control number 1140-0079)

[ATF No. 1, 68 FR 13787, Mar. 20, 2003, as amended by ATF No. 2, 68 FR 53512, Sept. 11, 2003]

§ 555.104 Certified copy of license or permit.

Except as provided in § 555.49(a), each person issued a license or permit under this part shall be furnished together with his license or permit a copy for his certification. If a person desires an additional copy of his license or permit for certification and for use under § 555.103, he shall:

(a) Make a reproduction of the copy of his license or permit and execute the certification on it;

(b) Make a reproduction of his license or permit, enter on the reproduction the statement: "I certify that this is a true copy of a (insert the word license or permit) issued to me to engage in the specified business or operations", and sign his name next to the statement; or

(c) Submit a request, in writing, for certified copies of his license or permit to the Chief, Federal Explosives Licensing Center. The request will show the name, trade name (if any), and address of the licensee or permittee and the number of copies of the license or permit desired. There is a fee of \$1 for each copy of a license or permit issued by the Chief, Federal Explosives Licensing Center under this paragraph. Fee payment must accompany each request for additional copies of a license or permit. The fee must be paid by (1) cash, or (2) money order or check made payable to the Bureau of Alcohol, Tobacco, Firearms and Explosives.

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-290, 54 FR 53054, Dec. 27, 1989]

§ 555.105 Distributions to nonlicensees, nonpermittees, and limited permittees.

(a) Distributions to nonlicensees and nonpermittees prior to May 24, 2003.

(1) This section will apply in any case where distribution of explosive materials to the distributee is not otherwise prohibited by the Act or this part.

(2) Except as provided in paragraph (a)(3) of this section, a licensed importer, licensed manufacturer, or licensed dealer may distribute explosive materials to a nonlicensee or nonpermittee if the nonlicensee or nonpermittee is a resident of the same State in which the licensee's business premises are located, and the nonlicensee or nonpermittee furnishes to the licensee the explosives transaction record, ATF F 5400.4, required by § 555.126. Disposition of ATF F 5400.4 will be made in accordance with § 555.126.

(3) A licensed importer, licensed manufacturer, or licensed dealer may sell or distribute explosive materials to a resident of a State contiguous to the State in which the licensee's place of business is located if the purchaser's State of residence has enacted legislation, currently in force, specifically authorizing a resident of that State to purchase explosive materials in a contiguous State and the purchaser and the licensee have, prior to the distribution of the explosive materials, complied with all the

requirements of paragraphs (a)(2), (a)(5), and (a)(6) of this section applicable to intrastate transactions occurring on the licensee's business premises.

(4) A permittee may dispose of surplus stocks of explosive materials to a nonlicensee or nonpermittee if the nonlicensee or nonpermittee is a resident of the same State in which the permittee's business premises or operations are located, or is a resident of a State contiguous to the State in which the permittee's place of business or operations are located, and if the requirements of paragraphs (a)(2), (a)(3), (a)(5), and (a)(6) of this section are fully met.

(5) A licensed importer, licensed manufacturer, or licensed dealer selling or otherwise distributing explosive materials to a business entity must verify the identity of the representative or agent of the business entity who is authorized to order explosive materials on behalf of the business entity. Each business entity ordering explosive materials must furnish the distributing licensee prior to or with the first order of explosive materials a current certified list of the names of representatives or agents authorized to order explosive materials on behalf of the business entity. The business entity ordering explosive materials is responsible for keeping the certified list current. A licensee may not distribute explosive materials to a business entity on the order of a person whose name does not appear on the certified list.

(6) Where the possession of explosive materials is transferred at the distributor's premises, the distributor must in all instances verify the identity of the person accepting possession on behalf of the distributee before relinquishing possession. Before the delivery at the distributor's premises of explosive materials to an employee of a nonlicensee or nonpermittee, or to an employee of a common or contract carrier transporting explosive materials to a nonlicensee or nonpermittee, the distributor delivering explosive materials must obtain an executed ATF F 5400.8 from the employee before releasing the explosive materials. The ATF F 5400.8 must contain all of the information required on the form and by this part. (See examples in § 555.103(a)).

(7) A licensee or permittee disposing of surplus stock may sell or distribute commercially manufactured black powder in quantities of 50 pounds or less to a nonlicensee or nonpermittee if the black powder is intended to be used solely for sporting, recreational, or cultural purposes in antique firearms as defined in 18 U.S.C. 921(a)(16), or in antique devices as exempted from the term "destructive device" in 18 U.S.C. 921(a)(4).

(b) Distributions to holders of limited permits on and after May 24, 2003.

(1) This section will apply in any case where distribution of explosive materials to the distributee is not otherwise prohibited by the Act or this part.

(2) A licensed importer, licensed manufacturer or a licensed dealer may distribute explosive materials to a holder of a limited permit if such permittee is a resident of the same State in which the licensee's business premises are located, the holder of the

limited permit presents in person or by mail ATF Form 5400.4, Limited Permittee Transaction Report (LPTR), and the licensee completes Form 5400.4 in accordance with § 555.126(b). In no event will a licensee distribute explosive materials to a holder of a limited permit unless the holder presents a Form 5400.4 with an original unaltered and unexpired Intrastate Purchase of Explosives Coupon (IPEC), ATF Form 5400.30, affixed. The coupon must bear the name, address, permit number, and the coupon number of the limited permittee seeking distribution of the explosives.

(3) A holder of a limited permit is authorized to receive explosive materials from a licensee or permittee whose premises are located in the same State of residence in which the premises of the holder of the limited permit are located on no more than 6 separate occasions during the one-year period of the permit. For purposes of this section, the term "6 separate occasions" means six deliveries of explosive materials. Each delivery must—

(i) Relate to a single purchase transaction made on one ATF F 5400.4;

(ii) Be referenced on one commercial invoice or purchase order; and

(iii) Be delivered to the holder of the limited permit in one shipment delivered at the same time.

(4) A holder of a user permit may dispose of surplus stocks of explosive materials to a licensee or holder of a user permit, or a holder of a limited permit who is a resident of the same State in which the premises of the holder of the user permit are located. A holder of a limited permit may dispose of surplus stocks of explosive materials to another holder of a limited permit who is a resident of the same State in which the premises of the distributor are located, if the transaction complies with the requirements of paragraph (b)(2) of this section and § 555.126(b). A holder of a limited permit may also dispose of surplus stocks of explosive materials to a licensee or holder of a user permit if the disposition occurs in the State of residence of the holder of the limited permit. (See § 555.103.)

(5) Each holder of a limited permit ordering explosive materials must furnish the distributing licensee prior to or with the first order of the explosive materials a current list of the names of employees authorized to accept delivery of explosive materials on behalf of the limited permittee. The distributee ordering explosive materials must keep the list current and provide updated lists to licensees and holders of user permits on a timely basis. A licensed importer, licensed manufacturer, licensed dealer, or permittee, selling or otherwise distributing explosive materials to a holder of a limited permit must, prior to delivering the explosive materials, obtain from the limited permittee a current list of persons who are authorized to accept deliveries of explosive materials on behalf of the limited permittee. A licensee or permittee may not deliver explosive materials to a person whose name does not appear on the list.

(6) (i) Delivery at the distributor's premises. Where possession of explosive materials is transferred directly to the distributee at the distributor's premises, the distributor must

obtain an executed Form 5400.4 in accordance with § 555.126(b) and must in all instances verify the identity of the person accepting possession on behalf of the distributee by examining an identification document (as defined in § 555.11) before relinquishing possession.

(ii) Delivery by distributor. Where possession of explosive materials is transferred by the distributor to the distributee away from the distributor's premises, the distributor must obtain an executed Form 5400.4 in accordance with § 555.126(b) and must in all instances verify the identity of the person accepting possession on behalf of the distributee by examining an identification document (as defined in § 555.11) before relinquishing possession.

(iii) Delivery by common or contract carrier hired by the distributor. Where a common or contract carrier hired by the distributor will transport explosive materials from the distributor to a holder of a limited permit:

(A) The limited permittee must, prior to delivery of the explosive materials, complete the appropriate section on Form 5400.4, affix to the Form 5400.4 one of the six IPECs he has been issued, and provide the form to the distributor in person or by mail.

(B) The distributor must, before relinquishing possession of the explosive materials to the common or contract carrier:

(1) Verify the identity of the person accepting possession for the common or contract carrier by examining such person's valid, unexpired driver's license issued by any State, Canada, or Mexico; and

(2) Record the name of the common or contract carrier (i.e., the name of the driver's employer) and the full name of the driver. This information must be maintained in the distributor's permanent records in accordance with § 555.121.

(C) At the time of delivery of the explosive materials, the common or contract carrier, as agent for the distributor, must verify the identity of the person accepting delivery on behalf of the distributee, note the type and number of the identification document (as defined in § 555.11) and provide this information to the distributor. The distributor must enter this information in the appropriate section on Form 5400.4.

(iv) Delivery by common or contract carrier hired by the distributee. Where a common or contract carrier hired by the distributee will transport explosive materials from the distributor to a holder of a limited permit:

(A) The limited permittee must, prior to delivery of the explosive materials, complete the appropriate section on Form 5400.4, affix to the Form 5400.4 one of the six IPECs he has been issued, and provide the form to the distributor in person or by mail.

(B) Before the delivery at the distributor's premises to the common or contract carrier who will transport explosive materials to the holder of a limited permit, the distributor must:

(1) Verify the identity of the person accepting possession for the common or contract carrier by examining such person's valid, unexpired driver's license issued by any State, Canada, or Mexico; and

(2) Record the name of the common or contract carrier (i.e., the name of the driver's employer) and the full name of the driver. This information must be maintained in the distributor's permanent records in accordance with § 555.121.

(7) A licensee or permittee disposing of surplus stock may sell or distribute commercially manufactured black powder in quantities of 50 pounds or less to a holder of a limited permit, nonlicensee, or nonpermittee if the black powder is intended to be used solely for sporting, recreational, or cultural purposes in antique firearms as defined in 18 U.S.C. 921(a)(16), or in antique devices as exempted from the term "destructive device" in 18 U.S.C. 921(a)(4).

(Approved by the Office of Management and Budget under control number 1140-0075)

[ATF No. 1, 68 FR 13788, Mar. 20, 2003, as amended by ATF No. 2, 68 FR 53513, Sept. 11, 2003]

§ 555.106 Certain prohibited distributions.

(a) A licensee or permittee may not distribute explosive materials to any person except—

(1) A licensee;

(2) A holder of a user permit; or

(3) A holder of a limited permit who is a resident of the State where distribution is made and in which the premises of the transferor are located.

(b) A licensee shall not distribute any explosive materials to any person:

(1) Who the licensee knows is less than 21 years of age;

(2) In any State where the purchase, possession, or use by a person of explosive materials would be in violation of any State law or any published ordinance applicable at the place of distribution;

(3) Who the licensee has reason to believe intends to transport the explosive materials into a State where the purchase, possession, or use of explosive materials is prohibited or which does not permit its residents to transport or ship explosive materials into the State or to receive explosive materials in the State; or

(4) Who the licensee has reasonable cause to believe intends to use the explosive materials for other than a lawful purpose.

(c) A licensee shall not distribute any explosive materials to any person knowing or having reason to believe that the person:

(1) Is, except as provided under § 555.142 (d) and (e), under indictment or information for, or was convicted in any court of, a crime punishable by imprisonment for a term exceeding 1 year;

(2) Is a fugitive from justice;

(3) Is an unlawful user of marijuana, or any depressant or stimulant drug, or narcotic drug (as these terms are defined in the Controlled Substances Act, 21 U.S.C. 802);

(4) Was adjudicated as a mental defective or was committed to a mental institution;

(5) Is an alien, other than an alien who—

(i) Is lawfully admitted for permanent residence (as that term is defined in section 101(a)(20) of the Immigration and Nationality Act (8 U.S.C. 1101));

(ii) Is in lawful nonimmigrant status, is a refugee admitted under section 207 of the Immigration and Nationality Act (8 U.S.C. 1157), or is in asylum status under section 208 of the Immigration and Nationality Act (8 U.S.C. 1158), and—

(A) Is a foreign law enforcement officer of a friendly foreign government, as determined by the Attorney General in consultation with the Secretary of State, entering the United States on official law enforcement business, and the shipping, transporting, possession, or receipt of explosive materials is in furtherance of this official law enforcement business;

(B) Is a person having the power to direct or cause the direction of the management and policies of a corporation, partnership, or association licensed pursuant to section 843(a), and the shipping, transporting, possession, or receipt of explosive materials is in furtherance of such power;

(C) Is a member of a North Atlantic Treaty Organization (NATO) or other friendly foreign military force, as determined by the Attorney General in consultation with the Secretary of Defense, (whether or not admitted in a nonimmigrant status) who is present in the United States under military orders for training or other military purpose authorized by the United States, and the shipping, transporting, possession, or receipt of explosive materials is in furtherance of the military purpose; or

(D) Is lawfully present in the United States in cooperation with the Director of Central Intelligence, and the shipment, transportation, receipt, or possession of the explosive materials is in furtherance of such cooperation;

(6) Has been discharged from the armed forces under dishonorable conditions; or

(7) Having been a citizen of the United States, has renounced citizenship.

(d) The provisions of this section do not apply to the purchase of commercially manufactured black powder in quantities not to exceed 50 pounds, intended to be used solely for sporting, recreational, or cultural purposes in antique firearms or in antique devices, if the requirements of § 555.105(a)(7) or (b)(7) are fully met.

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981. Redesignated by T.D. ATF-487, 68 FR 3748, Jan. 24, 2003. ATF No. 1, 68 FR 13790, Mar. 20, 2003]

§ 555.107 Record of transactions.

Each licensee and permittee shall keep records of explosive materials as required by subpart G of this part.

§ 555.108 Importation.

(a) Explosive materials imported or brought into the United States by a licensed importer or holder of a user permit may be released from customs custody to the licensed importer or holder of a user permit upon proof of his status as a licensed importer or holder of a user permit. Proof of status must be made by the licensed importer or holder of a user permit furnishing to the customs officer a certified copy of his license or permit (see § 555.103).

(b) A nonlicensee or nonpermittee may import or bring into the United States commercially manufactured black powder in quantities not to exceed 50 pounds. Upon submitting to the customs officer completed ATF F 5400.3, certifying that the black powder is intended to be used solely for sporting, recreational, or cultural purposes in antique firearms or in antique devices, black powder may be released from customs custody. The disposition of the executed ATF F 5400.3 will be in accordance with the instructions on the form.

(c) The provisions of this section are in addition to, and are not in lieu of, any applicable requirement under 27 CFR Part 447.

(d) For additional requirements relating to the importation of plastic explosives into the United States on or after April 24, 1997, see § 555.183.

(e) For requirements relating to the marking of imported explosive materials, see § 555.109.

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-387, 62 FR 8376, Feb. 25, 1997; ATF No. 1, 68 FR 13790, Mar. 20, 2003; ATF 5F, 70 FR 30633, May 27, 2005]

§ 555.109 Identification of explosive materials.

(a) **General.** Explosive materials, whether manufactured in the United States or imported, must contain certain marks of identification.

(b) **Required marks—**

(1) Licensed manufacturers. Licensed manufacturers who manufacture explosive materials for sale or distribution must place the following marks of identification on explosive materials at the time of manufacture:

(i) The name of the manufacturer; and

(ii) The location, date, and shift of manufacture.

Where a manufacturer operates his plant for only one shift during the day, he does not need to show the shift of manufacture.

(2) Licensed importers.

(i) Licensed importers who import explosive materials for sale or distribution must place the following marks of identification on the explosive materials they import:

(A) The name and address (city and state) of the importer; and

(B) The location (city and country) where the explosive materials were manufactured, date, and shift of manufacture. Where the foreign manufacturer operates his plant for only one shift during the day, he does not need to show the shift of manufacture.

(ii) Licensed importers must place the required marks on all explosive materials imported prior to distribution or shipment for use, and in no event later than 15 days after the date of release from Customs custody.

(c) General requirements.

(1) The required marks prescribed in this section must be permanent and legible.

(2) The required marks prescribed in this section must be in the English language, using Roman letters and Arabic numerals.

(3) Licensed manufacturers and licensed importers must place the required marks on each cartridge, bag, or other immediate container of explosive materials that they manufacture or import, as well as on any outside container used for the packaging of such explosive materials.

(4) Licensed manufacturers and licensed importers may use any method, or combination of methods, to affix the required marks to the immediate container of explosive materials, or outside containers used for the packaging thereof, provided the identifying marks are legible, permanent, show all the required information, and are not rendered unreadable by extended periods of storage.

(5) If licensed manufacturers or licensed importers desire to use a coding system and omit printed markings on the container that show all the required information specified in paragraphs (b)(1) and (2) of this section, they must file with ATF a letterhead application displaying the coding that they plan to use and explaining the manner of its application. The Director must approve the application before the proposed coding can be used.

(d) Exceptions—

(1) Blasting caps. Licensed manufacturers or licensed importers are only required to place the identification marks prescribed in this section on the containers used for the packaging of blasting caps.

(2) Alternate means of identification. The Director may authorize other means of identifying explosive materials, including fireworks, upon receipt of a letter application from the licensed manufacturer or licensed importer showing that such other identification is reasonable and will not hinder the effective administration of this part.

(Approved by the Office of Management and Budget under control numbers 1140–0055 and 1140–0062)

[ATF 5F, 70 FR 30633, May 27, 2005, as amended by ATF–11F, 73 FR 57242, Oct. 2, 2008]

§ 555.110 Furnishing of samples (Effective on and after January 24, 2003).

(a) In general. Licensed manufacturers and licensed importers and persons who manufacture or import explosive materials or ammonium nitrate must, when required by letter issued by the Director, furnish—

(1) Samples of such explosive materials or ammonium nitrate;

(2) Information on chemical composition of those products; and

(3) Any other information that the Director determines is relevant to the identification of the explosive materials or to identification of the ammonium nitrate.

(b) Reimbursement. The Director will reimburse the fair market value of samples furnished pursuant to paragraph (a) of this section, as well as reasonable costs of shipment.

(Approved by the Office of Management and Budget under control number 1140–0073)

[ATF No. 1, 68 FR 13790, Mar. 20, 2003]

Subpart G—Records and Reports

§ 555.121 General.

(a) (1) Licensees and permittees shall keep records pertaining to explosive materials in permanent form (i.e., commercial invoices, record books) and in the manner required in this subpart.

(2) Licensees and permittees shall keep records required by this part on the business premises for five years from the date a transaction occurs or until discontinuance of business or operations by the licensee or permittee. (See also § 555.128 for discontinuance of business or operations.)

(b) ATF officers may enter the premises of any licensee or holder of a user permit for the purpose of examining or inspecting any record or document required by or obtained under this

part (see § 555.24). Section 843(f) of the Act requires licensees and holders of user permits to make all required records available for examination or inspection at all reasonable times. Section 843(f) of the Act also requires licensees and permittees (including holders of limited permits) to submit all reports and information relating to all required records and their contents, as the regulations in this part prescribe.

(c) Each licensee and permittee shall maintain all records of importation, production, shipment, receipt, sale, or other disposition, whether temporary or permanent, of explosive materials as the regulations in this part prescribe. Sections 842(f) and 842(g) of the Act make it unlawful for any licensee

or permittee knowingly to make any false entry in, or fail to make entry in, any record required to be kept under the Act and the regulations in this part.

(Approved by the Office of Management and Budget under control number 1140-0030)

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-172, 49 FR 14941, Apr. 16, 1984; ATF No. 1, 68 FR 13790, Mar. 20, 2003; ATF-11F, 73 FR 57242, Oct. 2, 2008]

§555.122 Records maintained by licensed importers.

(a) Each licensed importer shall take true and accurate physical inventories which will include all explosive materials on hand required to be accounted for in the records kept under this part.

The licensed importer shall take a special inventory

(1) At the time of commencing business, which is the effective date of the license issued upon original qualification under this part;

(2) At the time of changing the location of his business to another region;

(3) At the time of discontinuing business; and

(4) At any time the Director, Industry Operations may in writing require. Each special inventory is to be prepared in duplicate, the original of which is submitted to the Director, Industry Operations, and the duplicate retained by the licensed importer. If a special inventory specified by paragraphs (a)(1) through (4) of this section has not been taken during the calendar year, at least one physical inventory will be taken. However, the record of the yearly inventory, other than a special inventory required by paragraphs (a)(1) through (4) of this section, will remain on file for inspection instead of being sent to the Director, Industry Operations. (See also § 555.127.)

(b) Each licensed importer shall, not later than the close of the next business day following the date of importation or other acquisition of explosive materials, enter the following information in a separate record:

(1) Date of importation or other acquisition.

(2) Name or brand name of manufacturer and country of manufacture.

(3) Manufacturer's marks of identification.

(4) Quantity (applicable quantity units, such as pounds of explosives, number of detonators, number of display fireworks, etc.).

(5) Description (dynamite (dyn), blasting agents (ba), detonators (det), display fireworks (df), etc.) and size (length and diameter or diameter only of display fireworks).

(c) Each licensed importer shall, not later than the close of the next business day following the date of distribution of any explosive materials to another licensee or a permittee, enter in a separate record the following information:

(1) Date of disposition.

(2) Name or brand name of manufacturer and country of manufacture.

(3) Manufacturer's marks of identification.

(4) Quantity (applicable quantity units, such as pounds of explosives, number of detonators, number of display fireworks, etc.).

(5) Description (dynamite (dyn), blasting agents (ba), detonators (det), display fireworks (df), etc.) and size (length and diameter or diameter only of display fireworks).

(6) License or permit number of licensee or permittee to whom the explosive materials are distributed.

(d) The Director, Industry Operations may authorize alternate records to be maintained by a licensed importer to record his distribution of explosive materials when it is shown by the licensed importer that alternate records will accurately and readily disclose the information required by paragraph (c) of this section. A licensed importer who proposes to use alternate records shall submit a letter application to the Director, Industry Operations and shall describe the proposed alternate records and the need for them. Alternate records are not to be employed by the licensed importer until approval is received from the Director, Industry Operations.

(e) Each licensed importer shall maintain separate records of the sales or other distribution made of explosive materials to nonlicensees or nonpermittees. These records are maintained as prescribed by § 555.126.

(Approved by the Office of Management and Budget under control number 1140-0030)

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-172, 49 FR 14941, Apr. 16, 1984; T.D. ATF-293, 55 FR 3721, Feb. 5, 1990; T.D. ATF-400, 63 FR 45003, Aug. 24, 1998; ATF-11F, 73 FR 57242, Oct. 2, 2008]

§555.123 Records maintained by licensed manufacturers.

(a) Each licensed manufacturer shall take true and accurate physical inventories which will include all explosive materials on hand required to be accounted for in the records kept under this part. The licensed manufacturer shall take a special inventory

(1) At the time of commencing business, which is the effective date of the license issued upon original qualification under this part;

(2) At the time of changing the location of his premises to another region;

(3) At the time of discontinuing business; and

(4) At any other time the Director, Industry Operations may in writing require. Each special inventory is to be prepared in duplicate, the original of which is submitted to the Director, Industry Operations, and the duplicate retained by the licensed manufacturer. If a special inventory required by paragraphs (a)(1) through (4) of this section has not been taken during the calendar year, at least one physical inventory will be taken. However, the record of the yearly inventory, other than a special inventory

required by paragraphs (a) (1) through (4) of this section, will remain on file for inspection instead of being sent to the Director, Industry Operations. (See also § 555.127.)

(b) Each licensed manufacturer shall not later than the close of the next business day following the date of manufacture or other acquisition of explosive materials, enter the following information in a separate record:

- (1) Date of manufacture or other acquisition.
- (2) Manufacturer's marks of identification.
- (3) Quantity (applicable quantity units, such as pounds of explosives, number of detonators, number of display fireworks, etc.).
- (4) Name, brand name or description (dynamite (dyn), blasting agents (ba), detonators (det), display fireworks (df), etc.) and size (length and diameter or diameter only of display fireworks).

(c) Each licensed manufacturer shall, not later than the close of the next business day following the date of distribution of any explosive materials to another licensee or a permittee, enter in a separate record the following information:

- (1) Date of disposition.
- (2) Name or brand name of manufacturer or name of importer, as applicable, if acquired other than by his own manufacture.
- (3) Manufacturer's marks of identification.
- (4) Quantity (applicable quantity units, such as pounds of explosives, number of detonators, number of display fireworks, etc.).
- (5) Description (dynamite (dyn), blasting agents (ba), detonators (det), display fireworks (df), etc.) and size (length and diameter or diameter only of display fireworks).
- (6) License or permit number of licensee or permittee to whom the explosive materials are distributed.

(d) Each licensed manufacturer who manufactures explosive materials for his own use shall, not later than the close of the next business day following the date of use, enter in a separate record the following information:

- (1) Date of use.
- (2) Quantity (applicable quantity units, such as pounds of explosives, number of detonators, number of special fireworks, etc.).
- (3) Description (dynamite (dyn), blasting agents (ba), detonators (det), display fireworks (df), etc.) and size (length and diameter or diameter only of display fireworks).

Exception: A licensed manufacturer is exempt from the recordkeeping requirements of this subsection if the explosive materials are manufactured for his own use and used within a 24 hour period at the same site.

(e) The Director, Industry Operations may authorize alternate records to be maintained by a licensed manufacturer to record his distribution or use of explosive materials when it is shown by the

licensed manufacturer that alternate records will accurately and readily disclose the information required by paragraph (c) of this section. A licensed manufacturer who proposes to use alternate records shall submit a letter application to the Director, Industry Operations and shall describe the proposed alternate records and the need for them. Alternate records are not to be employed by the licensed manufacturer until approval is received from the Director, Industry Operations.

(f) Each licensed manufacturer shall maintain separate records of the sales or other distribution made of explosive materials to nonlicensees or nonpermittees. These records are maintained as prescribed by § 555.126.

(Approved by the Office of Management and Budget under control number 1140-0030)

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-172, 49 FR 14941, Apr. 16, 1984; T.D. ATF-293, 55 FR 3721, Feb. 5, 1990; T.D. ATF-400, 63 FR 45003, Aug. 24, 1998; ATF-11F, 73 FR 57242, Oct. 2, 2008]

§ 555.124 Records maintained by licensed dealers.

(a) Each licensed dealer shall take true and accurate physical inventories which will include all explosive materials on hand required to be accounted for in the records kept under this part. The licensed dealer shall take a special inventory

- (1) At the time of commencing business, which is the effective date of the license issued upon original qualification under this part;
- (2) At the time of changing the location of his premises to another region;
- (3) At the time of discontinuing business; and
- (4) At any other time the Director, Industry Operations may in writing require. Each special inventory is to be prepared in duplicate, the original of which is submitted to the Director, Industry Operations, and the duplicate retained by the licensed dealer. If a special inventory required by paragraphs (a)(1) through (4) of this section has not been taken during the calendar year, at least one physical inventory will be taken. However, the record of the yearly inventory, other than a special inventory required by paragraphs (a)(1) through (4) of this section, will remain on file for inspection instead of being sent to the Director, Industry Operations. (See also § 555.127.)

(b) Each licensed dealer shall, not later than the close of the next business day following the date of purchase or other acquisition of explosive materials (except as provided in paragraph (d) of this section), enter the following information in a separate record:

- (1) Date of acquisition.
- (2) Name or brand name of manufacturer and name of importer (if any).
- (3) Manufacturer's marks of identification.
- (4) Quantity (applicable quantity units, such as pounds of explosives, number of detonators, number of display fireworks, etc.).

(5) Description (dynamite (dyn), blasting agents (ba), detonators (det), display fireworks (df), etc.) and size (length and diameter or diameter only of display fireworks).

(6) Name, address, and license or permit number of the person from whom the explosive materials are received.

(c) Each licensed dealer shall, not later than the close of the next business day following the date of use (if the explosives are used by the dealer) or the date of distribution of any explosive materials to another licensee or a permittee (except as provided in paragraph (d) of this section), enter in a separate record the following information:

(1) Date of disposition.

(2) Name or brand name of manufacturer and name of importer (if any).

(3) Manufacturer's marks of identification.

(4) Quantity (applicable quantity units, such as pounds of explosives, number of detonators, number of display fireworks, etc.).

(5) Description (dynamite (dyn), blasting agents (ba), detonators (det), display fireworks (df), etc.) and size (length and diameter or diameter only of display fireworks).

(6) License or permit number of licensee or permittee to whom the explosive materials are distributed.

(d) When a commercial record is kept by a licensed dealer showing the purchase or other acquisition information required for the permanent record prescribed by paragraph (b) of this section, or showing the distribution information required for the permanent record prescribed by paragraph (c) of this section, the licensed dealer acquiring or distributing the explosive materials may, for a period not exceeding seven days following the date of acquisition or distribution of the explosive materials, delay making the required entry into the permanent record of acquisition or distribution. However, until the required entry of acquisition or disposition is made in the permanent record, the commercial record must be (1) kept by the licensed dealer separate from other commercial documents kept by the licensee, and (2) readily available for inspection on the licensed premises.

(e) The Director, Industry Operations may authorize alternate records to be maintained by a licensed dealer to record his acquisition or disposition of explosive materials, when it is shown by the licensed dealer that alternate records will accurately and readily disclose the required information. A licensed dealer who proposes to use alternate records shall submit a letter application to the Director, Industry Operations and shall describe the proposed alternate records and the need for them. Alternate records are not to be employed by the licensed dealer until approval is received from the Director, Industry Operations.

(f) Each licensed dealer shall maintain separate records of the sales or other distribution made of explosive materials to nonlicensees or nonpermittees. These records are maintained as prescribed by § 555.126.

(Approved by the Office of Management and Budget under control number 1140-0030)

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-172, 49 FR 14941, Apr. 16, 1984; T.D. ATF-293, 55 FR 3721, Feb. 5, 1990; T.D. ATF-400, 63 FR 45003, Aug. 24, 1998; ATF-11F, 73 FR 57242, Oct. 2, 2008]

§ 555.125 Records maintained by permittees.

(a) Records maintained by permittees prior to May 24, 2003.

(1) Each permittee must take true and accurate physical inventories that will include all explosive materials on hand required to be accounted for in the records kept under this part. The permittee must take a special inventory—

(i) At the time of commencing business, which is the effective date of the permit issued upon original qualification under this part;

(ii) At the time of changing the location of his premises to another region;

(iii) At the time of discontinuing business; and

(iv) At any other time the Director, Industry

Operations may in writing require. Each special inventory is to be prepared in duplicate, the original of which is submitted to the Director, Industry Operations and the duplicate retained by the permittee. If a special inventory required by paragraphs (a)(1)(i) through (iv) of this section has not been taken during the calendar year, a permittee is required to take at least one physical inventory. However, the record of the yearly inventory, other than a special inventory required by paragraphs (a)(1)(i) through (iv) of this section, will remain on file for inspection instead of being sent to the Director, Industry Operations. (See also § 555.127.)

(2) Each permittee must, not later than the close of the next business day following the date of acquisition of explosive materials, enter the following information in a separate record:

(i) Date of acquisition;

(ii) Name or brand name of manufacturer;

(iii) Manufacturer's marks of identification;

(iv) Quantity (applicable quantity units, such as pounds of explosives, number of detonators, number of display fireworks, etc.);

(v) Description (dynamite (dyn), blasting agents (ba), detonators (det), display fireworks (df), etc., and size (length and diameter or diameter only of display fireworks)); and

(vi) Name, address, and license number of the persons from whom the explosive materials are received.

(3) Each permittee must, not later than the close of the next business day following the date of disposition of surplus explosive materials to another permittee or a licensee, enter in a separate record the information prescribed in § 555.124(c).

(4) Each permittee must maintain separate records of disposition of surplus stocks of explosive materials to nonlicensees or nonpermittees as prescribed in § 555.126.

(5) The Director, Industry Operations may authorize alternate records to be maintained by a permittee to record his acquisition of explosive materials, when it is shown by the

permittee that alternate records will accurately and readily disclose the required information. A permittee who proposes to use alternate records must submit a letter application to the Director, Industry Operations and must describe the proposed alternate records and the need for them. Alternate records are not to be employed by the permittee until approval is received from the Director, Industry Operations.

(b) Records maintained by permittees on and after May 24, 2003.

(1) Each holder of a user permit must take true and accurate physical inventories that will include all explosive materials on hand required to be accounted for in the records kept under this part. The permittee must take a special inventory—

(i) At the time of commencing business, which is the effective date of the permit issued upon original qualification under this part;

(ii) At the time of changing the location of his premises;

(iii) At the time of discontinuing business; and

(iv) At any other time the Director, Industry Operations may in writing require. Each special inventory is to be prepared in duplicate, the original of which is submitted to the Director, Industry Operations and the duplicate retained by the permittee. If a special inventory required by paragraphs (b)(1)(i) through (iv) of this section has not been taken during the calendar year, a permittee is required to take at least one physical inventory. The record of the yearly inventory, other than a special inventory required by paragraphs (b)(1)(i) through (iv) of this section, will remain on file for inspection instead of being sent to the Director, Industry Operations. (See also § 555.127.)

(2) Each holder of a limited permit must take true and accurate physical inventories, at least annually, that will include all explosive materials on hand required to be accounted for in the records kept under this part.

(3) Each holder of a user permit or a limited permit must, not later than the close of the next business day following the date of acquisition of explosive materials, enter the following information in a separate record:

(i) Date of acquisition;

(ii) Name or brand name of manufacturer;

(iii) Manufacturer's marks of identification;

(iv) Quantity (applicable quantity units, such as pounds of explosives, number of detonators, number of display fireworks, etc.);

(v) Description (dynamite (dyn), blasting agents (ba), detonators (det), display fireworks (df), etc., and size (length and diameter or diameter only of display fireworks)); and

(vi) Name, address, and license number of the persons from whom the explosive materials are received.

(4) Each holder of a user permit or a limited permit must, not later than the close of the next business day following the date of disposition of surplus explosive materials to another permittee or a licensee, enter in a separate record the information prescribed in § 555.124(c).

(5) When a record book is used as a permittee's permanent record the permittee may delay entry of the required information for a period not to exceed seven days if the commercial record contains all of the required information prescribed by paragraphs (b)(3) and (b)(4) of this section. However, the commercial record may be used instead of a record book as a permanent record provided that the record contains all of the required information prescribed by paragraphs (b)(3) and (b)(4) of this section.

(6) Each holder of a user permit or a limited permit must maintain separate records of disposition of surplus stocks of explosive materials to holders of a limited permit as prescribed in § 555.126.

(7) The Director, Industry Operations may authorize alternate records to be maintained by a holder of a user permit or a limited permit to record his acquisition of explosive materials, when it is shown by the permittee that alternate records will accurately and readily disclose the required information. A permittee who proposes to use alternate records must submit a letter application to the Director, Industry Operations and must describe the proposed alternate records and the need for them. Alternate records are not to be employed by the permittee until approval is received from the Director, Industry Operations.

(Approved by the Office of Management and Budget under control number 1140-0030)

[ATF No. 1, 68 FR 13790, Mar. 20, 2003]

§ 555.126 Explosives transaction record for distribution of explosive materials prior to May 24, 2003 and Limited Permittee Transaction Report for distribution of explosive materials on and after May 24, 2003.

(a) Explosives transaction record for distribution of explosive materials prior to May 24, 2003.

(1) A licensee or permittee shall not temporarily or permanently distribute explosive materials to any person, other than another licensee or permittee, unless he records the transaction on an explosives transaction record, ATF F 5400.4.

(2) Before the distribution of explosive materials to a nonlicensee or nonpermittee who is a resident of the State in which the licensee or permittee maintains his business premises, or to a nonlicensee or nonpermittee who is not a resident of the State in which the licensee or permittee maintains his business premises and is acquiring explosive materials under § 555.105(a)(3), the licensee or permittee distributing the explosive materials shall obtain an executed ATF F 5400.4 from the distributee which contains all of the information required on the form and by the regulations in this part.

(3) Completed ATF F 5400.4 is to be retained by the licensee or permittee as part of his permanent records in accordance with paragraph (a)(4) of this section.

(4) Each ATF F 5400.4 is retained in numerical (by transaction serial number) order commencing with “1” and continuing in regular sequence. When the numbering of any series reaches “1,000,000,” the licensee or permittee may recommence the series. The recommenced series is to be given an alphabetical prefix or suffix. Where there is a change in proprietorship, or in the individual, firm, corporate name or trade name, the series in use at the time of the change may be continued.

(5) The requirements of this section are in addition to any other recordkeeping requirement contained in this part.

(6) A licensee or permittee may obtain, upon request, a supply of ATF F 5400.4 from the Director.

(b) Limited Permittee Transaction Report for distribution of explosive materials on and after May 24, 2003.

(1) A licensee or permittee may not distribute explosive materials to any person who is not a licensee or permittee. A licensee or permittee may not distribute explosive materials to a limited permittee unless the distributor records the transaction on ATF Form 5400.4, Limited Permittee Transaction Report.

(2) Before distributing explosive materials to a limited permittee, the licensee or permittee must obtain an executed Form 5400.4 from the limited permittee with an original unaltered and unexpired Intrastate Purchase of Explosives Coupon (IPEC) affixed. Except when delivery of explosive materials is made by a common or contract carrier who is an agent of the limited permittee, the licensee, permittee, or an agent of the licensee or permittee, must verify the identity of the holder of the limited permit by examining an identification document (as defined in § 555.11) and noting on the Form 5400.4 the type of document presented. The licensee or permittee must complete the appropriate section on Form 5400.4 to indicate the type and quantity of explosive materials distributed, the license or permit number of the seller, and the date of the transaction. The licensee or permittee must sign and date the form and include any other information required by the instructions on the form and the regulations in this part.

(3) One copy of Form 5400.4 must be retained by the distributor as part of his permanent records in accordance with paragraph (b)(4) of this section and for the period specified in § 555.121. The distributor must mail the other copy of Form 5400.4 to the Bureau of Alcohol, Tobacco, Firearms and Explosives in accordance with the instructions on the form.

(4) Each Form 5400.4 must be retained in chronological order by date of disposition, or in alphabetical order by name of limited permittee. A licensee may not, however, use both methods in a single recordkeeping system. Where there is a change in proprietorship by a limited permittee, the forms may continue to be filed together after such change.

(5) The requirements of this section are in addition to any other recordkeeping requirement contained in this part.

(Approved by the Office of Management and Budget under control number 1140–0078)

[T.D. ATF–87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF–93, 46 FR 50787, Oct. 15, 1981; T.D. ATF–172, 49 FR 14941, Apr. 16, 1984; T.D. ATF–446, 66 FR 16602, Mar. 27, 2001; ATF No. 1, 68 FR 13791, Mar. 20, 2003]

§ 555.127 Daily summary of magazine transactions.

In taking the inventory required by §§ 555.122, 555.123, 555.124, and 555.125, a licensee or permittee shall enter the inventory in a record of daily summary transactions to be kept at each magazine of an approved storage facility; however, these records may be kept at one central location on the business premises if separate records of daily transactions are kept for each magazine. Not later than the close of the next business day, each licensee and permittee shall record by manufacturer's name or brand name, the total quantity received in and removed from each magazine during the day, and the total remaining on hand at the end of the day. Quantity entries for display fireworks may be expressed as the number and size of individual display fireworks in a finished state or as the number of packaged display segments or packaged displays. Information as to the number and size of display fireworks contained in any one packaged display segment or packaged display shall be provided to any ATF officer on request. Any discrepancy which might indicate a theft or loss of explosive materials is to be reported in accordance with § 555.30.

[T.D. ATF–293, 55 FR 3722, Feb. 5, 1990, as amended by T.D. ATF–400, 63 FR 45003, Aug. 24, 1998]

§ 555.128 Discontinuance of business.

Where an explosive materials business or operations is discontinued and succeeded by a new licensee or new permittee, the records prescribed by this subpart shall appropriately reflect such facts and shall be delivered to the successor. Where discontinuance of the business or operations is absolute, the records required by this subpart must be delivered within 30 days following the business or operations discontinuance to any ATF office located in the region in which the business was located, or to the ATF Out-of-Business Records Center, 244 Needy Road, Martinsburg, West Virginia 25405. Where State law or local ordinance requires the delivery of records to other responsible authority, the Chief, Federal Explosives Licensing Center may arrange for the delivery of the records required by this subpart to such authority. (See also, § 555.61.)

[T.D. ATF–290, 54 FR 53054, Dec. 27, 1989, as amended by T.D. ATF–446a, 66 FR 19089, Apr. 13, 2001; ATF No. 1, 68 FR 13792, Mar. 20, 2003; ATF–11F, 73 FR 57242, Oct. 2, 2008]

§555.129 Exportation.

Exportation of explosive materials is to be in accordance with the applicable provisions of section 38 of the Arms Export Control Act (22 U.S.C. 2778) and implementing regulations. However, a licensed importer, licensed manufacturer, or licensed dealer exporting explosive materials shall maintain records showing the manufacture or acquisition of explosive materials as required by this part and records showing the quantity, the

manufacturer's name or brand name of explosive materials, the name and address of the foreign consignee of the explosive materials, and the date the explosive materials were exported. See § 555.180 for regulations concerning the exportation of plastic explosives.

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-387, 62 FR 8377, Feb. 25, 1997]

Subpart H—Exemptions**§555.141 Exemptions.**

(a) **General.** Except for the provisions of §§ 555.180 and 555.181, this part does not apply to:

(1) Any aspect of the transportation of explosive materials via railroad, water, highway, or air which is regulated by the U.S. Department of Transportation and its agencies, and which pertains to safety. For example, regulations issued by the Department of Transportation addressing the security risk of aliens transporting explosives by commercial motor or railroad carrier from Canada preclude the enforcement of 18 U.S.C. 842(i)(5) against persons shipping, transporting, receiving, or possessing explosives incident to and in connection with the commercial transportation of explosives by truck or rail from Canada into the United States. Questions concerning this exception should be directed to ATF's Public Safety Branch [ATF's Explosives Industry Programs Branch] in Washington, DC.

(2) The use of explosive materials in medicines and medicinal agents in the forms prescribed by the official United States Pharmacopeia or the National Formulary. "The United States Pharmacopeia and The National Formulary," USP and NF Compendia, are available from the United States Pharmacopeial Convention, Inc., 12601 Twinbrook Parkway, Rockville, Maryland 20852.

(3) The transportation, shipment, receipt, or importation of explosive materials for delivery to any agency of the United States or to any State or its political subdivision.

(4) Small arms ammunition and components of small arms ammunition.

(5) The manufacture under the regulation of the military department of the United States of explosive materials for, or their distribution to or storage or possession by, the military or naval services or other agencies of the United States.

(6) Arsenal, navy yards, depots, or other establishments owned by, or operated by or on behalf of, the United States.

(7) The importation, distribution, and storage of fireworks classified as UN0336, UN0337, UN0431, or UN0432 explosives by the U.S. Department of Transportation at 49 CFR 172.101 and generally known as "consumer fireworks" or "articles pyrotechnic."

(8) Gasoline, fertilizers, propellant actuated devices, or propellant actuated industrial tools manufactured, imported, or distributed for their intended purposes.

(9) Industrial and laboratory chemicals which are intended for use as reagents and which are packaged and shipped pursuant to U.S. Department of Transportation regulations, 49 CFR Parts 100 to 177, which do not require explosives hazard warning labels.

(10) Model rocket motors that meet all of the following criteria—

(i) Consist of ammonium perchlorate composite propellant, black powder, or other similar low explosives;

(ii) Contain no more than 62.5 grams of total propellant weight; and

(iii) Are designed as single-use motors or as reload kits capable of reloading no more than 62.5 grams of propellant into a reusable motor casing.

(b) **Black powder.** Except for the provisions applicable to persons required to be licensed under subpart D, this part does not apply with respect to commercially manufactured black powder in quantities not to exceed 50 pounds, percussion caps, safety and pyrotechnic fuses, quills, quick and slow matches, and friction primers, if the black powder is intended to be used solely for sporting, recreational, or cultural purposes in antique firearms, as defined in 18 U.S.C. 921(a)(16) or antique devices, as exempted from the term "destructive devices" in 18 U.S.C. 921(a)(4).

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981 as amended by T.D. ATF-87, 46 FR 46916, Sept. 23, 1981; T.D. ATF-293, 55 FR 3722, Feb. 5, 1990; T.D. ATF-87, 62 FR 8377, Feb. 25, 1997; T.D. ATF-400, 63 FR 45003, Aug. 24, 1998; ATF No. 1, 68 FR 13792, Mar. 20, 2003; ATF 6F, 71 FR 46101, Aug. 11, 2006]

§555.142 Relief from disabilities (effective January 24, 2003).

(a) Any person prohibited from shipping or transporting any explosive in or affecting interstate or foreign commerce or from receiving or possessing any explosive which has been shipped or transported in or affecting interstate or foreign commerce may make application for relief from disabilities under section 845(b) of the Act.

(b) An application for relief from disabilities must be filed with the Director by submitting ATF Form 5400.29, Application for Restoration of Explosives Privileges, in accordance with the instructions on the form. The application must be supported by appropriate data, including the information specified in paragraph (f) of this section. Upon receipt of an incomplete or improperly executed application for relief, the applicant will be notified of the deficiency in the application. If the application is not corrected and returned within 30 days following the date of notification, the application will be considered abandoned.

(c) (1) The Director may grant relief to an applicant if it is established to the satisfaction of the Director that the circumstances regarding the disability and the applicant's record and reputation are such that the applicant will not be likely to act in a manner dangerous to public safety and that the granting of such relief is not contrary to the public interest.

(2) Except as provided in paragraph (c)(3) of this section, the Director will not grant relief if the applicant—

- (i) Has not been discharged from parole or probation for a period of at least 2 years;
- (ii) Is a fugitive from justice;
- (iii) Is a prohibited alien;
- (iv) Is an unlawful user of or addicted to any controlled substance;
- (v) Has been adjudicated a mental defective or committed to a mental institution, unless the applicant was subsequently determined by a court, board, commission, or other lawful authority to have been restored to mental competency, to be no longer suffering from a mental disorder, and to have had all rights restored; or
- (vi) Is prohibited by the law of the State where the applicant resides from receiving or possessing explosive materials.

(3) (i) The Director may grant relief to aliens who have been lawfully admitted to the United States or to persons who have not been discharged from parole or probation for a period of at least 2 years if he determines that the applicant has a compelling need to possess explosives, such as for purposes of employment.

(ii) The Director may grant relief to the persons identified in paragraph (c)(2) of this section in extraordinary circumstances where the granting of such relief is consistent with the public interest.

(d) A person who has been granted relief under this section is relieved of all disabilities imposed by the Act for the disabilities disclosed in the application. The granting of relief will not affect any disabilities incurred subsequent to the date the application was filed. Relief from disabilities granted to aliens will be effective only so long as the alien retains his or her lawful immigration status.

(e) (1) A licensee or permittee who is under indictment or information for, or convicted of, a crime punishable by imprisonment for a term exceeding one year during the term of a current license or permit, or while he has pending a license or permit renewal application, shall not be barred from licensed or permit operations for 30 days after the date of indictment or information or 30 days after the date upon which his conviction becomes final. Also, if he files his application for relief under this section within such 30 day period, he may further continue licensed or permit operations while his application is pending. A licensee or permittee who does not file an application within 30 days from the date of his indictment or information, or within 30 days from the date his conviction becomes final, shall not continue licensed or permit operations beyond 30 days from the date of his indictment or information or beyond 30 days from the date his conviction becomes final.

(2) In the event the term of a license or permit of a person expires during the 30 day period following the date of indictment or information or during the 30 day period after the date upon which his conviction becomes final or while his application for relief is pending, he shall file a timely application for renewal of his license or permit in order to continue licensed or permit operations. The license or permit application is to show that the applicant has been indicted or under information for, or convicted of, a crime punishable by imprisonment for a term exceeding one year.

(3) A licensee or permittee shall not continue licensed or permit operations beyond 30 days following the date the Director issues notification that the licensee's or permittee's application for removal of the disabilities resulting from an indictment, information or conviction has been denied.

(4) When a licensee or permittee may no longer continue licensed or permit operations under this section, any application for renewal of license or permit filed by the licensee or permittee while his application for removal of disabilities resulting from an indictment, information or conviction is pending, will be denied by the Director, Industry Operations.

(f) (1) Applications for relief from disabilities must include the following information:

(i) In the case of a corporation, or of any person having the power to direct or control the management of the corporation, information as to the absence of culpability in the offense for which the corporation, or any such person, was indicted, formally accused or convicted;

(ii) In the case of an applicant who is an individual, two properly completed FBI Forms FD-258 (fingerprint card), and a written statement from each of three references who are not related to the applicant by blood or marriage and have known the applicant for at least 3 years, recommending the granting of relief;

(iii) Written consent to examine and obtain copies of records and to receive statements and information regarding the applicant's background, including records, statements and other information concerning employment, medical history, military service, immigration status, and criminal record;

(iv) In the case of an applicant having been convicted of a crime punishable by imprisonment for a term exceeding one year, a copy of the indictment or information on which the applicant was convicted, the judgment of conviction or record of any plea of nolo contendere or plea of guilty or finding of guilt by the court;

(v) In the case of an applicant under indictment, a copy of the indictment or information;

(vi) In the case of an applicant who has been adjudicated a mental defective or committed to a mental institution, a copy of the order of a court, board, commission, or other lawful authority that made the adjudication or ordered the commitment, any petition that sought to have the applicant so adjudicated or committed, any medical records reflecting the reasons for commitment and diagnoses of the applicant, and any court order or finding of a court, board, commission, or other lawful authority showing the applicant's discharge from commitment, restoration of mental competency and the restoration of rights;

(vii) In the case of an applicant who has been discharged from the Armed Forces under dishonorable conditions, a copy of the applicant's Certificate of Release or Discharge from Active Duty (Department of Defense Form 214), Charge Sheet (Department of Defense Form 458), and final court martial order;

(viii) In the case of an applicant who, having been a citizen of the United States, has renounced his or her citizenship, a copy of the formal renunciation of nationality before a diplomatic or consular officer of the United States in a foreign state or before an officer designated by the Attorney General when the United States was in a state of war (see 8 U.S.C. 1481(a)(5) and (6)); and

(ix) In the case of an applicant who is an alien, documentation that the applicant is an alien who has been lawfully admitted to the United States; certification from the applicant including the applicant's INS-issued alien number or admission number, country/countries of citizenship, and immigration status, and certifying that the applicant is legally authorized to work in the United States, or other purposes for which possession of explosives is required; certification from an appropriate law enforcement agency of the applicant's country of citizenship stating that the applicant does not have a criminal record; and, if applicable, certification from a Federal explosives licensee or permittee or other employer stating that the applicant is employed by the employer and must possess explosive materials for purposes of employment. These certifications must be submitted in English.

(2) Any record or document of a court or other government entity or official required by paragraph (f)(1) of this section must be certified by the court or other government entity or official as a true copy.

(Approved by the Office of Management and Budget under control number 1140-0076)

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981. Redesignated by T.D. ATF-487, 68 FR 3748, Jan. 24, 2003. ATF No. 1, 68 FR 13792, Mar. 20, 2003]

Subpart I—Unlawful Acts, Penalties, Seizures and Forfeitures

§555.161 Engaging in business without a license.

Any person engaging in the business of importing, manufacturing, or dealing in explosive materials without a license issued under the Act, shall be fined not more than \$10,000 or imprisoned not more than 10 years, or both.

§555.162 False statement or representation.

Any person who knowingly withholds information or makes any false or fictitious oral or written statement or furnishes or exhibits any false, fictitious, or misrepresented identification, intended or likely to deceive for the purpose of obtaining explosive materials, or a license, permit, exemption, or relief from disability under the Act, shall be fined not more than \$10,000 or imprisoned not more than 10 years, or both.

§555.163 False entry in record.

Any licensed importer, licensed manufacturer, licensed dealer, or permittee who knowingly makes any false entry in any record required to be kept under subpart G of this part, shall be fined not more than \$10,000 or imprisoned not more than 10 years, or both.

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-400, 63 FR 45003, Aug. 24, 1998]

§555.164 Unlawful storage.

Any person who stores any explosive material in a manner not in conformity with this part, shall be fined not more than \$1,000 or imprisoned not more than one year, or both.

§ 555.165 Failure to report theft or loss.

(a) Any person who has knowledge of the theft or loss of any explosive materials from his stock and fails to report the theft or loss within 24 hours of discovery in accordance with § 555.30, shall be fined not more than \$1,000 or imprisoned not more than one year, or both.

(b) On and after January 24, 2003, any licensee or permittee who fails to report a theft of explosive materials in accordance with § 555.30 will be fined under title 18 U.S.C., imprisoned not more than 5 years, or both.

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by ATF No. 1, 68 FR 13793, Mar. 20, 2003]

§ 555.166 Seizure or forfeiture.

Any explosive materials involved or used or intended to be used in any violation of the Act or of this part or in any violation of any criminal law of the United States are subject to seizure and forfeiture, and all provisions of title 26, U.S.C. relating to the seizure, forfeiture, and disposition of firearms, as defined in 26 U.S.C. 5845(a), will, so far as applicable, extend to seizures and forfeitures under the Act. (See § 72.27 of this title for regulations on summary destruction of explosive materials which are impracticable or unsafe to remove to a place of storage.)

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-363, 60 FR 17449, Apr. 6, 1995]

Subpart J—Marking of Plastic Explosives

§ 555.180 Prohibitions relating to unmarked plastic explosives.

(a) No person shall manufacture any plastic explosive that does not contain a detection agent.

(b) No person shall import or bring into the United States, or export from the United States, any plastic explosive that does not contain a detection agent. This paragraph does not apply to the importation or bringing into the United States, or the exportation from the United States, of any plastic explosive that was imported or brought into, or manufactured in the United States prior to April 24, 1996, by or on behalf of any agency of the United States performing military or police functions (including any military reserve component) or by or on behalf of the National Guard of any State, not later than 15 years after the date of entry into force of the Convention on the Marking of Plastic Explosives with respect to the United States, i.e., not later than June 21, 2013.

(c) No person shall ship, transport, transfer, receive, or possess any plastic explosive that does not contain a detection agent. This paragraph does not apply to:

(1) The shipment, transportation, transfer, receipt, or possession of any plastic explosive that was imported or brought into, or manufactured in the United States prior to April 24, 1996, by any person during the period beginning on that date and ending on April 24, 1999; or

(2) The shipment, transportation, transfer, receipt, or possession of any plastic explosive that was imported or brought into, or manufactured in the United States prior to April 24, 1996, by or on behalf of any agency of the United States performing a military or police function (including any military reserve component) or by or on behalf of the National Guard of any State, not later than 15 years after the date of entry into force of the Convention on the Marking of Plastic Explosives with respect to the United States, i.e., not later than June 21, 2013.

(d) When used in this subpart, terms are defined as follows:

(1) **Convention on the Marking of Plastic Explosives** means the Convention on the Marking of Plastic Explosives for the Purposes of Detection, Done at Montreal on 1 March 1991.

(2) **“Date of entry into force” of the Convention on the Marking of Plastic Explosives** means that date on which the Convention enters into force with respect to the U.S. in accordance with the provisions of Article XIII of the Convention on the Marking of Plastic Explosives. The Convention entered into force on June 21, 1998.

(3) **Detection agent** means any one of the substances specified in this paragraph when introduced into a plastic explosive or formulated in such explosive as a part of the manufacturing process in such a manner as to achieve homogeneous distribution in the finished explosive, including—

(i) Ethylene glycol dinitrate (EGDN), C[2]H[4](NO[3])[2], molecular weight 152, when the minimum concentration in the finished explosive is 0.2 percent by mass;

(ii) 2,3-Dimethyl-2,3-dinitrobutane (DMNB), C[6]H[12](NO[2])[2], molecular weight 176, when the minimum concentration in the finished explosive is 0.1 percent by mass;

(iii) Para-Mononitrotoluene (p-MNT), C[7]H[7]NO[2], molecular weight 137, when the minimum concentration in the finished explosive is 0.5 percent by mass;

(iv) Ortho-Mononitrotoluene (o-MNT), C[7]H[7]NO[2], molecular weight 137, when the minimum concentration in the finished explosive is 0.5 percent by mass; and

(v) Any other substance in the concentration specified by the Director, after consultation with the Secretary of State and Secretary of Defense, that has been added to the table in Part 2 of the Technical Annex to the Convention on the Marking of Plastic Explosives.

(4) **Plastic explosive** means an explosive material in flexible or elastic sheet form formulated with one or more high explosives which in their pure form has a vapor pressure less than 10<4> Pa at a temperature of 25 °C, is formulated with a binder material, and is as a mixture malleable or flexible at normal room

temperature. High explosives, as defined in § 555.202(a), are explosive materials which can be caused to detonate by means of a blasting cap when unconfined.

[T.D. ATF-387, 62 FR 8376, Feb. 25, 1997, as amended by T.D. ATF-419, 64 FR 55628, Oct. 14, 1999]

§ 555.181 Reporting of plastic explosives.

All persons, other than an agency of the United States (including any military reserve component) or the National Guard of any State, possessing any plastic explosive on April 24, 1996, shall submit a report to the Director no later than August 22, 1996. The report shall be in writing and mailed by certified mail (return receipt requested) to the Director at P.O. Box 50204, Washington, DC 20091-0204. The report shall include the quantity of plastic explosives possessed on April 24, 1996; any marks of identification on such explosives; the name and address of the manufacturer or importer; the storage location of such explosives, including the city and State; and the name and address of the person possessing the plastic explosives.

[T.D. ATF-382, 61 FR 38085, July 23, 1996, as amended by T.D. ATF-387, 62 FR 8377, Feb. 25, 1997; ATF-11F, 73 FR 57242, Oct. 2, 2008]

§ 555.182 Exceptions.

It is an affirmative defense against any proceeding involving §§ 555.180 and 555.181 if the proponent proves by a preponderance of the evidence that the plastic explosive—

(a) Consisted of a small amount of plastic explosive intended for and utilized solely in lawful—

(1) Research, development, or testing of new or modified explosive materials;

(2) Training in explosives detection or development or testing of explosives detection equipment; or

(3) Forensic science purposes; or

(b) Was plastic explosive that, by April 24, 1999, will be or is incorporated in a military device within the territory of the United States and remains an integral part of such military device, or is intended to be, or is incorporated in, and remains an integral part of a military device that is intended to become, or has become, the property of any agency of the United States performing military or police functions (including any military reserve component) or the National Guard of any State, wherever such device is located. For purposes of this paragraph, the term “military device” includes, but is not restricted to, shells, bombs, projectiles, mines, missiles, rockets, shaped charges, grenades, perforators, and similar devices lawfully manufactured exclusively for military or police purposes.

[T.D. ATF-387, 62 FR 8377, Feb. 25, 1997]

§ 555.183 Importation of plastic explosives on or after April 24, 1997.

Persons filing Form 6 applications for the importation of plastic explosives on or after April 24, 1997, shall attach to the application the following written statement, prepared in triplicate, executed under the penalties of perjury:

(a) “I declare under the penalties of perjury that the plastic explosive to be imported contains a detection agent as required by 27 CFR 555.180(b)”;

(b) “I declare under the penalties of perjury that the plastic explosive to be imported is a “small amount” to be used for research, training, or testing purposes and is exempt from the detection agent requirement pursuant to 27 CFR 555.182.”

[T.D. ATF-387, 62 FR 8377, Feb. 25, 1997]

§ 555.184 Statements of process and samples.

(a) A complete and accurate statement of process with regard to any plastic explosive or to any detection agent that is to be introduced into a plastic explosive or formulated in such plastic explosive shall be submitted by a licensed manufacturer or licensed importer, upon request, to the Director.

(b) Samples of any plastic explosive or detection agent shall be submitted by a licensed manufacturer or licensed importer, upon request, to the Director.

(Paragraph (a) approved by the Office of Management and Budget under control number 1140-0042)

[T.D. ATF-387, 62 FR 8378, Feb. 25, 1997, as amended by ATF-11F, 73 FR 57242, Oct. 2, 2008]

§ 555.185 Criminal sanctions.

Any person who violates the provisions of 18 U.S.C. 842(l)-(o) shall be fined under title 18, U.S.C., imprisoned for not more than 10 years, or both.

[T.D. ATF-387, 62 FR 8378, Feb. 25, 1997]

§ 555.186 Seizure or forfeiture.

Any plastic explosive that does not contain a detection agent in violation of 18 U.S.C. 842(l)-(n) is subject to seizure and forfeiture, and all provisions of 19 U.S.C. 1595a, relating to seizure, forfeiture, and disposition of merchandise introduced or attempted to be introduced into the U.S. contrary to law, shall extend to seizures and forfeitures under this subpart. See § 72.27 of this chapter for regulations on summary destruction of plastic explosives that do not contain a detection agent.

[T.D. ATF-387, 62 FR 8378, Feb. 25, 1997]

Subpart K—Storage

§ 555.201 General.

(a) Section 842(j) of the Act and § 555.29 of this part require that the storage of explosive materials by any person must be in accordance with the regulations in this part. Further, section 846 of this Act authorizes regulations to prevent the recurrence of accidental explosions in which explosive materials were involved. The storage standards prescribed by this subpart confer no right or privileges to store explosive materials in a manner contrary to State or local law.

(b) The Director may authorize alternate construction for explosives storage magazines when it is shown that the alternate magazine construction is substantially equivalent to the standards of safety and security contained in this subpart. Any alternate explosive magazine construction approved by the Director prior to August 9, 1982, will continue as approved unless notified in writing by the Director. Any person intending to use alternate magazine construction shall submit a letter application to the Director, Industry Operations for transmittal to the Director, specifically describing the proposed magazine. Explosive materials may not be stored in alternate magazines before the applicant has been notified that the application has been approved.

(c) A licensee or permittee who intends to make changes in his magazines, or who intends to construct or acquire additional magazines, shall comply with § 555.63.

(d) The regulations set forth in §§ 555.221 through 555.224 pertain to the storage of display fireworks, pyrotechnic compositions, and explosive materials used in assembling fireworks and articles pyrotechnic.

(e) The provisions of § 555.202(a) classifying flash powder and bulk salutes as high explosives are mandatory after March 7, 1990: Provided, that those persons who hold licenses or permits under this part on that date shall, with respect to the premises covered by such licenses or permits, comply with the high explosives storage requirements for flash powder and bulk salutes by March 7, 1991.

(f) Any person who stores explosive materials shall notify the authority having jurisdiction for fire safety in the locality in which the explosive materials are being stored of the type, magazine capacity, and location of each site where such explosive materials are stored. Such notification shall be made orally before the end of the day on which storage of the explosive materials commenced and in writing within 48 hours from the time such storage commenced.

(Paragraph (f) approved by the Office of Management and Budget under control number 1140–0071)

[T.D. ATF–87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF–293, 55 FR 3722, Feb. 5, 1990; T.D. ATF–400, 63 FR 45003, Aug. 24, 1998; ATF–11F, 73 FR 57242, Oct. 2, 2008]

§ 555.202 Classes of explosive materials.

For purposes of this part, there are three classes of explosive materials. These classes, together with the description of explosive materials comprising each class, are as follows:

(a) **High explosives.** Explosive materials which can be caused to detonate by means of a blasting cap when unconfined, (for example, dynamite, flash powders, and bulk salutes). See also § 555.201(e).

(b) **Low explosives.** Explosive materials which can be caused to deflagrate when confined (for example, black powder, safety fuses, igniters, igniter cords, fuse lighters, and “display fireworks” classified as UN0333, UN0334, or UN0335 by the U.S. Department of Transportation regulations at 49 CFR 172.101, except for bulk salutes).

(c) **Blasting agents.** (For example, ammonium nitrate-fuel oil and certain water-gels (see also § 555.11).

[T.D. ATF–87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF–293, 55 FR 3722, Feb. 5, 1990; T.D. ATF–400, 63 FR 45003, Aug. 24, 1998]

§ 555.203 Types of magazines.

For purposes of this part, there are five types of magazines. These types, together with the classes of explosive materials, as defined in § 555.202, which will be stored in them, are as follows:

(a) **Type 1 magazines.** Permanent magazines for the storage of high explosives, subject to the limitations prescribed by §§ 555.206 and 555.213. Other classes of explosive materials may also be stored in type 1 magazines.

(b) **Type 2 magazines.** Mobile and portable indoor and outdoor magazines for the storage of high explosives, subject to the limitations prescribed by §§ 555.206, 555.208(b), and 555.213. Other classes of explosive materials may also be stored in type 2 magazines.

(c) **Type 3 magazines.** Portable outdoor magazines for the temporary storage of high explosives while attended (for example, a “day-box”), subject to the limitations prescribed by §§ 555.206 and 555.213. Other classes of explosives materials may also be stored in type 3 magazines.

(d) **Type 4 magazines.** Magazines for the storage of low explosives, subject to the limitations prescribed by §§ 555.206(b), 555.210(b), and 555.213. Blasting agents may be stored in type 4 magazines, subject to the limitations prescribed by §§ 555.206(c), 555.211(b), and 555.213. Detonators that will not mass detonate may also be stored in type 4 magazines, subject to the limitations prescribed by §§ 555.206(a), 555.210(b), and 555.213.

(e) **Type 5 magazines.** Magazines for the storage of blasting agents, subject to the limitations prescribed by §§ 555.206(c), 555.211(b), and 555.213.

§ 555.204 Inspection of magazines.

Any person storing explosive materials shall inspect his magazines at least every seven days. This inspection need not be an inventory, but must be sufficient to determine whether there has been unauthorized entry or attempted entry into the magazines, or unauthorized removal of the contents of the magazines.

§ 555.205 Movement of explosive materials.

All explosive materials must be kept in locked magazines meeting the standards in this subpart unless they are:

- (a) In the process of manufacture;
- (b) Being physically handled in the operating process of a licensee or user;
- (c) Being used; or
- (d) Being transported to a place of storage or use by a licensee or permittee or by a person who has lawfully acquired explosive materials under § 555.106.

§ 555.206 Location of magazines.

(a) Outdoor magazines in which high explosives are stored must be located no closer to inhabited buildings, passenger railways, public highways, or other magazines in which high explosives are stored, than the minimum distances specified in the table of distances for storage of explosive materials in § 555.218.

(b) Outdoor magazines in which low explosives are stored must be located no closer to inhabited buildings, passenger railways, public highways, or other magazines in which explosive materials are stored, than the minimum distances specified in the table of distances for storage of low explosives in § 555.219, except that the table of distances in § 555.224 shall apply to the storage of display fireworks. The distances shown in § 555.219 may not be reduced by the presence of barricades.

(c) (1) Outdoor magazines in which blasting agents in quantities of more than 50 pounds are stored must be located no closer to inhabited buildings, passenger railways, or public highways than the minimum distances specified in the table of distances for storage of explosive materials in § 555.218.

(2) Ammonium nitrate and magazines in which blasting agents are stored must be located no closer to magazines in which high explosives or other blasting agents are stored than the minimum distances specified in the table of distances for the separation of ammonium nitrate and blasting agents in § 555.220. However, the minimum distances for magazines in which explosives and blasting agents are stored from inhabited buildings, etc., may not be less than the distances specified in the table of distances for storage of explosives materials in § 555.218.

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-293, 55 FR 3722, Feb. 5, 1990; T.D. ATF-400, 63 FR 45003, Aug. 24, 1998]

§ 555.207 Construction of type 1 magazines.

A type 1 magazine is a permanent structure: a building, an igloo or "Army-type structure", a tunnel, or a dugout. It is to be bullet-resistant, fire-resistant, weather-resistant, theft-resistant, and ventilated.

(a) **Buildings.** All building type magazines are to be constructed of masonry, wood, metal, or a combination of these materials, and have no openings except for entrances and ventilation. The ground around building magazines must slope away for drainage or other adequate drainage provided.

(1) **Masonry wall construction.** Masonry wall construction is to consist of brick, concrete, tile, cement block, or cinder block and be not less than 6" in thickness. Hollow masonry units used in construction must have all hollow spaces filled with well-tamped, coarse, dry sand or weak concrete (at least a mixture of one part cement and eight parts of sand with enough water to dampen the mixture while tamping in place). Interior walls are to be constructed of, or covered with, a nonsparking material.

(2) **Fabricated metal wall construction.** Metal wall construction is to consist of sectional sheets of steel or aluminum not less than number 14-gauge, securely fastened to a metal framework. Metal wall construction is either lined inside with brick, solid cement blocks, hardwood not less than four inches thick, or will have at least a six inch sand fill between interior and exterior walls. Interior walls are to be constructed of, or covered with, a nonsparking material.

(3) **Wood frame wall construction.** The exterior of outer wood walls is to be covered with iron or aluminum not less than number 26-gauge. An inner wall of, or covered with nonsparking material will be constructed so as to provide a space of not less than six inches between the outer and inner walls. The space is to be filled with coarse, dry sand or weak concrete.

(4) **Floors.** Floors are to be constructed of, or covered with, a nonsparking material and shall be strong enough to bear the weight of the maximum quantity to be stored. Use of pallets covered with a nonsparking material is considered equivalent to a floor constructed of or covered with a nonsparking material.

(5) **Foundations.** Foundations are to be constructed of brick, concrete, cement block, stone, or wood posts. If piers or posts are used, in lieu of a continuous foundation, the space under the buildings is to be enclosed with metal.

(6) **Roof.** Except for buildings with fabricated metal roofs, the outer roof is to be covered with no less than number 26-gauge iron or aluminum, fastened to at least 7/8" sheathing.

(7) **Bullet-resistant ceilings or roofs.** Where it is possible for a bullet to be fired directly through the roof and into the magazine at such an angle that the bullet would strike the explosives within, the magazine is to be protected by one of the following methods:

(i) A sand tray lined with a layer of building paper, plastic, or other nonporous material, and filled with not less than four inches of coarse, dry sand, and located at the tops of inner walls covering the entire ceiling area, except that portion necessary for ventilation.

(ii) A fabricated metal roof constructed of $\frac{3}{16}$ " plate steel lined with four inches of hardwood. (For each additional $\frac{1}{16}$ " of plate steel, the hardwood lining may be decreased one inch.)

(8) Doors. All doors are to be constructed of not less than $\frac{1}{4}$ " plate steel and lined with at least two inches of hardwood. Hinges and hasps are to be attached to the doors by welding, riveting or bolting (nuts on inside of door). They are to be installed in such a manner that the hinges and hasps cannot be removed when the doors are closed and locked.

(9) Locks. Each door is to be equipped with (i) two mortise locks; (ii) two padlock fastened in separate hasps and staples; (iii) a combination of a mortise lock and a padlock; (iv) a mortise lock that requires two keys to open; or (v) a three-point lock. Padlocks must have at least five tumblers and a casehardened shackle of at least $\frac{3}{8}$ " diameter. Padlocks must be protected with not less than $\frac{1}{4}$ " steel hoods constructed so as to prevent sawing or lever action on the locks, hasps, and staples. These requirements do not apply to magazine doors that are adequately secured on the inside by means of a bolt, lock, or bar that cannot be actuated from the outside.

(10) Ventilation. Ventilation is to be provided to prevent dampness and heating of stored explosive materials. Ventilation openings must be screened to prevent the entrance of sparks. Ventilation openings in side walls and foundations must be offset or shielded for bullet-resistant purposes. Magazines having foundation and roof ventilators with the air circulating between the side walls and the floors and between the side walls and the ceiling must have a wooden lattice lining or equivalent to prevent the packages of explosive materials from being stacked against the side walls and blocking the air circulation.

(11) Exposed metal. No sparking material is to be exposed to contact with the stored explosive materials. All ferrous metal nails in the floor and side walls, which might be exposed to contact with explosive materials, must be blind nailed, counter-sunk, or covered with a nonsparking lattice work or other non-sparking material.

(b) Igloos, "Army-type structures", tunnels, and dugouts. Igloo, "Army-type structure", tunnel, and dugout magazines are to be constructed of reinforced concrete, masonry, metal, or a combination of these materials. They must have an earthmound covering of not less than 24" on the top, sides and rear unless the magazine meets the requirements of paragraph (a)(7) of this section. Interior walls and floors must be constructed of, or covered with, a nonsparking material. Magazines of this type are also to be constructed in conformity with the requirements of paragraph (a)(4) and paragraphs (a)(8) through (11) of this section.

§555.208 Construction of type 2 magazines.

A type 2 magazine is a box, trailer, semitrailer, or other mobile facility.

(a) Outdoor magazines—

(1) General. Outdoor magazines are to be bullet-resistant, fire-resistant, weather-resistant, theft-resistant, and ventilated. They are to be supported to prevent direct contact with the ground and, if less than one cubic yard in size, must be securely fastened to a fixed object. The ground around outdoor magazines must slope away for drainage or other adequate drainage provided. When unattended, vehicular magazines must have wheels removed or otherwise effectively immobilized by kingpin locking devices or other methods approved by the Director.

(2) Exterior construction. The exterior and doors are to be constructed of not less than $\frac{1}{4}$ " steel and lined with at least two inches of hardwood. Magazines with top openings will have lids with water-resistant seals or which overlap the sides by at least one inch when in a closed position.

(3) Hinges and hasps. Hinges and hasps are to be attached to doors by welding, riveting, or bolting (nuts on inside of door). Hinges and hasps must be installed so that they cannot be removed when the doors are closed and locked.

(4) Locks. Each door is to be equipped with (i) two mortise locks; (ii) two padlocks fastened in separate hasps and staples; (iii) a combination of a mortise lock and a padlock; (iv) a mortise lock that requires two keys to open; or (v) a three-point lock. Padlocks must have at least five tumblers and a case-hardened shackle of at least $\frac{3}{8}$ " diameter. Padlocks must be protected with not less than $\frac{1}{4}$ " steel hoods constructed so as to prevent sawing or lever action on the locks, hasps, and staples. These requirements do not apply to magazine doors that are adequately secured on the inside by means of a bolt, lock, or bar that cannot be actuated from the outside.

(b) Indoor magazines—

(1) General. Indoor magazines are to be fire-resistant and theft-resistant. They need not be bullet-resistant and weather-resistant if the buildings in which they are stored provide protection from the weather and from bullet penetration. No indoor magazine is to be located in a residence or dwelling. The indoor storage of high explosives must not exceed a quantity of 50 pounds. More than one indoor magazine may be located in the same building if the total quantity of explosive materials stored does not exceed 50 pounds. Detonators must be stored in a separate magazine (except as provided in § 555.213) and the total quantity of detonators must not exceed 5,000.

(2) Exterior construction. Indoor magazines are to be constructed of wood or metal according to one of the following specifications:

(i) Wood indoor magazines are to have sides, bottoms and doors constructed of at least two inches of hardwood and are to be well braced at the corners. They are to be covered with sheet metal of not less than number 26-gauge (.0179 inches).

Nails exposed to the interior of magazines must be countersunk.

(ii) Metal indoor magazines are to have sides, bottoms and doors constructed of not less than number 12-gauge (.1046 inches) metal and be lined inside with a nonsparking material. Edges of metal covers must overlap sides at least one inch.

(3) **Hinges and hasps.** Hinges and hasps are to be attached to doors by welding, riveting, or bolting (nuts on inside of door). Hinges and hasps must be installed so that they cannot be removed when the doors are closed and locked.

(4) **Locks.** Each door is to be equipped with (i) two mortise locks; (ii) two padlocks fastened in separate hasps and staples; (iii) a combination of a mortise lock and a padlock; (iv) a mortise lock that requires two keys to open; or (v) a three-point lock. Padlocks must have at least five tumblers and a case-hardened shackle of at least $\frac{3}{8}$ " diameter. Padlocks must be protected with not less than $\frac{1}{4}$ " steel hoods constructed so as to prevent sawing or lever action on the locks, hasps, and staples. Indoor magazines located in secure rooms that are locked as provided in this subparagraph may have each door locked with one steel padlock (which need not be protected by a steel hood) having at least five tumblers and a case-hardened shackle of at least $\frac{3}{8}$ " diameter, if the door hinges and lock hasp are securely fastened to the magazine.

These requirements do not apply to magazine doors that are adequately secured on the inside by means of a bolt, lock, or bar that cannot be actuated from the outside.

(c) **Detonator boxes.** Magazines for detonators in quantities of 100 or less are to have sides, bottoms and doors constructed of not less than number 12-gauge (.1046 inches) metal and lined with a nonsparking material. Hinges and hasps must be attached so they cannot be removed from the outside. One steel padlock (which need not be protected by a steel hood) having at least five tumblers and a case-hardened shackle of at least $\frac{3}{8}$ " diameter is sufficient for locking purposes.

§555.209 Construction of type 3 magazines.

A type 3 magazine is a "day-box" or other portable magazine. It must be fire-resistant, weather-resistant, and theft-resistant. A type 3 magazine is to be constructed of not less than number 12-gauge (.1046 inches) steel, lined with at least either $\frac{1}{2}$ " plywood or $\frac{1}{2}$ " Masonite-type hardboard. Doors must overlap sides by at least one inch. Hinges and hasps are to be attached by welding, riveting or bolting (nuts on inside). One steel padlock (which need not be protected by a steel hood) having at least five tumblers and a case-hardened shackle of at least $\frac{3}{8}$ " diameter is sufficient for locking purposes. Explosive materials are not to be left unattended in type 3 magazines and must be removed to type 1 or 2 magazines for unattended storage.

§555.210 Construction of type 4 magazines.

A type 4 magazine is a building, igloo or "Army-type structure", tunnel, dugout, box, trailer, or a semitrailer or other mobile magazine.

(a) Outdoor magazines—

(1) **General.** Outdoor magazines are to be fire-resistant, weather-resistant, and theft-resistant. The ground around outdoor magazines must slope away for drainage or other adequate drainage be provided. When unattended, vehicular magazines must have wheels removed or otherwise be effectively immobilized by kingpin locking devices or other methods approved by the Director.

(2) **Construction.** Outdoor magazines are to be constructed of masonry, metal-covered wood, fabricated metal, or a combination of these materials. Foundations are to be constructed of brick, concrete, cement block, stone, or metal or wood posts. If piers or posts are used, in lieu of a continuous foundation, the space under the building is to be enclosed with fire-resistant material. The walls and floors are to be constructed of, or covered with, a nonsparking material or lattice work. The doors must be metal or solid wood covered with metal.

(3) **Hinges and hasps.** Hinges and hasps are to be attached to doors by welding, riveting, or bolting (nuts on inside of door). Hinges and hasps must be installed so that they cannot be removed when the doors are closed and locked.

(4) **Locks.** Each door is to be equipped with (i) two mortise locks; (ii) two padlocks fastened in separate hasps and staples; (iii) a combination of a mortise lock and a padlock; (iv) a mortise lock that requires two keys to open; or (v) a three-point lock. Padlocks must have at least five tumblers and case-hardened shackle of at least $\frac{3}{8}$ " diameter. Padlocks must be protected with not less than $\frac{1}{4}$ " steel hoods constructed so as to prevent sawing or lever action on the locks, hasps, and staples. These requirements do not apply to magazine doors that are adequately secured on the inside by means of a bolt, lock, or bar that cannot be actuated from the outside.

(b) Indoor magazine—

(1) **General.** Indoor magazines are to be fire-resistant and theft-resistant. They need not be weather-resistant if the buildings in which they are stored provide protection from the weather. No indoor magazine is to be located in a residence or dwelling. The indoor storage of low explosives must not exceed a quantity of 50 pounds. More than one indoor magazine may be located in the same building if the total quantity of explosive materials stored does not exceed 50 pounds. Detonators that will not mass detonate must be stored in a separate magazine and the total number of electric detonators must not exceed 5,000.

(2) **Construction.** Indoor magazines are to be constructed of masonry, metal-covered wood, fabricated metal, or a combination of these materials. The walls and floors are to be constructed of, or covered with, a nonsparking material. The doors must be metal or solid wood covered with metal.

(3) **Hinges and hasps.** Hinges and hasps are to be attached to doors by welding, riveting, or bolting (nuts on inside of door). Hinges and hasps must be installed so that they cannot be removed when the doors are closed and locked.

(4) **Locks.** Each door is to be equipped with (i) two mortise locks; (ii) two padlocks fastened in separate hasps and staples; (iii) a combination of a mortise lock and padlock; (iv) a mortise lock that requires two keys to open; or (v) a three-point lock. Padlocks must have at least five tumblers and a case-hardened shackle of at least $\frac{3}{8}$ " diameter. Padlocks must be protected with not less than $\frac{1}{4}$ " steel hoods constructed so as to prevent sawing or lever action on the locks, hasps, and staples. Indoor magazines located in secure rooms that are locked as provided in this subparagraph may have each door locked with one steel padlock (which need not be protected by a steel hood) having at least five tumblers and a case-hardened shackle of at least $\frac{3}{8}$ " diameter, if the door hinges and lock hasp are securely fastened to the magazine. These requirements do not apply to magazine doors that are adequately secured on the inside by means of a bolt, lock, or bar that cannot be actuated from the outside.

§555.211 Construction of type 5 magazines.

A type 5 magazine is a building, igloo or "Army-type structure", tunnel, dugout, bin, box, trailer, or a semitrailer or other mobile facility.

(a) Outdoor magazines—

(1) **General.** Outdoor magazines are to be weather-resistant and theft-resistant. The ground around magazines must slope away for drainage or other adequate drainage be provided. When unattended, vehicular magazines must have wheels removed or otherwise be effectively immobilized by kingpin locking devices or other methods approved by the Director.

(2) **Construction.** The doors are to be constructed of solid wood or metal.

(3) **Hinges and hasps.** Hinges and hasps are to be attached to doors by welding, riveting, or bolting (nuts on inside of door). Hinges and hasps must be installed so that they cannot be removed when the doors are closed and locked.

(4) **Locks.** Each door is to be equipped with (i) two mortise locks; (ii) two padlocks fastened in separate hasps and staples; (iii) a combination of a mortise lock and a padlock; (iv) a mortise lock that requires two keys to open; or (v) a three-point lock. Padlocks must have at least five tumblers and a case-hardened shackle of at least $\frac{3}{8}$ " diameter. Padlocks must be protected with not less than $\frac{1}{4}$ " steel hoods constructed so as to prevent sawing or lever action on the locks, hasps, and staples. Trailers, semitrailers, and similar vehicular magazines may, for each door, be locked with one steel padlock (which need not be protected by a steel hood) having at least five tumblers and a case-hardened shackle of at least $\frac{3}{8}$ " diameter, if the door hinges and lock hasp are securely fastened to the magazine and to the door frame.

These requirements do not apply to magazine doors that are adequately secured on the inside by means of a bolt, lock, or bar that cannot be actuated from the outside.

(5) **Placards.** The placards required by Department of Transportation regulations at 49 CFR part 172, subpart F, for the transportation of blasting agents shall be displayed on all magazines.

(b) Indoor magazines—

(1) **General.** Indoor magazines are to be theft-resistant. They need not be weather-resistant if the buildings in which they are stored provide protection from the weather. No indoor magazine is to be located in a residence or dwelling. Indoor magazines containing quantities of blasting agents in excess of 50 pounds are subject to the requirements of § 555.206 of this subpart.

(2) **Construction.** The doors are to be constructed of wood or metal.

(3) **Hinges and hasps.** Hinges and hasps are to be attached to doors by welding, riveting, or bolting (nuts on inside). Hinges and hasps must be installed so that they cannot be removed when the doors are closed and locked.

(4) **Locks.** Each door is to be equipped with (i) two mortise locks; (ii) two padlocks fastened in separate hasps and staples; (iii) a combination of a mortise lock and a padlock; (iv) a mortise lock that requires two keys to open; or (v) a three-point lock. Padlocks must have at least five tumblers and a case-hardened shackle of at least $\frac{3}{8}$ " diameter. Padlocks must be protected with not less than $\frac{1}{4}$ " steel hoods constructed so as to prevent sawing or lever action on the locks, hasps, and staples. Indoor magazines located in secure rooms that are locked as provided in this subparagraph may have each door locked with one steel padlock (which need not be protected by a steel hood) having at least five tumblers and a case-hardened shackle of at least $\frac{3}{8}$ " diameter, if the door hinges and lock hasps are securely fastened to the magazine and to the door frame. These requirements do not apply to magazine doors that are adequately secured on the inside by means of a bolt, lock, or bar that cannot be actuated from the outside.

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-298, 55 FR 21863, May 30, 1990]

§555.212 Smoking and open flames.

Smoking, matches, open flames, and spark producing devices are not permitted:

- (a) In any magazine;
- (b) Within 50 feet of any outdoor magazine; or
- (c) Within any room containing an indoor magazine.

§555.213 Quantity and storage restrictions.

(a) Explosive materials in excess of 300,000 pounds or detonators in excess of 20 million are not to be stored in one magazine unless approved by the Director.

(b) Detonators are not to be stored in the same magazine with other explosive materials, except under the following circumstances:

(1) In a type 4 magazine, detonators that will not mass detonate may be stored with electric squibs, safety fuse, shock tube, igniters, and igniter cord.

(2) In a type 1 or type 2 magazine, detonators may be stored with delay devices and any of the items listed in paragraph (b)(1) of this section.

[T.D. ATF-487, 68 FR 3748, Jan. 24, 2003, as amended by ATF 15F, 75 FR 3163, Jan. 20, 2010]

§ 555.214 Storage within types 1, 2, 3, and 4 magazines.

(a) Explosive materials within a magazine are not to be placed directly against interior walls and must be stored so as not to interfere with ventilation. To prevent contact of stored explosive materials with walls, a nonsparking lattice work or other nonsparking material may be used.

(b) Containers of explosive materials are to be stored so that marks are visible. Stocks of explosive materials are to be stored so they can be easily counted and checked upon inspection.

(c) Except with respect to fiberboard or other nonmetal containers, containers of explosive materials are not to be unpacked or repacked inside a magazine or within 50 feet of a magazine, and must not be unpacked or repacked close to other explosive materials. Containers of explosive materials must be closed while being stored.

(d) Tools used for opening or closing containers of explosive materials are to be of nonsparking materials, except that metal slitters may be used for opening fiberboard containers. A wood wedge and a fiber, rubber, or wooden mallet are to be used for opening or closing wood containers of explosive materials. Metal tools other than nonsparking transfer conveyors are not to be stored in any magazine containing high explosives.

§ 555.215 Housekeeping.

Magazines are to be kept clean, dry, and free of grit, paper, empty packages and containers, and rubbish. Floors are to be regularly swept. Brooms and other utensils used in the cleaning

and maintenance of magazines must have no spark-producing metal parts, and may be kept in magazines. Floors stained by leakage from explosive materials are to be cleaned according to instructions of the explosives manufacturer. When any explosive material has deteriorated it is to be destroyed in accordance with the advice or instructions of the manufacturer. The area surrounding magazines is to be kept clear of rubbish, brush, dry grass, or trees (except live trees more than 10 feet tall), for not less than 25 feet in all directions. Volatile materials are to be kept a distance of not less than 50 feet from outdoor magazines. Living foliage which is used to stabilize the earthen covering of a magazine need not be removed.

§ 555.216 Repair of magazines.

Before repairing the interior of magazines, all explosive materials are to be removed and the interior cleaned. Before repairing the exterior of magazines, all explosive materials must be removed if there exists any possibility that repairs may produce sparks or flame. Explosive materials removed from magazines under repair must be (a) placed in other magazines appropriate for the storage of those explosive materials under this subpart, or (b) placed a safe distance from the magazines under repair where they are to be properly guarded and protected until the repairs have been completed.

§ 555.217 Lighting.

(a) Battery-activated safety lights or battery-activated safety lanterns may be used in explosives storage magazines.

(b) Electric lighting used in any explosives storage magazine must meet the standards prescribed by the “National Electrical Code,” (National Fire Protection Association, NFPA 70–81), for the conditions present in the magazine at any time. All electrical switches are to be located outside of the magazine and also meet the standards prescribed by the National Electrical Code.

(c) Copies of invoices, work orders or similar documents which indicate the lighting complies with the National Electrical Code must be available for inspection by ATF officers.

§ 555.218 Table of distances for storage of explosive materials.

Quantity of Explosives		Distances in feet							
Pounds over	Pounds not over	Inhabited buildings		Public highways with traffic volume 3000 or fewer vehicles/day		Passenger railways-public highways with traffic volume more than 3,000 vehicles/day		Separation of magazines	
		Barricaded	Unbarricaded	Barricaded	Unbarricaded	Barricaded	Unbarricaded	Barricaded	Unbarricaded
0	5	70	140	30	60	51	102	6	12
5	10	90	180	35	70	64	128	8	16
10	20	110	220	45	90	81	162	10	20
20	30	125	250	50	100	93	186	11	22
30	40	140	280	55	110	103	206	12	24
40	50	150	300	60	120	110	220	14	28
50	75	170	340	70	140	127	254	15	30
75	100	190	380	75	150	139	278	16	32
100	125	200	400	80	160	150	300	18	36
125	150	215	430	85	170	159	318	19	38
150	200	235	470	95	190	175	350	21	42
200	250	255	510	105	210	189	378	23	46
250	300	270	540	110	220	201	402	24	48
300	400	295	590	120	240	221	442	27	54
400	500	320	640	130	260	238	476	29	58
500	600	340	680	135	270	253	506	31	62
600	700	355	710	145	290	266	532	32	64
700	800	375	750	150	300	278	556	33	66
800	900	390	780	155	310	289	578	35	70
900	1,000	400	800	160	320	300	600	36	72
1,000	1,200	425	850	165	330	318	636	39	78
1,200	1,400	450	900	170	340	336	672	41	82
1,400	1,600	470	940	175	350	351	702	43	86
1,600	1,800	490	980	180	360	366	732	44	88
1,800	2,000	505	1,010	185	370	378	756	45	90
2,000	2,500	545	1,090	190	380	408	816	49	98
2,500	3,000	580	1,160	195	390	432	864	52	104
3,000	4,000	635	1,270	210	420	474	948	58	116
4,000	5,000	685	1,370	225	450	513	1,026	61	122
5,000	6,000	730	1,460	235	470	546	1,092	65	130
6,000	7,000	770	1,540	245	490	573	1,146	68	136
7,000	8,000	800	1,600	250	500	600	1,200	72	144
8,000	9,000	835	1,670	255	510	624	1,248	75	150
9,000	10,000	865	1,730	260	520	645	1,290	78	156
10,000	12,000	875	1,750	270	540	687	1,374	82	164
12,000	14,000	885	1,770	275	550	723	1,446	87	174
14,000	16,000	900	1,800	280	560	756	1,512	90	180
16,000	18,000	940	1,880	285	570	786	1,572	94	188
18,000	20,000	975	1,950	290	580	813	1,626	98	196
20,000	25,000	1,055	2,000	315	630	876	1,752	105	210
25,000	30,000	1,130	2,000	340	680	933	1,866	112	224
30,000	35,000	1,205	2,000	360	720	981	1,962	119	238
35,000	40,000	1,275	2,000	380	760	1,026	2,000	124	248
40,000	45,000	1,340	2,000	400	800	1,068	2,000	129	258
45,000	50,000	1,400	2,000	420	840	1,104	2,000	135	270
50,000	55,000	1,460	2,000	440	880	1,140	2,000	140	280
55,000	60,000	1,515	2,000	455	910	1,173	2,000	145	290
60,000	65,000	1,565	2,000	470	940	1,206	2,000	150	300
65,000	70,000	1,610	2,000	485	970	1,236	2,000	155	310
70,000	75,000	1,655	2,000	500	1,000	1,263	2,000	160	320
75,000	80,000	1,695	2,000	510	1,020	1,293	2,000	165	330
80,000	85,000	1,730	2,000	520	1,040	1,317	2,000	170	340
85,000	90,000	1,760	2,000	530	1,060	1,344	2,000	175	350
90,000	95,000	1,790	2,000	540	1,080	1,368	2,000	180	360
95,000	100,000	1,815	2,000	545	1,090	1,392	2,000	185	370
100,000	110,000	1,835	2,000	550	1,100	1,437	2,000	195	390
110,000	120,000	1,855	2,000	555	1,110	1,479	2,000	205	410
120,000	130,000	1,875	2,000	560	1,120	1,521	2,000	215	430
130,000	140,000	1,890	2,000	565	1,130	1,557	2,000	225	450
140,000	150,000	1,900	2,000	570	1,140	1,593	2,000	235	470
150,000	160,000	1,935	2,000	580	1,160	1,629	2,000	245	490
160,000	170,000	1,965	2,000	590	1,180	1,662	2,000	255	510
170,000	180,000	1,990	2,000	600	1,200	1,695	2,000	265	530
180,000	190,000	2,010	2,010	605	1,210	1,725	2,000	275	550
190,000	200,000	2,030	2,030	610	1,220	1,755	2,000	285	570
200,000	210,000	2,055	2,055	620	1,240	1,782	2,000	295	590
210,000	230,000	2,100	2,100	635	1,270	1,836	2,000	315	630
230,000	250,000	2,155	2,155	650	1,300	1,890	2,000	335	670
250,000	275,000	2,215	2,215	670	1,340	1,950	2,000	360	720
275,000	300,000	2,275	2,275	690	1,380	2,000	2,000	385	770

Table: American Table of Distances for Storage of Explosives (December 1910), as Revised and Approved by the Institute of Makers of Explosives—July, 1991.

Notes to the Table of Distances for Storage of Explosives

(1) Terms found in the table of distances for storage of explosive materials are defined in § 555.11.

(2) When two or more storage magazines are located on the same property, each magazine must comply with the minimum distances specified from inhabited buildings, railways, and highways, and, in addition, they should be separated from each other by not less than the distances shown for “Separation of Magazines,” except that the quantity of explosives contained in cap magazines shall govern in regard to the spacing of said cap magazines from magazines containing other explosives. If any two or more magazines are separated from each other by less than the specified “Separation of Magazines” distances, then such two or more magazines, as a group, must be

considered as one magazine, and the total quantity of explosives stored in such group must be treated as if stored in a single magazine located on the site of any magazine of the group, and must comply with the minimum of distances specified from other magazines, inhabited buildings, railways, and highways.

(3) All types of blasting caps in strengths through No. 8 cap should be rated at 1 ½ lbs. (1.5 lbs.) of explosives per 1,000 caps. For strengths higher than No. 8 cap, consult the manufacturer.

(4) For quantity and distance purposes, detonating cord of 50 or 60 grains per foot should be calculated as equivalent to 9 lbs. of high explosives per 1,000 feet. Heavier or lighter core loads should be rated proportionately.

[T.D. ATF-87, 46 FR 40384, Aug. 7, 1981, as amended by T.D. ATF-400, 63 FR 45003, Aug. 24, 1998; T.D. ATF-446, 66 FR 16602, Mar. 27, 2001; T.D. ATF-446a, 66 FR 19089, Apr. 13, 2001]

§ 555.219 Table of distances for storage of low explosives.

Pounds		From Inhabited building distance (feet)	From public railroad and highway distance (feet)	From above ground magazine (feet)
Over	Not over			
0	1,000	75	75	50
1,000	5,000	115	115	75
5,000	10,000	150	150	100
10,000	20,000	190	190	125
20,000	30,000	215	215	145
30,000	40,000	235	235	155
40,000	50,000	250	250	165
50,000	60,000	260	260	175
60,000	70,000	270	270	185
70,000	80,000	280	280	190
80,000	90,000	295	295	195
90,000	100,000	300	300	200
100,000	200,000	375	375	250
200,000	300,000	450	450	300

Table: Department of Defense Ammunition and Explosives Standards, Table 5-4.1 Extract; 4145.27 M, March 1969

§ 555.220 Table of separation distances of ammonium nitrate and blasting agents from explosives or blasting agents.

Donor weight (pounds)		Minimum separation distance of acceptor from donor when barricaded (feet)		Minimum thickness of artificial barricades (inches)
Over	Not over	Ammonium nitrate	Blasting agent	
0	100	3	11	12
100	300	4	14	12
300	600	5	18	12
600	1,000	6	22	12
1,000	1,600	7	25	12
1,600	2,000	8	29	12
2,000	3,000	9	32	15
3,000	4,000	10	36	15
4,000	6,000	11	40	15
6,000	8,000	12	43	20
8,000	10,000	13	47	20
10,000	12,000	14	50	20
12,000	16,000	15	54	25
16,000	20,000	16	58	25
20,000	25,000	18	65	25
25,000	30,000	19	68	30
30,000	35,000	20	72	30
35,000	40,000	21	76	30
40,000	45,000	22	79	35
45,000	50,000	23	83	35
50,000	55,000	24	86	35
55,000	60,000	25	90	35
60,000	70,000	26	94	40
70,000	80,000	28	101	40
80,000	90,000	30	108	40
90,000	100,000	32	115	40
100,000	120,000	34	122	50
120,000	140,000	37	133	50
140,000	160,000	40	144	50
160,000	180,000	44	158	50
180,000	200,000	48	173	50
200,000	220,000	52	187	60
220,000	250,000	56	202	60
250,000	275,000	60	216	60
275,000	300,000	64	230	60

Table: National Fire Protection Association (NFPA) Official Standard No. 492, 1968*Notes of Table of Separation Distances of Ammonium Nitrate and Blasting Agents From Explosives or Blasting Agents*

(1) This table specifies separation distances to prevent explosion of ammonium nitrate and ammonium nitrate-based blasting agents by propagation from nearby stores of high explosives or blasting agents referred to in the table as the “donor.” Ammonium nitrate, by itself, is not considered to be a donor when applying this table. Ammonium nitrate, ammonium nitrate-fuel oil or combinations thereof are acceptors. If stores of ammonium nitrate are located within the sympathetic detonation distance of explosives or blasting agents, one-half the mass of the ammonium nitrate is to be included in the mass of the donor.

(2) When the ammonium nitrate and/or blasting agent is not barricaded, the distances shown in the table must be multiplied by six. These distances allow for the possibility of high velocity metal fragments from mixers, hoppers, truck bodies, sheet metal structures, metal containers, and the like which may enclose the “donor.” Where explosives storage is in bullet-

resistant magazines or where the storage is protected by a bullet-resistant wall, distances and barricade thicknesses in excess of those prescribed in the table in § 555.218 are not required.

(3) These distances apply to ammonium nitrate that passes the insensitivity test prescribed in the definition of ammonium nitrate fertilizer issued by the Fertilizer Institute. ¹Ammonium nitrate failing to pass the test must be stored at separation distances in accordance with the table in § 555.218.

¹Definition and Test Procedures for Ammonium Nitrate Fertilizer, Fertilizer Institute 425 Third Street, SW, Suite 950, Washington, D.C. 20024.

(4) These distances apply to blasting agents which pass the insensitivity test prescribed in regulations of the U.S. Department of Transportation (49 CFR part 173).

(5) Earth or sand dikes, or enclosures filled with the prescribed minimum thickness of earth or sand are acceptable artificial barricades. Natural barricades, such as hills or timber of

sufficient density that the surrounding exposures which require protection cannot be seen from the “donor” when the trees are bare of leaves, are also acceptable.

(6) For determining the distances to be maintained from inhabited buildings, passenger railways, and public highways, use the table in § 555.218.

§ 555.221 Requirements for display fireworks, pyrotechnic compositions, and explosive materials used in assembling fireworks or articles pyrotechnic.

(a) Display fireworks, pyrotechnic compositions, and explosive materials used to assemble fireworks and articles pyrotechnic shall be stored at all times as required by this Subpart unless they are in the process of manufacture, assembly, packaging, or are being transported.

(b) No more than 500 pounds (227 kg) of pyrotechnic compositions or explosive materials are permitted at one time in any fireworks mixing building, any building or area in which the pyrotechnic compositions or explosive materials are pressed or otherwise prepared for finishing or assembly, or any finishing or assembly building. All pyrotechnic compositions or explosive materials not in immediate use will be stored in covered, non-ferrous containers.

(c) The maximum quantity of flash powder permitted in any fireworks process building is 10 pounds (4.5 kg).

(d) All dry explosive powders and mixtures, partially assembled display fireworks, and finished display fireworks shall be removed from fireworks process buildings at the conclusion of a day's operations and placed in approved magazines.

[T.D. ATF–293, 55 FR 3722, Feb. 5, 1990, as amended by T.D. ATF–400, 63 FR 45004, Aug. 24, 1998]

§ 555.222 Table of distances between fireworks process buildings and between fireworks process and fireworks nonprocess buildings.

Net weight of fireworks ¹ (pounds)	Display fireworks ² (feet)	Consumer fireworks ³ (feet)
0-100	57	37
101-200	69	37
201-300	77	37
301-400	85	37
401-500	91	37
Above 500	Not permitted ⁴ ⁵	Not permitted ⁴ ⁵

¹Net weight is the weight of all pyrotechnic compositions, and explosive materials and fuse only.

²The distances in this column apply only with natural or artificial barricades. If such barricades are not used, the distances must be doubled.

³While consumer fireworks or articles pyrotechnic in a finished state are not subject to regulation, explosive materials used to manufacture or assemble such fireworks or articles are subject to regulation. Thus, fireworks process buildings where consumer fireworks or articles pyrotechnic are being processed shall meet these requirements.

⁴A maximum of 500 pounds of in-process pyrotechnic compositions, either loose or in partially-assembled fireworks, is permitted in any fireworks process building. Finished display fireworks may not be stored in a fireworks process building.

⁵A maximum of 10 pounds of flash powder, either in loose form or in assembled units, is permitted in any fireworks process building. Quantities in excess of 10 pounds must be kept in an approved magazine.

[T.D. ATF–293, 55 FR 3723, Feb. 5, 1990, as amended by T.D. ATF–400, 63 FR 45004, Aug. 24, 1998]

§ 555.223 Table of distances between fireworks process buildings and other specified areas.

Net weight of fireworks ¹ (pounds)	Display fireworks ¹ (feet)	Consumer fireworks ² (feet)
0-100	200	25
101-200	200	50
201-300	200	50
301-400	200	50
401-500	200	50
Above 500	Not permitted	Not permitted

Distance from Passenger Railways, Public Highways, Fireworks Plant Buildings used to Store Consumer Fireworks and Articles Pyrotechnic, Magazines and Fireworks Shipping Buildings, and Inhabited Buildings.^{3,4,5}

¹Net weight is the weight of all pyrotechnic compositions, and explosive materials and fuse only.

²While consumer fireworks or articles pyrotechnic in a finished state are not subject to regulation, explosive materials used to manufacture or assemble such fireworks or articles are subject to regulation. Thus, fireworks process buildings where consumer fireworks or articles pyrotechnic are being processed shall meet these requirements.

³This table does not apply to the separation distances between fireworks process buildings (see § 555.222) and between magazines (see §§ 555.218 and 555.224).

⁴The distances in this table apply with or without artificial or natural barricades or screen barricades. However, the use of barricades is highly recommended.

⁵No work of any kind, except to place or move items other than explosive materials from storage, shall be conducted in any building designated as a warehouse. A fireworks plant warehouse is not subject to § 555.222 or this section, tables of distances.

[T.D. ATF–293, 55 FR 3723, Feb. 5, 1990, as amended by T.D. ATF–400, 63 FR 45004, Aug. 24, 1998]

§ 555.224 Table of distances for the storage of display fireworks (except bulk salutes).

Net weight of fireworks ¹ (pounds)	Distance between magazine and inhabited building, passenger railway, or public highway ³ ⁴ (feet)	Distance between magazines ² ³ (feet)
0-1000	150	100
1,001-5,000	230	150
5,001-10,000	300	200
Above 10,000	Use Table § 555.218	

¹Net weight is the weight of all pyrotechnic compositions, and explosive materials and fuse only.

²For the purposes of applying this table, the term “magazine” also includes fireworks shipping buildings for display fireworks.

³For fireworks storage magazines in use prior to (30 days from the date of publication of the final rule in the Federal Register), the distances in this table may be halved if properly barricaded between the magazine and potential receptor sites.

⁴This table does not apply to the storage of bulk salutes. Use table at § 555.218.

[T.D. ATF–293, 55 FR 3723, Feb. 5, 1990, as amended by T.D. ATF–400, 63 FR 45004, Aug. 24, 1998]

Questions and Answers (Revised 1/07)

18 U.S.C. Chapter 40 and 27 CFR Part 555

Introduction

The following list of Questions and Answers are intended to aid you in gaining a better understanding of:

18 U.S.C. Chapter 40—Importation, Manufacture, Distribution and Storage of Explosive Materials and the implementing regulations issued within:

27 CFR Part 555—Commerce in Explosives

This listing is not all-inclusive. However it contains some of the most frequently asked questions that ATF receives. These questions and answers are intended only as a general overview. To determine how the law and regulations apply to your specific circumstances, you must refer directly to the applicable law and regulation or contact your local ATF Office of

Industry Operations. Also, please be aware that both the law and regulations are subject to change. Please contact your local ATF office for the most up-to-date information. You can also find the latest Federal explosives regulations on the ATF website: www.atf.gov/.

Unless otherwise stated, these Questions and Answers apply only to Federal law and regulations. States and local jurisdictions have, in many cases, enacted their own requirements relating to explosives. Check with appropriate State or local authorities for information on those requirements. Compliance with Federal law and regulations does not exempt any person from compliance with any State or local requirements.

A Table of Contents and a Subject Index have been included for your convenience. The Index is located at the end of the Questions and Answers section.

Table of Contents

General Questions	1–27
Licenses and Permits	28–61
Record keeping requirements	62–71
Storage requirements	72–87
Fireworks	88–95
Plastic Explosives	96–103
U.S. Military Explosives	104–106

General Questions

1. Who is affected by the Federal explosives law?

The law affects all persons who import, manufacture, deal in, purchase, use, store, or possess explosive materials. It also affects those who ship, transport or cause to be transported, or receive explosive materials. Also, see 18 U.S.C. 845 and 27 CFR 555.141 for exemptions.

2. What changes were brought about by the Safe Explosives Act?

Among other things, the Act mandated that all persons who wish to receive or transport explosive materials must first obtain a Federal explosives license or permit. In addition, the act imposed new restrictions on who may lawfully receive and possess explosive materials (See question 4). All Federal explosive licensees and permittees and their responsible persons and employees authorized to possess explosives are affected by the new requirements and background checks mandated by the Act.

3. Can I obtain general information from ATF on the Internet?

Yes. ATF maintains a website on the Internet at www.atf.gov/.

4. Does the law make some classes of persons ineligible to receive a Federal license to import, manufacture, or deal in explosive materials or to receive a Federal explosives permit?

Yes. A license or permit will not be issued to any person who:

- (a) Is under indictment for, or who has been convicted in any court, of a crime punishable by imprisonment for a term exceeding one year;
- (b) Is a fugitive from justice;
- (c) Is an unlawful user of or addicted to any controlled substance (as defined in section 102 of the Controlled Substances Act (21 U.S.C. 802));
- (d) Has been adjudicated a mental defective or who has been committed to a mental institution;
- (e) Is an alien (with certain exceptions);
- (f) Has been discharged from the armed forces under dishonorable conditions; or,
- (g) Having been a citizen of the United States, has renounced his citizenship. [18 U.S.C. 842(i), 843(b)(1); 27 CFR 555.49(b)(2)(i)]

5. Are there classes of persons to whom the distribution of explosive materials by licensees is prohibited?

Yes. No person shall knowingly distribute explosive materials to any individual listed in Question 4, or to an individual who is under 21 years of age. [18 U.S.C. 842(d); 27 CFR 555.26(d)]

6. What other distributions of explosive materials by licensees and permittees are prohibited?

A licensee or permittee shall not knowingly distribute any explosive materials to any person who:

- (a) Is not a licensee [18 U.S.C. 842(b), 27 CFR 555.105, 555.106];
- (b) Is not a holder of a user permit [18 U.S.C. 842(b); 27 CFR 555.105, 555.106];
- (c) Is not a holder of a limited permit who resides in the same State where distribution is made and in which premises of the transferor are located. [18 U.S.C. 842(b); 27 CFR 555.105, 555.106];
- (d) The licensee has reason to believe intends to transport such explosive materials into a State where the purchase, possession, or use of explosive materials is prohibited or which does not permit its residents to transport or ship explosive materials into the State or to receive explosive materials in the State. [18 U.S.C. 842(c); 27 CFR 555.106]
- (e) Is in any State where the purchase, possession, or use by such person of such explosive materials would be in violation of any State law or any published ordinance applicable at the place of distribution. [18 U.S.C. 842(e); 27 CFR 555.106(b)(2)]

7. Does Federal law prohibit certain persons from receiving or possessing explosive materials?

Yes. The law prohibits the receipt or possession of explosive materials by any person listed in question 4. [18 U.S.C. 842(i); 27 CFR 555.26, 555.49(b)]

8. May a licensed manufacturer, importer, or dealer distribute explosive materials to nonlicensees and nonpermittees?

No. Every person who receives explosive materials must first obtain a Federal explosives license or permit. Distribution of explosive materials to persons who do not hold a license or permit is unlawful. Also, see 18 U.S.C. 845 and 27 CFR 555.141 for exemptions. [18 U.S.C. 842(a), 842(b); 27 CFR 555.26(a), 555.106]

9. Does Federal law provide penalties for purchasers who give false information at the time of purchasing explosive materials?

Yes. The penalty for knowingly providing false information or misrepresented identification is a maximum 10 years' imprisonment and/or a fine not exceeding \$250,000. [18 U.S.C. 842(a)(2), 844(a)]

10. Is the theft of explosive materials, as well as the possession of stolen explosive materials, a Federal crime?

Yes. It is a Federal crime for any person to steal any explosive materials. It is also a Federal crime for any person to receive, possess, transport, ship, conceal, store, barter, sell, dispose of, or pledge or accept as security for a loan any stolen explosive materials. [18 U.S.C. 842(h), 844(k), (l)]

11. Are thefts and losses of explosive materials required to be reported to ATF?

Yes. Any licensee or permittee who has knowledge of the theft or loss of any explosive materials from his or her stock shall, within 24 hours of discovery, report the theft or loss by telephoning 800-461-8841 (Monday–Friday 8:00 a.m.–5:00 p.m. Eastern Time) or 888-283-2662 (after hours and weekends) (nationwide toll free number) and on ATF Form 5400.5, “Report of Theft or Loss—Explosive Materials”, in accordance with the instructions on the form. The theft or loss shall also be reported to appropriate local authorities. The same requirements are imposed upon persons other than licensees and permittees, except that nonlicensees and nonpermittees, other than carriers, need not report a theft or loss on Form 5400.5, but must report the theft or loss by telephone, using the same numbers: 800-461-8841 (Monday–Friday 8:00 a.m.–5:00 p.m. Eastern Time) or 888-283-2662 (after hours and weekends) and in writing to the nearest ATF office. The theft or loss shall also be reported to appropriate local authorities. Carriers of explosive materials must report a theft or loss by telephone but need not make the report on the ATF form or in writing. See 27 CFR 555.30 for the specific information required to be reported in connection with a theft or loss. [18 U.S.C. 842(k), 18 U.S.C. 844(p); 27 CFR 555.30]

12. My company holds a Federal explosives license and after conducting an inventory of our explosives on hand, we noticed one case of dynamite missing. After double-checking all Daily Summaries of Magazine Transactions, invoices, and delivery sheets, we still cannot reconcile the discrepancy. What are we required to do?

This should be considered a theft or loss of explosive materials. As stated in the answer to Question 11, you must report the theft or loss of explosive materials, within 24 hours of discovery, to ATF by telephone (toll free: 800-461-8841 (Monday–Friday 8:00 a.m.–5:00 p.m. Eastern Time) or 888-283-2662 (after hours and weekends). ATF Form 5400.5, “Report of Theft or Loss—Explosive Materials”, must then be completed and forwarded in accordance with the instructions on the form. [18 U.S.C. 842(k); 27 CFR 555.30]

13. May ATF conduct warrantless inspections of licensees’ and permittees’ records of explosives materials, stocks of such materials, and magazines?

Except for limited permit holders, any ATF officer may, without a warrant, enter during business hours the premises, including places of storage, of any licensee or permittee for the purpose of inspecting or examining any records or documents required to be kept by the law and regulations and any explosive materials kept or stored at the premises. For inspection purposes, “business hours” includes hours during which business is actually conducted, not just those hours stated on license applications. Any licensee or permittee who refuses to permit the inspection or examination is subject to having his or her license or permit revoked, as well as to denial of an application to renew the license or permit. For limited permit holders, an ATF officer may inspect the places of storage for explosive materials of either an applicant for a limited permit or at the time of renewal of such permit, but in no event shall such inspection occur more than once every three years. [18 U.S.C. 843(b)(4), 18 U.S.C. 843(f)]

14. Will ATF investigate accidents involving explosive materials?

ATF is authorized to inspect the site of any accident or fire where there is reason to believe that explosive materials were involved. Other Federal agencies, or State or local agencies, may also investigate such incidents, depending on the circumstances. [18 U.S.C. 846(a); 27 CFR 555.31]

15. Is black powder subject to regulation under Federal explosives laws?

Black powder is an explosive material for purposes of Federal explosives laws and regulations. However, the law exempts from regulation commercially manufactured black powder in quantities not exceeding 50 pounds (as well as percussion caps, safety and pyrotechnic fuses, quills, quick and slow matches, and friction primers) intended to be used solely for sporting, recreational, or cultural purposes in antique firearms as defined in 18 U.S.C. 921(a)(16) or in antique devices exempted from the term “destructive device” in 18 U.S.C. 921(a)(4). However, persons engaged in the business of importing, manufacturing, or dealing in black powder in any quantity must have a Federal explosives license. [18 U.S.C. 841(c), 841(d), 845(a)(5); 27 CFR 555.11: definitions of “explosives” and “explosive materials”, 555.141(b)]

16. Is small arms ammunition subject to regulation under Federal explosives laws?

No. The law specifically exempts small arms ammunition and components thereof. (See also Question 81.) [18 U.S.C. 845(a)(4)]

17. Are binary explosives subject to regulation under Federal explosives laws?

Until the compounds are mixed, they are not classified as explosives and, therefore, are not subject to control. However, once mixed, binary explosives are “explosive materials” and are subject to all applicable Federal requirements. A person who mixes or combines compounds of binary explosives for the purpose of sale or distribution or for the person’s own business use is a “manufacturer” of explosive materials and must be licensed as a manufacturer under the law. [18 U.S.C. 841(h); 27 CFR 555.11: definition of “manufacturer”]

18. Does ATF have any regulations governing the actual transportation of explosive materials?

Federal explosives laws and regulations generally prohibit any person from transporting explosive materials interstate or intrastate unless the person has a Federal explosives license or permit. Also, the transportation of stolen explosives materials is a Federal crime (see also Question 10). However, the law exempts from regulation under 18 U.S.C. Chapter 40 and 27 CFR Part 555 aspects of the transportation of explosive materials via railroad, water, highway, or air which are regulated by the United States Department of Transportation, and the Department of Homeland Security, and agencies thereof and which pertain to safety and security. [18 U.S.C. 842(a)(3), 842(h), 845(a)(1); 27 CFR 555.26, 555.28, 555.141(a)(1)]

19. Are common or contract carriers required to obtain a Federal explosives license or permit to transport explosive materials?

No. The actual transportation of explosive materials by carriers is subject to Department of Transportation or Department of Homeland Security regulations. [18 U.S.C. 845(a)(1); 27 CFR 555.141(a)(1)]

20. What is the “Explosives List”?

The Explosives List is a comprehensive (but not all-inclusive) listing of explosive materials which have been determined to be within the coverage of Chapter 40. The list is published annually by ATF (the most recent list can be found under the Arson & Explosives Publications link on the ATF website). [18 U.S.C. 841(d); 27 CFR 555.23]

21. May a person under the age of 21 be lawfully employed by an explosives business and lawfully receive, possess, and use explosive materials on behalf of the business?

Yes. Federal explosives law prohibits any person from distributing explosive materials to persons under 21 years of age. However, it does not prohibit the delivery to or possession of explosive materials by persons under the age of 21 who are receiving or using the materials on behalf of their employers to whom the materials were lawfully sold. [18 U.S.C. 842(d), (i); 27 CFR 555.11 (definition of “distribute”), 555.26, 555.106(b)(1)]

22. ATF regulations require explosive materials to be stored at certain minimum distances from a “public highway”. What is a “public highway” for purposes of the regulations?

The term “highway” is defined in 27 CFR 555.11 as “any public street, public alley, or public road, including a privately financed, constructed, or maintained road that is regularly and openly traveled by the general public.” Privately financed, constructed, or maintained roads that are marked and barricaded in a manner that prevents access by the general public do not fall within the meaning of the term and would, therefore, be exempt from table of distance requirements. [27 CFR 555.11: definition of “highway”] (See also ATF Ruling 2005–2)

23. Is an airport runway or taxiway considered a public highway for purposes of the Table of Distances for storage of explosive materials?

No. However, airport terminals are considered inhabited buildings for Table of Distance requirements.

24. How is shock tube regulated by ATF?

Shock tube contains highly explosive material. However, it may be stored as a low explosive when not attached to a detonator. [27 CFR 555.202(b), 555.213]

25. What is an EX number?

An EX number is a number, preceded by the prefix “EX–”, which is issued and used by the Department of Transportation (DOT) to identify an explosive which has been tested and classified by DOT. See U.S. Department of Transportation regulations at 49 CFR 171.8 and 49 CFR 173.56.

26. What is a UN number?

A UN (United Nations) number is used by DOT as a method of identification and classification of products for shipping purposes. UN numbers are different from the hazard class or division designations used by DOT (for example, 1.1, 1.2, 1.3, 1.4, and 1.5). ATF regulations in 27 CFR Part 555 also use UN numbers to help identify certain explosives. [27 CFR 555.11]

27. Can Federal explosives disabilities resulting from a conviction of a crime punishable by imprisonment for a term exceeding one year be removed if the conviction is expunged or set aside or the convicted person has received a pardon for the offense or has had his or her civil rights restored?

A person convicted of, or under indictment for, a “crime punishable by imprisonment for a term exceeding one year” may not lawfully receive or possess explosive materials or be issued a Federal explosives license or permit. The term “crime punishable by imprisonment for a term exceeding one year” does not include offenses pertaining to antitrust violations, unfair trade practices, restraints of trade, or any State offense (other than one involving

a firearm or explosive) classified as a misdemeanor and punishable by imprisonment for 2 years or less. There are only 3 means by which Federal explosives disabilities resulting from a conviction of, or indictment for, a “crime punishable by imprisonment for a term exceeding one year” can be removed:

- (a) A decision of a court invalidating a conviction on the basis that the conviction was unconstitutional;
- (b) In the case of a Federal conviction, a presidential pardon; and
- (c) The granting of relief from Federal explosives disabilities by ATF pursuant to the filing of a relief application with the Director. Information on how to apply for relief and contact information for the Relief of Disabilities Section is available on the ATF website. [18 U.S.C. 841(l), 842(d),(i), 845(b); 27 CFR 555.11: definition of “crime punishable by imprisonment for a term exceeding one year”, 555.26(c), 555.142]

Licenses and Permits

28. Who needs a Federal explosives license or permit?

All persons who wish to transport, ship, cause to be transported, or receive explosive materials must first obtain a Federal explosives license or permit. Certain exemptions apply. [18 U.S.C. 842(b); 18 U.S.C. 845; 27 CFR 555.26(a), 27 CFR 555.141]

29. Who is eligible for a Federal explosives license or permit?

The Chief, Federal Explosives Licensing Center, will approve a properly completed application for a license or permit on ATF Form 5400.13/5400.16 if the applicant:

- (a) Is not a person prohibited from possessing or receiving explosive materials under 18 U.S.C. 842(i) and none of the applicant’s “responsible persons” are prohibited under section 842(1); (see also Question 4 in General Q&A);
- (b) Has not willfully violated any provision of Chapter 40 or the regulations in 27 CFR Part 555;
- (c) Has not knowingly withheld information or has not made any false or fictitious statement intended or likely to deceive, in connection with the application,
- (d) Has premises in a State from which he intends to conduct business or operations;
- (e) Has storage for the class (as described in 27 CFR 555.202) of explosive materials described on the application;
- (f) Has certified in writing that he is familiar with and understands all published State laws and local ordinances relating to explosive materials for the location in which he intends to do business;
- (g) Has submitted the certificate required by section 21 of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1341) [18 U.S.C. 843(b); 27 CFR 555.49(b)];

(h) None of the applicant’s employees authorized to possess explosives are prohibited persons under 18 U.S.C. 842(i); and

(i) In the case of an applicant for a limited permit, the applicant has certified that the applicant will not receive explosive materials on more than 6 occasions during the 12-month period for which the limited permit is valid.

30. What activities are covered by licenses and permits?

Licenses allow persons to engage in the business of importing, manufacturing, or dealing in explosive materials. Any individual or business entity intending to engage in any of these activities must first obtain a license. A user permit allows the receipt and transportation of explosive materials. A limited permit allows the receipt of explosive materials from a licensee or permittee within the permittee’s state of residence only, and on no more than six occasions in the 12-month period during which the limited permit is valid. A limited permit does not authorize the receipt or transportation of explosive materials in interstate or foreign commerce. [27 CFR 555.11: definitions of “importer”, “manufacturer”, “dealer”, “limited permit”, and “user permit”, 555.41] A separate license is needed for each business premises where an explosives business or activity is conducted. Only a single user permit is needed by a permittee who uses explosives in more than one location. [27 CFR 555.41]

31. What is a Limited Permit?

A limited permit is for persons who wish to transport, ship, cause to be transported, or receive explosive materials in intrastate commerce only. This permit is designed for the infrequent receipt of explosive materials by intrastate users. The limited permit will allow a purchaser to receive explosive materials on no more than six separate occasions from in-state licensees or permittees during the 12-month period of the permit. The limited permit does not allow the holder to transport, ship, cause to be transported, or receive explosive materials in interstate commerce.

32. What is the duration of a license or permit?

- (a) A user license or permit is valid for a period of 3 years.
- (b) The user-limited permit is valid only for a single purchase transaction.
- (c) Limited permits are valid for no more than six separate receipts of explosive materials during a 12-month period. [27 CFR 555.51]

33. What are the fees for licenses and permits?

Each license applicant must pay a fee of \$200 for obtaining a 3-year license, a separate license and fee being required for each business premises. The fee for renewal of a license is \$100 for a 3-year license. [27 CFR 555.42]

Each applicant for a user permit must pay a fee of \$100 for a 3-year permit, and each applicant for a user-limited permit (nonrenewable) must pay a fee of \$75. The fee for renewal of a user permit is \$50 for a 3-year permit. [27 CFR 555.43] Each applicant for a limited permit must pay a fee of \$25 for a 1-year limited permit. The fee for renewal of a limited permit is \$12 for a 1-year limited permit. [27 CFR 555.43]

34. Will the Government investigate an application for a license or permit?

ATF will investigate any applicant before issuing a license or permit. Additionally, ATF must inspect places of storage and conduct background checks on responsible persons and employee possessors authorized to possess explosives [18 U.S.C. 843(b); 18 U.S.C. 843(h); 27 CFR 555.33, 27 CFR 555.49(b)]

35. What may a licensed explosives dealer do?

A licensed dealer may engage in the business of distributing explosive materials at wholesale or retail [27 CFR 555.11: definition of “dealer”]

36. What may a licensed explosives importer do?

A licensed importer may engage in the business of importing or bringing explosive materials into the United States for purposes of sale or distribution. It is not necessary for a licensed importer to also obtain a dealer’s license to engage in business on his or her licensed premises as a dealer in explosive materials (see also Question 52 and 53) [27 CFR 555.11: definition of “importer”, 27 CFR 555.41(b)(2)]

37. When is a manufacturer’s license required?

A manufacturer’s license is required by persons engaged in the business of manufacturing explosive materials for sale, distribution, or for their own business use. For example, persons engaged in the business of providing a blasting service using explosives of their own manufacture would be required to have a manufacturer’s license. Persons who manufacture explosives for their personal, non-business use are not required to have a manufacturer’s license. However, no person may ship, transport, cause to be transported, or receive explosive materials unless such person holds a license or permit. [27 CFR 555.11: definition of “manufacturer”, 555.41(b)] A separate manufacturer’s license is not required by a licensed manufacturer for the purpose of on-site manufacture, for example, mixing binary explosives or making blasting agents at a quarry or other job site. It is not necessary for a licensed manufacturer to also obtain a dealer’s license to engage in business on his or her licensed premises as a dealer in explosive materials (see also Question 52 and 53) [27 CFR 555.11: definition of “manufacturer”, 555.41(b)(2)]

38. How do I apply for a Federal explosives license or permit?

You can request an application for a Federal explosives license or permit from the Federal Explosives Licensing Center at 877-283-3352 or from the ATF Distribution Center at 202-648-6420. As part of the application process, you must complete and submit an ATF Form 5400.13/5400.16, Application for Explosives License or Permit. You must also submit the names, identifying information, fingerprints, and photographs of all responsible persons. In addition, you must submit the names and identifying information of all employees who are authorized to possess explosive materials in the course of their employment on ATF Form 5400.28, Employee Possessor Questionnaire. [27 CFR 555.45(c)]

39. Who is a “responsible person”?

Federal explosives laws define a “responsible person” as an individual who has the power to direct the management and policies of the applicant pertaining to explosive materials. Responsible persons generally include sole proprietors and explosives facility site managers. In the case of a corporation, association, or similar organization, responsible persons generally include only those corporate directors/officers, and stockholders, who have the power to direct management and policies as they pertain to explosive materials.

For example, a corporate vice president whose duties include acquiring and approving contracts with explosives distributors would be considered a responsible person. Other corporate officials whose duties do not include the power to direct the management and policies of the applicant pertaining to explosive materials, for example, a vice president responsible solely for human resources, would not typically be considered a responsible person. Each applicant for a license or permit must assess the corporate and other management responsibilities for all key personnel and determine whether or not these duties place the individual in the position of being a responsible person. [18 U.S.C. 841(s), 27 CFR 555.11: definition of “responsible person”]

40. Who is a “possessor of explosives”?

A possessor of explosives is any employee of a license or permit holder or any employee of an applicant for a license or permit who has or will have actual physical possession of explosive materials or who has or will have constructive possession of explosive materials. For example, persons who physically handle explosive materials would be considered to be actual possessors of explosive materials. This would include employees who directly handle explosive materials as part of the production process; employees who handle explosive materials in order to ship, transport, or sell them; and employees, such as blasters and their helpers who

actually use explosive materials. A constructive possessor is any person who has access to explosive materials, without physically handling them. For example, a supervisor at a construction site who keeps keys for storage magazines in which explosives are stored or who directs the use of explosive materials by other employees has constructive possession of explosives.

41. Why is it necessary to provide new and additional information on responsible persons and employee possessors of explosives?

The law requires this information for ATF to conduct background checks on all responsible persons and employee possessors to restrict the availability of explosives to authorized persons only and to reduce the risk of prohibited persons acquiring explosive materials. [18 U.S.C. 843(h); 27 CFR 555.33, 555.45(c)]

42. When will I need to submit the identifying information for my responsible persons and employee possessors of explosives?

(a) All license and permit applicants and any renewal applicants must submit identifying information for responsible persons and employee possessors (and fingerprints and photographs for responsible persons) upon submission of an original or renewal application.

(b) Any new responsible person added after a license or permit has been issued by ATF must be reported to ATF within 30 days. However, the submission of fingerprints and photographs by the new responsible person is required only at the time of any subsequent renewal.

(c) For all licenses and permits (new and renewal), any new employee possessors must be reported to ATF within 30 days of hire on the Employee Possessor Questionnaire form (ATF F 5400.28). [27 CFR 555.45(c), 27 CFR 555.57(b)]

43. How do I get my fingerprints taken?

Fingerprints must be submitted on Fingerprint Identification Cards, FD-258 that have been issued by ATF. The fingerprint cards must contain the following ORI information: WVATF0900; ATF-NATL EXPL LIC, MARTINSBURG WV. These fingerprint cards may be obtained by contacting the Federal Explosives Licensing Center at 877-283-3352 or the ATF Distribution Center at 202-648-6420. The fingerprint cards must be completed by your local law enforcement authority.

44. Will ATF notify me whether or not my responsible persons and employee possessors have passed their background checks?

Yes. A "Notification of Clearance" will be issued directly to all license or permit holders advising whether their responsible persons and employee possessors have been cleared to possess explosive materials, or are or may be prohibited from possessing

explosives. These notices must be retained as part of the license or permit holders permanent records. In addition, letters of clearance or denial will be issued directly to responsible persons and employee possessors. [27 CFR 555.33]

45. What notification will I receive if one of my responsible persons or employee possessors does not pass their ATF background check?

If an individual does not pass the background check, a letter will be sent to the licensee or permittee who submitted the individual's name indicating that the individual was denied. A letter will also be sent to that individual explaining the prohibition and outlining appeal and relief procedures, as may be applicable. Unless and until an appeal overturns the denial or relief from disabilities is granted, that individual may not lawfully possess explosives. [27 CFR 555.33]

46. Who will conduct the background checks on applicants, responsible persons, and possessors?

ATF will perform the background checks. If employers wish to require their own background checks as a condition of employment, they may do so. However, such a background check will not be accepted in place of the ATF background check. [27 CFR 555.33]

47. May I sell black powder without a license?

No. Anyone who engages in the business of selling black powder, regardless of quantity, must be licensed as an explosives dealer. [27 CFR 555.41(b)]

48. Is a manufacturer's license required to acquire and mix binary explosives?

If the individual purchasing the binary explosives is engaged in the business of manufacturing explosives, i.e., mixes and uses them in the operation of a commercial business (for example, operating a quarry, or providing the service of removing stumps or boulders from a farm field), then a manufacturer's license is required.

An individual farmer who merely wishes to mix the binary explosives to remove obstacles from his field and provides no other outside service would not need a manufacturer's license.

Please note, however: A Federal explosives license or permit would be required to obtain any explosive device, such as detonators, used to initiate the mixed binary explosives. In addition, transportation of any explosive material, including mixed binary explosives, without a Federal license or permit is prohibited. [27 CFR 555.11: Definition of "manufacturer"; 27 CFR 555.26, 555.41(b)]

49. What is theatrical flash powder and is there a license for its manufacture?

Theatrical flash powder is flash powder commercially manufactured in premeasured kits not exceeding 1 ounce in weight, and mixed immediately prior to use and intended for use in events

such as theatrical shows, stage plays, band concerts, magic acts, thrill shows, and clown acts in circuses. A manufacturer's license allows on-site manufacturers to operate nationally on one license issued to their principal place of business. [27 CFR 555.11: definitions of "flash powder" and "theatrical flash powder", 555.41(b)]

50. Is a separate license required for each location where business is conducted?

Yes. A separate license is required for each location where business is conducted. However, a separate license is not required for:

- (a) Facilities used only for the storage of explosive materials;
- (b) Locations used solely for the storage of records relating to the business; and
- (c) Licensed manufacturers' on-site manufacturing. [27 CFR 555.41(b)]

51. Must a person who engages in the business of both manufacturing and importing at the same location have both licenses?

Yes. The licenses for manufacturing and importing allow a person to engage in separate and distinct activities and a separate license is required for each activity. However, a manufacturer or an importer does not need a separate dealer's license to also distribute explosive materials from the licensed premises. [27 CFR 555.41(b)]

52. Does a licensed manufacturer, importer, or dealer need a permit to use explosive materials?

No. No licensee will be required to obtain a user permit to lawfully transport, ship, or receive explosive materials in interstate or foreign commerce. [27 CFR 555.41(b)(2)]

53. Does a Federal license or permit exempt the holder from State or local requirements?

No. A license or permit confers no right or privilege to conduct business or operations, including storage, contrary to State or other law. All legal requirements must be followed, whether Federal, State, or local. [18 U.S.C. 848; 27 CFR 555.62]

54. Who is authorized to import explosive materials?

Any licensed importer is authorized to engage in the business of importing explosive materials for sale, distribution, or their own use. Any licensed manufacturer, dealer, or holder of a user permit may import explosive materials for their own use only. Licensees and user permittees importing explosive materials must provide to the U.S. Customs and Border Protection (CBP) a copy of the license or permit. Note, however, that in the case of certain military explosives or propellant powder or other components of

small arms ammunition, Federal firearms regulations require the importer to provide an approved ATF Form 6 to the CBP. [27 CFR 555.41(b)(2), 555.41(b)(3), 447.21, 555.108(a), 555.183, 478.113]

55. How may an employee of an explosives licensee or permittee qualify to accept delivery of explosive materials for the employer?

The employee must be on the current list of representatives or agents authorized to accept delivery of explosive materials on behalf of the employer and be an authorized employee possessor of explosives. [27 CFR 555.103(b), 555.105(b)]

56. When an explosives licensee or permittee sends one of their truck drivers to the distributor's premises to pick up explosive materials that have been purchased by the licensee or permittee, will the driver be required to sign any forms?

No, however the driver is required to furnish the seller with an identification document as defined in 27 CFR Part 555.11. [27 CFR 555.103(b), 555.105(b)]

57. Will a licensee or permittee be notified in advance when the license or user permit needs to be renewed?

Generally, prior to expiration of the license or permit, a licensee or permittee will be notified. The application form must be completed and filed with ATF before expiration of the current license or permit for the renewal to be considered timely. However, if a licensee or permittee does not receive a renewal notification, it is still that licensee's or permittee's responsibility to ensure that an application is filed prior to expiration of the current license or permit. [27 CFR 555.46]

58. I have timely filed my application for renewal of my license (or user's permit) but I have not received my new license (or permit). May I continue in business even though the expiration date shown on my license or permit has passed? If so, for how long?

Yes. You may continue to operate the business pursuant to your current license or permit until the application for renewal is acted upon. [5 U.S.C. 558]

59. Can a license or permit be revoked?

Yes. The Director, Industry Operations for the ATF Field Division in which a licensee or permittee is located may revoke a license or permit if the holder has violated any provision of 18 U.S.C. Chapter 40 or its implementing regulations or has become ineligible to receive explosive materials under 18 U.S.C. 842(i). [18 U.S.C. 843(d); 27 CFR 555.71, 555.74]

60. If a Federal explosives licensee or permittee is indicted for or convicted of a “crime punishable by imprisonment for a term exceeding one year”, may he or she continue operations under the license or permit?

As stated in the answer to Question 4 in General Q&A, a person under indictment for, or convicted of, a crime punishable by imprisonment for a term exceeding one year is not eligible to be issued a license or permit. However, a licensee or permittee who is indicted for, or convicted of, such a crime during the term of his or her existing license or permit is not barred from licensed or permit operations for 30 days after the date of the indictment or the date the conviction becomes final. If the licensee or permittee files an application for relief from disabilities within such 30-day period, he or she may continue licensed or permit operations while the application is pending. If a relief application is not filed during that period, the licensee or permittee may not continue operations beyond such 30-day period. The right of a licensee to continue licensed or permitted operations beyond such 30-day period is also conditioned on the licensee or permittee timely filing a license or permit renewal application disclosing that the applicant has been indicted for, or convicted of, the crime. A licensee or permittee may not continue operations beyond 30 days following the date the Director issues notification that the relief application has been denied. [18 U.S.C. 845(b); 27 CFR 555.142]

61. May a licensed dealer make a sale to a holder of a limited permit in an adjoining State?

No. Sales may not be made to limited permittees who are out-of-State residents. [18 U.S.C. 842(a); 27 CFR 555.11: definition of “limited permit”, 555.41(b)(3)]

Recordkeeping

62. Does a licensee or permittee have to keep records of the acquisition, distribution, and storage of explosive materials?

Yes. Licensees and permittees must keep records of acquisitions, dispositions, and storage of explosive materials. [18 U.S.C. 842(f), 847; 27 CFR 555.107, 555.122–.125, and 555.127, Subpart G]

63. How do licensees and permittees account for explosive quantities in their records?

If acquisitions are recorded by weight, then distribution must also be recorded by weight. If acquisitions are recorded by physical count (e.g., by units), then distribution must also be recorded by physical count. [27 CFR 555.122–.125]

64. Must a licensee or permittee maintain a daily summary of magazine transactions?

Yes. After the initial inventory required by regulations has been taken, the inventory shall be entered in a record of daily transactions. Not later than the close of the next business day, each licensee and permittee shall record by manufacturer’s name or brand name the total quantity received in and removed from each magazine during the day and the total remaining on hand at the end of the day. [27 CFR 555.127]

65. Where must a licensee or permittee keep the daily summary of magazine transactions?

The records must either be kept at each magazine or at one central location on the business premises, provided a separate record of daily transactions is maintained for each magazine. [27 CFR 555.127]

66. How can I obtain additional copies of ATF Forms?

Forms are available on-line at <http://www.atf.gov/forms/explosives/>. Requests for forms should be mailed to the ATF Distribution Center, 1519 Cabin Branch Drive, Landover, MD 20785. You may also have forms mailed to you by submitting an on-line request at <http://www.atf.gov/forms/dcof/>, or by telephoning your request to (202) 648-6420. [27 CFR 555.21(b)]

67. Does a purchaser of black powder have to sign any forms at the time of purchase?

If 50 pounds or less of commercially manufactured black powder is being purchased, and the powder is intended to be used solely for sporting, recreational, or cultural purposes in antique firearms as defined in 18 U.S.C. 921(a)(16) or in antique devices exempt from the term “destructive device” in 18 U.S.C. 921(a)(4), no form is required. However, if the black powder is being purchased for any other purpose (regardless of quantity), the purchaser or other transferee must possess a Federal explosives license or permit. [18 U.S.C. 845(a)(5); 18 U.S.C. 926(c); 27 CFR 555.141(b), 555.26(a)]

68. Is there a requirement for licensees and permittees to make an annual inventory of explosive materials on hand?

Yes. An inventory is required to be taken at least once a year. [27 CFR 555.122–.125]

69. When must ATF Form 5400.4, “Limited Permittee Transaction Report (LPTR)”, be executed?

Before distribution of explosive materials to a limited permittee, the licensee or permittee must obtain an executed ATF F 5400.4 from the limited permittee with an original unaltered and unexpired Intrastate Purchase of Explosives Coupon (IPEC) attached. Except when delivery of explosive materials is made by a common or contract carrier who is an agent of the limited permittee, the licensee or permittee must verify the identity of the holder of the limited permit by examining an identification document (as defined in 555.11) and noting on the ATF F 5400.4 the type of document presented. The licensee or permittee must complete the appropriate section on ATF F 5400.4 to indicate the type and quantity of explosive materials distributed, the license or permit number of the seller, and the date of the transaction. The licensee or permittee must sign and date the form. [27 CFR 555.126(b)]

70. Do the ATF Forms 5400.4 have to be maintained by the licensee or permittee making the sale?

Yes. One copy of ATF F 5400.4 must be retained by the seller as part of his permanent records in chronological order by date of disposition, or in alphabetical order by name of limited permittee. They must be maintained for a period of five years. [27 CFR 555.126]

71. May I keep computerized records?

Yes. See ATF Ruling 2007–1.

Storage

72. Who must comply with the storage requirements?

Except for those items and activities given exempt status under 18 U.S.C. 845 (also see 27 CFR 555.141), or exempted under 27 CFR 555.32, Special Explosives Devices, all persons who store explosive materials must store them in conformity with the provisions of Subpart K of the regulations, unless the person or the materials are exempt from regulation. [18 U.S.C. 842(j); 27 CFR 555.29, 555.141, 555.201(a)]

73. What are the classes of explosive materials for storage purposes?

There are 3 classes of explosive materials:

- (a) High explosives (for example, dynamite, flash powders, and bulk salutes);
- (b) Low explosives (for example, black powder, safety fuses, igniters, igniter cords, fuse lighters, and “display fireworks”, except for bulk salutes); and

(c) Blasting agents (for example, ammonium nitrate-fuel oil and certain water gels). [27 CFR 555.202]

74. May a person store explosive materials in a residence or dwelling?

No. Storage of explosive materials in a residence or dwelling is prohibited. [27 CFR 555.208(b), 555.210(b), 555.211(b)]

75. What is the “Table of Distances”?

This table lists the minimum acceptable distances separating explosives magazines from inhabited buildings, passenger railroads, public highways, and other explosives magazines. The table is contained in 27 CFR 555.218.

76. When low and high explosives are stored together, how is the distance determined to meet the table of distance requirements?

The table of distances for high explosives at 27 CFR 555.218 would be applied using the total weight of explosive materials in the magazine. [27 CFR 555.218]

77. Is it necessary to inspect my explosives magazines on a regular basis?

Yes. Any person storing explosives must inspect the magazines at least once every 7 days to determine whether there has been unauthorized entry or attempted entry into the magazines or unauthorized removal of the contents of the magazines. [27 CFR 555.204]

78. What are the requirements for making changes or additions to an approved storage facility?

Making changes in construction to an approved explosives magazine or adding a magazine requires that ATF be notified. However, mobile or portable type 5 magazines and magazines used for the temporary (under 24 hours) storage of explosive materials are exempt from this requirement. See 27 CFR 555.63 for details.

79. Is any type of black powder fuse exempt from storage requirements?

Yes, $\frac{3}{32}$ " and other external burning pyrotechnic hobby fuses are exempt from the requirements of Federal explosives laws and regulations. [18 U.S.C. 845(a)(4–5); 27 CFR 555.11: definition of “ammunition”, 555.141(a)(4), 555.141(b)]

80. With the exception of $\frac{3}{32}$ " pyrotechnic safety fuse for use in small arms, must black powder fuses generally be stored in approved explosives magazines?

Yes. Generally igniter fuses, time fuses, blasting fuses, safety fuses, or other black powder fuses by whatever name known, must be stored in approved magazines.

81. Is smokeless powder designed for use in small arms ammunition subject to the explosives storage requirements?

Smokeless propellants designed for use in small arms ammunition are exempt from regulation under 18 U.S.C. Chapter 40 and the regulations in 27 CFR Part 555. However, it should be noted that persons engaged in the business of importing or manufacturing smokeless propellants must have a Federal explosives license. Additionally, smokeless propellant designed for use other than small arms ammunition is not exempt. Therefore, explosives products such as squibs, fireworks, theatrical special effects, or other articles that may be utilizing smokeless propellants are regulated and must be stored accordingly.

82. My office building, in which several company employees work during the day in connection with my explosives business, is located in the general area of my explosives magazine. Do the regulations and the Table of Distances apply to this building as an “inhabited building”?

No. A building such as an office building or repair shop which is part of the premises of an explosives business and is used by the business in connection with the manufacture, transportation, storage, or use of explosive materials is not considered to be an “inhabited building”. [27 CFR 555.11: definition of “inhabited building”, 555.218]

83. Am I required to notify my State or local authorities about my explosives storage magazines?

Yes. All persons who store explosive materials must notify the fire department having jurisdiction over the site where explosive materials are manufactured or stored. Notification must be made orally by the end of the day on which storage begins and in writing within 48 hours from the time storage began. The notification must include the type of explosive materials, magazine capacity, and the location of each storage site. [27 CFR 555.11: Definition of “authority having jurisdiction for fire safety”, 27 CFR 555.201(f)]

84. What is the definition of a “case hardened shackle?”

Case hardening involves putting carbon (or a combination of carbon and nitrogen) into the surface of the steel to make it a high-carbon steel, which can be hardened by heat treatment. Only the outer skin gets hard in this manner. The center is still tough and malleable. This makes for a strong lock with a tough surface.

85. Can detonators be stored with detonating cord?

No. However, products which are manufactured with a detonator attached to the detonating cord as an integral part need not be disassembled and stored separately. [27 CFR 555.213]

86. Are there storage requirements for oxidizers, such as ammonium nitrate?

In general, no. However, when a magazine or bin containing ammonium nitrate is located within the sympathetic detonation distance of other explosives or blasting agents, it must be stored in accordance with the table of distances in 27 CFR 555.220.

87. Are State and local government agencies required to store their explosive materials in conformity with Federal storage regulations?

Yes. There is no exemption in the law or regulations for the storage of explosive materials by any State or political subdivision thereof. [18 U.S.C. 842(j), 845(a)(6); 27 CFR 555.141(a)(3), (a)(5)]

Fireworks

Fireworks are defined in the Federal explosives regulations as any composition or device designed to produce a visible or an audible effect by combustion, deflagration, or detonation. Fireworks are further divided into two broad classifications, consumer fireworks or display fireworks as defined at 27 CFR Part 555.11.

88. Are “consumer fireworks” subject to regulation under the Federal explosives laws?

No. The importation, distribution, and storage of fireworks defined as consumer fireworks are exempted from the provisions of the Federal explosives laws. However, because they contain pyrotechnic compositions classed by ATF as explosive materials, the manufacture of consumer fireworks requires a manufacturer’s license. In addition, pyrotechnic compositions used in the manufacture of consumer fireworks must be stored in accordance with regulations in 27 CFR Subpart K. Consumer fireworks are defined as “any small firework device designed to produce visible effects by combustion and which must comply with the construction, chemical composition, and labeling regulations of the U.S. Consumer Product Safety Commission, as set forth in Title 16, Code of Federal Regulations, parts 1500 and 1507. Some small devices designed to produce audible effects are included, such as whistling devices, ground devices containing 50 mg or less of explosive materials, and aerial devices containing 130 mg or less of explosive materials. Consumer fireworks are classified as fireworks UN0336 and UN0337 by the U.S. Department of Transportation at 49 CFR 172.101. This term does not include fused set pieces containing components which together exceed 50 mg of salute powder.” [27 CFR 555.11: definition of “consumer fireworks”; definition of “licensed manufacturer”, 555.141(a)(7)]

89. Are “display fireworks” considered to be explosive materials subject to regulation under Federal explosives laws and regulations?

Yes. Display fireworks include, but are not limited to, salutes containing more than 2 grains (130 mg) of explosive materials, aerial shells containing more than 40 grams of pyrotechnic compositions (excluding the lift charge), and other display pieces which exceed the limits of explosive materials for classification as “consumer fireworks”. These fireworks are classified as fireworks UN0333, UN0334, or UN0335 by regulations of the U. S. Department of Transportation at 49 CFR 172.101. Display fireworks also include fused set pieces containing components which together exceed 50 mg of salute powder. [27 CFR 555.11: definition of “display fireworks”]

90. How must display fireworks be stored?

Display fireworks, with the exception of bulk salutes, are considered low explosives and, at a minimum, must be stored in type 4 storage magazines. They may also be stored in type 1 or type 2 magazines. Bulk salutes, which are defined as either salute components prior to final assembly into aerial shells, (or) finished salute shells held separately prior to being packed with other types of display fireworks, are classified as high explosives. As such, bulk salutes may only be stored in type 1 or type 2 magazines specifically constructed for the storage of high explosives. [27 CFR 555.11, 555.202(b), 555.203(d), 555.207, 555.208, 555.210]

91. Are “Articles Pyrotechnic” subject to the requirements of the Federal explosives regulations?

The importation, distribution, and storage of fireworks defined as “Articles Pyrotechnic”, are exempt from the Federal explosives laws and regulations. However, because they contain pyrotechnic compositions classed by ATF as explosive materials, the manufacture of items defined as “articles pyrotechnic” requires an ATF manufacturer’s license. In addition, pyrotechnic compositions used in the manufacture of articles pyrotechnic must be stored in accordance with regulations in 27 CFR Subpart K. [27 CFR 555.11: definitions of “articles pyrotechnic” and “consumer fireworks”, 555.141(a)(7)]

92. Must partially assembled display fireworks be removed from a drying building for overnight storage?

Yes. At the end of a day’s manufacturing operations, all dry explosive powders and mixtures and partially assembled and finished display fireworks must be removed from fireworks process buildings and stored in a magazine meeting the storage requirements in 27 CFR Part 555, Subpart K. [27 CFR 555.205, 555.221]

93. What areas of a fireworks manufacturing plant are considered to be “fireworks process buildings?”

Fireworks process buildings include any buildings in which pyrotechnic compositions or explosives materials are mixed, pressed, finished, or assembled. Fireworks process buildings do not include plant warehouses, office buildings, or other buildings and areas in which no fireworks, pyrotechnic compositions, or explosive materials are processed or stored. [27 CFR 555.11: definition of “fireworks process building”]

94. Under what conditions may I temporarily store display fireworks (including low explosives for choreographed shows) on trucks?

See ATF Ruling 2007–2.

95. What types of fireworks require an ATF license or permit in order to be lawfully transported or received?

Any fireworks defined as “display fireworks” in 27 CFR 555.11 may be lawfully received or transported only by persons who hold a valid license or permit. No ATF license or permit is required to receive or transport “consumer fireworks” or “articles pyrotechnic”. [18 U.S.C. 842(a)(3); 27 CFR 555.26, 555.141(a)(7)]

Plastic Explosives

96. What is a plastic explosive?

A plastic explosive is defined as “an explosive material in flexible or elastic sheet form formulated with one or more high explosives which in their pure form has a vapor pressure less than 10<4> Pa at a temperature of 25 °C, is formulated with a binder material, and is as a mixture malleable or flexible at normal room temperature.” [18 U.S.C. 841(q); 27 CFR 555.180(d)(4)]

97. What plastic explosives are required to contain detection agents?

All plastic explosives manufactured or imported on or after April 24, 1996, must contain a detection agent. Federal law enforcement agencies and the military may possess unmarked plastic explosives if they meet the requirements of the use-up period described in Question 103. [18 U.S.C. 841(q), 842(n); 27 CFR 555.180]

98. What are the permissible detection agents for marking plastic explosives?

These agents are listed in the law and regulations at 18 U.S.C. 841(p) and 27 CFR 555.180(d)(3).

99. Is it lawful to manufacture plastic explosives that do not contain a detection agent?

No. [18 U.S.C. 842(l); 27 CFR 555.180(a)]

100. Is it lawful to import into the United States plastic explosives that do not contain a detection agent?

No. The importation of plastic explosives into the United States requires that the importer file ATF Form 6 certifying that the imported plastic explosives contain the required detection agent, or is exempted from the marking requirements as provided in the regulations. [18 U.S.C. 842(m); 27 CFR 555.180(b), 555.182, 555.183]

101. Is it lawful to ship, transport, transfer, receive, or possess any plastic explosive that does not contain a detection agent?

No. However, a 15-year use-up period is provided for Federal law enforcement agencies and the military for unmarked plastic explosives imported into or manufactured in the U.S. prior to April 24, 1996. Any stocks of unmarked plastic explosives in their possession must be used, destroyed or properly marked by June 21, 2013 [18 U.S.C. 842(n); 27 CFR 555.180(c)]

102. If a person acquired plastic explosives not containing a detection agent before April 24, 1996, may he or she continue to lawfully possess the explosives?

No. With the exception of the use-up period provided by law for Federal law enforcement agencies or the military, the time period for lawful possession of unmarked plastic explosives terminated on April 24, 1999. [18 U.S.C. 842(n); 27 CFR 555.180(c)]

103. Are police departments exempt from the prohibition against possessing unmarked plastic explosives after April 24, 1999?

No. Police departments and other State or local law enforcement agencies could lawfully possess unmarked plastic explosives acquired on or before April 24, 1996, until April 24, 1999. Such agencies still possessing unmarked plastic explosives should destroy them or abandon them to ATF. Contact the nearest ATF field office for information. [18 U.S.C. 842(n); 27 CFR 555.180(c)(1)]

U.S. Military Explosives

104. Would an ATF license or permit be needed to demilitarize (demil) U.S. military explosives?

As long as the demil operator has a valid Department of Defense contract to perform such operations, the operations would be exempt from 27 CFR Part 555 and no license or permit would be required. However, if title to the explosive materials has passed from the military to the demil operator and the operator intends to resell the explosives on the commercial market, then such operations may be regulated by ATF (e.g., storage, sales, manufacturing) and an ATF license or permit may be needed. Contact the nearest ATF field office for further information. [18 U.S.C. 845(a)(3), (a)(6) and 27 CFR 555.141(a)(3), (a)(5)]

105. Would a civilian contractor who is manufacturing explosive materials pursuant to a government contract for or on behalf of the United States military be entitled to the exemptions from the explosives laws and regulations?

Yes, provided that all the explosive materials in question are manufactured under a government contract. Any explosive materials manufactured in anticipation of receiving a government contract would not qualify for this exemption.

If the contractor manufactures any explosive materials not pursuant to a U.S. military contract, the manufacture and the explosive materials are subject to all requirements of the law and regulations. [18 U.S.C. 845(a)(3), (a)(6); 27 CFR 555.26, 555.41, 555.141(b)]

106. Is an ATF licensee or permittee, whose licensed premises are located on a U.S. military installation, subject to the regulations in 27 CFR Part 555?

All activities conducted outside the scope of a U.S. Government contract are subject to the requirements of Part 555, even if the activities are conducted on property owned by the military. [18 U.S.C. 845(a)(3), (a)(6); 27 CFR 555.26, 555.29, 555.41, 555.141(a)(3), (a)(5)]

Index to Questions and Answers

Accidents, ATF investigations: 14
Activities covered by license, permit: see 30, 35–37, 48
Age restrictions: 5, 21, 29
American Table of Distances: 75 (See also “Storage, table of distance”)
Applicability of Federal explosives law: 1
Binary explosives: 17, 48
Black powder, fuses: 79, 80
Black powder, regulated: 15
Carriers of explosives: 19
Conviction: see also Prohibited Persons
Conviction, continuing operations: 60
Department of Transportation numbers: 25, 26
Distances, table of: 22, 23, 75, 76
Distribution of explosives to prohibited persons: 4, 5, 7
Distribution to nonlicensees/nonpermittees: 6, 8
Employee possessor: 42
Employees of licensee or permittee, purchase by: 40, 55, 56
Employees under the age of 21: 21
Explosives List: 19
False information, penalty: 9
Forms, ATF F 5400.4, Explosives Transaction Record: 69, 70
Forms, ATF F 5400.5, Report of Theft or Loss of Explosive Materials: 11, 12
Forms, ATF F 5400.13/5400.16, Application for License or Permit: 38
Forms, where to order/obtain: 38, 64
Fireworks, articles pyrotechnic: 91
Fireworks, consumer: 88
Fireworks, display: 91, 92, 94, 96, 97
Fireworks, storage: 90, 92, 94
Importing, explosives: 51, 52, 54
Importing, license: 8, 30, 36, 51
Importing, plastic explosives: 100
Indictment: see Conviction
Interstate commerce: 1, 6, 30
Intrastate transportation of explosives: 1, 31
License/Permit, applications for: 33, 34, 38, 42, 43
License/Permit, duration of: 31, 32
License/Permit, eligibility: 29
License/Permit, expiration & continuing business: 58
License/Permit, fees: 33
License/Permit, prohibited persons: 29
License/Permit, renewal: 57, 58
License/Permit, required: 28, 32, 37
License/Permit, requirements for multiple locations: 50
License/Permit, revocation: 59
License/Permit, state & local requirements: 30, 37, 47–53
License/Permit, types: 30, 31, 35–37
License/Permit, (user) limited permit: 30, 31
Manufacturing, for own use: 37

Manufacturing, license: 30, 37, 48–52
Manufacturing, on-site: 37, 50
Military explosives: 99–101
Plastic explosives, detection agents: 97–99
Plastic explosives, general: 91–98
Plastic explosives, requirements: 97, 100–103
Prohibited distributions: 4–8
Prohibited persons: 4, 5, 7
Prohibited persons, restoration of rights after conviction: 27
Public highway: 22, 23
Purchase by employee of licensee, permittee: 40, 55, 56
Recordkeeping, computerized: 71
Recordkeeping, forms: 66, 67, 69, 70
Recordkeeping, requirements: 62–65, 68
Responsible person: 39, 41, 42
Shock tube: 24, 80
Small arms ammunition, regulations: 16, 81
Stolen explosives: 10 (see also “Theft”)
Storage, black powder (fuses): 79, 80
Storage, classes: 73
Storage, detonators/detonating cord: 85
Storage, fireworks: 90, 92, 94
Storage, inspection by ATF: 13
Storage, magazine changes: 78
Storage, prohibited in residence: 74
Storage, required inspection/inventory: 68, 77
Storage, requirements: 72, 75, 78
Storage, smokeless powder: 81
Storage, state and local: 87
Storage, table of distance: 22, 23, 75, 76, 82
Storage, oxidizers: 86
Theatrical flash powder: 49
Theft, loss of explosives: 10–12
Theft, reporting: 11
Transportation of explosives: 18, 19
United Nations numbers: 26, 84, 86
User’s permit (See “License/Permit”)7

ATF Explosives Rulings (Revised 3/12)

Table of Contents

1. ATF Ruling 75–20: Meaning of Terms, “Inhabited Building”
2. ATF Ruling 75–21: Construction of Storage Facilities by the Department of Defense—Concrete Floors
3. ATF Ruling 75–31: Meaning of Terms, “Engaged in the Business”
4. ATF Ruling 75–35: Identification of Explosive Materials
5. ATF Ruling 76–4: Meaning of Terms, “State of Residence”
6. ATF Ruling 76–10: One Sale with Multiple Deliveries
7. ATF Ruling 76–18: Alternate Magazine Construction Standards
8. ATF Ruling 77–24: Storage of Electric Blasting Caps with Other Explosive Materials
9. ATF Ruling 2002–3: Indoor storage of explosives in a residence or dwelling
10. ATF Ruling 2002–4: ATF requires approval of variances for indoor storage of explosives in business premises directly adjacent to a residence or dwelling.
11. ATF Ruling 2003–5: Distribution of explosives to limited permittees
12. 2004–3; Locking Requirements for Indoor Type 4 Storage Magazines
13. ATF Ruling 2005–2: ATF provides guidance on three different private roads and whether they are “highways”
14. ATF Ruling 2005–3: ATF provides guidance on two situations involving structures and whether they are “inhabited buildings”
15. ATF Ruling 2007–1: Use of computerized records as required records under 27 CFR 555, Subpart G.
16. ATF Ruling 2007–2: Temporary storage of display fireworks in locked and attended motor vehicles; fuel tanks located on temporary storage vehicles; notification requirements to ATF and local fire officials.
17. ATF Ruling 2007–3: Storage of blasting agents in mobile type 5 magazines (bulk delivery trucks)
18. ATF Ruling 2009–3; Storage of Explosives in Law Enforcement Explosives Response Vehicles
19. ATF Ruling 2010–2: Visibility of Marks on Explosives Containers Stored in Magazines
20. ATF Ruling 2010–7: Perforating Gun Storage
21. ATF Ruling 2011–2: Locking Requirements for Outdoor Type 5 Bin and Silo Magazines
22. ATF Ruling 2011–3: Alternate Locks Authorized for Explosives Magazines

1. 27 CFR 181.11: Meaning of Terms (Also 181.186)

An office or repair shop used in connection with the manufacture, etc., of explosive materials are not “inhabited buildings.”

ATF Ruling 75–20

The Bureau of Alcohol, Tobacco and Firearms has been asked to explain the application of 27 CFR 181.11, as it relates to “Inhabited Building.”

The case in question concerns whether or not a building, such as an office or repair shop, which is located on manufacturing premises closer to facilities approved for the storage of explosive materials than permitted by the American Table of Distances, as set forth in regulations implementing Title II, Regulation of Explosives (Chapter 40, Title 18, U.S.C.), is an “inhabited building,” as defined in 27 CFR 181.11)

Regulations in 27 CFR 181.186 and 181.198 set forth provisions concerning the location of storage facilities and the minimum distances such storage facilities may be located from, among other things, “inhabited buildings.”

Regulations in 27 CFR 181.11 define “inhabited building” as any building regularly occupied in whole or in part as a habitation for human beings, or any church, schoolhouse, railroad station, store or other structure where people are accustomed to assemble, except any building occupied in connection with the manufacture, transportation, storage, or use of explosive materials.

These provisions are intended to provide protection to persons who inhabit buildings located near premises where explosives are manufactured, stored, etc. However, it is the intent of section 181.11 to except buildings used by the explosives industry in connection with the manufacture, transportation, storage, or use of explosive materials from the table of distance requirements on “inhabited buildings.”

Held, a building, such as an office or repair shop, which is a part of the premises of an explosives manufacturer and is used in connection with the manufacture, transportation, storage, or use of explosive materials is not an “inhabited building” as defined in 27 CFR 181.11.

Signed: June 26, 1975

[Editor’s Note: 27 CFR Part 181 is now 27 CFR Part 555.]

2. 27 CFR 181.187: Construction of Type 1 Storage Facilities (Also 181.190)

Certain explosives storage facilities meeting standards of construction prescribed by the Department of Defense Explosives Safety Board for such storage are approved by the Bureau.

ATF Ruling 75–21

The Bureau of Alcohol, Tobacco and Firearms has been asked to state its position with respect to concrete floors used in certain types of explosives storage facilities. Specifically, the question has been raised whether concrete floors of Type 1 storage facilities manufactured for the Department of Defense and currently being leased to licensees and permittees for the storage of commercial explosives may be considered nonsparking under the provisions of 27 CFR Part 181.

Regulations in 27 CFR 181.187 and 181.190, which implement, in part, title II, Regulation of Explosives (18 U.S.C. Chapter 40), provide in pertinent part that floors of Type 1 and Type 4 storage facilities for the storage of explosives shall be constructed of or covered with a nonsparking material.

The Bureau has been advised by the Department of Defense Explosives Safety Board that the majority of explosives magazines constructed for the Department of Defense have smooth finished concrete floors and that current Defense Department specifications for such magazines have no requirement for sparkproof flooring. Although these magazines are approved by the Board for the storage of all types of explosive materials, the Board does recognize that the Department of the Navy advises that black powder be stored in explosives magazines with spark resistant floor finishes.

Documentation from other government and industry sources supports the position that smooth finished concrete floors are sufficiently nonsparking for the storage of fully packaged explosives.

Held, explosives storage facilities with smooth finished concrete floors that were constructed under contract for the use of the Department of Defense and that are presently being leased to licensees and permittees for the storage of commercial explosives are considered to be in compliance with the requirements for nonsparking floors, as set forth in 27 CFR 181.187(a)(4) and 181.187(b) and 27 CFR 181.90, for the storage of all types of fully packaged explosives, pyrotechnics and propellants, with the exception of black powder. Any other such magazines which have smooth finished concrete floors and which meet or exceed the Department of Defense construction specifications will also be considered to be in compliance with the requirements of Part 181 with respect to nonsparking floors. It is the responsibility of the licensee or permittee to provide verification that such facilities were manufactured under Department of Defense specifications or that the facilities meet or exceed such specification standards.

If it is determined by the Regional Director that the concrete floors of Type 1 or Type 4 explosives storage facilities do not meet the requirements as stated above, he will require such floors to be covered with a nonsparking material, such as epoxy paint or mastic.

Signed: June 26, 1975

[Editor's Note: 27 CFR Part 181 is now 27 CFR Part 555.]

3. 27 CFR 181.41: General (Also 181.11)

Certain companies that manufacture explosive materials for use in their own operations are required to obtain licenses as manufacturers of explosive materials.

ATF Ruling 75–31

The Bureau of Alcohol, Tobacco and Firearms has been asked whether certain companies, such as public utility companies that manufacture explosives for use in the area of field maintenance and construction activities, are “engaged in the business” as manufacturers of explosive materials and as such must obtain the required license for such manufacturers.

Under the provisions of 18 U.S.C. 842(a)(1), implemented by the regulations promulgated thereunder (27 CFR 181.41), it is unlawful to engage in the business of manufacturing explosives without a license. 18 U.S.C. 841(h) defines “manufacturer” as “any person engaged in the business of manufacturing explosive materials for purposes of sale or distribution or for his own use.”

Although the term “engaged in the business” is not susceptible to a rigid definition, it is generally interpreted to imply an element of continuity or habitual practice as against a single act or occasional participation.

Accordingly, it is held that companies, such as public utility companies engaged in line and facility construction, which manufacture explosives on a regular or continual basis are considered to be engaged in the business of manufacturing explosive materials and must be appropriately licensed as required by 18 U.S.C. 842.

Signed: September 12, 1975

[Editor's Note: 27 CFR Part 181 is now 27 CFR Part 555.]

4. 27 CFR 555.109: Identification of Explosive Materials

Methods of marking containers of explosive materials are prescribed.

ATF Ruling 75–35

Editors note: ATF Ruling 75–35 was rendered obsolete pursuant to ATF 5F, 70 Federal Register 30626 (May 27, 2005), and effective July 26, 2005.

5. 27 CFR 55.11: Meaning of Terms—State of Residence

“State of residence” of business entities who use explosive materials; distribution of explosive materials by licensees to out-of-State business entities other than licensees and permittees; and distribution to nonresident employees of such entities are discussed.

Editor’s Note: Provisions of ATF Ruling 76–4 were modified, in part, by the Safe Explosives Act.

Effective May 24, 2003, it is unlawful for any person to receive explosive materials unless such person holds an ATF license of permit. It is also unlawful for any licensee or permittee to knowingly distribute explosive materials to any person who does not hold a license or permit. The only relevance remaining in the term “State of residence” is for distribution of explosive materials to, and receipt by, limited permit holders. Pursuant to 18 U.S.C. 842(a)(3) and (a)(4), limited permit holders may, on not more than 3 separate occasions, lawfully receive explosive materials from a licensee or permittee whose premises are located within the state of residence of the limited permit holder. ATF Rule 76–4 continues to apply in determining whether a limited permit holder has acquired a “State of residence” for purposes of receipt of explosives under 18 U.S.C. 842(a)(4)(B).

6. 27 CFR 55.126: Explosives Transaction Record.

Under certain conditions, a single Form 5400.4 may be used to cover a series of deliveries.

Editor’s Note: The provisions of ATF Rule 76–10 were rendered obsolete by ATF No. 1, 68 FR 13791, Mar. 20, 2003.

7. 27 CFR 181.187: Construction of Type 1 Storage Facilities (Also 181.188, 181.189)

Alternate construction standards for storage facilities for explosive materials are prescribed.

ATF Ruling 76–18

The Bureau of Alcohol, Tobacco and Firearms has reviewed the construction standards for storage facilities contained in Subpart J of 27 CFR Part 181 to determine if such construction criteria for bullet resistance meet current safety standards recognized by the explosives industry.

Under the provisions of 18 U.S.C. 842(j), it shall be unlawful for any person to store any explosive material in a manner not in conformity with regulations promulgated by the Secretary. In promulgating such regulations, the Secretary shall take into

consideration the class, type, and quantity of explosive materials to be stored, as well as the standards of safety and security recognized in the explosives industry.

The regulations in 27 CFR 181.187, 181.188, and 181.189 prescribe types of storage facilities for explosive materials and provide, among other things, that such storage facilities shall be bullet resistant. 27 CFR 181.181(b) provides that alternate storage facilities may be authorized for the storage of explosive materials when it is shown that such alternate facilities are or will be constructed in a manner substantially equivalent to the standards of construction contained in the applicable regulations.

The term bullet-resistant means resistant to penetration of a bullet of 150 grain M2 ball ammunition having a nominal muzzle velocity of 2700 feet per second fired from a .30 caliber rifle from a distance of 100 feet perpendicular to the wall or door.

It has been determined that a wide range of construction criteria meet the bullet-resistant requirements of regulations for construction of storage facilities for explosive materials.

In order to promote standards of safety and security in the storage of explosive materials while allowing the industry a wide latitude in the selection of construction material, it is held that storage facilities (magazines) that are constructed according to the following minimum specifications are bullet resistant and meet the requirements of the regulations as set forth in 27 CFR Part 181. (All steel and wood dimensions indicated are actual thicknesses. To meet the concrete block and brick dimensions indicated, the manufacturer’s represented thicknesses may be used.)

- (a) Exterior of $\frac{5}{8}$ " steel, lined with an interior of any type nonsparking material.
- (b) Exterior of $\frac{1}{2}$ " steel, lined with an interior of not less than $\frac{3}{8}$ " plywood.
- (c) Exterior of $\frac{3}{8}$ " steel, lined with an interior of two inches of hardwood.
- (d) Exterior of $\frac{3}{8}$ " steel, lined with an interior of three inches of softwood or $2\frac{1}{4}$ " of plywood.
- (e) Exterior of $\frac{1}{4}$ " steel, lined with an interior of three inches of hardwood.
- (f) Exterior of $\frac{1}{4}$ " steel, lined with an interior of five inches of softwood or $5\frac{1}{4}$ " of plywood.
- (g) Exterior of $\frac{1}{4}$ " steel, lined with an intermediate layer of two inches of hardwood and an interior lining of $1\frac{1}{2}$ " of plywood.
- (h) Exterior of $\frac{3}{16}$ " steel, lined with an interior of four inches of hardwood.
- (i) Exterior of $\frac{3}{16}$ " steel, lined with an interior of seven inches of softwood or $6\frac{3}{4}$ " of plywood.
- (j) Exterior of $\frac{3}{16}$ " steel, lined with an intermediate layer of three inches of hardwood and an interior lining of $\frac{3}{4}$ " plywood.

(k) Exterior of $\frac{1}{8}$ " steel, lined with an interior of five inches of hardwood.

(l) Exterior of $\frac{1}{8}$ " steel, lined with an interior of nine inches of softwood.

(m) Exterior of $\frac{1}{8}$ " steel, lined with an intermediate layer of four inches of hardwood and an interior lining of $\frac{3}{4}$ " plywood.

(n) Exterior of any type of fire-resistant material which is structurally sound, lined with an intermediate layer of four inches solid concrete block or four inches solid brick or four inches of solid concrete, and an interior lining of $\frac{1}{2}$ " plywood placed securely against the masonry lining.

(o) Standard eight inch concrete block with voids filled with well-tamped sand/cement mixture.

(p) Standard eight inch solid brick.

(q) Exterior of any type of fire-resistant material which is structurally sound, lined with an intermediate six inch space filled with well-tamped dry sand or well-tamped sand/cement mixture.

(r) Exterior of $\frac{1}{8}$ " steel, lined with a first intermediate layer of $\frac{3}{4}$ " plywood, a second intermediate layer of $3\frac{5}{8}$ " well-tamped dry sand or sand/cement mixture and an interior lining of $\frac{3}{4}$ " plywood.

(s) Exterior of any type of fire-resistant material, lined with a first intermediate layer of $\frac{3}{4}$ " plywood, a second intermediate layer of $3\frac{5}{8}$ " well-tamped dry sand or sand/cement mixture, a third intermediate layer of $\frac{3}{4}$ " plywood, and a fourth intermediate layer of two inches of hardwood or 14-gauge steel and an interior lining of $\frac{3}{4}$ " plywood.

(t) Eight inch thick solid concrete.

Signed: June 23, 1976

[Editor's Note: 27 CFR Part 181 is now 27 CFR Part 555.]

8. 27 CFR 181.193: Quantity and Storage Restrictions (Also 181.188)

Alternate magazine construction standards for storage of electric blasting caps with other explosive materials are prescribed.

ATF Ruling 77-24

The Bureau of Alcohol, Tobacco and Firearms has been requested to authorize the storage of electric blasting caps in a separate compartment of a type two portable magazine.

Under the provisions of 18 U.S.C. 842(j), it shall be unlawful for any person to store any explosive material in a manner not in conformity with regulations promulgated by the Secretary. In promulgating such regulations, the Secretary shall take into

consideration the class, type, and quantity of explosive materials to be stored, as well as the standards of safety and security recognized in the explosives industry.

Regulations in 27 CFR 181.193 restrict the storage of blasting caps with other explosive materials. Section 181.181(b) provides that alternate storage magazines may be authorized for the storage of explosive materials when it is shown that such alternate magazines are or will be constructed in a manner substantially equivalent to the standards of construction contained in the applicable regulations.

The Bureau recognizes that the transportation and the storage of explosive materials in the same vehicle along with electric blasting caps is often desired. The Institute of Makers of Explosives has established a recommended standard for such transport in their Safety Library Publication No. 22, dated November 5, 1971 and revised July 1976 [and further revised January 1985]. This standard prescribes the minimum construction criteria for (a) a container securely attached (1) above the cab of a vehicle (see Figure 1, Exhibit A), or (2) attached to the vehicle frame under the cargo compartment (see Figure 2, Exhibit A), or (b) a built-in compartment in the cargo space of the vehicle (see Exhibit B). In addition to motorized vehicles, consideration was also given for the use of similar criteria on portable wheeled trailers being used as magazines under section 181.188(a) of the regulations (see Exhibit E).

In order to insure standards of safety and security in the storage of explosive materials while allowing the industry a proper latitude in the construction of magazines, it is held that vehicles used for transporting and for storing explosive materials that are constructed in conformity with the standards listed below, and in compliance with all other safety and security provisions contained in Part 181, i.e., effectively immobilized when unattended, will meet the requirements of ATF regulations. Even though constructed on the same vehicle, each compartment will be considered as a separate magazine. The two magazines on the vehicle will, however, be considered as one magazine when applying the American Table of Distances.

Construction Standards for Storage of Electric Blasting Caps (Non Mass-Detonating)

- a. The container or compartment must provide for total enclosure of the electric blasting caps.
- b. The partition between the explosives storage compartment and the electric blasting cap compartment must be of laminate construction consisting of A/C grade or better exterior plywood, gypsum wall board [sheetrock] and low carbon steel plates. In order of arrangement, the laminate must conform to the following, with minimum thickness of each lamination as indicated: $\frac{1}{2}$ " plywood, $\frac{1}{2}$ " gypsum wall board [sheetrock] or $\frac{1}{4}$ " asbestos board, $\frac{1}{8}$ " low carbon steel, and $\frac{1}{4}$ " plywood, with the $\frac{1}{4}$ " plywood facing the explosives storage compartment. See Exhibit C for details of laminate

construction. The door to the electric blasting cap compartment must be of metal construction or solid wood covered with metal, the outside walls and top must be of the same construction as the rest of the vehicle or trailer. If high explosives, or bullet sensitive explosive materials are stored in the vehicle, then the storage compartment of the vehicle must be constructed so as to be bullet-resistant.

- c. As an alternative to the construction requirements shown in paragraph b, a container for use only as illustrated in Exhibit A may be used when constructed as follows:
 - 1. The top, lid or door, and the sides and bottom of each container must be of laminate construction consisting of A/C grade or better exterior plywood, solid hardwood, asbestos board and sheet metal. In order of arrangement, the laminate must consist of the following with the minimum thickness of each lamination as indicated: ¼" plywood, 1" solid hardwood, ½" plywood, ¼" asbestos board and 22-gauge sheet metal constructed inside to outside in that order. See Exhibit D for details of laminate construction.
 - 2. The hardwood must be fastened together with wood screws, the ½" plywood must be fastened to the hardwood with wood screws, the inner ¼" plywood must be fastened to the hardwood with adhesive and the 22-gauge sheet metal must be attached to the exterior of the container with screws.
- d. The laminate composite material must be securely bound together by waterproof adhesive or other equally effective means.
- e. The steel plates at the joints of laminations must be secured by continuous fillet welds.
- f. All interior surfaces of the container or compartment must be constructed so as to prevent contact of contents with any sparking metal.
- g. There must be direct access to the container or into a compartment from outside the vehicle.
- h. Each container or compartment must have a snug fitting continuous piano-type hinged lid or door equipped with a locking device/devices.
- i. Without permitting direct access to contents under normal conditions, the locking or hinging mechanisms must permit at least one edge of the lid or door to rise or move outward at least ½" when subjected to internal pressure.
- j. The exterior of the container or compartment must be weather-resistant.

Signed: June 3, 1977

[Editor's Note: 27 CFR Part 181 is now 27 CFR Part 555.]

9. 18 U.S.C. 842(j): Storage of Explosives

27 CFR 55.208(b)(1), 55.210(b)(1), and 55.211(b)(1): Indoor Storage of Explosives in a Residence or Dwelling

ATF will approve variances to store explosives in a residence or dwelling only upon certain conditions including, but not limited to, receipt of a certification of compliance with State and local law, and documentation that local fire safety officials have received a copy of the certification.

ATF Ruling 2002–3

The Bureau of Alcohol, Tobacco and Firearms (ATF) has received questions concerning indoor storage of explosives in a residence or dwelling and whether such storage must comply with State or local law.

Section 842(j) of 18 U.S.C. states: "It shall be unlawful for any person to store any explosive material in a manner not in conformity with regulations promulgated by the Secretary."

The regulations in 27 CFR 55.208(b)(1), 55.210(b)(1), and 55.211(b)(1) specify that no indoor magazine is to be located in a residence or dwelling. Section 55.22 specifies that the Director may allow alternate methods or procedures in lieu of a method or procedure specifically prescribed in the regulations. Specifically, section 55.22(a)(3) provides that such "variances" are permissible only in certain circumstances, including where "[t]he alternate method or procedure will not be contrary to any provision of law and will not...hinder the effective administration of this part."

ATF has been advised that certain variances previously approved for storage of explosives in residences or dwellings are in violation of State or local zoning law. ATF believes it is important to ensure that approval of variances is in compliance with all State and local provisions.

To obtain a variance for indoor storage of explosives in a residence or dwelling, ATF has determined that a person must submit to ATF a certification signed under penalty of perjury along with the request for the variance. The certification must:

1. State that the proposed alternative storage method will comply with all applicable State and local law;
2. Provide the name, title, address, and phone number of the authority having jurisdiction for fire safety of the locality in which the explosive materials are being stored; and,
3. Demonstrate that the person has mailed or delivered the certification to the authority identified in (2).

When required by the Director, such persons must furnish other documentation as may be necessary to determine whether a variance should be approved.

Held, ATF will approve variances to store explosives in a residence or dwelling only upon certain conditions including, but not limited to, receipt of a certification of compliance with State and local law, and documentation that local fire safety officials have received a copy of the certification.

Date signed: August 23, 2002

10. 18 U.S.C. 842(j): Storage of Explosives

27 CFR 55.208(b)(1), 55.210(b)(1), and 55.211(b)(1): Indoor Storage of Explosives in Business Premises Directly Adjacent to a Residence or Dwelling

ATF requires approval of variances for indoor storage of explosives in business premises directly adjacent to a residence or dwelling.

ATF Ruling 2002–4

The Bureau of Alcohol, Tobacco and Firearms (ATF) has received questions concerning indoor storage of explosives in business premises directly adjacent to a residence or dwelling.

Section 842(j) of 18 U.S.C. states: “It shall be unlawful for any person to store any explosive material in a manner not in conformity with regulations promulgated by the Secretary.”

The regulations in 27 CFR 55.208(b)(1), 55.210(b)(1), and 55.211(b)(1) specify that no indoor magazine is to be located in a residence or dwelling. Section 55.22 specifies that the Director may allow alternate methods or procedures in lieu of a method or procedure specifically prescribed in the regulations. Specifically, section 55.22(a)(3) provides that such “variances” are permissible only in certain circumstances, including where “[t]he alternate method or procedure will not be contrary to any provision of law and will not...hinder the effective administration of this part.”

ATF has been asked whether businesses that are directly adjacent to living quarters may lawfully store explosive materials in the business premises. The issue presented is whether the premises amount to a “residence or dwelling” within the meaning of the regulations cited above.

Even where the business premises are segregable from the living quarters by the existence of a door or a common wall, the business premises retain their character as a residence or dwelling. Accordingly, indoor storage of explosives in such premises is generally prohibited and can be allowed only pursuant to an approved variance.

Held, ATF requires approval of variances for indoor storage of explosives in business premises directly adjacent to a residence or dwelling. ATF may approve such variances upon receipt of all appropriate certification and other documentation as may be requested.

Date signed: August 23, 2002

11. 18 U.S.C. 842(f): Unlawful Acts

27 CFR 555.105(b)(6)(iii): Distribution of Explosives to Limited Permittees

Distributors distributing explosive materials to holders of limited permits via common or contract carrier may verify receipt of the explosive materials by telephone, facsimile, e-mail, or other means within three business days of shipment in lieu of requiring the common or contract carrier to verify the identity of the person accepting delivery of the explosives. The distributor shall make a notation on ATF Form 5400.4 indicating whether the shipment was received and the date and time of the contact with the distributee.

ATF Ruling 2003–5

The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) has received questions from the explosives industry regarding the requirement under 27 CFR 555.105(b)(6)(iii) that, effective May 24, 2003, a common or contract carrier hired by a Federal explosives licensee or permittee verify the identity of the person accepting delivery on behalf of the distributee, note the type and number of the identification document, and provide this information to the distributor. The distributor is required to record this information on ATF Form 5400.4, Limited Permittee Transaction Report (LPTR).

Industry members have informed ATF that this requirement places an undue burden on common and contract carriers. Drivers are concerned that verifying the identity of persons accepting delivery of explosive materials by examining an identification document and providing the identification information to the distributor will be overly time consuming. Drivers are also concerned that they could be held personally liable for delivering explosives to persons not authorized to receive them.

ATF imposed the verification requirements of section 555.105(b)(6)(iii) to ensure that when explosive materials are sold by a distributor to a holder of a limited permit and transported by a common or contract carrier hired by the distributor, the explosive materials are delivered only to a person authorized to receive them. ATF continues to believe it is important that sellers of explosive materials verify that such materials are delivered to persons authorized to receive them. However, it was not ATF's intention to impose an undue burden on common or contract carriers.

Section 555.22, Title 27, CFR, provides that the Director may approve an alternate method or procedure in lieu of a method or procedure specifically prescribed in the regulations when he finds that:

(1) Good cause is shown for the use of the alternate method or procedure;

(2) The alternate method or procedure is within the purpose of, and consistent with the effect intended by, the specifically prescribed method or procedure and that the alternate method or procedure is substantially equivalent to that specifically prescribed method or procedure; and

(3) The alternate method or procedure will not be contrary to any provision of law and will not result in an increase in cost to the Government or hinder the effective administration of Part 555.

ATF finds that there is good cause to authorize a variance to the provisions of section 555.105(b)(6)(iii) due to the undue burden placed on common or contract carriers by the verification requirement. Accordingly, ATF authorizes the following alternate method or procedure to the identification verification requirements of section 555.105(b)(6)(iii):

The distributor shall, no later than three business days after shipment of the explosive materials, contact the distributee by telephone, facsimile, e-mail or any other means to ensure that the shipment has been received. The distributor shall make a notation on ATF Form 5400.4 indicating whether the shipment was received and the date and time of the contact with the distributee.

ATF finds that the above alternate method is consistent with the verification provisions of section 555.105(b)(6)(iii), because it will ensure that delivery has taken place and document the information in the distributor's records. The alternate method is not contrary to any provision of law, will not increase the costs to ATF, and will not hinder the effective administration of the regulations in 27 CFR Part 555.

Held, pursuant to 27 CFR 555.22, ATF authorizes a variance from the requirements of 27 CFR 555.105(b)(6)(iii) for Federal explosives licensees and permittees making distributions of explosive materials to holders of limited permits via common or contract carrier. As an alternate method or procedure, distributors distributing explosive materials to holders of limited permits via common or contract carrier may verify receipt of the explosive materials by telephone, facsimile, e-mail or other means within three business days of shipment in lieu of requiring the common or contract carrier to verify the identity of the person accepting delivery of the explosives. The distributor shall make a notation on ATF Form 5400.4 indicating whether the shipment was received and the date and time of the contact with the distributee.

Date signed: May 23, 2003.

12. 18 U.S.C. 842(j): Storage of Explosives 27 CFR 555.210(b)(4): Locking Requirements for Indoor Type 4 Storage Magazines

27 CFR 555.22: Alternate Methods or Procedures; Emergency Variations from Requirements

Under certain conditions, flush-mounted bolt-type locks will be considered adequate for locking type 4 indoor magazines

ATF Ruling 2004–3

The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) has received inquiries from explosives industry members as to the suitability of certain types of locks for type 4 indoor storage magazines utilized for the storage of low explosives.

Section 842(j) of 18 U.S.C. states, "It shall be unlawful for any person to store any explosive material in a manner not in conformity with regulations promulgated by the Attorney General."

The regulations at 27 CFR 555.210(b) state, in part, "Indoor magazines are to be fire-resistant and theft-resistant." To satisfy the theft-resistance requirement, this section requires that each door be equipped with two mortise locks, two padlocks fastened in separate hasps and staples; a combination of a mortise lock and padlock; a mortise lock that requires two keys to open; or a three-point lock. Padlocks must have at least five tumblers and a case-hardened shackle of at least $\frac{3}{8}$ " diameter. In addition, padlocks must be protected with not less than $\frac{1}{4}$ " steel hoods constructed so as to prevent sawing or lever action on the locks, hasps, and staples.

This section further provides, "Indoor magazines located in secure rooms that are locked as provided in this subparagraph may have each door locked with one steel padlock (which need not be protected by a steel hood) having at least five tumblers and a case-hardened shackle of at least $\frac{3}{8}$ " diameter, if the door hinges and lock hasp are securely fastened to the magazine." This section makes it clear that, although the magazine-locking standards are reduced for magazines secured in a locked room, a substantial locking mechanism is still required.

The regulations at 27 CFR 555.22 allow for the approval and use of an alternate method or procedure (variance), provided that (1) there is good cause for the proposed variance; (2) the proposed variance is consistent with and substantially equivalent to the prescribed method or procedure; and (3) the proposed variance is not contrary to any provision of law and will not hinder the effective administration of the regulations or result in an increase in cost to the Government.

ATF has been asked whether a cam-type lock known as a “flush-mount lever lock,” or a similarly mounted lock with a bolt-type locking mechanism meets ATF theft-resistance requirements for type 4 indoor storage of low explosives.

ATF has determined that, although the lever-type lock is mounted on a magazine lid in such a manner as to preclude prying or cutting of the lock, the lever-locking mechanism does not provide adequate protection against pulling or prying the lid off the magazine. The lever mechanism rests under a small piece of metal on the edge of the magazine wall (typically 18-gauge sheet metal), to secure the lid. This type of lock fails to provide a level of theft-resistance for indoor storage of low explosive materials that would be substantially equivalent to the methods prescribed in the regulations.

ATF has also examined the flush-mounted bolt-style locks, which secure the magazine by means of a bolt-type mechanism. The cylinder portion of the lock mounts in the lid of the magazine in such a manner that, when the key is turned, the bolt slides toward the outer wall of the magazine. This bolt engages in a slotted locking block attached securely to the inside of the magazine wall. Because this locking mechanism relies upon interlocking solid metal parts, operating in a fashion similar to a deadbolt lock, it provides a level of theft resistance that is substantially equivalent to that required by the regulations.

Held, cam-type locks known as “flush-mount lever locks,” or a similarly mounted lock with a bolt-type locking mechanism does not provide a level of theft-resistance for indoor storage of materials that is substantially equivalent to the methods prescribed in the regulations.

Held further, flush mount bolt-style locks utilizing interlocking solid metal parts, each affixed securely to the magazine in such a way that they cannot be readily removed from the exterior of the magazine and each locking mechanism having at least five tumblers, will be considered to meet the theft-resistance requirements of Part 555, section 210(b) for indoor type 4 explosives storage magazines.

Date approved: June 5, 2004

13. 27 CFR 555.11: Meaning of Terms

ATF provides guidance on three different private roads and whether they are “highways” as defined in 27 CFR 555.11.

ATF Ruling 2005–2

The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) has received inquiries from members of the explosives industry as to the meaning of the term “highway” under 27 CFR 555.11.

The Federal explosives laws, 18 U.S.C. Chapter 40, require all persons to store explosive materials in a manner in conformity with regulations issued by the Attorney General. 18 U.S.C. 842(j).

The Attorney General has delegated his authority to administer and enforce the Federal explosives laws to the Director, ATF. 28 CFR 0.130. Regulations in 27 CFR Part 555 implement the provisions of the Federal explosives laws. Storage regulations in 27 CFR Part 555, Subpart K, provide that outdoor magazines in which high explosives are stored must be located no closer to inhabited buildings, passenger railways, public highways, or other magazines in which high explosives are stored than the minimum distances specified in the table of distances for storage of explosive materials in section 555.218 of the regulations. 27 CFR 555.206.

Section 555.11 of the regulations defines the term “highway” as “[a]ny public street, public alley, or public road, including a privately financed, constructed, or maintained road that is regularly and openly traveled by the general public.”

In Scenario A, a private road owned by a corporation is used by the general public as an access road to a parking lot owned by the corporation. The road is near an explosives magazine. The road does not have a gate, sign, or other means of restricting access to the road. The road is also used by the general public on a daily basis to gain access to other public streets.

In Scenario B, a company that manufactures display fireworks, a logging company, and an individual who owns buildings utilized to store his collection of automobiles all occupy property to which the only access is a privately owned road. A separate party that leases to these three entities owns the property. The road is located on private property, and a locked gate at the entrance to the road prevents access by the general public. The display fireworks company, the logging company, and the individual storing automobiles all have keys to unlock the gate and travel on the road when needed. The gate is locked at all times, and there is no evidence that the road is open to anyone other than the two businesses and one individual who require access to their property.

In Scenario C, an explosives company maintains explosives magazines in a quarry area that has a roadway traversing through the quarry. The quarry owns the property, and the road is maintained by the quarry. The road has a gate and there are signs advising no trespassing. However, when ATF officials visited the location on several occasions, the gate was left open and members of the public regularly utilized the roadway as a shortcut between two major highways. There were no indications the owner of the property took any steps to prevent members of the public from utilizing the roadway.

Applying the regulatory definition of “highway” to the three scenarios, the road in Scenario A is clearly a highway that is subject to the tables of distance in Part 555. Although it is privately owned, it is regularly and openly traveled by members of the general public without restriction.

The roadway in Scenario B is not a “highway” as defined. Access is restricted at all times and there is no evidence the general public regularly travels on the roadway. Access to the road

is provided to only a limited number of persons who have a legal right to travel the road. Accordingly, this road is not regularly and openly traveled by members of the general public.

ATF concludes that the roadway described in Scenario C is a “highway” as defined in 27 CFR 555.11. Although access to the roadway is restricted by a gate and “No trespassing” signs are posted, the gate is not closed at all times. Furthermore, ATF observation indicates that the roadway is regularly and openly traveled by members of the general public. Based on these facts, the roadway is a highway which is subject to the tables of distance in 27 CFR Part 555.

Held, a private road with no gate, signs, or other means of restricting access that is used by the general public as an access road to a parking lot and as access to other public streets is a “highway” as defined in 27 CFR 555.11.

Held further, a private road with a locked gate at the entrance that is locked at all times and used by a limited number of persons leasing or owning property accessed by the road is not a “highway” as defined in 27 CFR 555.11.

Held further, a private roadway traversing a quarry with a gate restricting access and a “no trespassing” sign is a “highway,” as defined in 27 CFR 555.11, because the gate is not locked at all times and the general public regularly utilizes the roadway as a shortcut between two public highways.

Date approved: September 8, 2005

14. 27 CFR 555.11: Meaning of Terms

ATF provides guidance on two situations involving structures and whether they are “inhabited buildings” as defined in 27 CFR Part 555.

ATF Ruling 2005–3

The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) has received inquiries from explosives industry members as to the meaning of the term “inhabited building” under 27 CFR 555.11.

The Federal explosives laws, 18 U.S.C. Chapter 40, require all persons to store explosive materials in a manner in conformity with regulations issued by the Attorney General. 18 U.S.C. 842(j). The Attorney General has delegated his authority to administer and enforce the Federal explosives laws to the Director, ATF. 28 CFR 0.130. Regulations in 27 CFR Part 555 implement the provisions of the Federal explosives laws. Storage regulations in 27 CFR Part 555, Subpart K, provide that outdoor magazines in which high explosives are stored must be located no closer to inhabited buildings, passenger railways, public highways, or other magazines in which high explosives are stored than the minimum distances specified in the table of distances for storage of explosive materials in section 555.218 of the regulations. 27 CFR 555.206.

The regulation at 27 CFR 555.11 defines the term “inhabited building” as “[a]ny building regularly occupied in whole or in part as a habitation for human beings, or any church, schoolhouse, railroad station, store, or other structure where people are accustomed to assemble, except any building occupied in connection with the manufacture, transportation, storage, or use of explosive materials.”

In Scenario A, an explosives licensee leases explosives magazines to an individual who uses the magazines for storage of goods other than explosive materials. The magazines are located adjacent to magazines used by the explosives licensee for the storage of explosive materials. The magazines used by the lessee are not separated by the minimum distances required for the separation of magazines from “inhabited buildings” as required by the regulations in 27 CFR Part 555.

The magazines are visited regularly by the individual who stores property in the magazines, but no additional persons accompany the individual when he is present at the magazine. However, the individual hires contractors to repair equipment stored in the facilities from time to time, and 1–3 employees of the contractor may occasionally be present for short periods of time at the storage site. However, such visits occur no more than 3–5 times per year. In addition, an employee from the water company visits the storage site once a month to read the water meter, an employee from the power company reads the power meter once a month, and other vendors may be present at the site for short periods of time for other legitimate purposes.

In Scenario B, a licensed manufacturer of explosives X leases a unit in an industrial park that shares a common wall with a unit leased by licensed manufacturer Y. Both licensees store explosives in magazines located inside and outside the units. The magazines of Manufacturer X and the building used by Manufacturer Y are not separated by the minimum distance prescribed in 27 CFR Part 555 for the separation of magazines and inhabited buildings. Likewise, the magazines of Manufacturer Y and the building used by Manufacturer X are not separated by the minimum distance prescribed in 27 CFR Part 555 for the separation of magazines and inhabited buildings. In both structures, employees and contractors are regularly present during work hours for purposes of carrying on the manufacturing and distributing businesses of the two licensees. This includes personnel who work in the manufacturing plant, those who work on the loading dock to load and ship explosives products to customers, and those who work in the office taking orders, sending out invoices, and handling other clerical work for the businesses.

Applying the law and regulations to the facts of Scenario A, ATF concludes that the leased structures used by the individual to store items other than explosives are not being used as a habitation for human beings and are not buildings occupied in connection with the manufacture, transportation, storage, or use of explosive materials. Accordingly, the sole issue remaining is whether the structure is one where people are accustomed to assemble.

Noteworthy, the regulation uses the term “people,” which is the plural version of “person.” Thus, ATF believes that more than one person must “assemble” at the structure for it to be an “inhabited building.” In addition, the word “assemble” is defined, in part, as “To bring or gather together in a group or whole.” The word “assembly” is defined, in part, as “A group of persons gathered for a common purpose.” The American Heritage Dictionary, Second College Edition, Houghton Mifflin Co., 1982. It is clear that the presence of one person at a structure or location cannot be an assembly of any sort. Accordingly, in situations where one person is present at a particular structure, whether on a regular or infrequent basis, such a structure is not an “inhabited building” as defined in 27 CFR 555.11.

Likewise, occasional visits to the storage facility by mail delivery persons or employees of public utility companies for brief periods of time would not be an “assembly” that would make the facility an inhabited building. However, if 2 or more repair persons are present at the facility to make repairs to equipment stored there, such persons would be there for a common purpose, and would have “assembled” at the structure. However, the structure would be an “inhabited building” only if it is a structure where people are accustomed to assemble. The word “accustom” is defined as “To familiarize, as by constant practice, use, or habit: accustomed himself to working long hours.” The word “accustomed” is defined as “Usual, characteristic, or normal: worked with her accustomed thoroughness.” The American Heritage Dictionary, Second College Edition, Houghton Mifflin Co., 1982. These definitions indicate that a structure will be one where people are *accustomed* to assemble only if there is some degree of continuity, regularity, or frequency to such assembly.

Infrequent, occasional visits to the storage site by 2 or more repair persons would not make the storage facility an “inhabited building,” because such intermittent visits would not be “customary.” Only where 2 or more persons are present at the site for a common purpose and on a regular basis would the building fit within the definition of “inhabited building.”

To address Scenario B, it is apparent that the building leased by Manufacturer X is exempt from the definition of “inhabited building” as to the magazines of Manufacturer X, and the building leased by Manufacturer Y is likewise exempt as to the magazines of Manufacturer Y. This is because both buildings are occupied in connection with the manufacture, transportation, and storage of explosive materials. Clearly, the employees of both licensees are aware that explosive materials are present on the premises and they assume the risk of any such operation. A more difficult question is presented by the buildings of Manufacturer X and the magazines of Manufacturer Y and vice versa. ATF cannot assume that all employees are cognizant of the activities of their neighbors in the industrial park. Thus, it cannot be assumed that the employees are knowingly assuming the risk of explosive materials stored in magazines owned by the other licensee.

Given the plain language of the regulation, however, ATF does not believe it is appropriate to deny the coverage of the regulatory exemption to adjoining licensees on the basis of an assumption of the risk analysis. The current regulatory definition excludes from the definition of “inhabited building” any building occupied in connection with the manufacture, transportation, storage, or use of explosive materials, regardless of the knowledge of the building's occupants. Accordingly, ATF concludes that the industrial units occupied by Manufacturer X and Manufacturer Y are both exempted from the definition of “inhabited building” as to the magazines of each other as well as to their own magazines.

Held, a structure used to store items other than explosive materials that is visited on a regular basis by one individual is not an “inhabited building” as defined in 27 CFR 555.11, because it is not a structure where people are accustomed to assemble. Where 2 or more persons are present at the structure to repair equipment stored therein and such visits to the site are occasional and infrequent, the structure is not an “inhabited building” because the visits are not “customary.” However, where 2 or more persons make regular visits to the structure for a common purpose, the structure is an “inhabited building,” and explosives magazines may not be stored closer to the structure than the minimum distances specified in the regulations in 27 CFR Part 555.

Held further, buildings occupied by licensed explosives manufacturers in connection with the manufacture, transportation, storage, or use of explosive materials are not included within the definition of “inhabited building” as to magazines located on their own premises. In addition, buildings occupied by licensed explosives manufacturers in connection with the manufacture, transportation, storage, or use of explosives are not included within the definition of “inhabited building” as to magazines located on property owned by another licensee.

Date approved: November 25, 2005

15. 18 U.S.C. 842(f): Records Required for Explosives Licensees and Permittees

27 CFR PART 555, Subpart G: Records and Reports

27 CFR 555.22: Alternate Methods or Procedures; Emergency Variations from Requirements

Under specified conditions, approval is granted to utilize computerized records as required records under 27 CFR 555, Subpart G.

ATF Ruling 2007–1

The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) has received inquiries from members of the explosives industry about maintaining their required Federal explosives records in computerized form rather than paper form.

Section 842(f), Title 18, United States Code, makes it unlawful for any licensee or permittee to willfully manufacture, import, purchase, distribute, or receive explosive materials without making such records as the Attorney General may by regulation require, including, but not limited to, a statement of intended use, the name, date, place of birth, social security number or taxpayer identification number, and place of residence of any natural person to whom explosive materials are distributed.

Regulations implementing section 842(f) are in 27 CFR Part 555, Subpart G. The regulations in this subpart specify the records required to be created and maintained by licensed importers (section 555.122), licensed manufacturers (section 555.123), licensed dealers (section 555.124), and permittees (section 555.125). The regulation in section 555.121 provides that licensees and permittees must keep records pertaining to explosive materials in permanent form (i.e., commercial invoices, record books) and in the manner required in Subpart G. In addition, sections 555.122–555.125 specifically allow licensees and permittees to use an alternate record to record the distribution of explosive materials when it is shown that the alternate records would accurately and readily disclose the information required by the regulations. These regulations require licensees and permittees who propose to use alternate records to submit a letter application to ATF describing the proposed alternate records and the need for them. Alternate records are not to be employed until approval from ATF is received.

Regulations at 27 CFR 555.22 allow for the approval and use of an alternate method or procedure in lieu of a method or procedure specifically prescribed in Part 555. ATF may approve an alternate method or procedure when it is found that—

(1) Good cause is shown for the use of the alternate method or procedure;

(2) The alternate method or procedure is within the purpose of, and consistent with the effect intended by, the specifically prescribed method or procedure and that the alternate method or procedure is substantially equivalent to that specifically prescribed method or procedure; and

(3) The alternate method or procedure will not be contrary to any provision of law and will not result in an increase in cost to the Government or hinder the effective administration of 27 CFR Part 555.

With advances in technology and the dramatic decrease in the cost of computers, many businesses rely upon computers to maintain records of their inventory, sales, customer lists, and other business information. Even the smallest home-based business utilizes computers to record and maintain business information. Creating and maintaining records in a computer database, rather than paper form, makes it easier to ensure accuracy of records and makes it less likely that records will be lost or misplaced. In addition, maintaining records via computer generally saves time and money in bookkeeping and auditing expenses. This utilization of computers has allowed companies to automate inventories, utilizing technology such as bar codes or RFID (radio frequency identification) chips. This facilitates better accountability of product overall, reducing the potential of everyday accounting errors. Over the years ATF has seen a significant increase in the number of requests from explosives licensees and permittees for authorization to utilize computerized records rather than paper records of acquisition and distribution and other required records, such as magazine transaction records. ATF routinely approves requests to utilize computerized records, with certain conditions, finding that the use of such records is substantially equivalent to methods of record keeping set forth in the regulations in 27 CFR Part 555, Subpart G.

Several explosives industry members have asked whether computerized records may be maintained without obtaining written approval from ATF if they contain all the required information specified in the regulations and are maintained in a permanent form. Additionally, industry members have questioned whether computer records in combination with paper records may be maintained if they are permanent and contain all the information required by the regulations.

ATF has determined that records of acquisition and disposition, magazine summary records, and the other records required by 27 CFR Part 555, Subpart G, satisfy the standard of permanency and are substantially equivalent to paper records if they meet the following criteria:

1. All data entered into the computer system must be recorded into the database and cannot be capable of being edited or modified at a later date. The software system must retain any correction of errors as an entirely new entry, without deleting or modifying the original entry. The system may allow for entries in a notes column to explain any correction.

2. The system must have a reliable daily memory backup capability to protect the data from accidental deletion or other system failure.

It is also acceptable for licensees/permittees to maintain required records using a combination of a computer program, commercial invoices, and other documents, provided that all of the required information is maintained in the records in permanent form. Any use of a computer for any portion of the required records must comply with the standards outlined above. However, each particular transaction must be self-contained with all the required information in the same recordkeeping medium. As one example, dispositions of explosives by a dealer cannot be separated by keeping the dates of disposition and the manufacturer's name or brand name in the computer, and all the other required information for that disposition on separate written documents.

ATF finds that good cause exists for authorizing the use of a computer to create and maintain the records required by 27 CFR Part 555, Subpart G, as the use of computers is accepted throughout the business community as a reliable, cost-efficient means of maintaining business records. ATF also finds that the use of a computer to maintain required records, contingent upon the requirements outlined above, is consistent with the effect intended by the requirements of Subpart G, as it will result in a permanent, reliable record that will accurately indicate acquisitions and dispositions of explosive materials. Finally, ATF finds that the use of computer records properly containing all the required information should not hinder the effective administration of the Federal explosives laws or regulations – use of such records generally makes it easier for ATF to conduct inventories of product on hand and to audit required records. Accordingly, ATF concludes that the requirements for approval of an alternate method or procedure in accordance with 27 CFR Part 555, sections 555.22 and 555.122–555.125, are met.

Held, persons holding licenses and permits issued under 18 U.S.C., Chapter 40, may use computers to create and maintain all or any portion of the records required by 18 U.S.C. 842(f) and 27 CFR Part 555, Subpart G, if the following conditions are satisfied:

1. All data entered into the computer system must be recorded into the database and cannot be capable of being edited or modified at a later date. The software system must retain any correction of errors as an entirely new entry, without deleting or modifying the original entry. The system may allow for entries in a notes column to explain any correction.

2. The system must have a reliable daily memory backup capability to protect the data from accidental deletion or other system failure.

Held further, licensees and permittees who wish to use computers to create and maintain all or a portion of their required records in accordance with the requirements set forth in this ruling are not required to obtain advance approval in accordance with 27 CFR 555.22 or 555.121–125.

Held further, licensees and permittees utilizing a combination of a computer program, commercial invoices, and other paper documents as required records must ensure that the required information for a particular transaction is fully contained in the same recordkeeping medium.

Held further, this ATF approved alternate method or procedure for computerized records shall not be withdrawn unless the holder of said variance is so advised by ATF in writing or no longer holds a Federal explosives license or permit.

Date approved: January 18, 2007

16. 18 U.S.C. 842(j): Storage of Explosives

27 CFR 555.210: Construction of Type 4 Magazines

27 CFR 555.215: Housekeeping

27 CFR 555.201: Notification of Local Fire Officials

27 CFR 555.63: Explosives Magazine Changes

27 CFR 555.22: Alternative Methods or Procedures; Emergency Variations from Requirements

Under specified conditions, display fireworks may be temporarily stored in locked and attended motor vehicles at the explosives magazine site(s) and at fireworks display site(s) without meeting the locking requirements of 27 CFR 555.210 provided certain additional security measures are in place. Additionally, allowance per 27 CFR 555.215 is made for the fuel tanks containing volatile materials that may be on the temporary storage vehicles. Finally, slight variation is provided for notification requirements to ATF and local fire officials.

ATF Ruling 2007–2

The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) has received inquiries from members of the explosives industry concerning the necessity of applying for a variance each year to cover the temporary storage of display fireworks at explosives magazine storage site(s) and fireworks display site(s). The continual reapplication and issuance of these variances is a burden on both industry and the Government with little or no benefit to safety or security.

The Federal explosives laws, 18 U.S.C. Chapter 40, require all persons to store explosive materials in a manner in conformity with regulations issued by the Attorney General. 18 U.S.C. 842(j). The Attorney General has delegated the authority to administer and enforce the Federal explosives laws to the Director, ATF. 28 CFR 0.130. Regulations in 27 CFR Part 555, implement the provisions of the Federal explosives laws.

The regulation at 27 CFR 555.210(a) states, in part, “[o]utdoor magazines are to be fire-resistant, weather-resistant, and theft-resistant.” Partly to satisfy the theft-resistant requirement, this section requires that each door be equipped with two mortise locks; two padlocks fastened in separate hasps and staples; a combination of a mortise lock and a padlock; a mortise lock that requires two keys to open; or a three-point lock. Padlocks must have at least five tumblers and a case-hardened shackle of at least $\frac{3}{8}$ " diameter.

Padlocks must be protected with not less than $\frac{1}{4}$ " steel hoods constructed so as to prevent sawing or lever action on the locks, hasps, and staples.

The regulation at 27 CFR 555.215 states, in part, “[v]olatile materials are to be kept a distance of not less than 50 feet from outdoor magazines.”

The regulation at 27 CFR 555.201 requires, in part, that any person storing explosive materials notify local fire authorities orally before the end of the day on which storage of the explosive materials began and in writing within 48 hours from the time such storage began.

The regulation at 27 CFR 555.63 requires that any licensee or permittee who acquires (adds) a storage magazine must notify ATF at least five business days in advance of using any added explosives storage magazine.

Regulations at 27 CFR 555.22 allow for the approval and use of an alternate method or procedure in lieu of a method or procedure specifically prescribed in Part 555. ATF may approve an alternate method or procedure when it is found that—

(1) Good cause is shown for the use of the alternate method or procedure;

(2) The alternate method or procedure is within the purpose of, and consistent with the effect intended by, the specifically prescribed method or procedure and that the alternate method or procedure is substantially equivalent to that specifically prescribed method or procedure; and

(3) The alternate method or procedure will not be contrary to any provision of law and will not result in an increase in cost to the Government or hinder the effective administration of 27 CFR Part 555.

ATF has approved a significant number of variances for temporary storage for a specified amount of time before a display fireworks event, as well as during and after the event until the remaining explosive materials can be placed back into the appropriate storage magazine.

Preparation of display fireworks shows and the transportation of explosive materials to numerous show sites often take place over a period of several days. Preparing and temporarily storing the fireworks for these shows ordinarily take place on delivery trucks and trailers in one storage location where the proprietor already maintains storage of explosives materials with a high degree of security and safety by complying with the provisions of 27 CFR Part 555.

Many display fireworks shows also take several days to prepare at the show site. During preparation and after the show is completed, explosive materials frequently must be temporarily stored. This is often either extra product that was brought to the show or misfires that have been maintained and must be returned to permanent storage.

Allowing flexibility through alternate methods or procedures for specific regulations increases both safety and security at these show sites. These procedures are needed to increase public safety, as well as facilitate smooth operations for the display fireworks industry. The highest risk of incidents involving the accidental ignition of display fireworks is during handling, with the next highest risk being transportation. Providing no flexibility to allow storage in the delivery vehicles would require the industry to dangerously load and unload from storage magazines to vehicles and back into a storage magazine. Additionally, ATF believes that providing this guidance allows for preplanning by the proprietor and consistency of regulatory application nationwide.

One of the major dangers around explosives is fire. Therefore, the regulations require that volatile materials be maintained a distance of not less than 50 feet from outdoor explosives storage magazines. ATF believes that requiring attended storage for display fireworks temporarily stored in vehicles will ensure public safety, in lieu of the 50 foot separation requirement. The attendee should be able to alert the proper authorities if needed to ensure that a fire does not compromise this storage, or may relocate these temporary storage magazines to a safe location away from an identified fire.

Held, ATF will approve alternate methods or procedures for the temporary storage of display fireworks in locked and attended vehicles at explosives magazine site(s), as well as at the fireworks display site(s), under the following conditions:

1. The doors to each storage compartment containing explosive materials must be locked with at least one steel padlock having at least five tumblers and a casehardened shackle of at least $\frac{3}{8}$ " diameter. The padlock does not need to be protected by a steel hood. However, each temporary storage magazine must be attended at all times for security purposes. The vehicle is considered “attended” when an authorized individual is within 100 feet of all temporary storage and has an unobstructed view of the vehicle(s) containing the explosive materials. The individual must remain awake and observant of activities around the vehicle(s).

2. The person who temporarily stores the explosive materials must notify in writing the authority having jurisdiction for fire safety in the locality in which the explosive materials are stored no less than 3 Federal office business days prior to utilizing the additional temporary storage magazine(s).

3. The person who temporarily stores the explosive materials must notify ATF in writing of the location of this storage no less than 3 Federal office business days prior to utilizing the additional temporary storage magazine(s).

All other provisions of 27 CFR Part 555 must be complied with as prescribed.

Held further, this ATF-approved alternate method or procedure for the temporary storage of display fireworks in locked and attended vehicles shall not expire unless the holder of said variance is so advised by ATF or no longer holds a Federal explosives license or permit.

Date approved: January 18, 2007

17. 18 U.S.C. 842(j): Storage of Explosives

27 CFR 555.211(a): Immobilization of Outdoor Type 5 Mobile Storage Magazines

27 CFR 555.215: Housekeeping

27 CFR 555.22: Alternate Methods or Procedures; Emergency Variations from Requirements

Under specified conditions, blasting agents may be stored in mobile type 5 magazines (bulk delivery trucks) without meeting the prescribed immobilization requirements of 27 CFR 555.211.

ATF Ruling 2007–3

The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) has received inquiries from members of the explosives industry concerning the preloading and temporary storage of blasting agents on bulk delivery vehicles.

The Federal explosives laws, 18 U.S.C. Chapter 40, require all persons to store explosive materials in a manner in conformity with regulations issued by the Attorney General. 18 U.S.C. 842(j). The Attorney General has delegated his authority to administer and enforce the Federal explosives laws to the Director, ATF. 28 CFR 0.130. Regulations in 27 CFR Part 555 implement the provisions of the Federal explosives laws.

The regulation at 27 CFR 555.211(a)(1) states, in part, “[o]utdoor magazines are to be weather-resistant and theft-resistant.” This section further states, “[w]hen unattended, vehicular magazines must have wheels removed or otherwise be effectively immobilized by kingpin locking devices or other methods approved by the Director.”

The regulation at 27 CFR 555.215 states, in part, “[v]olatile materials are to be kept a distance of not less than 50 feet from outdoor magazines.”

The regulation at 27 CFR 555.22 allows for the approval and use of an alternate method or procedure in lieu of a method or procedure specifically prescribed in Part 555. ATF may approve an alternate method or procedure when it is found that—

(1) Good cause is shown for the use of the alternate method or procedure;

(2) The alternate method or procedure is within the purpose of, and consistent with the effect intended by, the specifically prescribed method or procedure and that the alternate method or procedure is substantially equivalent to that specifically prescribed method or procedure; and

(3) The alternate method or procedure will not be contrary to any provision of law and will not result in an increase in cost to the Government or hinder the effective administration of 27 CFR Part 555.

ATF has approved a significant number of variances for an alternate means of immobilizing preloaded bulk delivery vehicles when some additional security measures were put in place.

Bulk delivery vehicles are routinely utilized for on-site delivery of blasting services. Often these trucks contain a blasting agent as defined under 27 CFR 555.11. Utilization of these bulk products delivered on-site and used immediately has increased safety and security by reducing the number of remotely located storage trailers containing packaged blasting agent products. These delivery vehicles generally leave the explosives storage locations at unusual times of day or night, and for safety reasons they are loaded the day before for next day’s delivery. These trucks are incapable of being disabled by a kingpin locking device, and the requirement to remove the wheels for immobilization is obviously not feasible. Additionally, there are times when explosive material remains on the vehicle when it returns from use. Most of these products degrade during handling therefore, removing them from the bulk vehicle would not be an option.

One of the major dangers surrounding explosives is fire. Therefore, the regulations at 27 CFR 555.215 require that volatile materials be maintained a distance of not less than 50 feet from outdoor explosive storage magazines. Because these preloaded storage vehicles contain a fuel tank filled with volatile materials, they must remain in an area protected from fire such as gravel, paved, or closely mowed designated parking area.

ATF believes that the following alternate method of operation is substantially equivalent to the prescribed methods. Increased safety for employees and the public provides good cause for this alternate method. It is not contrary to law and will not result in any increased cost to the Government. Overall, ATF believes allowing for this flexibility assists with the effective administration of 27 CFR Part 555.

Held, ATF will approve alternate methods or procedures for the preloading and temporary storage of bulk blasting agents in delivery vehicles at explosive magazine site(s), when the security and immobilization meets the following criteria:

1. All doors on the vehicle are locked, the ignition key is removed, and the key is secured away from the truck.
2. When the site is not in operation, outer perimeter security is established. This may be by a variety of means such as a locked gate, security guards, fence, natural features, or a combination of these.
3. Each potential access point to explosive materials on a storage vehicle will be secured with a minimum of one padlock that has at least five tumblers and casehardened shackle of at least $\frac{3}{8}$ " diameter.
4. Each vehicle shall be immobilized through the use of a steering wheel locking device, lockable battery disconnect switch, or both.
5. All vehicles preloaded with blasting agents shall be parked in a company designated area not susceptible to fire propagation such as bare dirt, gravel, rock, paving, or closely mowed parking lot.

All other provisions of 27 CFR Part 555 must be complied with as prescribed.

Held further, licensees and permittees who wish to use the alternate method or procedure set forth in this ruling are not required to obtain advance approval in accordance with 27 CFR 555.22.

Held further, this ATF-approved alternate method or procedure for the temporary storage of bulk blasting agent products in locked and properly secured vehicles shall not be withdrawn unless the holder of said variance is so advised by ATF in writing or no longer holds a Federal explosives license or permit.

Date approved: January 26, 2007

18. 18 U.S.C. 842(j): Storage of Explosives

18 U.S.C. 845(a): Exceptions; Relief from Disabilities

27 CFR 555.22: Alternate Methods or Procedures

27 CFR 555.29: Unlawful Storage

27 CFR 555.141: Exemptions

27 CFR 555.205: Movement of Explosive Materials

Under specific conditions, State and local bomb technicians and explosives response teams may store a limited amount of explosive materials within official response vehicles.

ATF Ruling 2009–3

The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) has received requests from State and local law enforcement agencies to store explosive materials overnight in official response vehicles. The agencies assert that authorization for this alternate storage procedure would increase public safety and ensure that their responses to critical incidents are conducted more efficiently. Explosive storage magazines are often located several miles away from a response vehicle's location. Without a storage variance, prior to reporting to a critical incident, State and local bomb technicians and explosives response teams are often required first to travel to the explosive storage magazine location, retrieve the necessary explosive materials required to perform their duties, and then proceed to the incident scene. This situation may hinder the agency's ability to rapidly respond to critical incidents.

Under Title 18, United States Code (U.S.C.), Section 842(j), all persons must store explosive materials in compliance with the regulations issued by the Attorney General. The Attorney General has delegated the authority to administer and enforce the Federal explosives laws to the Director, ATF. The regulations contained within Title 27, Code of Federal Regulations (CFR), Part 555 implement the provisions of the Federal explosives laws. Section 555.205 provides that all explosive materials must be kept in locked magazines meeting the standards in Part 555, Subpart K, unless they are in the process of manufacture, being physically handled in the operating process of a licensee or user, being used, or being transported to a place of storage or use by a licensee or permittee or by a person who has lawfully acquired explosive materials under Section 555.106. State and local governments are not exempt from the requirement to store explosives in conformity with ATF regulations.

The regulations at 27 CFR 555.22 allow the Director, ATF, to approve the use of an alternate method or procedure in lieu of a method or procedure specifically prescribed in Part 555. ATF may approve an alternate method or procedure when: (1) Good cause is shown for the use of the alternate method or procedure; (2) The alternate method or procedure is within the purpose of, and consistent with the effect intended by, the specifically prescribed method or procedure and that the alternate method or procedure is substantially equivalent to that specifically prescribed method or procedure; and (3) The alternate method or procedure will not be contrary to any provision of law and will not result in an increase in cost to the Government or hinder the effective administration of 27 CFR Part 555.

ATF finds that, provided certain conditions are met, there is good cause for authorizing storage of explosive materials in official response vehicles. For purposes of this ruling, the term "official response vehicle" is limited to State and local law enforcement department-issued vehicles specially designated for use by bomb technicians and explosives response teams.

Allowing State and local bomb technicians and explosives response personnel the flexibility to store explosive materials overnight in official response vehicles, whether or not attended, would increase public safety and facilitate quick and efficient incident response and law enforcement operations. In addition, ATF finds that the additional security protocols provided in this ruling, such as enhanced storage security features, limited overall explosive materials load, magazine inspections, and increased inventory requirements are consistent with the effect intended by, and are substantially equivalent to, the specifically prescribed methods and procedures prescribed in Part 555, Subpart K. Further, this alternate method is not contrary to any provision of law, will not increase costs to ATF, and will not hinder the effective administration of the regulations.

Held, State and local bomb technicians and explosives response teams may store explosive materials in official response vehicles parked inside a secured building, provided the conditions set forth below are met at all times. A building is considered “secured” if it is a law enforcement or other government facility not accessible by unauthorized personnel. A secured building has law enforcement or other government personnel present at all times, or the building has an additional security feature such as an alarm, camera, or card entry system.

(1) Official response vehicles and buildings must be locked and secured at all times when not in use; and

(2) No more than 50 pounds Net Explosives Weight total may be stored in each building. This means that the combined Net Explosives Weight stored in official response vehicles and other explosives storage magazines located in the building may not exceed 50 pounds. Note that the Net Explosives Weight of explosive materials stored is not to be confused with the TNT equivalency weight of explosive materials.

Held further, State and local bomb technicians and explosives response teams may store explosive materials in unattended, official response vehicles parked at an outdoor location, provided the conditions set forth below are met at all times. The outdoor location may be an unsecured area accessible by civilians or unauthorized personnel.

(1) When not in use, official response vehicles must be locked at all times and have at least one additional security feature, such as a vehicle alarm, vehicle tracking device, or vehicle immobilization mechanism, or other equivalent alternative; and

(2) Official response vehicles located at an outdoor location may not store explosive materials in excess of:

(i) 20 detonators (electric, non-electric, or electronic); and

(ii) 2.5 pounds Net Explosives Weight of all other explosive materials.

Note that the above list does not limit the amount of disruptor ammunition or unmixed binary explosives carried on a response vehicle.

Held further, all State and local law enforcement agencies intending to store explosive materials in official response vehicles, whether attended or unattended, must meet the following criteria at all times:

(1) Explosive materials must be stored in at least a Type-3 magazine;

(2) Magazines must be secured with one steel padlock (which need not be protected by a steel hood) having at least five tumblers and a case-hardened shackle of at least $\frac{3}{8}$ " diameter. Alternatively, the magazine may be secured by placing it inside a locked compartment within the vehicle designed to meet law enforcement construction standards for weapons storage within the vehicle;

(3) Agencies must securely bolt or otherwise affix the magazines, or the locked compartments in which the magazines are stored, to the vehicle. Nuts must be located on the inside of the magazine or compartment where they cannot be removed from the outside. The nuts must be covered with a non-sparking material, such as epoxy paint or plywood;

(4) If a magazine placed in a vehicle uses a secondary locking system containing a chain or cable and a padlock, the agency need not bolt it to the trunk or cargo area of the vehicle or lock it with one steel padlock. Rather, the agency must close and stabilize the magazine securely within the trunk or cargo area of the vehicle using the secondary lock's chain or cable and padlock;

(5) Agencies may store detonators in the same magazine as delay devices, electric squibs, safety fuse, igniters, igniter cord, and shock tube, but not in the same magazine with other explosive materials;

(6) Agencies may not store any amount of loose or free-flowing explosive powders, irrespective of the packaging configuration. This does not prohibit the transport of necessary amounts of black or smokeless powders for use at specifically planned operations or the transport of seized black or smokeless powders as a result of operations;

(7) Agencies may not store any tools or other metal devices in the same magazine as the explosive materials;

(8) Officers storing explosive materials within official response vehicles must maintain an inventory storage record. The record must contain the name of the explosive material's manufacturer, the quantity on hand, and the dates that the materials are received, removed, or used. Officers must maintain a copy of this record within the vehicle and at an off-site location, such as with the Bomb Squad Commander;

(9) Officers must conduct a quarterly inventory of the explosive materials on hand and compare it to the inventory storage record. Officers must note this inventory in the inventory storage record;

(10) Officers must inspect the magazine once every 7 days to determine whether there has been any attempted or unauthorized entry into the magazine, or unauthorized removal of the contents stored in the magazine; and

(11) In the event of the theft or loss of explosive materials, law enforcement officers must report the theft or loss to ATF within 24 hours of discovery by calling 1-800-800-3855 and completing an ATF Form 5400.5, *Report of Theft or Loss of Explosive Materials*. You may obtain this form from the ATF Distribution Center by calling 301-583-4696, or through the ATF website at <http://www.atf.gov/forms/download/atf-f-5400-5.pdf>.

Any other alternate methods or procedures not permitted by this ruling may be requested through a variance request addressed to the ATF Explosives Industry Programs Branch (EIPB). Requests may be made by sending an email to EIPB@atf.gov or letter to:

Explosives Industry Programs Branch
Bureau of Alcohol, Tobacco, Firearms and Explosives
99 New York Avenue, NE.
Mailstop 6E403
Washington, DC 20226

To request a copy of ATF's *Federal Explosives Laws and Regulations*, ATF P 5400.7, you may contact the ATF Distribution Center at 301-583-4696, or your local ATF office. You may also download a copy of this publication from ATF's website at <http://www.atf.gov/publications/explosives-arson/>.

Date approved: June 19, 2009

19. 18 U.S.C. 842(j): Storage of Explosive Materials

27 CFR 555.22: Alternate Methods or Procedures

27 CFR 555.214(b): Storage within Types 1, 2, 3, and 4 Magazines

ATF authorizes an alternate method or procedure from the explosive materials visible marks storage requirement of 27 CFR 555.214(b). Specifically, ATF authorizes Federal explosives licensees and permittees to store in magazines containers of explosive materials so that marks are not visible, provided all of the requirements stated in this ruling are met.

ATF Ruling 2010–2

The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) has received questions from Federal explosives licensees and permittees (licensees and permittees) regarding the requirements under 27 CFR 555.214(b) pertaining to the storage of containers of explosive materials in magazines.

Licensees and permittees have informed ATF that it is often impractical to store explosive materials in such a way that the label on each container of explosive materials is visible. They have advised ATF that common industry practices—developed to

maximize efficiencies of labor and space—often rely on storage configurations in which the labels on some containers of explosive materials are not visible.

For example, multiple containers of explosive materials may be stacked on pallets for shipment from an importer, manufacturer, or distributor. While such a stacked-pallet arrangement of explosive materials may be beneficial for shipping purposes, the arrangement does not lend itself to easy access to and identification of every container within a stacked formation on a pallet. More specifically, explosive materials containers positioned in the center of the pallet are not readily visible and therefore the labels and marks on such containers moved into a magazine on a shipping pallet are not visible when inventory is conducted.

Similarly, magazine space limitations may compel licensees and permittees to arrange containers of explosive materials in consecutive rows, with little or no space between the rows. As a result, and similar to the cube-pallet arrangement, the labels and marks on the containers of explosive materials that are not at the front of such stacked consecutive rows are not visible for inspection.

The Federal explosives laws, at Title 18, United States Code (U.S.C.), Chapter 40, require all persons to store explosive materials in a manner in conformity with regulations issued by the Attorney General. Under 28 CFR 0.130(a), the Attorney General has delegated his authority to administer and enforce the Federal explosives laws to the Director of ATF. The regulations in 27 CFR Part 555 implement the provisions of the Federal explosives laws. The regulation at 27 CFR 555.214(b) states: “Containers of explosive materials are to be stored so that marks are visible. Stocks of explosive materials are to be stored so they can be easily counted and checked upon inspection.” Marks include, among other information, the manufacturer’s name and date/shift code.

Licensees and permittees may seek approval from ATF to use an alternate method or procedure in lieu of a method or procedure specifically prescribed in the regulations. Federal regulations at 27 CFR 555.22 provide that the Director of ATF may approve an alternate method or procedure, subject to stated conditions, when he finds that: (1) good cause is shown for the use of the alternate method or procedure; (2) the alternate method or procedure is substantially equivalent to, within the purpose of, and consistent with the effect intended by, the specifically prescribed method or procedure; and (3) it will not be contrary to any provision of law and will not result in an increase in cost to the Government or hinder the effective administration of 27 CFR Part 555.

ATF recognizes that, provided certain conditions are met, stocks of the same explosive materials with identical marks can be stored so that even though all marks on containers are not visible, the stocks can still be counted and checked upon inspection to readily disclose the information required for inventory and inspection. ATF has determined that explosive materials storage

consistent with these practices complies with the underlying purpose of the regulation at 27 CFR 555.214(b) so long as: (1) the explosive materials containers stored in close proximity to each other are the same explosive materials with identical marks; and (2) the stocks of explosive materials can reasonably be accessed, counted, and checked upon inspection in accordance with 27 CFR 555.214(b). This storage configuration is acceptable because: (1) an accurate accounting can be conducted with minimal movement of explosive materials; and (2) randomly sampling several containers with identical marks to verify that the explosive materials are the same does not impose a significant burden on the ATF official who conducts the inventory.

A mixed storage configuration is one in which stacked containers hold different quantities, sizes and/or types of explosive materials; or hold the same quantities, sizes and types of explosive materials, but are labeled with different date/shift codes. In these configurations, the containers are often stacked so that the labels on some of the containers are hidden from view by other stacked containers. ATF has determined that such a mixed storage configuration is acceptable so long as: (1) the licensee or permittee maintains and keeps available for inspection an accurate, complete, and updated list of all the explosive materials on the pallet or in the stacked group, including the marks for each container (manufacturer's name or brand name and date/shift code), and the quantity and description (type of explosive materials); and (2) the licensee or permittee ensures that the stocks of explosive materials can reasonably be accessed, counted, and checked upon inspection in accordance with 27 CFR 555.214(b). This storage configuration is acceptable because: (1) an accurate accounting can be conducted with minimal movement of explosive materials; and (2) randomly sampling several containers to verify the accuracy of the list does not impose a significant burden on the ATF official who conducts the inventory.

The purpose of the regulation at 27 CFR 555.214(b) is to ensure that explosive materials inventories can be efficiently conducted by the licensee or permittee and by ATF officials during an inspection while minimizing the movement of explosive materials during such inventory and inspection activities. In storage scenarios like those described above, under the conditions set forth in this ruling, the fact that the marks on some containers are not immediately and readily visible does not negatively affect the ability of the ATF official or the licensee or permittee to conduct an inventory verification. ATF therefore finds there is good cause to authorize a variance from the provisions of 27 CFR 555 that require the marks on all containers of explosive materials stored in magazines to be visible. Further, this alternate method or procedure is not contrary to any provision of law, will not increase costs to ATF, and will not hinder the effective administration of the regulations.

Held, licensees and permittees may store in their magazines containers of explosive materials that have identical marks on the labels, such that the labels on some of the containers are not

readily visible, so long as the stocks of explosive materials can reasonably be accessed, counted, and checked upon inspection in accordance with 27 CFR 555.214(b).

Held further, licensees and permittees may store in their magazines containers of different explosive materials, or containers of the same explosive materials with different date/shift codes on the labels, such that the labels on some of the containers are not readily visible, so long as the licensee or permittee: (1) maintains and keeps available for inspection an accurate, complete, and updated list of all the explosive materials on the pallet or in the stacked group, including the marks for each container (manufacturer's name or brand name and date/shift code), and the quantity and description (type of explosive materials); and (2) ensures that the stocks of explosive materials can reasonably be accessed, counted, and checked upon inspection in accordance with 27 CFR 555.214(b).

Date approved: June 4, 2010

20. 18 U.S.C. 842(j): Storage of Explosives

27 CFR 555.22: Alternate Methods or Procedures

27 CFR 555.205: Movement of Explosive Materials

ATF authorizes an alternate method or procedure from the provisions of 27 CFR 555.205 requiring the storage of explosive devices inside a locked magazine. Specifically, ATF authorizes explosives licensees and permittees to store loaded perforating guns outside of a locked magazine provided all of the requirements stated in this ruling are met.

ATF Ruling 2010–7

The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) has received requests from members of the explosives industry for permission to store loaded perforating guns, which contain explosive materials, outside of a locked magazine.

Perforating guns are used primarily to pierce oil and gas wells in preparation for production operations. Industry members who use perforating guns assemble each perforating gun to meet a specific purpose and function depending on oil or gas well conditions. Each perforating gun assembly can measure up to 70 feet in length and weigh in excess of 150 pounds when loaded with explosives. Perforating gun assemblies are commonly housed within hollow thick-walled steel tubes and contain shaped charges that explode to pierce the well. Each individual shaped charge typically contains between 25 and 45 grams of high explosives and is initiated by detonating cord and a detonator. Although detonators are commonly attached to the assembly immediately prior to down-hole loading at the job site, perforating guns are sometimes armed with detonators upon assembly.

During transportation of perforating guns, Department of Transportation regulations require a detonator interrupter device to be placed between the detonators and detonating cord, which prevents the possibility of an unintended initiation.

An oil or gas well operation may urgently need perforating guns due to the varying conditions within the well operations. Assembling the guns at the worksite, often under unsafe or adverse conditions, can significantly delay operations and place workers at risk. In addition, waiting until perforating guns are needed before beginning the assembly operation would result in costly delays for the well operator. To facilitate perforating operations and meet job demands, many perforating gun operators maintain a fixed amount of preloaded perforating gun assemblies that can be used on short notice.

Preloaded perforating guns are generally assembled by affixing open-faced shaped charges and detonating cord within a steel tube carrier and then sealing the ends of the tube. Sealing the tube protects the explosives from accidental damage, discharge, or unauthorized removal. The shaped charges sealed in the carrier assembly perforate the steel tube during initiation within the well. Some perforating gun assemblies, however, have pressure-sealed shaped charges on metallic strips or wires that do not require steel tube housings.

Under Federal law, Title 18, United States Code, Section 842(j), all persons must store explosive materials, to include explosive devices, in compliance with regulations issued by the Attorney General. The Attorney General has delegated the authority to administer and enforce the Federal explosives laws to the Director, ATF. The regulations promulgated by ATF to implement the provisions of the Federal explosives laws are codified at Title 27, Code of Federal Regulations (CFR), Part 555. The regulation at 27 CFR 555.205 requires that “[a]ll explosive materials must be kept in locked magazines meeting the standards in this subpart unless they are: (a) In the process of manufacture; (b) Being physically handled in the operating process of a licensee or user; (c) Being used; or (d) Being transported to a place of storage or use by a licensee or permittee or by a person who has lawfully acquired explosive materials under § 555.106.”

Under 27 CFR 555.22, ATF may approve the use of an alternate method or procedure in lieu of a method or procedure specifically prescribed in Part 555. ATF may approve an alternate method or procedure when: (1) Good cause is shown for the use of the alternate method or procedure; (2) The alternate method or procedure is within the purpose of, and consistent with the effect intended by, the specifically prescribed method or procedure and that the alternate method or procedure is substantially equivalent to that specifically prescribed method or procedure; and (3) The alternate method or procedure will not be contrary to any provision of law and will not result in an increase in cost to the Government or hinder the effective administration of Part 555.

Perforating guns are generally assembled within a building or shop that contains the tools and materials necessary to safely prepare each perforating gun. Once assembled, the length and

weight of preloaded perforating guns often make it difficult or impossible to store them within an explosives magazine as prescribed under the regulations. Moreover, because many perforating gun assemblies are housed within metal tubes, these assemblies create an unnecessary sparking hazard to other explosives contained within an explosives magazine.

Further, on occasion, operators must return unused loaded perforating gun assemblies from a jobsite to their business premises due to inclement weather conditions or jobsite changes. Without approved alternate storage areas, operators would be forced to disassemble the loaded perforating guns and remove the individual explosive products to a magazine, which can significantly increase the safety risk to operators. Allowing the storage of loaded perforating guns in alternate secure areas greatly decreases the chance of an accident occurring due to unsafe or adverse conditions at the jobsite and the need for operators to handle and move loaded perforating guns repeatedly between the assembly area and the magazine. Additionally, the length and weight of loaded perforating guns can make them difficult to steal when stored outside a magazine. For these reasons, ATF has issued numerous variances to operators allowing the storage of preloaded perforating guns inside a secure building or at an outdoor location subject to certain conditions.

Allowing the storage of preloaded perforating guns in secure buildings or areas outside a magazine will increase worker safety, provided certain conditions are met, and will likely not result in increased risk of theft. For these reasons, ATF finds that there is good cause for authorizing a variance from the provisions of 27 CFR 555.205 requiring the storage of these explosive devices inside a locked magazine. ATF further finds that the additional security measures provided in this ruling as a condition of the alternate storage methods and procedures provided below, are consistent with the effect intended by, and are substantially equivalent to, the methods and procedures prescribed in Part 555, Subpart K. Further, the alternate method or procedure authorized by this ruling is not contrary to any provision of law, will not increase costs to ATF, and will not hinder the effective administration of the regulations.

Federal explosives licensees (FELs) or Federal explosives permittees (FEPs) may store perforating guns in areas outside of locked magazines, whether located indoors or outdoors, provided all of the following conditions are met at all times:

1. Loaded perforating gun assemblies armed with detonators or initiating devices must contain a detonator interrupter device.
2. A handling cap, plug, or other closure device must be installed on both ends of loaded hollow type carrier guns. Perforating guns with exposed explosive components (e.g., those that consist of sealed charges mounted on strips or wires, and that are not mounted in a carrier assembly, must be secured so as to prevent the unauthorized removal of explosives (e.g., storage within a locked room inside a building, storage within a transportation carrier or other protective housing assembly).

3. Impact wrenches or other tools that could be used to disassemble the loaded perforating guns must be kept separate and secured from the loaded perforating guns to prevent unauthorized removal of the explosive materials.

4. The government authority having jurisdiction over fire safety in the locality in which the loaded perforating guns are being stored must be notified of the location of the loaded perforating guns.

5. All buildings, areas, or vehicles containing pre-loaded perforating guns must be visually inspected at least once every three calendar days. This inspection must be sufficient to determine whether there has been unauthorized entry or attempted entry into the building, area, or vehicle, or unauthorized removal of the perforating gun assemblies from a building, area, or vehicle.

6. A daily summary of magazine transactions (27 CFR 555.127) must be maintained for each area, building, or vehicle that contains loaded perforating guns. Quantity entries may be expressed as the number of individual perforating guns stored within each separate area, building, or vehicle. Information as to the quantity and description of explosive products contained within each individual perforating gun shall be provided to any ATF officer on request.

7. The local ATF office must be notified in writing no less than three (3) Federal business days prior to utilizing an alternate storage building, area, or vehicle pursuant to this ruling. The written notification submitted to ATF must contain, at a minimum, the following information:

- a. The FEL or FEP's name;
- b. The FEL or FEP number;
- c. The location of alternate storage;

d. The FEL or FEP's contact information, including, at a minimum, the name of a person designated as the FEL or FEP's point of contact for the notification, as well as the address, telephone and facsimile number, and, if available, email address; and

e. Any other information concerning the alternate storage or items stored that ATF may require.

8. The licensee or permittee desiring to store perforating guns in areas outside of magazines subject to the conditions of this ruling should maintain a copy of its submission to ATF of the information required (Item #7, above) with its permanent records. The licensee or permittee should also retain proof of its submission (e.g., certified return receipt mail, tracking receipt, or other printed verification).

9. All other provisions of 27 CFR Part 555 must be complied with as prescribed.

If the loaded perforating guns are stored in an indoor location, the following additional conditions must be met at all times:

1. No more than 50 pounds of explosives may be stored inside any facility used for indoor explosives storage. This means that the combined net explosives weight contained in magazines and outside of magazines in any one building must not exceed 50 pounds.

2. All loaded perforating guns must either lie flat on the floor or be placed in stable racks to prevent accidental movement or discharge.

3. The building in which the loaded perforating guns are stored must be securely locked or attended by FEL/FEP responsible persons or employee possessors.

If the loaded perforating guns are stored in an outdoor location, the following additional conditions must be met at all times:

1. The perimeter of the area containing loaded perforating guns must be secured by a security fence with a locked gate or the entire facility must be completely enclosed by a security fence with each entrance point secured at all times by a locked gate. For the purpose of this ruling, the security fence must be a minimum of 6 feet high and have firmly anchored posts to ensure its structural stability. The gate must be secured with a padlock that has at least five tumblers and a case-hardened or boron alloy shackle of at least $\frac{3}{8}$ " diameter.

2. Loaded perforating guns may be stored on a vehicle or trailer provided all doors are locked. The vehicle or trailer must be immobilized by a standard kingpin locking device, steering wheel locking device, or lockable battery disconnect. The ignition key must be removed from the vehicle and secured away from the vehicle.

3. All vehicles loaded with perforating guns must be parked in an area not susceptible to fire propagation such as bare dirt, gravel, rock, paving, or closely mowed grass.

4. No more than 200 loaded perforating guns or 2,500 pounds of net explosive weight may be kept outside a magazine. Each outdoor area or vehicle containing loaded perforating guns must comply with the table of distances requirements set forth in 27 CFR 555.218.

5. The loaded perforating guns may be stored in a covered or uncovered area as long as the guns are placed flat on a concrete or paved floor, offshore well tool pallets, or placed on permanently mounted racks to prevent accidental movement or discharge.

6. Loaded perforating guns that have exposed explosives that are not contained within a secure tube (e.g., tube-less strips or wire guns) may not be stored in an outdoor location.

Once the licensee or permittee has submitted the necessary documentation to ATF pursuant to this ruling, and complied with all other conditions set forth in this ruling, no separate, individual variance approval from ATF is required, and the licensee or permittee may store perforating guns in areas outside of magazines. Licensees and permittees must still abide by all other provisions relating to the storage of explosives.

Held, pursuant to 27 CFR 555.22, ATF authorizes an alternate method or procedure from the provisions of 27 CFR 555.205 requiring the storage of explosive devices inside a locked magazine. Specifically, ATF authorizes explosives licensees and permittees to store loaded perforating guns outside of a locked magazine provided all of the requirements stated in this ruling have been met.

Held further, if ATF finds that a licensee or permittee has failed to abide by the conditions of this ruling, or uses any procedure that hinders the effective administration of the explosives laws or regulations, ATF may notify the licensee or permittee that the licensee or permittee is no longer authorized to store perforating guns outside of a locked magazine under this ruling.

Date approved: November 24, 2010

21. 18 U.S.C. 842(j): Storage of Explosives

27 CFR 555.22: Alternate Methods or Procedures

27 CFR 555.211(a)(4): Locking Requirements of Type 5 Magazines

ATF authorizes an alternate method or procedure from the provisions of 27 CFR 555.211(a)(4) requiring the storage of explosives in outdoor type 5 magazines with doors equipped with the requisite locks. Specifically, ATF authorizes explosives licensees and permittees to store bulk blasting agents in outdoor type 5 bin or silo magazines without the specified locks provided all of the requirements stated in this ruling have been met.

ATF Ruling 2011–2

The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) has received numerous requests from Federal explosives licensees and permittees for variances from the locking requirements for outdoor type 5 bin and silo storage magazines.

Outdoor type 5 bin and silo magazines are used to store bulk blasting agents, typically bulk emulsion and ammonium nitrate-fuel oil (ANFO). Due to the nature of these bulk explosive materials, they cannot be stored in magazines with conventional doors that are easily padlocked and hooded. Instead, bulk blasting agents must be stored in magazines with filling and discharge systems that have small openings that are secured and controlled by hatches, valves, and nozzles. It is impractical to retrofit the locks used on these magazines with hoods because of the configuration of the filling and discharge systems. Additionally, access points, including ladders and hatch openings, cannot be hooded or secured with two padlocks without impeding access to the magazine.

Outdoor type 5 bin and silo magazines are also inherently less susceptible to theft than conventional magazines due to their design. Bin and silo access points are small, and entry to the top of the magazine can only be gained using a pull-down ladder. The discharge valve is typically located on the underside of the bin, making it difficult to access. Additionally, the nature of the bulk blasting agents stored in these types of magazines makes them more difficult to steal than packaged explosives products. They are difficult to remove from the bins or silos due to the height of a common silo and the lack of packaging for bulk products. For these reasons, pursuant to an ATF—approved variance, licensees and permittees generally use alternate locking configurations on their type 5 bin or silo magazines, subject to certain conditions.

Under Federal law, Title 18, United States Code, section 842(j), all persons must store explosive materials in compliance with regulations issued by the Attorney General. The Attorney General has delegated the authority to administer and enforce the Federal explosives laws to the Director, ATF. The regulations promulgated by ATF to implement the provisions of the Federal explosives laws are codified at Title 27, Code of Federal Regulations (CFR), Part 555.

The regulation at 27 CFR 555.211(a)(4) addresses the locking requirements of outdoor type 5 magazines, providing that “[e]ach door is to be equipped with (i) two mortise locks; (ii) two padlocks fastened in separate hasps and staples; (iii) a combination of a mortise lock and a padlock; (iv) a mortise lock that requires two keys to open; or (v) a three-point lock. Padlocks must have at least five tumblers and a case-hardened shackle of at least 3/8" diameter. Padlocks must be protected with not less than 1/4" steel hoods constructed so as to prevent sawing or lever action on the locks, hasps, and staples.”

Licensees and permittees may seek approval from ATF to use an alternate method or procedure in lieu of a method or procedure specifically prescribed in the regulations. Federal regulations at 27 CFR 555.22 provide that the Director of ATF may approve an alternate method or procedure, subject to stated conditions, when he finds that: (1) good cause is shown for the use of the alternate method or procedure; (2) the alternate method or procedure is substantially equivalent to, within the purpose of, and consistent with the effect intended by, the specifically prescribed method or procedure; and (3) it will not be contrary to any provision of law and will not result in an increase in cost to the Government or hinder the effective administration of 27 CFR Part 555.

ATF finds that there is good cause for licensees and permittees to store bulk blasting agents in outdoor type 5 bin or silo magazines with doors not equipped with the requisite locks. Due to the nature of bulk blasting agents, it is difficult for licensees and permittees to comply with the locking requirements of section 555.211(a)(4). Further, the design of outdoor type 5 bin and silo magazines, and the inaccessibility of the bulk blasting agents stored within them, provides protection from theft and loss that is

substantially equivalent to the requirements of section 555.211 (a)(4), provided certain conditions are met. This alternate method or procedure is also not contrary to any provision of law, will not increase costs to ATF, and will not hinder the effective administration of the regulations.

Federal Explosives Licensees (FELs) or Federal Explosives Permittees (FEPs) may store bulk blasting agents in outdoor type 5 bin or silo magazines with doors not equipped with the requisite locks, provided all of the following conditions are met at all times:

1. When not in operation, adequate security that restricts outer perimeter access must be provided. The use of a locked gate, security guards, fences, or a combination of these measures may be used.
2. Each outdoor bin or silo must be secured with at least one five tumbler padlock with a case-hardened shackle of at least $\frac{3}{8}$ " diameter on the top hatch, the valves at the loading ports and points of discharge, and the elevated ladder to prevent anyone from climbing onto bins or silos.
3. Blasting agent storage silos and bins must meet all other construction requirements of type 5 magazines as described in 27 CFR 555.211.

All other provisions of 27 CFR Part 555 must be complied with as prescribed.

Once the licensee or permittee has complied with all conditions set forth in this ruling, no separate, individual variance approval from ATF is required, and the licensee or permittee may store bulk blasting agents in outdoor type 5 bin or silo magazines with doors not equipped with the requisite locks.

Held, pursuant to 27 CFR 555.22, ATF authorizes an alternate method or procedure from the provisions of 27 CFR 555.211(a)(4) requiring the storage of explosives in outdoor type 5 magazines with doors equipped with the requisite locks. Specifically, ATF authorizes explosives licensees and permittees to store bulk blasting agents in outdoor type 5 bin or silo magazines without the specified locks provided all of the requirements stated in this ruling have been met.

Held further, if ATF finds that a licensee or permittee has failed to abide by the conditions of this ruling, or uses any procedure that hinders the effective administration of the explosives laws or regulations, ATF may notify the licensee or permittee that the licensee or permittee is no longer authorized to utilize this alternate method or procedure.

Date approved: February 18, 2011

22. 18 U.S.C. 842(j): Storage of Explosives

27 CFR 555.22: Alternate Methods or Procedures

27 CFR 555.207: Construction of Type 1 Magazines

27 CFR 555.208: Construction of Type 2 Magazines

27 CFR 555.209: Construction of Type 3 Magazines

27 CFR 555.210: Construction of Type 4 Magazines

27 CFR 555.211: Construction of Type 5 Magazines

ATF authorizes an alternate method or procedure from the provisions of 27 CFR Part 555, Subpart K, requiring the storage of explosives in magazines with doors equipped with the requisite locks. Specifically, ATF authorizes explosives licensees and permittees to secure explosives magazines with hidden-shackle "hockey puck" locks, recessed padlocks, and padlocks with boron alloy shackles, provided all of the requirements stated in this ruling have been met.

ATF Ruling 2011–3

The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) has received requests from members of the explosives industry for permission to secure explosives magazines with certain alternate locks or locking methods.

Recent advances in locking technologies have provided the explosives industry with more options for securing their explosives storage magazines. Currently, explosives industry members secure their explosives magazines primarily with padlocks fastened in separate hasps and staples and protected with $\frac{1}{4}$ " thick steel hoods. However, the commercial availability of steel hoods is limited to a small number of distributors, and non-commercial fabrication can be costly.

As a more cost effective alternative, explosives industry members have asked ATF to approve hidden-shackle locks, commonly known as "hockey puck" or "puck" locks to secure their explosives storage magazines. Several companies manufacture hidden-shackle puck locks and protective steel hasps that are distributed by local hardware and construction retail outlets throughout the United States. Hidden-shackle puck locks are generally based on the same design, in which the lock shackles are completely enclosed within the steel lock body, thereby protecting the shackle from cutting or sawing action. The lock cylinders and other internal mechanisms within the hidden-shackle puck locks are designed similarly to those in traditional padlocks. The locks are commonly sold with steel hasps that are affixed with steel staples and with steel shrouds that protect the locks and staples from prying or lever action. Most steel hasps are installed with $\frac{3}{8}$ " thick carriage bolts.

Explosives industry members have also asked ATF to approve magazines such as job site boxes, typically used at construction worksites and other industrial locations, as type 4 magazines for the storage of low explosives. Several companies manufacture job

site boxes that are available from local hardware and construction retail outlets throughout the United States. Generally, job site boxes are based on a design that accepts padlocks housed into recessed openings that prevent the sawing, levering, or prying action on the locks, staples, or hasps. The boxes are typically constructed of 12 or 16 gauge steel and affixed with top-opening doors (lids) that lock when two internal metal latches are secured by two recessed padlocks. The padlocks are inserted shackle first into an opening of a shape and size that fully accepts the lock, and the lock shackles are secured to metal u-bolt staples. The padlocks and u-bolts cannot be removed without gaining access to the magazine interior. The padlock base and keyway are the only visible portions of the padlocks. Job site boxes are not manufactured with ¼" steel hoods to protect the padlocks, though the magazine body acts as a protective steel hood for the recessed padlocks.

Additionally, explosives industry members have asked ATF to approve padlocks that contain boron alloy steel shackles in lieu of case-hardened shackles. The manufacture of case-hardened shackles involves hardening the surface of low carbon steel by infusing carbon into the steel's surface mainly through flame or induction hardening. Case-hardening is usually conducted after the steel shackle has been formed into its final shape and its center remains tough and malleable. Boron has been found as a useful alloy to improve the hardness of steel. Manufacturing boron alloy shackles involves hardening the entire shackle by heat-treating medium carbon steel thereby creating a consistent hardness throughout the steel. Common testing methods used in the manufacturing industry to test the strength of different materials reveal that boron alloy steel is stronger than case-hardened steel.

Under Federal law, Title 18, United States Code, section 842(j), all persons must store explosive materials in compliance with regulations issued by the Attorney General. The Attorney General has delegated the authority to administer and enforce the Federal explosives laws to the Director, ATF. The regulations promulgated by ATF to implement the provisions of the Federal explosives laws are codified at Title 27, Code of Federal Regulations (CFR), Part 555.

The regulations at 27 CFR 555.207, 555.208, 555.210, and 555.211 address the locking requirements for types 1, 2, 4, and 5 explosives magazines, providing generally that each door is to be equipped with (i) two mortise locks; (ii) two padlocks fastened in separate hasps and staples; (iii) a combination of a mortise lock and a padlock; (iv) a mortise lock that requires two keys to open; or (v) a three-point lock. Padlocks must have at least five tumblers and a case-hardened shackle of at least ⅜" diameter. Padlocks must be protected with not less than ¼" steel hoods constructed so as to prevent sawing or lever action on the locks, hasps, and staples. The regulation at 27 CFR 555.209 addresses the locking requirements for type 3 explosives magazines,

providing that doors are to be equipped with one steel padlock (which need not be protected by a steel hood) having at least five tumblers and a case-hardened shackle of at least ⅜" diameter.

Licensees and permittees may seek approval from ATF to use an alternate method or procedure in lieu of a method or procedure specifically prescribed in the regulations. Federal regulations at 27 CFR 555.22 provide that the Director of ATF may approve an alternate method or procedure, subject to stated conditions, when he finds that: (1) good cause is shown for the use of the alternate method or procedure; (2) the alternate method or procedure is substantially equivalent to, within the purpose of, and consistent with the effect intended by, the specifically prescribed method or procedure; and (3) it will not be contrary to any provision of law and will not result in an increase in cost to the Government or hinder the effective administration of 27 CFR Part 555.

Historically, the most prevalent method of unauthorized entry into explosives magazines has been through attacks against the locking mechanisms—specifically against the lock shackles. Hidden shackle “hockey puck” locks, recessed padlocks, and padlocks with boron alloy shackles provide shackle protection equivalent to traditional case-hardened padlocks and ¼" steel hoods. Allowing storage of explosives in magazines secured with these types of locks will also reduce costs for explosives licensees and permittees and give them greater flexibility to secure their explosives. For these reasons, ATF finds that, provided certain conditions are met, there is good cause for licensees and permittees to store explosives in magazines with doors equipped with hidden shackle “hockey puck” locks, recessed padlocks, and padlocks with boron alloy shackles. ATF further finds that the conditions provided in this ruling for the alternate storage methods and procedures provided below, are consistent with the effect intended by, and are substantially equivalent to, the methods and procedures prescribed in Part 555, Subpart K. Further, the alternate methods or procedures authorized by this ruling are not contrary to any provision of law, will not increase costs to ATF, and will not hinder the effective administration of the regulations.

Federal explosives licensees and permittees may store explosives in magazines that are secured with hidden-shackle “hockey puck” locks, whether located indoors or outdoors, provided all of the following conditions are met at all times:

1. Each magazine door must be secured with the same number of hidden-shackle puck locks as prescribed in the regulations (e.g. two puck locks on outdoor type 4 magazines, one puck lock on mobile type 3 and type 5 magazines).
2. The hidden shackle puck lock body must be constructed of hardened steel and contain at least a five-pin tumbler cylinder. The lock shackle must be constructed of a case-hardened steel or boron alloy and measure a minimum nominal diameter of ⅜".
3. Each hidden-shackle puck lock must be protected within a solid steel hasp and shroud, or by a ¼" thick steel hood that prevents the prying or lever action on the puck lock.

4. The steel hasp must contain a ¼" thick steel shroud that surrounds the lock. Openings in the shroud required to access the lock keyway and open the magazine door must be small enough to prevent sawing, levering, or prying action on the puck lock.

5. The spaces between the steel hasps and locks, and steel shrouds and locks, must be small enough to prevent sawing, levering, or prying action on the puck lock.

6. The hasp or hood must be attached to the magazine doors by welding, or installed with at least ⅜" thick carriage bolts (with nuts on inside of door) so that they cannot be removed when the doors are closed and locked.

Federal explosives licensees and permittees may store explosives in magazines that are secured with recessed padlocks, whether located indoors or outdoors, provided all of the following conditions are met at all times:

1. Each magazine door (lid) must be secured with two recessed padlocks that have at least five tumblers and a case-hardened steel or boron alloy shackle of at least ⅜" diameter.

2. The recessed opening that houses the locks must be small enough to prevent sawing, levering, or prying action on the locks when the locks are installed.

3. The lock shackles must be securely affixed to the interior staples so the padlocks cannot be removed without gaining access to the magazine interior.

Once the licensee or permittee has complied with all conditions set forth in this ruling, no separate, individual variance approval from ATF is required, and the licensee or permittee may store explosives in magazines with doors equipped with locks other than those required by 27 CFR Part 555. Licensees and permittees are reminded of their responsibility to abide by all other provisions of 27 CFR Part 555 as prescribed.

Held, pursuant to 27 CFR 555.22, ATF authorizes an alternate method or procedure from the provisions of 27 CFR Part 555, Subpart K, requiring the storage of explosives in magazines with doors equipped with the requisite locks. Specifically, ATF authorizes explosives licensees and permittees to secure explosives magazines with hidden-shackle "hockey puck" locks, recessed padlocks, and padlocks with boron alloy shackles, provided all of the requirements stated in this ruling have been met.

Held further, if ATF finds that a licensee or permittee has failed to abide by the conditions of this ruling, or uses any procedure that hinders the effective administration of the explosives laws or regulations, ATF may notify the licensee or permittee that the licensee or permittee is no longer authorized to utilize this alternate method or procedure.

Held further, this ruling supersedes all previous variance approvals for explosives magazines secured with hidden-shackle "hockey puck" locks or recessed padlocks.

Date approved: June 23, 2011

APPENDIX A

PERMANENTLY MOUNTED CONTAINERS

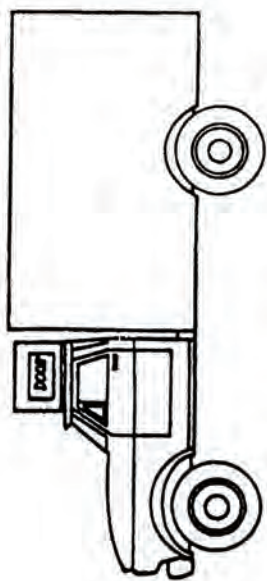


Figure 1

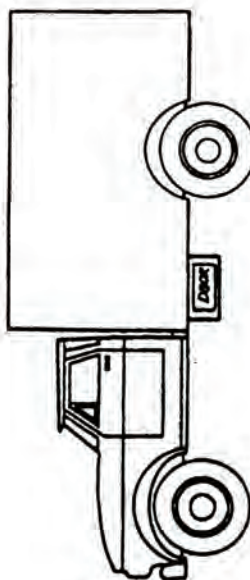


Figure 2

NOTE: The configurations shown in Figures 1 and 2 are equally applicable to multi-axle and "cab-over" vehicles.

[Diagrams: Courtesy of IME]

APPENDIX B

COMPARTMENTS

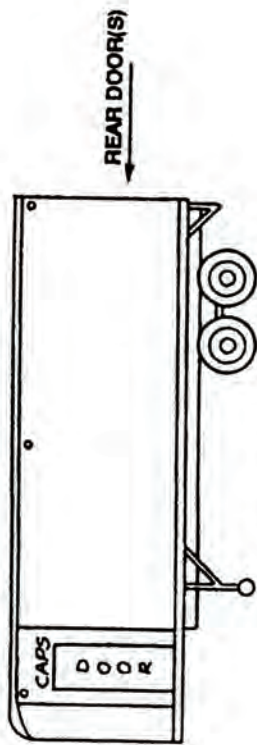


Figure 1

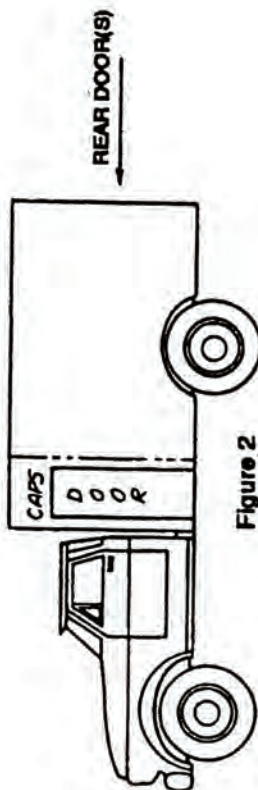


Figure 2

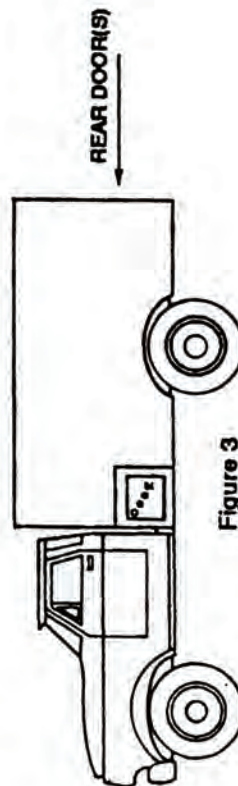


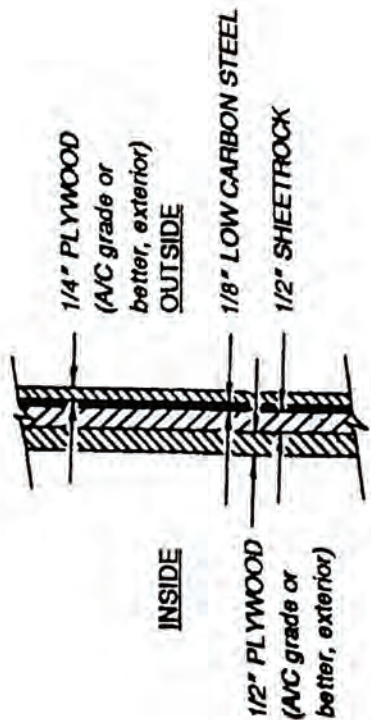
Figure 3

NOTE: The configurations shown in Figures 1 and 2 are equally applicable to multi-axle and "cab-over" vehicles.

[Diagrams: Courtesy of IME]

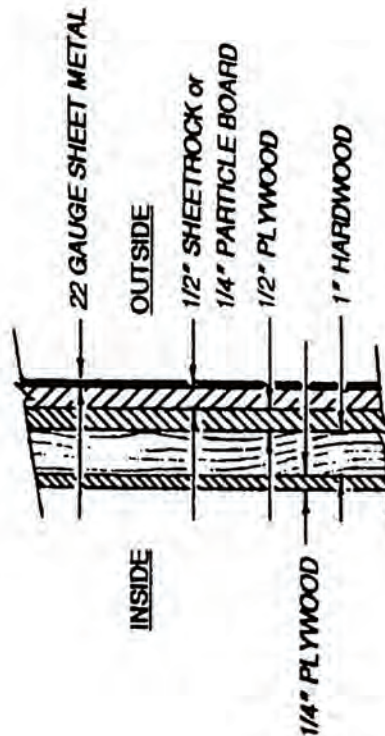
ATF Rul. 77-24, Appendix A and B

APPENDIX C



Sketch of laminate construction for container or compartment for electric blasting caps use, as illustrated in Appendix A, B, and E.

APPENDIX D



Sketch of laminate construction for container or compartment for electric blasting caps; restricted to use as illustrated in Appendix A.

[Diagrams: Courtesy of IME]

ATF Rul. 77-24, Appendix C - E

APPENDIX E

PORTABLE WHEELED TRAILERS

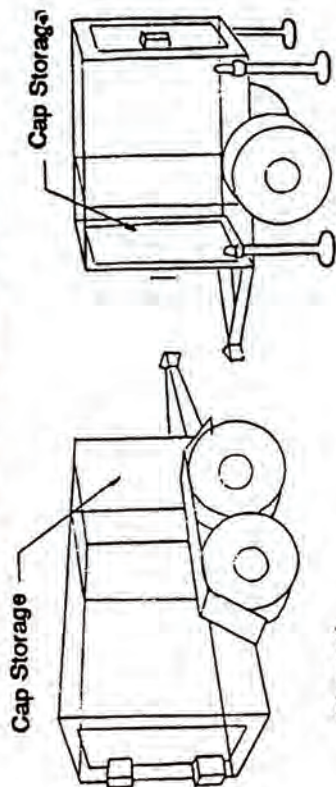


Figure 1

Figure 3

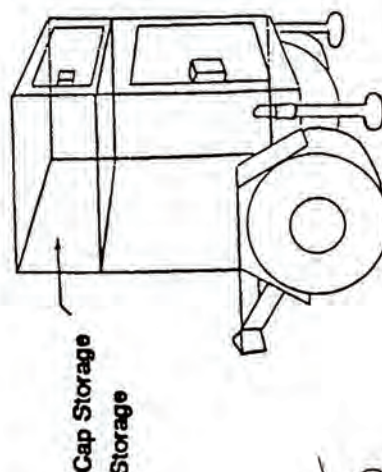


Figure 4



Figure 2

General Information (Revised 8/06)

Effect of 18 U.S.C. Chapter 40 On the Fireworks Industry

[Caution! This item discusses Federal requirements only. Please contact your State or local authorities for any additional requirements.]

Title XI of the Organized Crime Control Act of 1970 (18 U.S.C. Chapter 40) establishes controls over explosive materials, including black powder and other pyrotechnic compositions commonly used in fireworks. Part 555 of Title 27, Code of Federal Regulations (CFR), contains the regulations which implement Title XI. Section 555.141(a)(7) exempts “the importation, distribution, and storage of fireworks classified as UN0336, UN0337, UN0431, or UN0432 explosives by the U.S. Department of Transportation at 49 CFR 172.101 and generally known as ‘consumer fireworks’ or ‘articles pyrotechnic.’” Section 555.141(a)(7) does not exempt “display fireworks,” as defined in 555.11.

With Respect to Fireworks: Who needs a license?

1. Manufacturers of black powder;
2. Manufacturers of any other explosive material used in manufacturing consumer fireworks or display fireworks; and
3. Importers of, or dealers in, display fireworks.

With Respect to Fireworks: Who needs a permit?

1. All persons transporting, shipping, causing to be transported, or receiving display fireworks, regardless of whether for their own use or for commercial display purposes (Certain exemptions apply, e.g. agencies of the United States or of any State or political subdivisions thereof are exempt from permit requirements); and
2. A person, other than a licensee, transporting, shipping, causing to be transported, or receiving explosive materials for use in manufacturing display fireworks or consumer fireworks.

With Respect to Fireworks: Who may not need a license or permit?

Frequently, persons contracting for display fireworks (e.g., for Fourth of July observances) from a Federal explosives licensee or permittee receive a total service, including the services of a pyrotechnician who transports display fireworks in interstate or intrastate commerce to the site of the display and conducts and supervises the display. In these instances, the customers purchase

and receive the contractor’s services and not the explosive materials themselves (i.e. the cost of the services includes the contractor’s expense in providing the fireworks utilized), and the cost of the services includes the dealer’s expense in providing the fireworks utilized. When business is transacted in this manner, the customers purchasing and receiving the services need not obtain Federal explosives licenses or permits under Part 555 as long as they are not transporting, shipping, causing to be transported, or receiving explosive materials. Note: the transportation of explosive materials to the display sites would be authorized by the Federal explosives license or permit of the licensee or permittee providing the services.

With Respect to Fireworks: Types of permits

1. User permit: Allows the permit holder to transport, ship, cause to be transported, and receive display fireworks in interstate or foreign commerce for his or her own use and not for resale. This permit is issued at a cost of \$100 for a 3-year period and is renewable at a cost of \$50 for a 3-year period.
2. User-limited permit: Identical to the user permit but issued for a single purchase transaction, only. The fee is \$75; the permit is nonrenewable.

With Respect to Fireworks: Storage

The law prohibits any person from storing any explosive materials in a manner not in conformity with the regulations promulgated by the Attorney General (18 U.S.C. 842(j)). Pursuant to this section, the Attorney General has prescribed storage regulations in 27 CFR Part 555, Subpart K. Display fireworks must be stored in conformity with the regulations. Display fireworks generally contain perchlorate mixture explosives, potassium chlorate base explosive mixtures, and black powder, which are entered on the List of Explosive Materials with numerous others. (The List, which is not all-inclusive, is annually compiled and readily available without charge from the address set out in 27 CFR 555.23 or online at www.atf.gov/.) Display fireworks must be stored as low explosives in magazines meeting, at a minimum, the requirements for type 4 storage magazines prescribed by 27 CFR 555.210 unless they contain other classes of explosives. Bulk salutes must be stored as high explosives in type 1 or type 2 magazines. The net weight of the explosive materials contained in the display fireworks may be used in determining compliance with table of distance requirements. To determine the actual weight of the materials, it may be necessary to contact their manufacturers. The manufacturer of exempt or nonexempt fireworks having stocks of explosive materials on hand to be used in the manufacture of fireworks must store the stocks in conformity with applicable storage requirements.

Explosives Dealer's and User's Guide to Federal Explosives Regulation

Explosives May Not Be Distributed by Licensees (Or by Any Person) to Any Person Who:

1. Is under indictment for, or who has been convicted of a crime punishable by imprisonment for a term exceeding one year.
2. Is an unlawful user of, or addicted to, marijuana or any depressant or stimulant drug or narcotic drug (as these terms are defined in section 102 of the Controlled Substances Act).
3. Has been adjudicated as a mental defective or has been committed to a mental institution.
4. Is a fugitive from justice.
5. Is an alien (with certain exceptions).
6. Has been discharged from the armed forces under dishonorable conditions; or
7. Having been a citizen of the United States, has renounced citizenship.
8. Is less than 21 years of age.

Dealers in Explosives Must:

- Have a current and valid Federal explosives license.
- Have proper storage facilities.
- Keep accurate and complete records.
- Verify that each buyer has a Federal explosives license or permit.
- Verify buyers' identities.

Users of Explosives

Federal permits are required of those who transport, ship, cause to be transported, or receive explosive materials. Among other things, the permittee must keep complete and accurate records of the acquisitions and dispositions of explosives materials. Unless otherwise exempted by law, no person may receive or transport any explosive materials without a permit.

No person shall store any explosive material in a manner not in conformity with applicable regulations.

All persons must report to ATF and local authorities any loss or theft of their explosive materials within 24 hours of discovery.

A Federal license or permit does not confer any right or privilege to violate any state law or local ordinance.

The above summary is general and does not purport to fully convey the Federal explosives law and regulations pertaining to dealers and users.

Black Powder Transactions

Public Law 93-639 (1975) allows nonlicensees/nonpermittees to purchase commercially manufactured black powder, in quantities of 50 pounds or less, solely for sporting, recreational or cultural purposes for use in antique firearms or antique devices. A nonlicensee or nonpermittee purchasing black powder under the exemption need not be a resident of the State in which the dealer is located. Also, the categories of persons to whom the distribution of explosive materials is prohibited do not apply to black powder transactions made under the exemption. Acquisitions of black powder not qualifying under this exemption are subject to the same regulatory requirements that govern any other low explosive.

All persons who distribute black powder, regardless of quantity, must be licensed as explosives dealers and, among other things, must provide adequate storage.

Explosives Security

Through prompt reporting of losses and thefts of explosives and increased emphasis on physical security, explosives licensees and permittees can contribute greatly to efforts by Federal, State and local authorities to reduce the incidence of bombings and other criminal misuse of explosives in the United States. The following actions are of prime importance and in some instances required:

Report... any thefts or losses of explosives within 24 hours of discovery, by telephone, to ATF (toll free: 1-800-800-3855) and to appropriate local authorities. Because the States and many municipalities have designated specific agencies to investigate the theft or loss of explosives, licensees and permittees are urged to be familiar with State and local reporting procedures and appropriate contact points.

Follow... telephone notification with a written report on ATF Form 5400.5, "*Report of Theft or Loss—Explosive Materials*," to the nearest ATF Division Office, and in accordance with the instructions on the form.

Observe... activity around magazines, within business premises, and on job sites, particularly if strangers appear to be loitering in the area in which explosives are being kept. On-site users should take special care to assure that explosives removed from storage for use on the job are either detonated or accounted for and unused items returned to storage.

Review... recordkeeping practices to assure that no discrepancies exist and that no figures in reported inventories have been manipulated, and correct any clerical errors promptly. Should any questions arise concerning explosives security procedures or any aspect of explosives regulation coming under the jurisdiction of ATF, do not hesitate to contact ATF.

Note: For Q&A's on regulatory requirements governing recordkeeping and storage, see "Questions and Answers" numbers 62–87.

Additional Information

The flow of useful information is an essential ingredient in the effective administration of regulatory programs. The Bureau of Alcohol, Tobacco, Firearms and Explosives is the Federal agency charged with the responsibility of administering laws impacting the explosives industry. We call your attention to the following publication distributed by ATF that merits your attention:

The Explosives Newsletter

During 1989 ATF developed the Explosives Industry Newsletter, an information service for Federal explosives licensees and permittees which is intended to help explosives industry members better understand the Federal laws under which they must operate. It also includes other items of particular interest to the explosives industry. There is no charge for the Explosives Industry Newsletter.

Explosives industry members who have questions concerning the Federal explosives laws and regulations may address their inquiries to:

Bureau of Alcohol, Tobacco, Firearms and Explosives
Explosives Industry Programs Branch
99 New York Avenue, N.E.
Mailstop 6N672
Washington, DC 20226

Direct e-mail inquiries on general questions or variance requests may be sent to the branch at EIPB@atf.gov

List of Explosive Materials

Pursuant to the provisions of section 841(d) of title 18, U.S.C., and 27 CFR 555.23, the Director, Bureau of Alcohol, Tobacco, Firearms and Explosives, must revise and publish in the Federal Register at least annually a list of explosives determined to be within the coverage of 18 U.S.C. Chapter 40, *Importation, Manufacture, Distribution and Storage of Explosive Materials*. The list chapter covers not only explosives, but also blasting agents and detonators, all of which are defined as explosive materials in section 841(c) of title 18, U.S.C. Accordingly, the following is the current List of Explosive Materials subject to regulation under 18 U.S.C. Chapter 40. Materials constituting blasting agents are marked by an asterisk. While the list is comprehensive, it is not all-inclusive. The fact that an explosive material may not be on the list does not mean that it is not within the coverage definitions in section 841 of title 18, U.S.C. Explosive materials are listed alphabetically by their common names, followed by chemical names and synonyms in brackets. This revised list is effective as of October 19, 2011.

List of Explosive Materials

A

Acetylides of heavy metals.
Aluminum containing polymeric propellant.
Aluminum ophorite explosive.
Amatex.
Amatol.
Ammonal.
Ammonium nitrate explosive mixtures (cap sensitive).
* Ammonium nitrate explosive mixtures (non-cap sensitive).
Ammonium perchlorate having particle size less than 15 microns.
Ammonium perchlorate explosive mixtures (excluding ammonium perchlorate composite propellant (APCP)).
Ammonium picrate [picrate of ammonia, Explosive D].
Ammonium salt lattice with isomorphously substituted inorganic salts.
* ANFO [ammonium nitrate-fuel oil].
Aromatic nitro-compound explosive mixtures.
Azide explosives.

B

Baranol.
Baratol.
BEAF [1, 2-bis (2, 2-difluoro-2-nitroacetoxyethane)].
Black powder.
Black powder based explosive mixtures.
* Blasting agents, nitro-carbo-nitrates, including non-cap sensitive slurry and water gel explosives.
Blasting caps.
Blasting gelatin.
Blasting powder.
BTNEC [bis (trinitroethyl) carbonate].
BTNEN [bis (trinitroethyl) nitramine].
BTTN [1,2,4 butanetriol trinitrate].

Bulk salutes.

Butyl tetryl.

C

Calcium nitrate explosive mixture.
Cellulose hexanitrate explosive mixture.
Chlorate explosive mixtures.
Composition A and variations.
Composition B and variations.
Composition C and variations.
Copper acetylide.
Cyanuric triazide.
Cyclonite [RDX].
Cyclotetramethylenetetranitramine [HMX].
Cyclotol.
Cyclotrimethylenetrinitramine [RDX].

D

DATB [diaminotrinitrobenzene].
DDNP [diazodinitrophenol].
DEGDN [diethyleneglycol dinitrate].
Detonating cord.
Detonators.
Dimethylol dimethyl methane dinitrate composition.
Dinitroethyleneurea.
Dinitroglycerine [glycerol dinitrate].
Dinitrophenol.
Dinitrophenolates.
Dinitrophenyl hydrazine.
Dinitroresorcinol.
Dinitrotoluene-sodium nitrate explosive mixtures.
DIPAM [dipicramide; diaminohexanitrobiphenyl].
Dipicryl sulfone.
Dipicrylamine.
Display fireworks.
DNPA [2,2-dinitropropyl acrylate].
DNPD [dinitropentano nitrile].
Dynamite.

E

EDDN [ethylene diamine dinitrate].
EDNA [ethylenedinitramine].
Ednatol.
EDNP [ethyl 4,4-dinitropentanoate].
EGDN [ethylene glycol dinitrate].
Erythritol tetranitrate explosives.
Esters of nitro-substituted alcohols.
Ethyl-tetryl.
Explosive conitrates.
Explosive gelatins.
Explosive liquids.
Explosive mixtures containing oxygenreleasing inorganic salts and hydrocarbons.
Explosive mixtures containing oxygenreleasing inorganic salts and nitro bodies.
Explosive mixtures containing oxygenreleasing inorganic salts and water insoluble fuels.

Explosive mixtures containing oxygenreleasing inorganic salts and water soluble fuels.
Explosive mixtures containing sensitized nitromethane.
Explosive mixtures containing tetranitromethane (nitroform).
Explosive nitro compounds of aromatic hydrocarbons.
Explosive organic nitrate mixtures.
Explosive powders.

F

Flash powder.
Fulminate of mercury.
Fulminate of silver.
Fulminating gold.
Fulminating mercury.
Fulminating platinum.
Fulminating silver.

G

Gelatinized nitrocellulose.
Gem-dinitro aliphatic explosive mixtures.
Guanyl nitrosamino guanyl tetrazene.
Guanyl nitrosamino guanylidene hydrazine.
Guncotton.

H

Heavy metal azides.
Hexanite.
Hexanitrodiphenylamine.
Hexanitrostilbene.
Hexogen [RDX].
Hexogene or octogene and a nitrated Nmethylaniline.
Hexolites.
HMTD [hexamethylenetriperoxidediamine].
HMX [cyclo-1,3,5,7-tetramethylene 2,4,6,8-tetranitramine; Octogen].
Hydrazinium nitrate/hydrazine/aluminum explosive system.
Hydrazoic acid.

I

Igniter cord.
Igniters.
Initiating tube systems.

K

KDNBF [potassium dinitrobenzo-furoxane].

L

Lead azide.
Lead mannite.
Lead mononitroresorcinat.
Lead picrate.
Lead salts, explosive.
Lead styphnate [styphnate of lead, lead trinitroresorcinat].
Liquid nitrated polyol and trimethylolethane.
Liquid oxygen explosives.

M

Magnesium ophorite explosives.
Mannitol hexanitrate.
MDNP [methyl 4,4-dinitropentanoate].

MEAN [monoethanolamine nitrate].
Mercuric fulminate.
Mercury oxalate.
Mercury tartrate.
Metriol trinitrate.
Minol-2 [40% TNT, 40% ammonium nitrate, 20% aluminum].
MMAN [monomethylamine nitrate]; methylamine nitrate.
Mononitrotoluene-nitroglycerin mixture.
Monopropellants.

N

NIBTN [nitroisobutametrial trinitrate].
Nitrate explosive mixtures.
Nitrate sensitized with gelled nitroparaffin.
Nitrated carbohydrate explosive.
Nitrated glucoside explosive.
Nitrated polyhydric alcohol explosives.
Nitric acid and a nitro aromatic compound explosive.
Nitric acid and carboxylic fuel explosive.
Nitric acid explosive mixtures.
Nitro aromatic explosive mixtures.
Nitro compounds of furane explosive mixtures.
Nitrocellulose explosive.
Nitroderivative of urea explosive mixture.
Nitrogelatin explosive.
Nitrogen trichloride.
Nitrogen tri-iodide.
Nitroglycerine [NG, RNG, nitro, glyceryl trinitrate, trinitroglycerine].
Nitroglycide.
Nitroglycol [ethylene glycol dinitrate, EGDN].
Nitroguanidine explosives.
Nitronium perchlorate propellant mixtures.
Nitroparaffins Explosive Grade and ammonium nitrate mixtures.
Nitrostarch.
Nitro-substituted carboxylic acids.
Nitrourea.

O

Octogen [HMX].
Octol [75 percent HMX, 25 percent TNT].
Organic amine nitrates.
Organic nitramines.

P

PBX [plastic bonded explosives].
Pellet powder.
Penthrinite composition.
Pentolite.
Perchlorate explosive mixtures.
Peroxide based explosive mixtures.
PETN [nitropentaerythrite, pentaerythrite tetranitrate, pentaerythritol tetranitrate].
Picramic acid and its salts.
Picramide.
Picrate explosives.
Picrate of potassium explosive mixtures.
Picratol.

Picric acid (manufactured as an explosive).

Picryl chloride.

Picryl fluoride.

PLX [95% nitromethane, 5% ethylenediamine].

Polynitro aliphatic compounds.

Polyolpolynitrate-nitrocellulose explosive gels.

Potassium chlorate and lead sulfocyanate explosive.

Potassium nitrate explosive mixtures.

Potassium nitroaminotetrazole.

Pyrotechnic compositions.

PYX [2,6-bis(picrylamino)] 3,5-dinitropyridine.

R

RDX [cyclonite, hexogen, T4, cyclo-1,3,5,-trimethylene-2,4,6,-trinitramine; hexahydro-1,3,5-trinitro-S-triazine].

S

Safety fuse.

Salts of organic amino sulfonic acid explosive mixture.

Salutes (bulk).

Silver acetylide.

Silver azide.

Silver fulminate.

Silver oxalate explosive mixtures.

Silver styphnate.

Silver tartrate explosive mixtures.

Silver tetrazene.

Slurried explosive mixtures of water, inorganic oxidizing salt, gelling agent, fuel, and sensitizer (cap sensitive).

Smokeless powder.

Sodatol.

Sodium amatol.

Sodium azide explosive mixture.

Sodium dinitro-ortho-cresolate.

Sodium nitrate explosive mixtures.

Sodium nitrate-potassium nitrate explosive mixture.

Sodium picramate.

Special fireworks.

Squibs.

Styphnic acid explosives.

T

Tacot [tetranitro-2,3,5,6-dibenzo-1,3a,4,6a tetrazapentalene].

TATB [triaminotrinitrobenzene].

TATP [triacetonetriperoxide].

TEGDN [triethylene glycol dinitrate].

Tetranitrocarbazole.

Tetrazene [tetracene, tetrazine, 1(5-tetrazolyl)-4-guanyl tetrazene hydrate].

Tetrazole explosives.

Tetryl [2,4,6 tetranitro-N-methylaniline].

Tetrytol.

Thickened inorganic oxidizer salt slurried explosive mixture.

TMETN [trimethylolethane trinitrate].

TNEF [trinitroethyl formal].

TNEOC [trinitroethylorthocarbonate].

TNEOF [trinitroethylorthoformate].

TNT [trinitrotoluene, trotyl, trilit, triton].

Torpex.

Tridite.

Trimethylol ethyl methane trinitrate composition.

Trimethylolthane trinitrate-nitrocellulose.

Trimonite.

Trinitroanisole.

Trinitrobenzene.

Trinitrobenzoic acid.

Trinitrocresol.

Trinitro-meta-cresol.

Trinitronaphthalene.

Trinitrophenetol.

Trinitrophenol.

Trinitroresorcinol.

Tritonal.

U

Urea nitrate.

W

Water-bearing explosives having salts of oxidizing acids and nitrogen bases, sulfates, or sulfamates (cap sensitive).

Water-in-oil emulsion explosive compositions.

X

Xanthamona hydrophilic colloid explosive mixture.

Approved: October 6, 2011.

B. Todd Jones, Acting Director.

[FR Doc. 2011-26963 Filed 10-18-11; 8:45 am]

U. S. Department of Justice
Bureau of Alcohol, Tobacco, Firearms and Explosives
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Compendium_Roth
Page 1264

NEWS ARTICLES

Trump Administration Imposes Ban on Bump Stocks

By Charlie Savage

Dec. 18, 2018

WASHINGTON — The Trump administration on Tuesday issued a new rule banning bump stocks, the attachments that enable semiautomatic rifles to fire in sustained, rapid bursts and that a gunman used to massacre 58 people and wound hundreds of others at a Las Vegas concert in October 2017.

The new regulation, which had been expected, would ban the sale or possession of the devices under a new interpretation of existing law. Americans who own bump stocks would have 90 days to destroy their devices or to turn them in to the Bureau of Alcohol, Tobacco, Firearms and Explosives. The Justice Department said A.T.F. would post destruction instructions on its website.

Bump stocks work by harnessing a firearm's recoil energy to slide it back and forth to bump against a squeezed trigger, so that it keeps firing without any need for the shooter to pull the trigger again. The Justice Department said that this function transforms semiautomatic weapons, like assault rifles styled on the AR-15, into fully automatic machine guns, which Congress sharply restricted in 1986 — allowing the ban.

“With limited exceptions, the Gun Control Act, as amended, makes it unlawful for any person to transfer or possess a machine-gun unless it was lawfully possessed prior to the effective date of the statute,” the new regulation states. “The bump-stock-type devices covered by this final rule were not in existence prior to the effective date of the statute, and therefore will be prohibited when this rule becomes effective.”

[Read the final rule.]

A senior Justice Department official, briefing reporters about the new rule on condition of anonymity, said that it was believed that tens of thousands of bump-stock devices are in circulation, but that more exact figures are unavailable. The official said the department expected that most owners of the devices would comply with the new regulation, and that A.T.F. would investigate and take legal action against those who violate it.

After publishing a proposed version of the rule earlier this year, the government received 119,264 comments in support of it and 66,182 expressing opposition to it, the Justice Department said.

The regulatory move may face a legal challenge. The Justice Department had initially decided that the executive branch lacked the authority to ban bump stocks on its own under existing gun-control laws, and that action in Congress — where it is politically difficult to enact new gun-control legislation — would be necessary to curb legal access to the devices.

[Read our explainer on bump stocks.]

But the department reinterpreted its legal authority and determined it could ban the devices as an executive action after President Trump directed it to find a way to prohibit them earlier this year, following the mass shooting at Marjory Stoneman Douglas High School in Parkland, Fla. (The shooter in that massacre, who killed 17 people and wounded 17 others, did not use a bump stock.)

The National Rifle Association, the gun-rights lobby, did not immediately respond to a request for comment about the new rule or its intentions. In the immediate aftermath of the Las Vegas massacre, the N.R.A. supported an A.T.F. review of bump stock devices, seemingly breaking with its usual practice of fiercely opposing any new restrictions on legal access to firearms. At the time, it said it “believes that devices designed to allow semiautomatic rifles to function like fully-automatic rifles should be subject to additional regulations.”

But the N.R.A. never embraced a ban, and the association's chief lobbyist, Chris Cox, later bragged in an interview with a gun enthusiast that the organization's actions had succeeded in slowing down momentum for legislative reform. As the Las Vegas massacre — the worst mass-shooting in modern American history — was replaced by other news, a push for legislation in Congress faltered.

/

OTHER SOURCES



U.S. Department of Justice

Bureau of Alcohol, Tobacco,
Firearms and Explosives
Office of Enforcement Programs and Services
Office of Field Operations

Washington, DC 20226
www.atf.gov

March 22, 2022

OPEN LETTER TO ALL FEDERAL FIREARMS LICENSEES

The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) recently examined devices commonly known as “forced reset triggers” (FRTs) and has determined that some of them are “firearms” and “machineguns” as defined in the National Firearms Act (NFA), and “machineguns” as defined in the Gun Control Act (GCA).

These particular FRTs are being marketed as replacement triggers for AR-type firearms. Unlike traditional triggers and binary triggers (sometimes referred to generally as “FRTs”), the subject FRTs do not require shooters to pull and then subsequently release the trigger to fire a second shot. Instead, these FRTs utilize the firing cycle to eliminate the need for the shooter to release the trigger before a second shot is fired. By contrast, some after-market triggers have similar components but also incorporate a disconnect or similar feature to ensure that the trigger must be released before a second shot may be fired and may not be machineguns.

Both the NFA and GCA regulate machineguns. “Machinegun” is defined under 26 U.S.C. § 5845(b) and 18 U.S.C. § 921(a)(23) as—

Any weapon which shoots, is designed to shoot, or can be readily restored to shoot, automatically more than one shot, without manual reloading, by a single function of the trigger. The term shall also include the frame or receiver of any such weapon, any part designed and intended solely and exclusively, *or combination of parts designed and intended, for use in converting a weapon into a machinegun*, and any combination of parts from which a machinegun can be assembled if such parts are in the possession or under the control of a person. (Emphasis added.)

ATF’s examination found that some FRT devices allow a firearm to automatically expel more than one shot with a single, continuous pull of the trigger. For this reason, ATF has concluded that FRTs that function in this way are a combination of parts designed and intended for use in converting a weapon into a machinegun, and hence, ATF has classified these devices as a “machinegun” as defined by the NFA and GCA.

Accordingly, ATF’s position is that any FRT that allows a firearm to automatically expel more than one shot with a single, continuous pull of the trigger is a “machinegun”, and is accordingly subject to the GCA prohibitions regarding the possession, transfer, and transport of machineguns

OPEN LETTER TO ALL FEDERAL FIREARMS LICENSEES (cont.)

under 18 U.S.C. §§ 922(o) and 922(a)(4). They are also subject to registration, transfer, taxation, and possession restrictions under the NFA. *See* 26 U.S.C. §§ 5841, 5861; 27 CFR 479.101.

Under 26 U.S.C. § 5871, any person who violates or fails to comply with the provisions of the NFA may be fined up to \$10,000 per violation and is subject to imprisonment for a term of up to ten years. Further, pursuant to 26 U.S.C. § 5872, any machinegun possessed or transferred in violation of the NFA is subject to seizure and forfeiture. Under 18 U.S.C. § 924(a)(2), any person who violates § 922(o) may be sent to prison for up to 10 years and fined up to \$250,000 per person or \$500,000 per organization.

Based on ATF's determination that the FRTs that function as described above are "machineguns" under the NFA and GCA, ATF intends to take appropriate remedial action with respect to sellers and possessors of these devices. Current possessors of these devices are encouraged to contact ATF for further guidance on how they may divest possession. If you are uncertain whether the device you possess is a machinegun as defined by the GCA and NFA, please contact your local ATF Field Office. You may consult the local ATF Office's webpage for office contact information.



Assistant Director
Enforcement Programs and Services

GEORGE
LAUDER

Assistant Director
Field Operations

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Date: 2022.03.22
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Compressed Mortality File:

Years 1968-1978 with ICD-8 Codes, 1979-1998 with ICD-9 Codes and 1999-2016 with ICD-10 Codes

Summary: The Compressed Mortality File (CMF) is a county-level national mortality and population database spanning the years 1968-2016. Compressed Mortality data are updated annually. The number of deaths, crude death rates or age-adjusted death rates can be obtained by place of residence (total U.S., Census or HHS regions, state, and county; urbanization level of residence for years 1999-present per the 2006 or the 2013 NCHS Urban-Rural Classification Scheme for Counties; or core-based statistical areas (CBSAs) of 250,000 or more population, both the December 2005 and February 2013 Office of Management and Budget (OMB) delineation of CBSAs), age group, race (years 1968-1998: White, Black, and Other; years 1999-present: American Indian or Alaska Native, Asian or Pacific Islander, Black or African American, and White), Hispanic origin (years 1968-1998: not available; years 1999-present: Hispanic or Latino, not Hispanic or Latino, Not Stated), gender, year of death, underlying cause of death (years 1968-1978: 4 digit ICD-8 codes and 69 cause-of-death recode; years 1979-1998: 4-digit ICD-9 codes, 72 cause-of-death recode, and injury intent and mechanism; years 1999-present: 4-digit ICD-10 codes, 113 cause-of-death recode, and injury intent and mechanism). For more information, see [Compressed Mortality File Topics](#) below and http://www.cdc.gov/nchs/data_access/cmf.htm.

- Beginning in 1989, additional confidentiality restrictions apply to NCHS vital statistics data. As of May 23, 2011, all sub-national data representing zero to nine (0-9) deaths or births are suppressed. Corresponding sub-national denominator population figures are also suppressed when the population represents fewer than 10 persons. With the release for the Compressed Mortality data for years 1999-2008 on February 15, 2012, additional privacy constraints apply to infant mortality statistics for infant age groups and live births denominator population figures. See [Assurance of Confidentiality](#) for more information.
- Due to changes in the classification for underlying cause-of-death adopted in 1979 and also in 1999, WONDER has separate query screens for CMF data for years 1968-1978, years 1979-1998, and for years 1999 and later.

Source: Compressed Mortality File is produced by the National Center for Health Statistics (NCHS), at the Centers for Disease Control and Prevention (CDC). See [Data Source Information](#).

In WONDER: You can produce [tables](#), [maps](#), [charts](#), and [data extracts](#). Obtain death counts, crude death rates and age-adjusted death rates, standard error and 95% confidence intervals for rates for user-specified geographic, cause of death, and demographic criteria. Mortality measures can be obtained for several levels of geographic detail: national, Census region, Census division, state, county and urbanization level. The population estimates used as the denominator for rate calculations are also shown.

Variables: You can limit and index your data by any and all of these variables:

1. [Location](#) - U.S., HHS regions, or Census regions and divisions, state, county
2. [Urbanization](#) - classification for counties
1999-present: pick between the 2006 or the 2013 NCHS Urban-Rural Classification Scheme for Counties; Metro and Non-Metro categories are available for the 2006 or 2013 schema.
1968-1998: not available.
3. [CBSA](#) - core-based statistical areas for metropolitan statistical areas of 250,000 or more population.
1999-present: pick between the December 2005 or the February 2013 CBSA lists;
1968-1998: not available.
4. [Year](#) - 1968-1978, 1979-1998 and 1999-2016
5. [Age Group](#) - pick between two lists of age groups:
<1 year of age, 1-4 years, 5-9 years, 10-14 years, 15-19 years, 20-24 years, 25-34 years, 35-44 years, 45-54 years, 55-64 years, 65-74 years 75-84 years, and 85years and over;
infant age groups: < 1 day, 1-6 days, 7-27 days, 28-364 days
6. [Race](#)
1999-present: American Indian or Alaska Native, Asian or Pacific Islander, Black or African American, White;
1968-1998: Black, White, Other
7. [Hispanic Origin](#)
1999-present: Hispanic or Latino, Not Hispanic or Latino, Not Stated
1968-1998: not available.
8. [Gender \(Sex\)](#) - Female, Male
9. [Cause of Death](#) - underlying cause of death classified by International Classification of Diseases (ICD):
1999-present: ICD-10 codes, 113 selected causes of death;
1979-1998: ICD-9 codes, 72 selected causes of death;
1968-1978: ICD-8 codes, 68 selected causes of death
10. [Injury Intent and Mechanism](#) - for analysis of injury mortality in years 1979 and later
1968-1998: not available.

Statistical measures: The following statistical measures are available as query results:

1. [Death Counts](#)
2. [Crude Rates](#)
3. [Age-Adjusted Rates](#)
4. [95% Confidence Intervals for Rates](#)
5. [Standard Errors for Rates](#)
6. [Percent of Total](#)

Suppression and Unreliability:

- Sub-national data representing fewer than ten (0-9) persons are suppressed for year 1989 and later years. The suppression constraint affects death counts, birth counts, rates and associated confidence intervals and standard errors, as well as corresponding population figures. See [Assurance of Confidentiality](#) for more information.
- Crude death rates and age-adjusted death rates are marked as "**unreliable**" when the death count is less than 20.

Topics: [Compressed Mortality Data Request](#)
[Data Source Information](#)
[Additional Information](#)
[Age Adjustment of Death Rates](#)
[Assurance of Confidentiality](#)
[Contact for Data Questions](#)
[Frequently Asked Questions about Death Rates](#)
[International Classification of Diseases \(ICD\)](#)
 [ICD 10th revision](#)
 [ICD 9th revision](#)
 [ICD 8th revision](#)
[Locations: About County Geography Changes](#)
[Mortality Data](#)
 [Infant Mortality](#)
 [CMF Archives](#)
[Population Estimates](#)
[Race Reporting](#)
[Suggested Citation](#)

Additional Information

Suggested

Suggested**Data
Source
Citations:**

United States Department of Health and Human Services (US DHHS),
Centers for Disease Control and Prevention (CDC),
National Center for Health Statistics (NCHS),
Compressed Mortality File (CMF) on CDC WONDER Online Database.

- The current release for years 1999 - 2016 is compiled from:
CMF 1999-2016, Series 20, No. 2V, 2017
- The current release for years 1979 - 1998 is compiled from:
CMF 1968-1988, Series 20, No. 2A, 2000 and
CMF 1989-1998, Series 20, No. 2E, 2003
- The current release for years 1968 - 1978 is compiled from:
CMF 1968-1988, Series 20, No. 2A, 2000
- The archive release for years 1999 - 2015 is compiled from:
CMF 1999-2015, Series 20, No. 2U, 2016
- The archive release for years 1999 - 2014 is compiled from:
CMF 1999-2014, Series 20, No. 2T, 2015
- The archive release for years 1999 - 2013 is compiled from:
CMF 1999-2013, Series 20, No. 2S, 2014
- The archive release for years 1999 - 2012 is compiled from:
CMF 1999-2012, Series 20, No. 2R, 2014
- The archive release for years 1999 - 2011 is compiled from:
CMF 1999-2011, Series 20, No. 2Q, 2014
- The archive release for years 1999 - 2010 is compiled from:
CMF 1999-2010, Series 20, No. 2P, 2013
- The archive release for years 1999 - 2009 is compiled from:
CMF 1999-2009, Series 20, No. 2O, 2012
- The archive release for years 1999 - 2008 is compiled from:
CMF 1999-2008, Series 20, No. 2N, 2011
- The archive release for years 1999 - 2007 is compiled from:
CMF 1999-2007, Series 20, No. 2M, 2010
- The archive release for years 1999 - 2006 is compiled from:
CMF 1999-2006, Series 20, No. 2L, 2009
- The archive release for years 1999 - 2005 is compiled from:
CMF 1999-2005, Series 20, No. 2K, 2008
- The archive release for years 1999 - 2004 is compiled from:
CMF 1999-2004, Series 20, No. 2J, 2007
- The archive release for years 1999 - 2003 is compiled from:
CMF 1999-2003, Series 20, No. 2I, 2006
- The archive release for years 1999- 2002 is compiled from:
CMF 1999-2002, Series 20, No. 2H, 2004
- The archive release with data for years 1999 - 2001 is compiled from:
CMF 1999-2001, Series 20, No. 2G, 2004
- The archive release with data for years 1979 - 1999 is compiled from:
CMF 1968-1988, Series 20, No. 2A, 2000 and
CMF 1989-2000, Series 20, No. 2C 2001

The suggested citation including the original series for the data is shown below each table, chart or map.

For more information on archive data from previous releases, see [CMF Archives](#).

Mortality data on the CMF are derived from micro-data death files produced by the National Center for Health Statistics. These files were derived from the National Vital Statistics System which contains information from death certificates collected by the States and tabulated by NCHS. Population data on the CMF are derived from Census Bureau files.

Revisions and Errata:

- **About revised 2014 deaths:** A revised data file for 2014 was released on April 3, 2017 to include corrections affecting 125 deaths previously coded to "Accidental discharge of firearms" (ICD-10 codes W32-W34). This corrected file replaced the file released on December 9, 2015. The underlying cause of death changed for 125 deaths in 2014 that occurred in Tennessee (80%) and Massachusetts (20%). (Note: Data by state of residence are also impacted in Connecticut, Florida, Georgia, Kentucky, North Carolina and Virginia for records where the death occurred in Tennessee or Massachusetts but the decedent was a resident of another state.) Prior to the revision, the underlying cause of death for all 125 deaths were classified as "Accidental discharge of firearms" (ICD-10 codes W32-W34). After the revision, 50% of the changed records are now classified as "Assault (homicide) by discharge of firearms" (ICD-10 codes *U01.4, X93-X95); 42% are now classified as "Intentional self-harm (suicide) by discharge of firearms" (ICD-10 codes X72-X74); 4% of the revised death records are now classified as "Discharge of firearms, undetermined intent" (ICD-10 codes Y22-Y24); and the remaining 4% to various other causes. For more information, please refer to [Deaths: Final Data for 2014](#).
- **About revised 1989 deaths:** The 1989 data records for age groups 10-14 years and 25-34 years were revised on May 9, 2007 due to a data discrepancy in CMF 1989-1998, Series 20, No. 2E, 2003. Previously, 27 deaths in the 10-14 year age group were incorrectly recorded as deaths in the 25-34 age group.
- **About rates for state and county combinations:** Prior to September 18, 2015, when a Compressed Mortality query on CDC WONDER included both state and counties in the query criteria

(e.g., death rates for New Hampshire and adjacent York County, Maine), the population figures and the subsequent rate calculations may have been incorrect because the population of the selected state may have been included twice.

Contact: For data questions that are not addressed in this document, e-mail nchsquery@cdc.gov.

Mortality Data: The mortality data on the Compressed Mortality File are based on information from all death certificates filed in the fifty states and the District of Columbia. Deaths of nonresidents (e.g. nonresident aliens, nationals living abroad, residents of Puerto Rico, Guam, the Virgin Islands, and other territories of the U.S.) and fetal deaths are excluded. Mortality data from the death certificates are coded by the states and provided to NCHS through the Vital Statistics Cooperative Program or coded by NCHS from copies of the original death certificates provided to NCHS by the State registration offices. For more information, see [Technical Appendix from Vital Statistics of United States: 1999 Mortality](#).

- **About cause of death classification:**

- Cause of death on the CMF is the underlying cause-of-death, which is defined by the World Health Organization (WHO) as "the disease or injury which initiated the train of events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury." Underlying cause-of-death is selected from the conditions entered by the physician on the cause of death section of the death certificate. When more than one cause or condition is entered by the physician, the underlying cause is determined by the sequence of conditions on the certificate, provisions of the ICD, and associated selection rules and modifications.
- Underlying cause of death is classified in accordance with the International Classification of Disease. Deaths for 1968-1978 are classified using the Eighth Revision (ICD-8). Deaths for 1979-1998 are classified using the Ninth Revision (ICD-9). Deaths for 1999 and beyond are classified using the Tenth Revision (ICD-10).
- The ICD-9 and ICD-10 classification systems are quite different. The ICD-9 system has a 4-digit numeric structure and about 5,000 categories for classifying causes of death. The ICD-10 system has a 4-digit alphanumeric coding structure and about 8,000 categories for classifying causes of death. Comparison of ICD-9 and ICD-10 shows that new chapters have been added to the ICD, old chapters have been rearranged, causes of death have been regrouped, and titles have changed. The differences between ICD-9 and ICD-10 make direct comparisons of cause of death difficult and result in discontinuities in cause-of-death trends. NCHS conducted a comparability study to measure the discontinuities between the Ninth and Tenth Revisions and computed comparability ratios for major causes of death. For further information on comparability of mortality causes between ICD-9 and ICD-10, please reference [Comparability of Causes of Death Between ICD Revisions](#). For information on comparability of mortality causes between ICD-8 and ICD-9, please see [Estimates of Selected Comparability Ratios Based on Dual Coding of 1976 Death Certificates by the Eighth and Ninth Revisions of the International Classification of Diseases](#).
- For deaths due to injuries and poisonings that occurred during 1968-1998, the External cause is coded (E800-E999) rather than the Nature of Injury (800-999). The letter "E" is included in the code in CDC WONDER.
- Beginning with data for 2001, NCHS introduced categories *U01-*U03 for classifying and coding deaths due to acts of terrorism. The asterisks before the category codes indicate that they are not part of the International Classification of Diseases, Tenth Revision (ICD-10). Description of the specific 4-digit codes can be found at [NCHS Classifications of Diseases, and Functioning & Disability: Appendix I](#). Deaths classified to the terrorism categories are included in the categories for Assault (homicide) and Intentional self-harm (suicide) in the 113 cause-of-death list. Additional information on these new categories can be found at [Classification of Death and Injury Resulting from Terrorism](#).

- **Reporting anomalies:**

- **About Georgia reporting anomalies in 2008-2009:** Circumstances in Georgia for the years 2008 and 2009 have resulted in unusually high death counts for the ICD-10 cause of death code R99, "Other ill-defined and unspecified causes of mortality" for deaths occurring in years 2008 and 2009. Caution should be used in interpreting these data. For more information, see [Deaths: Final Data for 2008](#).
- **About New Jersey reporting anomalies in 2009:** Circumstances in New Jersey for the year 2009 have resulted in unusually high death counts for the ICD-10 cause of death code R99, "Other ill-defined and unspecified causes of mortality" and therefore unusually low death counts in other ICD-10 codes, most notably R95 "Sudden Infant Death Syndrome" and X40-X49 "Unintentional poisoning." Caution should be used in interpreting these data. [Deaths: Final Data for 2009](#).
- **About Allen Parish, Louisiana reporting anomalies in 2006-2008:** Deaths for Allen Parish, Louisiana (FIPS code 22003) in years 2006 through 2008 are under reported due to problems with registering the deaths with the Louisiana Vital Statistics Office.
- **About California reporting anomalies in 2000 - 2001:** Circumstances in California resulted in unusually high death counts for the ICD-10 cause of death code R99, "Other ill-defined and unspecified causes of mortality" for deaths occurring in years 2000 and 2001. Caution should be used in interpreting these data.
- **About cause of death classification changes:** Changes to cause of death classification affect reporting trends. For more information, see [Changes in ICD-10 codes](#).

- **About race and ethnicity reporting:**

- Race and Hispanic origin are reported separately on the death certificate in accordance with standards set forth by the Office of Management and Budget. The American Indian or Alaska Native race category includes: North, Central, and South American Indians, Eskimos, and Aleuts. The Asian or Pacific Islander race category includes Chinese, Filipino, Hawaiian, Japanese, and Other Asian or Pacific Islanders.
- Hispanic origin was not reported on the death certificate for some deaths. On the mortality file, missing Hispanic origin information is coded as "not stated". There is no corresponding population figure for this group. Therefore, deaths with Hispanic origin not stated are excluded when death rates are calculated by Hispanic origin.
- Information included on the death certificate about the race and Hispanic ethnicity of the decedent is reported by the funeral director as provided by an informant, often the surviving next of kin, or, in the absence of an informant, on the basis of observation. Race and ethnicity information from the census is by self-report. To the extent that race and Hispanic origin are inconsistent between these two data sources, death rates will be biased. Studies have shown that persons self-reported as American Indian

sources, death rates will be biased. Studies have shown that persons self-reported as American Indian,

Asian, or Hispanic on census and survey records may sometimes be reported as white or non-Hispanic on the death certificate, resulting in an underestimation of deaths and death rates for the American Indian, Asian, and Hispanic groups. Bias also results from undercounts of some population groups in the census, particularly young black males, young white males, and elderly persons, resulting in an overestimation of death rates. In " [Quality of death rates by race and Hispanic origin: A summary of current research, 1999](#)," the authors estimate that the misclassification and under-coverage result in overstated death rates for the white and black populations (1% and 5%, respectively) and understated death rates for other population groups (American Indians, 21%; Asian or Pacific Islanders, 11%; and Hispanics, 2%). See also [The validity of race and Hispanic Origin reporting on death certificates in the United States](#).

- For 1979-2002, all 50 States and the District of Columbia collected race data on the death certificates using four single-race categories (American Indian or Alaska Native, Asian or Pacific Islander, Black, and White) in accordance with the 1977 OMB standards, allowing only a single race to be reported. Beginning with the 2003 data year, some States began collecting race data in accordance with the 1997 OMB standards, allowing one or more of five race categories to be reported. In order to provide uniformity and comparability of mortality data during the transition from the single-race format to the multiple-race format, NCHS is "bridging" the race responses of those for whom more than one race is reported (multiple race) to one of the single-race categories. The bridging procedure is similar to the procedure used to bridge multiple-race population estimates. Multiple-race decedents are imputed to a single race (White, Black, American Indian or Alaska Native, or Asian or Pacific Islander) according to their combination of races, Hispanic origin, sex, and age indicated on the death certificate. The imputation procedure is described in detail at [NCHS Procedures for Multiple-Race and Hispanic Origin Data](#).
- For more discussion of race and ethnicity data in CMF, see [Race and Ethnicity Questions](#).
- **About "Not Stated" age or ethnicity:**
 - Data for the "Not Stated" age category or the "Not Stated" Hispanic Origin category cannot be combined with any other specified age group or Hispanic Origin categories.
 - The "Not Stated" group is included in the "All Ages" or the "All" Hispanic Origin categories.
 - Death rates are not calculated for the "Not Stated" groups because there are no corresponding population denominator data for these groups.
- **About the "unknown county" in Georgia for years 1981-1991:**
 - For the years 1988 through 1991, if there were three or fewer deaths for a given Georgia county of residence (of deaths occurring in Georgia) with HIV infection (ICD codes *042-*044, 795.8) cited as a cause-of-death (underlying or non-underlying cause), these records were assigned a "missing" place of residence code (location code (FIPS code 13999).
 - These deaths do not appear in county death rates, but these deaths are included in the state and national death rates.

Population Data: The population estimates on the Compressed Mortality File are U.S. Census Bureau estimates of U.S. national, state, and county resident populations. The estimates for 1968, 1969, 1971-1979, 1981 - 1989, 1991- 1999 and 2001-2009 are intercensal estimates of July 1 resident populations. The 1970, 1980, 1990, 2000 and 2010 population estimates are April 1 modified census counts. The 2001-2009 population estimates are revised intercensal estimates of the July 1 resident population (released by NCHS on 10/26/2012). The 2011-2016 population estimates are postcensal estimates of July 1 resident populations. The population estimates for 1991-2016 have bridged-race categories. For more information, see notes below and [Population Information](#).

Sources of the population data, by year and type of estimate for the current 1968-1978, 1979-1998 and 1999-2016 CMF			
Date of estimate	National	Region, Division, State	County
July 1, 1968 - July 1, 1969	National intercensal estimates	Obtained by linear extrapolation from the corresponding July 1, 1970 and July 1, 1971 state population estimates	Obtained by linear extrapolation from the corresponding July 1, 1970 and July 1, 1971 county population estimates
April 1, 1970	Sum of county modified census counts	Sum of county modified census counts	County modified census counts
July 1, 1971 - July 1, 1979	National intercensal estimates	Sum of county intercensal estimates	County intercensal estimates
April 1, 1980	Sum of county modified age-race-sex census counts	Sum of county modified age-race-sex census counts	County modified age-race-sex census counts
July 1, 1981 - July 1, 1989	National intercensal estimates	State intercensal estimates	County intercensal estimates
April 1, 1990	Sum of county modified age-race-sex census counts	Sum of county modified age-race-sex census counts	County modified age-race-sex census counts
July 1, 1991 - July 1, 1999	Sum of bridged-race county intercensal estimates	Sum of bridged-race county intercensal estimates	Bridged-race county intercensal estimates
April 1, 2000	Sum of bridged-race county modified age-race-sex census counts	Sum of bridged-race county modified age-race-sex census counts	Bridged-race county modified age-race-sex census counts
July 1, 2001 - July 1, 2009	Sum of bridged-race county revised intercensal estimates	Sum of bridged-race county revised intercensal estimates	Bridged-race county revised intercensal estimates
April 1, 2010	Sum of bridged-race county modified census counts	Sum of bridged-race county modified census counts	Bridged-race county modified age-race-sex census counts
July 1, 2011	Sum of bridged-race county Vintage 2011 postcensal estimates	Sum of bridged-race county Vintage 2016 postcensal estimates	Sum of bridged-race county Vintage 2016 postcensal estimates

July 1, 2012	Sum of bridged-race county Vintage 2012 postcensal estimates	Sum of bridged-race county Vintage 2016 postcensal estimates	Sum of bridged-race county Vintage 2016 postcensal estimates
July 1, 2013	Sum of bridged-race county Vintage 2013 postcensal estimates	Sum of bridged-race county Vintage 2016 postcensal estimates	Sum of bridged-race county Vintage 2016 postcensal estimates
July 1, 2014	Sum of bridged-race county Vintage 2014 postcensal estimates	Sum of bridged-race county Vintage 2016 postcensal estimates	Sum of bridged-race county Vintage 2016 postcensal estimates
July 1, 2015	Sum of bridged-race county Vintage 2015 postcensal estimates	Sum of bridged-race county Vintage 2016 postcensal estimates	Sum of bridged-race county Vintage 2016 postcensal estimates
July 1, 2016	Sum of bridged-race county Vintage 2016 postcensal estimates	Sum of bridged-race county Vintage 2016 postcensal estimates	Sum of bridged-race county Vintage 2016 postcensal estimates
Note: all population estimates are estimates of the resident population of the United States.			

- **About national, state, and county population estimates:**

There are national, state, and county population estimates on the CMF; for some years they are consistent with each other (sum to the same totals), for some years they are not. For years 2011, 2012, 2013, 2014, 2015 and 2016 the state and county estimates on the CMF are consistent with each other, but not with the national estimates. For these postcensal years, the state and county estimates for all postcensal years are replaced with estimates from the most recent postcensal series when the file is updated each year. By contrast, the national estimates for the postcensal years are not revised when the file is updated annually, so that the national population estimates on the CMF will be the same as those used by NCHS to calculate published death rates. In order to replicate state or county death rates for year 2011 and later calculated using earlier versions of the CMF, please use the appropriate archived data.

- **About revisions of postcensal estimates:**

Changes were implemented in the postcensal estimates methodology used for Vintages 2007, 2008, 2009, 2012, 2013 and 2016. Additionally, Hurricanes Katrina and Rita in 2005 necessitated special modification of population estimates for the affected areas beginning with Vintage 2006. Methodology changes prior to 2010 affect estimates in archived CMF versions, but not estimates in CMF 1999-2010 and later as postcensal estimates for 2001-2009 have been replaced with intercensal estimates.

- **About bridged-race population estimates:**

The population estimates on the CMF for 1991 and later are bridged-race population estimates. Race bridging refers to making data collected using one set of race categories consistent with data collected using a different set of race categories, to permit estimation and comparison of race-specific statistics at a point in time or over time. Census 2000 permitted individuals to report more than one race which resulted in "multiple-race" population counts. The death certificate currently used by most States only permits one race to be reported for decedents (single-race categories). Thus, the multiple-race data collected on the 2000 census are not comparable with the single-race mortality data. Therefore, multiple-race population estimates have been bridged to single-race categories. For more information see [U.S. Census Populations with Bridged-race Categories](#).

- **About live births and "under 1 year of age" population estimates:**

- For years 1999 and later, the number of live births and estimates of the population under 1 year of age are both available as denominators in rate calculation on the CMF. The number of live births and the population estimate for the "Under one year of age" group differ slightly. NCHS live-birth data are used as the denominators in death rate calculations for "Infant Age Groups" so that neonatal mortality, post neonatal mortality, and infant mortality rates can be calculated. The population under one year of age is used as the denominator in death rate calculations involving the "Under 1 year" age group. Prior to August 2006, the number of live births was used for all rate calculations involving the "Infant Age Groups" and the "Under 1 year" age group. For years before 1999, the number of live births is used for all rate calculations involving both the "Infant Age Groups" and the "Under 1 year" age group. For more information, see [Mortality for Infants](#).
- Population estimates for the age groups "Under 1 year" and "1-4 years" did not appear on some Census population files. For 1968-89 state and county estimates and for 1970 and 1980 national estimates, the estimates for the "0-4 years" age group were multiplied by 0.8 to obtain estimates for the "1-4 years" age group; estimates for the "under 1 year" age group were then obtained by subtraction.

- **About rounding:**

For years 1968-69 and 1971-79, and 1981-1989, NCHS used national population estimates rounded to the nearest 1,000 to calculate published death rates. Estimates were rounded after aggregation across race, sex, or age groups. The national population estimates on the CMF for 1968-69 and 1971-79 are rounded to the nearest 1,000 in accordance with this practice. However, while NCHS rounded after aggregating across age, race, and/or sex groups, the population estimates in the CMF for aggregate groups are obtained by summing already rounded population estimates. As a result, national death rates for aggregate groups calculated using the rounded estimates on the CMF may differ slightly from those published by NCHS. Population estimates for years 1981-89 on the CMF are unrounded; hence, death rates calculated using the CMF also may differ slightly from those published by NCHS.

- **About "Not Stated" age or ethnicity:** Beginning with the August 2009 release of CMF data on WONDER online databases, data for the "Not Stated" age group or the "Not Stated" Hispanic Origin category cannot be combined with any other age group or Hispanic Origin categories, except for "All" age groups or "All" Hispanic Origin categories. Deaths for the "Not Stated" groups are not distributed among the other groups. Rates are not calculated for the "Not Stated" groups because there are no corresponding population denominator data for these groups.

- You can select data for "All" age groups, or only for the "Not Stated" age group, or for any combination of the other age groups. Data for the "Not Stated" age group cannot be combined with the other specific age groups. Deaths of persons with "Unknown" or "Not Stated" age are included in "All" counts and rates, but are not distributed among age groups, so are not included in age-specific counts, age-specific rates or in any age-adjusted rates.
- You can select data for "All" Hispanic Origin categories, or only for the "Not Stated" category, or for any combination of the other categories. Data for the "Not Stated" Hispanic Origin category cannot be combined with the other specific categories. Deaths of persons with unknown or "Not Stated" Hispanic Origin are included in "All" counts and rates, but are not distributed among ethnicity categories, so are not included in the specific Hispanic Origin group counts or rates.

Compressed Mortality Data Request

- Output:

You can produce [tables](#), [maps](#), [charts](#), and [data extracts](#). Obtain death counts, crude rates and age-adjusted rates, select specific disease and demographic criteria to produce cross-tabulated mortality measures. Data are organized into three levels of geographic detail: national, state (including multi-state regions) and county. The population estimates used as the denominator for rate calculations are also shown.
- Variables:

You can limit and index your data by any and all of the [variables](#).
- How?

The Request screen has sections to guide you through the making a data request as step-by-step process. However, to get your first taste of how the system works, you might want to simply press any Send button, and execute the default data request. The data results for your query appear on the Table screen. After you get your data results, try the [Chart](#) and [Map](#) screens. Or [export](#) your data to a file (tab-delimited line listing) for download to your computer.
For more information, see the following:
[Quick Start Guide](#)
[Step 1](#), Organize and label results
[Step 2](#), Select location
[Step 3](#), Select years and demographics
[Step 4](#), Select cause of death
[Step 5](#), Other options
- 'By-Variables'

Select variables that serve as keys (indexes) for organizing your data. See [How do I organize my data?](#) for more information.
Note: To map your data, you must select at least one geographical location as a "By-Variable" for grouping your data, such as State or County.
- Help:

Click on any button labeled "Help", located to the right hand side of the screen at the top of each section. Each control's label, such as the "Location" label next to the Location entry box, is linked to the on-line help for that item.
- Send:

Sends your data request to be processed on the CDC WONDER databases. The Send buttons are located on the bottom of the Request page, and also in the upper right corner of each section, for easy access.
-

Step 1. Organize table layout:

There are three basic steps you may take in this first section. However, you may also simply click the "Send" button to request the default query, which reports national death counts and crude death rates by age group for all causes and all years.

1. Pick indexes or cross-tabulation for your results.

Select up to five categorical variables that serve as indexes or keys for grouping your data. See [Group Results By](#) below for hints.
2. Select statistical measures reported in your results.

The following summary statistical measures are always available as query results:
 - [Death Counts](#)
 - [Populations](#) for rate calculations
 - [Crude Rates](#)

These optional measures are also available:

 - [Age-Adjusted Rates](#)
 - [95% Confidence Intervals for Rates](#)
 - [Standard Error for Rates](#)
 - [Percent of Total](#)

How?

Click the [check box](#) to indicate the desired measure. Measures are listed in section 1 on the Request Form tab.
3. Provide a title for your results.

Enter any desired description in the **Title** box, to display above your results. Titles are optional.
4. Additional Rate Options:

Click the "+" to open this section, and select more measures for rates. The options vary, depending on your selections in the Measures section above. For example, when you check Age-Adjusted Rates in the Measures section, then you can choose a standard population for weighting the age-adjusted rates, or you can select criteria to define a non-standard population for weights, in the Additional Rate Options section. For more information, see [Additional Rate Options](#)
-

Group Results By...

Select up to five variables that serve as keys for grouping your data. For example, you could select to group (summarize, stratify, index) your data by State and by County.

- How?

See [How do I organize my data?](#) for more information.
- Hints:

1.

When age-adjusted rates are calculated, you cannot group the data by Age Group.
2. About charts:

You cannot make charts when your data has more than two By-Variables.
3. About maps:

To make a map, you must request data with a geographic location variable, such as State or County, as a "By-Variable." Then click the Map tab.
-

Death Counts

The death counts in the data represent deaths that occurred in the 50 United States and the district of Columbia, for the legal place of residence of the decedent. See [Mortality data](#) for more information.

Sub-national data representing fewer than ten persons (0-9) are suppressed for year 1989 and later years. See [Assurance of Confidentiality](#) for more information.

Crude Rates

Crude Rates are expressed as the number of deaths reported each calendar year per the factor you select. The default factor is per 100,000 population, reporting the death rate per 100,000 persons.

$$\text{Crude Rate} = \text{Count} / \text{Population} * 100,000$$

See [Frequently Asked Questions about Death Rates](#) .

Hints:

- Rates calculated with population estimates are per 100,000 persons by default. However, [infant mortality rates](#) are calculated per 1,000 live births by default. Click "+" to open [Additional Rate Options](#) in [section 1](#) on the Request Form tab, to select the factor for rate calculations.
- Select the precision for rate calculations in the [Other Options](#) section. When the rate calculated for a small numerator (incidence count) is zero, you may increase the precision to reveal the rate by showing more numbers to the right of the decimal point.

Notes:

- Rates for small populations should be interpreted with caution.
- Sub-national data representing fewer than ten persons (0-9) are suppressed for year 1989 and later years. See [Assurance of Confidentiality](#) for more information.
- Rates are marked as "**unreliable**" when the death count is less than 20.
- Crude rates are helpful in determining the need for services for a given population, relative to another population, regardless of size. Crude rates are influenced by the underlying age distribution of the state's population. Even if two states have the same age-adjusted rates, the state with the relatively older population (as demonstrated by having a higher median age) will have higher crude rates because incidence or death rates for most cancers increase with increasing age.
- The population estimates for the denominators of incidence rates are race-specific (all races, white, black, and other races combined) and sex-specific population estimates. The population estimates are aggregated from the most detailed level selected. For example, if you have requested data for the nation grouped by state and by county, then the populations are the county-level population estimates aggregated to the state and national summaries. See [Population Denominator Data Sources](#) below for more information.
- The population for "Infant age groups" is the number of live births in the given time period. See [Mortality for Infants](#) for more information.
- Prior to August 2006, the number of live births had been substituted for the "under 1 year" age group population estimates. This substitution affected the "under 1 year" and "all ages" death rates slightly, when compared to published tables that rely solely on population estimates.

Age-Adjusted Rates

Age-adjusted rates are requested in the [Section 1](#) on the Request Form tab.

Age-adjusted death rates are weighted averages of the age-specific death rates, where the weights represent a fixed population by age. They are used to compare relative mortality risk among groups and over time. An age-adjusted rate represents the rate that would have existed had the age-specific rates of the particular year prevailed in a population whose age distribution was the same as that of the fixed population. Age-adjusted rates should be viewed as relative indexes rather than as direct or actual measures of mortality risk. However, you can select other standard populations, or select specific population criteria to determine the age distribution ratios. See [Frequently Asked Questions about Death Rates](#) for more information.

The rates of almost all causes of death vary by age. Age adjustment is a technique for "removing" the effects of age from crude rates, so as to allow meaningful comparisons across populations with different underlying age structures. For example, comparing the crude rate of heart disease in Florida to that of California is misleading, because the relatively older population in Florida will lead to a higher crude death rate, even if the age-specific rates of heart disease in Florida and California are the same. For such a comparison, age-adjusted rates are preferable. Age-adjusted rates should be viewed as relative indexes rather than as direct or actual measures of mortality risk.

The Compressed Mortality online database and NCHS age-adjusts death rates using the direct method. That is, by applying age-specific death rates (R_i) to the U.S. standard population age distribution.

$$R' = \sum_i (P_{si} / P_s) R_i$$

where **P_{si}** is the standard population for age group **i** and **P_s** is the total U.S. standard population (all ages combined).

In the direct method, a standard age distribution is chosen and the age-specific death rates are weighted according to the standard. A reasonable choice for the standard is the U.S. total population (all races, both genders) for the year under study. To permit comparison of death rates from year to year, a standard population is used. Beginning with the 1999 data year, NCHS adopted the year 2000 projected population of the United States as the standard population. This new standard replaces the 1940 standard population that was used by NCHS for over 50 years. The new population standard affects the level of mortality and to some extent trends and group comparisons. Of particular note are the effects on race comparison of mortality. For detailed discussion, see:

Anderson RN, Rosenberg HM. *Age standardization of death rates: Implementation of the year 2000 standard. National Vital Statistics Reports; volume 47 number 3.* Hyattsville, Maryland. National Center for Health Statistics. 1998.

Beginning with 2003 data, the traditional standard million population along with corresponding standard weights to six decimal places were replaced by the projected year 2000 population age distribution (see [2000 Standard Population](#) below). A forthcoming report will describe the change in more detail. The effect of the change is negligible and does not significantly affect comparability with age-adjusted rates calculated using the previous method.

Age-Adjusted Rates Hints:

- Age-Adjusted Rates are optional, see [section 1](#) on the Request Form tab to select age-adjusted rates.
- Rates are calculated per 100,000 population by default. See [Additional Rate Options](#) to select the factor for rate calculations.
- Select the precision for rate calculations in the [Other Options](#) section. When the rate calculated for a small numerator (incidence count) is zero, you may increase the precision to reveal the rate by showing more numbers to the right of the decimal point.
- Age-adjusted rates cannot be calculated when the data are grouped by Age Group.
- Age-adjusted rates are not calculated when only one age group is selected (the effect is a ratio of one).
- Age-adjusted rates are not available for "Infant age groups" because the populations for these age groups are the number of live births in the given time period, the same population denominator for each infant age group.
- The selection must include both age groups "5 - 9 years" and "10 - 14 years" in order to calculate age-adjusted rates for this population. The combined age groups are required because the reference standard population has the age group "5 - 14 years."
- The selection must include both age groups "15 - 20 years" and "20 - 24 years" in order to calculate age-adjusted rates for this population. The combined age groups are required because the reference standard population has the age group "15 - 24 years."

Notes:

- Sub-national data representing fewer than ten persons (0-9) are suppressed for year 1989 and later years. See [Assurance of Confidentiality](#) for more information.
- Rates are marked as "**unreliable**" when the death count is less than 20.
- Rates are marked as "**not applicable**" when the denominator population figure is unavailable, such as "not stated" or unknown age or ethnicity.
- Deaths of persons with "not stated" or unknown age are not included in the calculation of age-adjusted rates.
- If a "non-standard" population is selected for age-adjusted rates, then the actual population estimates for the specified year that are on the Compressed Mortality File are used to determine the specific age-distribution ratios (or weights) used in the calculation.
- The following standard populations (see tables below) are used for computing age-adjusted rates:
 - year [2000 Standard Population](#)
 - year [2000 Standard Million Population](#)
 - year [1970 Standard Million Population](#)
 - year [1940 Standard Million Population](#)
- The 2000 Standard Population is a projected population, developed before the April 1, 2000 enumerated Census occurred. For more information, see the following publications:
 - [Age Standardization of Death Rates: Implementation of the Year 2000 Standard](#)
 - [Age-adjusted Death Rates: Trend Data Based on the Year 2000 Standard Population](#)
 - [The Effect of Revised Populations on Mortality Statistics for the United States, 2000](#)

Year 2000 Standard Population for the United States

Age	Number
All ages	274,633,642
Under 1 year	3,794,901
1-4 years	15,191,619
5-14 years	39,976,619
15-24 years	38,076,743
25-34 years	37,233,437
35-44 years	44,659,185
45-54 years	37,030,152
55-64 years	23,961,506
65-74 years	18,135,514
75-84 years	12,314,793
85 years and over	4,259,173

* Based on year 2000 projected population.

Year 2000 Standard Million Population for the United States Numbers and All Ages Proportions (Weights) *

Age	Number	Weight
All ages	1,000,000	1.000000
Under 1 year	13,818	0.013818
1-4 years	55,317	0.055317
5-14 years	145,565	0.145565
15-24 years	138,646	0.138646
25-34 years	135,573	0.135573
35-44 years	162,613	0.162613
45-54 years	134,834	0.134834
55-64 years	87,247	0.087247
65-74 years	66,037	0.066037
75-84 years	44,842	0.044842
85 years and over	15,508	0.015508

* Based on year 2000 projected population.
Note that these weights only apply to the all ages population,
the weights are calculated dynamically when age groups are selected.

Year 1970 Standard Million Population for the United States
Numbers and All Ages Proportions (Weights) *

Age	Number	Weight
All ages	1,000,000	1.000000
Under 1 year	18,102	0.018102
1-4 years	66,314	0.066314
5-14 years	200,508	0.200508
15-24 years	174,406	0.174406
25-34 years	122,569	0.122569
35-44 years	113,614	0.113614
45-54 years	114,265	0.114265
55-64 years	91,480	0.091480
65-74 years	61,195	0.061195
75-84 years	30,112	0.030112
85 years and over	7,435	0.007435

* Based on the year 1970 population.
Note that these weights only apply to the all ages population,
the weights are calculated dynamically when age groups are selected.

Year 1940 Standard Million Population for the United States
Numbers and All Ages Proportions (Weights) *

Age	Number	Weight
All ages	1,000,000	1.000000
Under 1 year	15,343	0.015343
1-4 years	64,718	0.064718
5-14 years	170,355	0.170355
15-24 years	181,677	0.181677
25-34 years	162,066	0.162166
35-44 years	139,237	0.139237
45-54 years	117,811	0.117811
55-64 years	80,294	0.080294
65-74 years	48,426	0.048426
75-84 years	17,303	0.017303
85 years and over	2,770	0.002770

* Based on the year 1940 population.
Note that these weights only apply to the all ages population,
the weights are calculated dynamically when age groups are selected.

95% Confidence Intervals for Rates

You can request 95% confidence intervals calculated for mortality rates. The method for confidence intervals calculated for 100 or more deaths differs slightly from the method for confidence intervals calculated for 99 or fewer deaths.

How? Confidence intervals for rates are requested in "[section 1](#)" on the Request Form tab. Click the [check box](#) to indicate the desired measure.

Notes:

- The method for confidence intervals calculated for 100 or more deaths:
The lower 95% confidence interval is the crude death rate minus (1.96 times the standard error of the rate). The upper 95% confidence interval is the crude death rate plus (1.96 times the standard error of the rate). $LCI = R - 1.96 * S(R)$
 $UCI = R + 1.96 * S(R)$
- The method for confidence intervals calculated for 99 or fewer deaths:
The lower 95% confidence interval is the crude death rate multiplied by the lower 95% confidence limit factor for a death rate based on a Poisson variable of the number of deaths. The upper 95% confidence interval is the crude death rate multiplied by the upper 95% confidence limit factor for a death rate based on a Poisson variable of the number of deaths. See [Vital Statistics of the United States: Mortality, 1999: Technical Appendix Table S](#). $LCI = R * L(0.95, D)$
 $UCI = R * U(0.95, D)$
- Where:
 - LCI = lower 95% confidence interval
 - UCI = upper 95% confidence interval
 - R = crude death rate $R = (\text{deaths} / \text{population}) * 100,000$
 - D = the total number of deaths upon which the rate is based.
 - $RSE(R) = \text{relative standard error of rate}$ $RSE(R) = 100 * \text{square root of } (1/D)$
 - $S(R) = \text{standard error of rate}$ $S(R) = R * (RSE(R) / 100)$
 - L = the lower 95% confidence limit factor for a death rate based on a Poisson variable of the number of deaths. See [Vital Statistics of the United States: Mortality, 1999 Technical Appendix Table S](#).
 - U = the upper 95% confidence limit factor for a death rate based on a Poisson variable of the number of deaths. See [Vital Statistics of the United States: Mortality, 1999 Technical Appendix Table S](#).
- For more information, refer to [Vital Statistics of the United States: Mortality, 1999 Technical Appendix Table S](#).

- [Age-adjusted Death Rates: Trend Data Based on the Year 2000 Standard Population](#)
- [Vital Statistics of the United States: Mortality, 1999 Technical Appendix](#):
 - See the "Random Variation and Sampling Errors" section for methods.
 - See "Table S" for the upper and lower confidence limit factors for death rates based on a Poisson variable of the number of deaths.

Standard Error for Age-Adjusted Rates

You can request standard errors calculated for age-adjusted mortality rates.

How? Click the [check box](#) under Measures in [section 1](#) on the Request Form tab.
Notes:

- $S(R)$ = standard error of rate $S(R) = R * (RSE(R)/100)$
- Where:
 - R = crude death rate $R = (\text{deaths} / \text{population}) * 100,000$
 - D = the total number of deaths upon which the rate is based.
 - $RSE(R)$ = relative standard error of rate $RSE(R) = 100 * \text{square root of } (1/D)$
- For more information, refer to
 - [Age-adjusted Death Rates: Trend Data Based on the Year 2000 Standard Population](#)
 - [Vital Statistics of the United States: Mortality, 1999 Technical Appendix](#), see the "Random Variation and Sampling Errors" section for methods.

Percent of Total

You can request to show percent of total as an optional statistical measure in "[Step 1](#)." This option adds a "Percent of Total" column to the results table, and each row shows the percentage that the number of deaths represented in the row contributes to the total number of deaths for that table. This measure is not available when suppression constraints apply to the data in the results table, such as when the deaths are suppressed for any single row in any categorical section in the table.

Additional Rate Options:

Click the "+" to open this section in [section 1](#) on the Request Form tab. The options shown here vary, depending on the Measures you checked in [section 1](#). [Organize table layout](#) on the Data Request tab. For example, to pick populations for weighting age-adjusted rates here, you must first check the box for age-adjusted rates in the Measures section.

Calculate Rates Per: Select the factor (multiplier) for your rates. By default, all ages rates are calculated per 100,000 persons, and rates limited to infant age groups are calculated per 1,000 persons.

How? See "[How do I select items from the list box?](#)"

Standard Population: If you picked standard populations for calculating age-adjusted rates, then the list of possible standard populations used to calculate these age-adjusted rates is shown. See [Age-Adjusted Rates](#) for more information.

How? See "[How do I select items from the list box?](#)," to limit your data to selected categories in the list.

Note: When using standard populations, your request criteria must include data for the following ranges of ages: "5 - 14 years" and "15 - 24 years." Some of the age groups in the standard populations are aggregates of two age groups in the CMF data. When age-adjusted rates are calculated using the standard populations, the CMF deaths and populations counts are summed to match the standard population age groups. For example, the standard populations has a weight for the age group 15-24 years, so the CMF age groups 14-19 and 20-24 must be included in the request for age-adjusted rates (you cannot request age-adjusted rates only for persons 20 years and over).

Non-standard Population: If you picked to use a non-standard population for calculating age-adjusted rates, then the options for selecting the non-standard population are displayed. The non-standard population is derived from the population estimates in the CMF (those used to compute crude rates). You specify the year(s), gender(s), races(s), Hispanic origin(s), and location(s) to be included in the non-standard population. The selected population is the basis for the age-specific proportional weights to calculate these age-adjusted rates. See [Frequently Asked Questions about Death Rates](#) for more information.

How?

- See "[How do I select items from the list box?](#)"
- [Type the desired Location](#) code value into the box, one code per line. Or leave the box empty for the entire US (national population). Any Region, division, state or county code shown in the Finder at [Step 2](#) is valid.

Note: If the same population is picked for your query criteria and your non-standard age-adjusted rate calculations, then the crude rates and age-adjusted rates are identical for those data rows that represent the non-standard population denominator.

Step 2. Select location:

Data are available for the United States by [Region](#) (Census or HHS), [Census Division](#), [State](#), [County](#). Select the location(s) for the query, and the [urbanization](#) level, which classifies population density and other factors by county. Data are also available for individual [CBSAs](#) (core-based statistical areas) of 250,000 or more population (also referred to as large and medium metropolitan statistical areas). Any number of locations can be specified [here](#).

How?

1. Click the button to "Switch to State/County" or "Switch to CBSA" in the upper left in Section 2 on the Request Form tab.
2. Click a [round button](#) to switch between the lists, such as the State and County list, or the Census Region and Census Division list, or the HHS Region list.
3. See [How do I use a Finder?](#) for more information.
4. See [Finder Tool help](#) for more hints.

Hints:

- The default is all values (the United States).
- The Advanced mode lets you easily pick several items from different parts of the list. Items are not selected until you click the "Move" button in Advanced mode. You may also enter values by hand, one code per line, in the Advanced mode. Use the [Finder](#) to see the correct code format. For example, 02 is the Alaska state code.
- The "plus" symbol, "+" indicates that you can open the item, to see more items below it.
- The results to a search are shown in blue, and indicated by ">".

Region

Regions are multi-state groups. For regional data, you can group by Region, or you can select any combination of individual regions. There are two types of regions available, [Census Regions](#) and [Health and Human Services \(HHS\) Regions](#).

How?

- See [Location](#) above for instructions.
- See also [Group Results By](#) in [Step 1](#).

Notes:

- Region is based on the person's legal state of residence at the time of death.
- The Regions are identified by both name and codes in [data extracts](#).

Census Regions

The United States is split into 4 Census Regions: [Northeast](#), [Midwest](#), [South](#) and [West](#). The states that comprise each region are shown below.

How?

- See [Location](#) above for instructions.
- See also [Group Results By](#) in [Step 1](#).

Notes:

- Census Region is based on the person's legal state of residence at the time of death.
- The Regions are identified by both name and codes in [data extracts](#).

State abbreviation and name		FIPS code
Northeast Census Region:		
CT	Connecticut	09
ME	Maine	23
MA	Massachusetts	25
NH	New Hampshire	33
NJ	New Jersey	34
NY	New York	36
PA	Pennsylvania	42
RI	Rhode Island	44
VT	Vermont	50
Midwest Census Region:		
IL	Illinois	17
IN	Indiana	18
IA	Iowa	19
KS	Kansas	20
MI	Michigan	26
MN	Minnesota	27
MO	Missouri	29
NE	Nebraska	31
ND	North Dakota	38
OH	Ohio	39
SD	South Dakota	46
WI	Wisconsin	55
South Census Region:		

AL	Alabama	01
AR	Arkansas	05
DE	Delaware	10
DC	District of Columbia	11
FL	Florida	12
GA	Georgia	13
KY	Kentucky	21
LA	Louisiana	22
MD	Maryland	24
MS	Mississippi	28
NC	North Carolina	37
OK	Oklahoma	40
SC	South Carolina	45
TN	Tennessee	47
TX	Texas	48
VA	Virginia	51
WV	West Virginia	54

West Census Region:		
AK	Alaska	02
AZ	Arizona	04
CA	California	06
CO	Colorado	08
HI	Hawaii	15
ID	Idaho	16
MT	Montana	30
NV	Nevada	32
NM	New Mexico	35
OR	Oregon	41
UT	Utah	49
WA	Washington	53
WY	Wyoming	56

Census Division

Census Divisions are multi-state groups, sub-sets of [Census Regions](#). You can group by Census Division, or select any combination of individual Census divisions.

How?

- See [Location](#) above for instructions.
- See also [Group Results By](#) in [Step 1](#).

Notes:

- Census Division is based on the person's legal state of residence at the time of death.
- The Census Divisions are identified by both name and codes in [data extracts](#). To see all of the states in each Census Division, group the data by Census Division and by State.
- The United States is split into 9 divisions by the Census Bureau:
[Census Division 1: New England](#), (CENS-D1)
[Census Division 2: Middle Atlantic](#), (CENS-D2)
[Census Division 3: East North Central](#), (CENS-D3)
[Census Division 4: West North Central](#), (CENS-D4)
[Census Division 5: South Atlantic](#), (CENS-D5)
[Census Division 6: East South Central](#), (CENS-D6)
[Census Division 7: West South Central](#), (CENS-D7)
[Census Division 8: Mountain](#), (CENS-D8)
[Census Division 9: Pacific](#), (CENS-D9)
The states that comprise each Census Division are shown below.

State	FIPS Code
Census Division 1: New England, (CENS-D1)	
Connecticut	09
Maine	23
Massachusetts	25
New Hampshire	33
Rhode Island	44
Vermont	50
Census Division 2: Middle Atlantic, (CENS-D2)	
New Jersey	34
New York	36
Census Division 3: East North Central, (CENS-D3)	
Illinois	17
Indiana	18
Michigan	26
Ohio	39
Wisconsin	55
Census Division 4: West North Central, (CENS-D4)	
Iowa	19
Kansas	20
Minnesota	27

Missouri	29
Nebraska	31
North Dakota	38
South Dakota	46

Census Division 5: South Atlantic (CENS-D5)	
Delaware	10
District of Columbia	11
Florida	12
Georgia	13
Maryland	24
North Carolina	37
South Carolina	45
Virginia	51
West Virginia	54

Census Division 6: East South Central (CENS-D6)	
Alabama	01
Kentucky	21
Mississippi	28
Tennessee	47

Census Division 7: West South Central (CENS-D7)	
Arkansas	05
Louisiana	22
Oklahoma	40
Texas	48

Census Division 8: Mountain (CENS-D8)	
Arizona	04
Colorado	08
Idaho	16
Montana	30
Nevada	32
New Mexico	35
Utah	49
Wyoming	56

Census Division 9: Pacific (CENS-D9)	
Alaska	02
California	06
Hawaii	15
Oregon	41
Washington	53

HHS Regions

The Department of Health and Human Services (HHS) groups the 50 states, the District of Columbia, and the U.S. territories into ten reporting regions, referred to as the HHS regions. Any number of locations can be specified here.

How?

- See [Location](#) above for instructions.
- See also [Group Results By](#) in [Step 1](#).

Notes:

- The CMF does not have data for Puerto Rico or any of the U.S. territories. Therefore, data for Puerto Rico and the Virgin Islands are not included in HHS Region 2; data for Guam and American Samoa are not included in HHS Region 9.
- HHS Region is based on the person's legal state of residence at the time of death.
-

When the data are exported, separate columns show both the label and the code for each value. To see the full list of labels and code values, request data grouped by this region for the "All" and [export](#) the results.

Health and Human Services (HHS) Regions	List of States
1	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
2	New Jersey, New York (data for Puerto Rico, Virgin Islands are not included in CMF)
3	Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia
4	Alabama, Florida, Georgia, Kentucky, Mississippi, Missouri, Nebraska, North Carolina, North Dakota, South Carolina, South Dakota, Tennessee, Texas, Virginia, West Virginia, Wisconsin, Wyoming

	North Carolina, South Carolina, Tennessee
5	Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin
6	Arkansas, Louisiana, New Mexico, Oklahoma, Texas
7	Iowa, Kansas, Missouri, Nebraska
8	Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming
9	Arizona, California, Hawaii, Nevada (data for American Samoa and Guam are not included in CMF)
10	Alaska, Idaho, Oregon, Washington

State

For state level data, you can select any combination of individual states. Or group by State and leave the Location Finder selection at the default (all locations or the 50 United States and the District of Columbia).

- How?
- See [Location](#) above for instructions.
 - See also [Group Results By](#) in [Step 1](#).

- Notes:
- The state coded represents the person's place of legal residence at the time of death.
 - The states and the District of Columbia are identified by both state name and Standard Federal Information Processing (FIPS) codes in [data extracts](#). See [About FIPS Codes](#) below.

County

County-level data are available for the fifty states and the District of Columbia. In this step, you can select any combination of individual counties or leave the Location Finder at the default setting of "All Counties."

- How?
- See [Location](#) above for instructions.
 - See also [Group Results By](#) in [Step 1](#).

- Notes:
- The county coded represents the person's place of legal residence at the time of death.
 - The counties and the District of Columbia are identified by both county name and Standard Federal Information Processing (FIPS) codes in [data extracts](#).
 - **About FIPS Codes:** The FIPS State and county codes were established by the National Bureau of Standards, U.S. Department of Commerce in 1968. This standard set of codes provides names and codes for counties and county equivalents of the 50 States of the United States and the District of Columbia. Counties are considered to be the "first order subdivisions" of each State, regardless of their local designation (county, parish, borough, census area). Washington, D.C.; the consolidated government of Columbus City, Georgia; the independent cities of the States of Maryland, Missouri, Nevada, and Virginia; and the census areas and boroughs of Alaska are identified as county equivalents. The system is standard throughout the Federal Government. The State codes are ascending, two-digit numbers; the county codes are ascending three-digit numbers. For both the State and county codes, space has been left for new States or counties. Some changes in the FIPS codes have occurred since 1968. See [Locations: About County Geography Changes](#) for information on how these changes affect the Compressed Mortality data.
 - **About County Changes:** Changes in county geography occur from time to time. Creation and deletion of counties results in missing data for those counties for some years. County boundary changes can result in substantial increases or decreases in the population of the affected counties and hence impact birth and death counts, population estimates, and birth and death rates for those counties. See [Locations: About County Geography Changes](#) for information on how county geography changes affect CMF data.

Urbanization and Metro/Nonmetro

Use the radio buttons to select either the 2006 or the 2013 NCHS Urban-Rural Scheme for Counties. Select All Categories or any combination of Urbanization values: Large Central Metro, Large Fringe Metro, Medium Metro, Small Metro, Micropolitan (non-metro), NonCore (non-metro). Each county is assigned to one of these six categories. Each death is associated with a category based on the county of the person's legal residence.

The Metro/Nonmetro list allows you to easily compare metropolitan and rural areas. The Metro group includes counties in these Urbanization categories: Large Central Metro, Large Fringe Metro, Medium Metro, and Small Metro. The Nonmetro group includes counties in these Urbanization categories: Micropolitan (non-metro) and NonCore (non-metro).

- How?
1. Click the [Radio Button](#) above the box, to pick your preferred list.
 2. See "[How do I select items from the list box?](#)," to limit your data to selected categories in the list.

Notes:

Notes:

- These categories are from the 2006 or 2013 NCHS Urban-Rural Classification Scheme for Counties.
- See the [NCHS Urban-Rural Classification Scheme for Counties](#) web page for more information about the Urbanization categories.
- The large central metro category contains counties in metropolitan statistical areas (MSAs) of one million or more population that have been identified by NCHS classification rules as central because they contain all or part of a principal city of the area. The large fringe metro category contains the remaining counties (similar to suburbs) in MSAs of one million or more. Counties in MSAs of 250,000 to 999,999 population are assigned to the medium metro category and counties in MSAs with populations under 250,000 are assigned to the small metro category. Nonmetropolitan counties that are designated by the Office of Management and Budget as belonging to a micropolitan statistical area are assigned to the micropolitan category and the remaining nonmetropolitan counties are assigned to the noncore category. The large central metro category is the most "urban" category and the noncore category is the most "rural" category.
- To understand how the classification schemes were developed, see:
 - [NCHS Urban-Rural Classification Scheme for Counties](#)
 - [2013 NCHS Urban-Rural Classification Scheme for Counties](#)
- Most counties are in the same urbanization category for both the 2013 and 2006 schemes. However, for those counties whose category differs in the two schemes, some moved from a less urban to a more urban category, while others moved from a more urban category to a less urban category. For more information, see "Changes in county urbanization category: 2013 scheme versus 2006 scheme" in the report, [2013 NCHS Urban-Rural Classification Scheme for Counties](#).
- It is recommended that the micropolitan category not be aggregated with metropolitan categories.
- The Urbanization categories are identified by two columns, labels and codes, in [data extracts](#).

CBSA - Core-Based Statistical Areas

Use the radio buttons to select either the December 2005 or the February 2013 CBSA (core-based statistical areas) list. Select All CBSAs or any combination of values. Data for individual CBSAs with populations of 250,000 or more (large and medium metropolitan statistical areas) are displayed. Data for individual CBSAs with less than 250,000 population are not displayed. Instead data for the smaller CBSAs are aggregated and displayed as: Small metro (metropolitan statistical areas of less than 250,000 population) or Micropolitan (non-metro). Data for counties not in CBSAs are aggregated and displayed as NonCore (non-metro). Each death is assigned based on the county of the decedent's legal residence.

How?

1. Click the button to "Switch to CBSA" in the upper left in Section 2 on the Request Form tab.
2. Click the [Radio Button](#) above the box, to pick your preferred list.
3. See "[How do I select items from the list box?](#)," to limit your data to selected categories in the list.

Notes:

- The CBSA delineations are from the December 2005 or February 2013 CBSA lists, as designated by the Office of Management and Budget, based on population data from the Census Bureau.
- See the [NCHS Urban-Rural Classification Scheme for Counties](#) web page for more information about the related Urbanization categories.
- CBSA data are available for Compressed Mortality in years 1999 and later. CBSA data are not available for Compressed Mortality in years 1968-1998.
- To see which Urbanization categories are associated with specific CBSAs, group results by CBSA (all CBSAs) and by Urbanization. Group the 2013 CBSAs with the 2013 Urbanization categories, and the 2005 CBSAs with the 2006 Urbanization categories.
- To see which counties are included in individual CBSAs, group results by CBSA (all CBSAs) and by County. Select only the Large Metro and Medium Metro categories in the associated Urbanization list.
- Note that CBSA data cannot be combined with regions, divisions, and states because some CBSAs cross these boundaries. For example, the CBSA for Cincinnati includes counties in Ohio, Kentucky and Indiana.
- The CBSA categories are identified by two columns, labels and codes, in [data extracts](#).

Step 3. Select years and demographics:

Limit your data for any of the following data elements:

1. [Age Group](#) - infant age groups are also available.
2. [Gender](#) - Female, Male
3. [Race](#) - American Indian or Alaska Native, Asian or Pacific Islander, Black or African American, White. For data before Vintage 2006, these 3 categories are available: Black / African American, Other Races Combined, White.
4. [Hispanic Origin](#) - Hispanic or Latino, Not Hispanic or Latino, Not Stated; available in CMF Vintage 2006 and later releases only.
5. [Year](#) - 1999-200, or 1979-1998, or 1968-1978 choose between the 2013 or the 2006 NCHS Urban-Rural Classification Scheme for Counties, available in CMF Vintage 2003 and later vintages only.

Age Groups

Use the radio buttons to select either the Age Group list or the Infant Age Groups list. From the selected list you can choose "All Ages" or any combination of the individual age groups in the list. "All Ages" from the Age Group list is the default.

1. Age Group list - The following age groups are available from this list: all age groups, under 1 year, 1 - 4 years, 5 - 9 years, 10 - 14 years, 15 - 19 years, 20 - 24 years, 25 - 34 years, 35 - 44 years, 45 - 54 years, 55 - 64 years, 65 - 74 years, 75 - 84 years, 85 years and over, age not stated.
2. Infant Age Groups list - The following age groups are available from this list: all infant age groups, under 1 day, 1 - 6 days, 7 - 27 days, 28 - 364 days.

How?

- See ["How do I use a radio button?"](#), to pick your preferred list of categories.
- See ["How do I select items from the list box?"](#), to limit your data to selected categories in the list.

Notes:

- When an age group(s) is selected from the Infant Age Groups list, the number of live births (not the number of infants in the age category(ies)) is used as the denominator in rate computations. Thus, the denominator used for infant age group rate calculations is the same regardless of how many infant age groups are selected. When a rate is computed for an aggregate of several years, the number of live births for each year in the time period are summed together. For more information about infant age groups, see [Mortality for Infants](#) .
- For years 1999-2009: when an age group(s) is selected from the Age Group list, Census Bureau population estimates for each age group are used as the denominator in rate computations. When a rate is computed for an aggregate of several years, the population estimates for each year in the time period are summed together.
- For years 1965-1998: When an age group(s) is selected from the Age Group list, Census Bureau population estimates for each age group are used as the denominator in rate computations, except for the "under 1 year of age group". For the "under 1 year of age" group, the number of live births is used instead of the population estimate for this age group. When a rate is computed for an aggregate of several years, the population estimates for each year in the time period are summed together.
- Deaths with "Unknown" or "Not Stated" age are included in "All Ages" counts and rates, yet are not included in age-specific counts, age-specific rates or in any age-adjusted rates. See [About "Not Stated" age or ethnicity](#) for more information.
- Prior to August 2006, the number of live births had been substituted for the "under 1 year" age group population estimates for years 1999 and later.
- See [Age-Adjusted Rates](#) for a discussion on the use of age-groups in calculating age-adjusted rates. Note that some of the age groups available in the data are not available in the standard population tables used to calculate age-adjusted rates. Also, age-adjusted rates are not available for infant age groups.
- The age groups are identified by two columns, labels and codes, in [data extracts](#).

Year

Pick any combination of years desired. Data are available for 1999 - 2016 in the Compressed Mortality online database with ICD 10 codes. Data are available for 1979 - 1998 in the Compressed Mortality online database with ICD 9 codes. Data are available for 1968 - 1978 in the Compressed Mortality online database with ICD 8 codes. The archive databases only contain through the final year available at the time of the release.

How? See ["How do I select items from the list box?"](#)

Gender

Select All Genders, Male, or Female

How? See ["How do I select items from the list box?"](#) **Note:** The genders are identified by two columns, labels and codes, in [data extracts](#).

Race

Select All Races or any combination of values. CMF 1999-2016, archive CMF 1999-2015, archive CMF 1999-2014, archive CMF 1999-2013, archive CMF 1999-2009, archive CMF 1999-2008, archive CMF 1999-2007 and archive CMF 1999-2006 have 4 bridged-race categories: American Indian or Alaska Native, Asian or Pacific Islander, Black or African American, White. CMF 1979-1998, archive CMF 1979-1998 and CMF 1965-1978 have 3 race categories: Black / African American, Other Races Combined, White.

- How?** See ["How do I select items from the list box?"](#) **Notes:**
- See [Race Reporting](#) and [Race and Ethnicity Questions](#) for more information about the issues of race categories and ethnicity in the data.
 - The Race categories are identified by two columns, labels and codes, in [data extracts](#).
-

Hispanic Origin

Select All or any combination of 3 values: Hispanic or Latino, Not Hispanic or Latino, Not Stated. Hispanic Origin data are not available for CMF 1968-1978 or CMF 1979-1998 .

How? See ["How do I select items from the list box?"](#) **Notes:**

How? See [How do I select items from the list box?](#) [Notes](#).

- Deaths with unknown or "Not Stated" Hispanic origin are included in "All" counts and rates, and are not included in the Hispanic Origin specific counts and rates . See [About "Not Stated" age or ethnicity](#) for more information.
- See [Race Reporting](#) and [Race and Ethnicity Questions](#) for more information about the issues of race categories and ethnicity in the data.
- The Hispanic Origin categories are identified by two columns, labels and codes, in [data extracts](#).

Step 4. Select cause of death:

The cause of death is indicated by the International Classification of Disease (ICD) code in the underlying cause of death section on each death certificate. Use the radio buttons to select one of these 3 lists of causes of death:

1. The default selection is the ICD chapters, subchapters, and codes list (ICD-8 Code List for years 1968-1978, ICD-9 Code List for years 1979-1998, ICD-10 Codes list for 1999 and later).
2. The Selected Causes of Death or the ICD cause-of-death recode lists are also available (ICD-8 69 groups for years 1968-1978, ICD-9 72 groups for years 1979-1989, and ICD-10 113 groups for 1999 and later).
3. The Injury Intent and Mechanism lists are available for year 1999 and later.

How?

1. Click the [Radio Button](#) above the box, to pick your preferred list.
2. Select one or more items from the list to limit your data. The default value for any list is all causes of death.
 - See [How do use a Finder?](#) to learn more about search options, expanding or collapsing selected items, and displaying details for selected items in the Finder.
 - The "plus" symbol, "+" indicates that you can open the item, to see more items below it.
 - The results to a search are shown in blue, and indicated by ">".
 - The Advanced mode let you easily pick several items from different parts of the list. Items are not selected until you click the "Move" button in Advanced mode.
 - You may also enter values by hand, one code per line, in the Advanced mode. Use the [Finder](#) to see the correct code format. For example, "I20-I25" is the ICD-10 code for ischaemic heart diseases, and "GR113-059" is the Selected Causes of Death ICD-10 Group code for acute myocardial infarction.
 - See [Finder Tool help](#) for more hints.

Hints:

- When you select a code, note that some deaths are coded to the 3 digit code, and not the more detailed designation. Thus some deaths may be excluded from your data selection if your criteria are limited to only 4 digit codes. For example, the ICD-9 code 412 is the correct specification; 412.0 will not pick up deaths coded 412.
- The causes of death are identified by two columns, labels and codes, in [data extracts](#).

Notes:

- **About the International Classification of Diseases:**
The mortality data on the CMF are compiled in accordance with the World Health Organization (WHO) regulations, which specify that member nations classify and code causes of death in accordance with the current revision of the *International Statistical Classification of Diseases and Related Health Problems* (ICD). The International Classification of Diseases is developed collaboratively between WHO and 10 international centers, for purposes of ensuring that medical terms reported on death certificates are internationally comparable and lend themselves to statistical analysis. The ICD has been revised approximately every 10 years since 1900 in order to reflect changes in understanding of disease mechanisms and in disease terminology.
- **About the 9th and 10th ICD revisions:**
The ICD-9 and ICD-10 classification systems are quite different. The ICD-9 system has a 4-digit numeric structure and about 5,000 categories for classifying cause-of-death. The ICD-10 system has a 4-digit alphanumeric coding structure and about 8,000 categories for classifying cause-of-death. Comparison of ICD-9 and ICD-10 shows that new chapters have been added to the ICD, old chapters have been rearranged, causes of death have been regrouped, and titles have changed. The differences between ICD-9 and ICD-10 make direct comparisons of cause-of-death difficult and result in discontinuities in cause-of-death trends. NCHS has conducted a comparability study to measure the discontinuities between the Ninth and Tenth Revisions and comparability ratios for major causes of death have been computed. Based on this work, comparability ratios have been calculated for selected causes. For further information please reference [NCHS publications on Comparability of Cause-of-Death Between ICD Revisions](#).
- For information on comparability of mortality causes between ICDA-8 and ICD-9, please see [Estimates of Selected Comparability Ratios Based on Dual Coding of 1976 Death Certificates by the Eighth and Ninth Revisions of the International Classification of Diseases](#).
- See also [ICD 10th revision notes](#), [ICD 9th revision notes](#), and [ICD 8th revision notes](#).
- Only those ICD codes that are used to classify causes of death in the National Vital Statistics System data are available in the Finder.
- Deaths in the years 1999 and later are coded to the Tenth Revision of the International Classification of Diseases (ICD-10). There are 113 selected causes of death groups for the ICD-10 codes.
- Deaths in the years 1979 - 1998 are coded to the Ninth Revision of the International Classification of Disease (ICD-9). There are 72 selected causes of death groups for the ICD-9 codes.
- Deaths in the years 1968 - 1978 are coded to the Eighth revision of the International Classification of Disease Adapted for Use in the United States (ICDA-8). There are 69 selected causes of death groups for the ICD-8 codes.

ICD-10 Codes

Limit the data to any number of causes of death, for selected chapters, sub-chapters or codes.

How? See [Step 4. Select cause of death](#) above. Check the Hints section.

Notes:

- The International Classification of Disease (ICD) 10th revision is used to represent the underlying cause of death for the years 1999 and later. The ICD system is organized by chapters, sub-chapters and codes.
- ICD-10 uses a 4 digit alphanumeric coding scheme. Each of the 21 chapters in ICD-10 is classified to a letter or letters of the alphabet. Infectious disease codes in Chapter 1, for example, begin with an "A" or "B". Thus, Acute poliomyelitis is associated with the codes A80.0-A80.9 and Viral hepatitis is classified as B15.0-B19.9. Most cause of death codes in the ICD-10 system have 4-digits and consist of a letter, followed by two numbers, followed by a decimal point and another number. Some codes have only 3-digits and consist of a letter followed by two numbers.
- **About changes in the ICD-10 codes:**
The valid ICD-10 codes used to classify underlying cause of death change over time. Effective with the 2003 data year, 1 code was introduced. Effective with the 2006 data year, 18 codes were introduced as valid causes of death, and 4 codes were discontinued. Effective with the 2007 data year, 4 codes were introduced as valid causes of death, and 2 codes were discontinued. Effective with the 2009 data year, 5 codes were introduced as valid causes of death, and 11 codes were discontinued. Effective with the 2011 data year, 33 codes were introduced as valid causes of death.

ICD-10 Changes in Years 2003-2011**New causes of death in 2011**

ICD-10 Code	Title
B17.9	Acute viral hepatitis, unspecified
D68.5	Primary thrombophilia
D68.6	Other thrombophilia
D89.3	Immune reconstitution syndrome
E88.3	Tumor lysis syndrome
G14	Postpolio syndrome
G21.4	Vascular parkinsonism
H54.9	Unspecified visual impairment (binocular)
I72.5	Aneurysm and dissection of other precerebral arteries
J12.3	Human metapneumovirus pneumonia
J21.1	Acute bronchiolitis due to human metapneumovirus
K12.3	Oral mucositis (ulcerative)
K35.2	Acute appendicitis with generalized peritonitis
K35.3	Acute appendicitis with localized peritonitis
K35.8	Acute appendicitis, other and unspecified
L89.0	Stage I decubitus ulcer and pressure area
L89.1	Stage II decubitus ulcer
L89.2	Stage III decubitus ulcer
L89.3	Stage IV decubitus ulcer
L89.9	Decubitus ulcer and pressure area, unspecified
N18.1	Chronic kidney disease, stage 1
N18.2	Chronic kidney disease, stage 2
N18.3	Chronic kidney disease, stage 3
N18.4	Chronic kidney disease, stage 4
N18.5	Chronic kidney disease, stage 5
N42.3	Dysplasia of prostate
O14.2	HELLP syndrome
O43.2	Morbidly adherent placenta
O96.0	Death from direct obstetric cause occurring more than 42 days but less than one year after delivery
O96.1	Death from indirect obstetric cause occurring more than 42 days but less than one year after delivery
O96.9	Death from unspecified obstetric cause occurring more than 42 days but less than one year after delivery
O97.0	Death from sequelae of direct obstetric cause
O97.1	Death from sequelae of indirect obstetric cause
O97.9	Death from sequelae of obstetric cause, unspecified
O98.7	Human immunodeficiency [HIV] disease complicating pregnancy, childbirth and the puerperium
X34.0	Victim of cataclysmic earth movements caused by earthquake
X34.1	Victim of tsunami
X34.8	Victim of other specified effects of earthquake
X34.9	Victim of unspecified effect of earthquake

New causes of death in 2009

ICD-10 Code	Title
A09.0	Other and unspecified gastroenteritis and colitis of infectious origin
A09.9	Gastroenteritis and colitis of unspecified origin
K52.3	Indeterminate colitis
R26.3	Immobility
R63.6	Insufficient intake of food and water due to self neglect

New causes of death in 2007

ICD-10 Code	Title
I09	Influenza due to identified avian influenza virus

903 Influenza due to identified avian influenza virus

U04.9 Severe acute respiratory syndrome [SARS], unspecified
 X59.0 Exposure to unspecified factor causing fracture
 X59.9 Exposure to unspecified factor causing other and unspecified injury

New causes of death in 2006

ICD-10 Code	Title
B33.4	Hantavirus (cardio)-pulmonary syndrome [HPS][HCPS]
G90.4	Autonomic dysreflexia
I15.0	Renovascular hypertension
I15.9	Secondary hypertension, unspecified
K22.7	Barrett's esophagus
K85.0	Idiopathic acute pancreatitis
K85.1	Biliary acute pancreatitis
K85.2	Alcohol-induced acute pancreatitis
K85.3	Drug-induced acute pancreatitis
K85.8	Other acute pancreatitis
K85.9	Acute pancreatitis, unspecified
M31.7	Microscopic polyangiitis
M79.7	Fibromyalgia
P91.6	Hypoxic ischemic encephalopathy of newborn
R29.6	Tendency to fall, not elsewhere classified
R50.2	Drug-induced fever
R50.8	Other specified fever
W46	Contact with hypodermic needle

New causes of death in 2003

ICD-10 Code	Title
I27.2	Other secondary pulmonary hypertension

Discontinued causes of death in 2009

ICD-10 Code	Title
A09	Diarrhea and gastroenteritis of infectious origin
F11.0	Mental and behavioral disorders due to use of opioids, acute intoxication
F12.0	Mental and behavioral disorders due to use of cannabinoids, acute intoxication
F13.0	Mental and behavioral disorders due to use of sedatives or hypnotics, acute intoxication
F14.0	Mental and behavioral disorders due to use of cocaine, acute intoxication
F15.0	Mental and behavioral disorders due to use of other stimulants, including caffeine, acute intoxication
F16.0	Mental and behavioral disorders due to use of hallucinogens, acute intoxication
F17.0	Mental and behavioral disorders due to use of tobacco, acute intoxication
F18.0	Mental and behavioral disorders due to use of volatile solvents, acute intoxication
F19.0	Mental and behavioral disorders due to multiple drug use and use of other psychoactive substances, acute intoxication
K51.1	Ulcerative (chronic) ileocolitis

Discontinued causes of death in 2007

ICD-10 Code	Title
F10.0	Mental and behavioral disorders due to use of alcohol, acute intoxication
X59	Exposure to unspecified factor

Discontinued causes of death in 2006

ICD-10 Code	Title
I25.2	Old myocardial infarction
K85	Acute pancreatitis
R50.0	Fever with chills
R50.1	Persistent fever

• About deaths due to acts of terrorism:

Beginning with data for 2001, NCHS introduced categories *U01-*U03 for classifying and coding deaths due to acts of terrorism. The asterisks before the category codes indicate that they are not part of the International Classification of Diseases, Tenth Revision (ICD-10). Description of the specific 4-digit codes can be found at [NCHS Classifications of Diseases, Functioning and Disability: Appendix I](#). Deaths classified to the terrorism categories are included in the categories for Assault (homicide) and Intentional self-harm (suicide) in the 113 cause-of-death list. Additional information on these new categories can be found at [NCHS Classifications of Diseases, Functioning and Disability: Classification of Death and Injury Resulting from Terrorism](#). Terrorism related deaths in this data do not represent a final count of deaths resulting from the terrorist attacks on September 11, 2001, as this figure had not been determined. As of October 24, 2002, death certificates were issued for 2,957 of the estimated 3,028 individuals believed to have died as a result of the September 11, 2001 attacks. Of these, four were issued for terrorists and are classified as suicides. The criteria for issuing a death certificate for those believed to have died in the attacks differed by state, reflecting differences in state laws regarding death certification. Pennsylvania issued a death certificate for every individual, including the terrorists. Death certificates were not issued for any of the terrorists in Virginia or New York City. Virginia issued a death certificate only for those victims whose remains were identified. New York City issued a death certificate for those whose remains were identified or, if remains were not recovered, for those whose families applied for a death certificate. For more detailed information regarding New York City's processing of these deaths, see [Deaths in World Trade Center Terrorist Attacks---New York City, 2001](#).

• About deaths due to pulmonary hypertension:

The World Health Organization (WHO) added code I27.2 in 2003. Prior to 2003, if the certifier listed "secondary pulmonary hypertension" the condition would be coded I27.0 because there was no code for secondary pulmonary hypertension. After code I27.2 was added in 2003, the number of deaths coded to I27.0 dropped significantly.

ICD-9 Codes

Limit the data to any number of causes of death, for selected chapters, sub-chapters or codes.

How? See [Step 4. Select cause of death](#) above.

Notes:

- The International Classification of Disease (ICD) 9th revision is used to represent the underlying cause of death for the years 1979 - 1998. The ICD system is organized by chapters, sub-chapters and codes. For a further description of the ICD-9 codes see Volume II of the annual mortality volumes produced by the NCHS, such as [Vital Statistics of the United States, 1988, Volume II - Mortality](#).
 - **About Deaths due to Injuries and Poisoning in ICD-9:**
For deaths due to injuries and poisonings that occurred during 1979-1998, the external cause is coded (E800-E999) rather than the Nature of Injury (800-999). The letter "E" is included in the ICD-9 code in CDC WONDER.
 - Most cause of death codes in the ICD-9 system have 4-digits and consist of three numbers, followed by a decimal point and another number. Some codes have only 3-digits and consist of three numbers.
-

ICDA-8 Codes

Limit the data to any number of causes of death, for selected chapters, sub-chapters or codes.

How? See [Step 4. Select cause of death](#) above.

Notes:

- The International Classification of Disease Adapted for Use in the United States 8th Revision (ICDA-8) is used to represent the underlying cause of death for the years 1968 - 1978. The ICDA-8 system is organized by chapters, sub-chapters and codes. For a further description of the ICD-8 codes see Volume II of the annual mortality volumes produced by the NCHS, such as [Vital Statistics of the United States, 1978, Volume II-Mortality](#).
 - For information on comparability of mortality causes between ICDA-8 and ICD-9, please see [Estimates of Selected Comparability Ratios Based on Dual Coding of 1976 Death Certificates by the Eighth and Ninth Revisions of the International Classification of Diseases](#).
 - **About Deaths due to Injuries and Poisoning in ICDA-8:**
For deaths due to injuries and poisonings that occurred during 1968-1978, the external cause is coded (E800-E999) rather than the Nature of Injury (800-999). The letter "E" is included in the ICD-8 code in CDC WONDER.
 - Most cause of death codes in the ICDA-8 system have 4-digits and consist of three numbers, followed by a decimal point and another number. Some codes have only 3-digits and consist of three numbers.
-

ICD-10 113 Groups

Limit the data to any number of groups of selected causes of death.

How? See [Step 4. Select cause of death](#) above.

Hint: Group the data by "ICD-10 113 Groups" and also by "Cause of Death" to see the individual ICD codes included in each category.

Notes:

- NCHS developed the mortality tabulation lists for use in mortality analyses. The 113 selected causes of death list was designed to: 1) maintain continuity with the ICD-9 72 selected causes of death list, 2) to facilitate trend analysis, and 3) to separately identify causes of death that are of public health and medical importance.
 - Note that the ICD-10 113 groups have been adapted for the Injury Mechanisms categories. Some groups have been combined to make for inclusive categories, such as Motor Vehicle Traffic, Heart Disease and Tuberculosis. You may find it easier to select these broader categories of causes of death from the list under [Injury Mechanism & All Other Leading Causes](#).
 - Changes in the 113 selected causes of death list associated with updates to the ICD-10 codes are discussed in the Technical Notes of each annual report (1-14); additional detail is available from: <http://www.who.int/classifications/icd/icd10updates/en/index.html>.
-

ICD-9 72 Groups

Limit the data to any number of groups of selected causes of death.

How? See [Step 4. Select cause of death](#) above.
Hint: Group the data by "ICD-9 72 Groups" and also by "Cause of Death" to see the individual ICD codes included in each category.

Note: NCHS developed the mortality tabulation lists for use in mortality analyses. The 72 selected causes of death list was designed to: 1) maintain continuity with the ICD-9 69 selected causes of death list, 2) to facilitate trend analysis, and 3) to separately identify causes of death that are of public health and medical importance.

ICDA-8 69 Groups

Limit the data to any number of groups of selected causes of death.

How? See [Step 4. Select cause of death](#) above.
Hint: Group the data by "ICD-8 69 Groups" and also by "Cause of Death" to see the individual ICD codes included in each category.

Note: NCHS developed the mortality tabulation lists for use in mortality analyses. The 69 selected causes of death list was designed to: 1) to facilitate trend analysis, and 2) to separately identify causes of death that are of public health and medical importance.

Injury Intent and Mechanism

Limit your data for any of the following data elements:

- 1. [Injury Intent](#)
- 2. [Injury Mechanism & All Other Leading Causes](#)

About the External Cause of Injury Mortality Matrix:
For the analysis of injury mortality data, all causes of death have been classified by intent and by mechanism. The causes of death that are not related to injuries have been categorized as non-injuries, and are categorized in keeping with the [113 selected causes of death](#) groups for ICD-10. The groups of injury mechanisms are different from those based on the "113 Selected Causes of Death" for ICD-10 codes. The groupings are based on the [External Cause of Injury Mortality Matrix](#). In addition, some non-injury groups have been combined to make for broader categories, such as Heart Disease and Tuberculosis.

For more information, see: [External Cause of Injury Mortality Matrix](#).

Note: Injury intent and Mechanism categories are not available for the ICD-8 codes in years 1968-1978.

Injury Intent

Limit the data to any number of categories.

- How?**
- 1. Click the [Radio Button](#) to pick your preferred list.
 - 2. Select one or more items from the list to limit your data. Use Ctrl + Click for multiple selections, or Shift + Click for a range.

- Notes:**
- Group the data by "Injury Intent" and also by "Cause of Death" to see the individual ICD codes included in each category.
 - Refer to [External Cause of Injury Mortality Matrix](#) for more information.
 - Injury intent and Mechanism categories are not available for the ICD-8 codes in years 1968-1978.
-

Injury Mechanism & All Other Leading Causes

Limit the data to any number of groups of selected causes of death.

- How?**
- 1. Click the [Radio Button](#) to pick your preferred list.
 - 2. Select one or more items from the list to limit your data. Use Ctrl + Click for multiple selections, or Shift + Click for a range.

Notes:

- Group the data by "Injury Mechanism" and also by "Cause of Death" to see the individual ICD codes included in each category.
- NCHS has defined selected causes of death groups for analysis of injury mortality data. The groups of injury mechanisms are different from those based on the "113 Selected Causes of Death" for ICD-10 codes. The groupings are based on the [External Cause of Injury Mortality Matrix](#). In addition, some non-injury groups have been combined to make for broader categories, such as Heart Disease and Tuberculosis.
- Refer to [External Cause of Injury Mortality Matrix](#) for more information.
- Injury intent and Mechanism categories are not available for the ICD-8 codes in years 1968-1978.
- In order to allow analysis of Injury Mortality across a larger span of years, the ICD-9 codes that classify the underlying cause of death for years 1979 - 1998 have been categorized to be compatible with the ICD-10 External Cause of Mortality Matrix. The categories in WONDER differ slightly from the original ICD-9 External Cause of Mortality Matrix, as follows:

ICD-9 Codes and Updated Injury Mechanism Categories

ICD-9 Code Values	Categories in the original ICD-9 External Cause Mortality Matrix	Categories compatible with the ICD-10 External Cause of Mortality Matrix
E990	Other specified and classifiable, legal intervention	Fire or hot object or substance, legal intervention
E800 - E807(.0,.1,.8,.9), E820 - E825(.0 - .5,.8,.9), E826(.2 - .8), E827 - E829(.2 - .9)	Transport, other, unintentional	Other land transport, unintentional
E846	Other specified and classifiable, unintentional	Other land transport, unintentional
E958.5	Motor Vehicle Traffic, suicide	Other land transport, suicide
E988.5	Motor Vehicle Traffic, undetermined	Other land transport, undetermined
E830 - E832	Drowning, Unintentional	Other transport, unintentional
E847 - E848	Other specified and classifiable, unintentional	Other transport, unintentional
E994	Other specified and classifiable, legal intervention	Other transport, legal intervention
E958(.3)	Natural or environmental, suicide	Other specified classifiable, suicide
E958(.6)	Transport, other, suicide	Other specified, not elsewhere classified, suicide
E988(.3)	Natural or environmental, undetermined	Other specified classifiable, undetermined
E988(.6)	Transport, other, undetermined	Other specified, not elsewhere classified, undetermined

Step 5. Other options:

- Export Results:

If checked query results are exported to a local file. More information on how to import this file into other applications can be found [here](#).
How? See [How do I use a checkbox?](#)
- Show Totals:

If checked totals and sub-totals will appear in the results table.
How? See [How do I use a checkbox?](#)
- Show Zero Values:

If checked rows containing zero counts will appear in the results table. If unchecked, zero count rows are not displayed. However, this general feature is superseded by suppression constraints:
Sub-national vital statistics data representing fewer than ten persons (0-9) are suppressed for year 1989 and later years. See [Assurance of Confidentiality](#) for more information.
How? See [How do I use a checkbox?](#)
- Precision:

Select the precision for rate calculations. When the rate calculated for a small numerator (incidence count) is zero, you may increase the precision to reveal the rate by showing more numbers to the right of the decimal point.
How? See "[How do I select items from the list box?](#)," to limit your data to selected categories in the list.
- Data Access Timeout:

This value specifies the maximum time to wait for the data access for a query to complete. If the data access takes too long to complete, a message will be displayed and you can increase the timeout or simplify your request. If you can't complete a request using the maximum timeout, contact user support and we will try to run a custom data request for you.
How? See "[How do I select items from the list box?](#)," to limit your data to selected categories in the list.

Data Source Information

Mortality Data Sources: The Compressed Mortality File is produced by the National Center for Health Statistics (NCHS) Office of Analysis and Epidemiology (OAE) at the Centers for Disease Control and Prevention (CDC). Mortality information is collected by state registries and provided to the National Vital Statistics System. Underlying cause of death and demographic descriptors are indicated on the death certificates. To learn more about the methods and source of these data please reference:

- [National Center for Health Statistics: \(NCHS\) Compressed Mortality web site](#)
- [National Vital Statistics System: Mortality web site](#)
- See also [Data Source Citations](#)

Population Denominator Data Sources: The population estimates on the CMF are based on Bureau of the Census estimates of total U.S., State, and county resident populations. The 1968 and 1969 State and county population estimates were calculated by NCHS using linear extrapolation. The 1970, 1980, 1990, 2000, and 2010 population estimates are April 1 modified census counts. The estimates for 1971-79, 1981-89, 1991-99, and 2001-2009 are intercensal estimates of July 1 resident populations. The national population estimates for 2011 are Vintage 2011 postcensal estimates of July 1 resident populations. The national population estimates for 2012 are Vintage 2012 postcensal estimates of July 1 resident populations. The national population estimates for 2013 are Vintage 2013 postcensal estimates of July 1 resident populations. The national population estimates for 2014 are Vintage 2014 postcensal estimates of July 1 resident populations. The national population estimates for 2015 are Vintage 2015 postcensal estimates of July 1 resident populations. The national population estimates for 2016 are Vintage 2016 postcensal estimates of July 1 resident populations. The region, state and county estimates for years 2011, 2012, 2013, 2014, 2015 and 2016 are Vintage 2016 postcensal estimates of July 1 resident populations. Note that the estimates for 1991 and later are based on [bridged-race categories](#). The population estimates on the CMF are by geographic unit (total United States, State, and county), year, race (white, black, other races), sex, and age group (13 age groups). To permit the calculation of infant mortality rates, NCHS live-birth data are included on the file. For more information on the population estimates, see [Compressed Mortality File: Population Data](#).

Population Estimates on the Compressed Mortality File

Reference the following topics to learn more about population denominators for rate calculation:
[Population Information for the Current Release](#)

- [1968-1969 Population Estimates](#)
- [1970 Population Estimates](#)
- [1971-1979 Population Estimates](#)
- [1980 Population Estimates](#)
- [1981- 1989 Population Estimates](#)
- [1990 Population Estimates](#)
- [1991-1999 Population Estimates](#)
- [2000 Population Estimates](#)
- [2001- 2009 Population Estimates](#)
- [2010 Population Estimates](#)
- [2011 Population Estimates](#)
- [2012 Population Estimates](#)
- [2013 Population Estimates](#)
- [2014 Population Estimates](#)
- [2015 Population Estimates](#)
- [2016 Population Estimates](#)

[About Population Migration due to Hurricanes in 2005](#)
[Compressed Mortality File Archives: About the 1990-based Postcensal Population Data](#)
If you have additional questions about the population estimates, please see [U.S. Census Populations With Bridged Race Categories](#) (http://www.cdc.gov/nchs/nvss/bridged_race.htm) or contact PopEst@cdc.gov.

Population Information for the Current Release

The population data on the CMF are derived from U.S. Census Bureau files. The population estimates for the Census years: 1970, 1980, 1990, 2000, and 2010 are **April 1, modified census counts**. The population estimates for the non-Census years: 1968-69, 1971-79, 1981-89, 1991-99, and 2001-2009 are **intercensal estimates of the July 1, resident population**. The population estimates for 2011-2016 are postcensal estimates of the July 1, resident population.

estimates of the July 1, resident population.

Population estimates for year 1999 and later years are from the bridged-race population series, with estimates for four single-race categories (white, black or African American, American Indian or Alaska Native, Asian or Pacific Islander). For more information, see [About Bridged-race Population Estimates](#).

The following modifications of the Census population estimates were made by NCHS for CMF:

- a. To permit the calculation of infant mortality rates, NCHS live-birth data are included for "Infant age Groups." The race code for these records is derived from the race of mother.
- b. When the age group 1-4 years did not appear on the Census file, the age group 0-4 years was multiplied by 0.8 to obtain an estimate of the population 1-4 years.
- c. For the years 1988 through 1991, there was an additional county in Georgia with a "missing" county code of "999". This county was assigned a population count of zero.
- d. Geographic changes that create new counties or delete old counties often are implemented in the population files before they are implemented in the mortality files. As a result, county FIPS codes for some counties on the Census population files have been modified so that the FIPS codes on the CMF population and mortality file match. For more information, see [County Geography Changes](#).

Specific Details

1. 1968-1969 Population Estimates

National population estimates are U.S. Bureau of the Census intercensal estimates of the July 1 resident population. State and county population estimates were calculated by NCHS using linear extrapolation from the corresponding July 1, 1970 and July 1, 1971 estimates. Source: Current Population Reports, Series P-2, Number 519), rounded to the nearest 1,000, of the July 1, 1968 and July 1, 1969 resident population of the U.S. by 5-year age group (under 1, 1-4, 5-9, ..., 85+ years), sex, and race (White, Black, Other races). NCHS live-birth counts were substituted for the estimates of the population under 1 year of age; the live-birth counts were not rounded.

2. 1970 Population Estimates

National, state, and county population estimates are from a modified version of the April 1, 1970 census. Live birth counts were substituted for the estimates of the population under 1 year of age. The original census counts were modified by the U.S. Bureau of the Census to produce a special census file of the April 1, 1970 resident population by 5-year age group (0-4, 5-9, ..., 85+), sex, and race (White, Black, Other races) and to correct errors in the data:

- a. Numerous small changes at the county and sub-county level were made to the original census file to correct errors discovered after publication of the original data. These changes resulted in an increase of 93,494 persons in the total U.S. population.
- b. The race classifications for the 1970 and 1980 census data were adjusted to be consistent with each other and with vital statistics. Some 327,000 persons of Hispanic origin who reported their race as "Other" (race not specified) were transferred to "White". The Black population was not affected by the race adjustment.
- c. Some 103,000 persons who reported their age as over 100 years had their age recoded to between 85 and 100 years. This adjustment did not affect this file because the oldest age group on the file is 85 years and over.

3. 1971-1979 Population Estimates

National and county estimates are U.S. Census Bureau intercensal estimates of the July 1 resident population. The Census Bureau did not produce state population estimates by age, race, and sex for the 1970s. Therefore, the state population estimates for 1979 are simply the sum of population estimates of the counties in each state.

- a. For 1979, the Census Bureau produced a national series of estimates and a county series of estimates. While these series are consistent with each other, the sum of the population estimates for all counties may not equal the national population estimates. This is due to rounding error that results because fractional estimates are not allowed. The Census Bureau recommends that national population estimates be used to calculate national death rates and county population estimates be used to calculate county death rates. CDC WONDER does this automatically.
- b. For 1979, NCHS used national population estimates rounded to the nearest thousand to calculate published death rates. The population estimate used by NCHS to calculate the death rate of an aggregate group (e.g. aggregated across race, gender, or age) was obtained by summing unrounded population estimates for each group in the aggregate and then rounded to the nearest 1,000. Unfortunately, the national population estimates available for use in the CMF for 1979 are all prerounded to the nearest 1,0000. This means that the population estimates for aggregate groups are obtained by summing rounded population estimates, rather than by summing unrounded population estimates and then rounding. As a result, *for 1979, some rounding error may result when aggregating across race, gender, or age groups* as summing rounded numbers may result in a different total than summing unrounded numbers and then rounding.
- c. Three Virginia independent cities (Manassas, Manassas Park, and Poquoson) did not appear on the Census file. Therefore, the 1979 populations for these three cities were estimated from the July 1, 1980 and July 1, 1981 estimates of these cities. The 1979 population estimates for the counties containing the cities were reduced by the estimated city populations.

4. 1980 Population Estimates

National, state, and county population estimates are from a *modified* version of the **April 1, 1980 census**. The national and state estimates are the sum of the county population counts. The original census counts were modified by the U.S. Census Bureau so that persons who reported their race as "other" (the majority of these persons being of Hispanic ethnicity) were reassigned to one of the four single-race groups specified in the Office of Management and Budget (OMB) 1977 Standards on Race and Ethnicity: White, Black, American Indian or Alaska Native, and Asian or Pacific Islander.

- a. For 1980, NCHS used unrounded population estimates to calculate national death rates. Therefore, on the CMF, the national population estimates used in rate calculation and displayed are unrounded.
- b. April 1, 1980 population estimates for three Virginia independent cities, (Manassas, Manassas Park, and Poquoson) had to be extrapolated from July 1, 1980 estimates. The April 1 populations for the three cities were calculated as a proportion of the April 1 county population, where the proportion

was calculated from the July 1, 1980 estimates. The April 1 population estimates for the counties containing the three cities were reduced by the cities estimated April 1 populations.

5. **1981-89 Population Estimates**

National, state, and county estimates are U.S. Census Bureau **intercensal estimates of the July 1 resident population**.

- a. For 1981-89, the U.S. Census Bureau has separate series of estimates for each geographic level of estimates (i.e. national, state, and county). While these series are consistent with each other, the sum of the population estimates of counties within a state may not equal the state population estimate, and the sum of all state population estimates or all county population estimates may not equal the national population estimates. This is due to rounding error that results because fractional estimates are not allowed. The Census Bureau recommends that national population estimates be used to calculate national death rates, state population estimates be used to calculate state death rates, and county population estimates be used to calculate county death rates. CDC WONDER does this automatically.
- b. For 1981-89, NCHS used national population estimates rounded to the nearest thousand to calculate published death rates. The population estimate used by NCHS to calculate the death rate of an aggregate group (e.g. aggregated across race, gender, or age) was obtained by summing unrounded population estimates for each group in the aggregate and then rounding to the nearest 1,000. This is also done on the CMF in CDC WONDER, and thus, for these years, national death rates calculated on CDC WONDER agree with those published by NCHS.

6. **1990 Population Estimates**

National, state, and county population estimates are from the **April 1, 1990 age-race-sex modified census counts** (national and state estimates are the sum of the county census counts). The original census counts were modified by the U.S. Census Bureau:

1. To correct the bias in reported age -- about 10 percent of persons were actually a year younger as of April 1 than reported;
2. To assign persons who reported their race as "other" to one of the four single-race groups specified in the Office of Management and Budget (OMB) 1977 Standards on Race and Ethnicity: White, Black, American Indian or Alaska Native, and Asian or Pacific Islander.

For 1990, NCHS used unrounded population estimates to calculate national death rates. Therefore, on the CMF, the national population estimates used in rate calculation and displayed are unrounded.

7. **1991- 1999 Population Estimates**

For CMF 1979-1998 and CMF 1999-2016, national, state, and county population estimates are U.S. Census Bureau **bridged-race intercensal estimates of the July 1, resident population, based on the 1990 census and the bridged-race 2000 census**. Derivation of the race-specific intercensal population estimates for the 1990s was complicated by the incomparability of the race data on the 1990 and 2000 censuses. Before the intercensal estimates for the 1990s could be derived, the race groups on the 2000 census had to be made consistent with ("bridged to") the race groups on the 1990 census. Race data on the 2000 Census were collected in accordance with the 1997 Office of Management and Budget's standards on race and ethnicity. The 1997 standards specify 5 single-race categories (American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and White) and permit the reporting of more than one race. As a result, there were 31 race groups on the 2000 census (5 single-race groups and 26 multiple-race groups). NCHS, in collaboration with the Census Bureau, developed methodology for bridging the multiple-race groups to single-race categories (American Indian or Alaska Native, Asian or Pacific Islander, Black, and White). The 1990 census race groups are White, Black, American Indian or Alaska Native, and Asian or Pacific Islander.

- a. The national and state estimates are the sum of the bridged-race county estimates.
- b. Prior to September 2003, the population estimates on the CMF for the years 1991-1999 (CMF 1979-1998 and CMF 1999) were **postcensal estimates** based on the 1990 census.
- c. Refer to [Description of the 1990-based Postcensal Population Data](#) for more information.

8. **2000 Population Estimates**

National, state, and county population estimates are from the U.S. Census Bureau **April 1, bridged modified race 2000 Census counts**.

9. **2001 - 2009 Population Estimates**

The population estimates for 2001-2009 are July 1 resident population estimates from the U.S. Census Bureau's revised bridged-race intercensal series, based on the year 2000 and the year 2010 census counts (released by NCHS on 10/26/2012).

The bridged-race population files have estimates for the four single-race categories (White, Black, American Indian or Alaska Native, and Asian or Pacific Islander).

For the current release of the 1999-2016 data, the national, region, division, and state estimates were obtained by summing the county estimates of the revised intercensal 2001-2009 series, so the national, region, division, state and county estimates are consistent with each other.

See [CMF Archives](#) for more information on the population estimates in previous releases.

10. **2010 Population Estimates**

National, state, and county population estimates are from the U.S. Census Bureau **April 1, bridged modified race 2010 Census counts**. The original census counts were modified by the U.S. Census Bureau to assign persons who reported their race as "other" to one of the 31 single or multiple-race groups specified in the Office of Management and Budget (OMB) 1997 Standards on Race and Ethnicity. The resulting counts were then bridged to (made consistent with) the four single-race categories (White, Black, American Indian or Alaska Native, and Asian or Pacific Islander).

11. **2011 Population Estimates**

National estimates for 2011 are from the U.S. Census Bureau's bridged-race Vintage 2011 postcensal series. The region, division, state and county 2011 population estimates are from the Vintage 2016 series.

- a. Region, division, and state estimates were obtained by summing the county estimates from the Vintage 2016 series

- b. National population estimates were obtained by summing the county estimates from the Vintage 2011 postcensal series.

12. 2012 Population Estimates

National estimates for 2012 are from the U.S. Census Bureau's bridged-race Vintage 2012 postcensal series. The region, division, state and county 2012 population estimates are from the Vintage 2016 series.

- a. Region, division, and state estimates were obtained by summing the county estimates from the Vintage 2016 series.
- b. National population estimates were obtained by summing the county estimates from the Vintage 2012 postcensal series.

13. 2013 Population Estimates

National estimates for 2013 are from the U.S. Census Bureau's bridged-race Vintage 2013 postcensal series. The region, division, state and county 2013 population estimates are from the Vintage 2016 series.

- a. Region, division, and state estimates were obtained by summing the county estimates from the Vintage 2016 series.
- b. National population estimates were obtained by summing the county estimates from the Vintage 2013 postcensal series.

14. 2014 Population Estimates

National estimates for 2014 are from the U.S. Census Bureau's bridged-race Vintage 2014 postcensal series. The region, division, state and county 2014 population estimates are from the Vintage 2016 series.

- a. Region, division, and state estimates were obtained by summing the county estimates from the Vintage 2016 series.
- b. National population estimates were obtained by summing the county estimates from the Vintage 2014 postcensal series.

15. 2015 Population Estimates

National estimates for 2015 are from the U.S. Census Bureau's bridged-race Vintage 2015 postcensal series. The region, division, state and county 2015 population estimates are from the Vintage 2016 series.

- a. Region, division, and state estimates were obtained by summing the county estimates from the Vintage 2016 series.
- b. National population estimates were obtained by summing the county estimates from the Vintage 2015 postcensal series.

16. 2016 Population Estimates

National estimates for 2016 are from the U.S. Census Bureau's bridged-race Vintage 2016 postcensal series. The region, division, state and county 2016 population estimates are from the Vintage 2016 series.

- a. Region, division, and state estimates were obtained by summing the county estimates from the Vintage 2016 series.
- b. National population estimates were obtained by summing the county estimates from the Vintage 2016 postcensal series.

Effect of Hurricanes in 2005 on Archive Population Estimates:

The methodology changes implemented for Vintage 2007-Vintage 2009 affect comparison of population estimates across the three vintages, as well as comparison of the estimates from these vintages with those from earlier vintages. At the national level, the methodology changes implemented for Vintage 2009 resulted in an upward shift of the Vintage 2009 postcensal population estimates when compared to those from the Vintage 2008 series. At the State and county level, some race and age groups experienced substantial changes (comparison of July 1, 2008 estimates from the Vintage 2008 series with the July 1, 2008 and July 1, 2009 estimates from the Vintage 2009 series). The net impact of the methodology changes implemented for Vintage 2008 was a downward shift of the Vintage 2008 postcensal population estimates when compared to those from the Vintage 2007 series. The net impact of the methodology changes implemented for Vintage 2007 series was a downward shift when compared to the Vintage 2006 estimates.

For the archive CMF 1999-2009, archive CMF 1999-2007 and the archive CMF 1999-2006: The 2005 population estimates for Alabama, Louisiana, Mississippi and Texas reflect population changes that occurred after Hurricane Katrina and Rita in 2005. To accommodate geographic shifts of the Alabama, Louisiana, Mississippi, and Texas populations resulting from Hurricanes Katrina and Rita in 2005, the U.S. Census Bureau developed adjustments in the methodology for state and county population estimates. See [methodology](#) for more information.

For the archive CMF 1999-2005: The 2005 population estimates for Alabama, Louisiana, and Mississippi do not reflect population changes that occurred after Hurricane Katrina. The July 1st 2005 population estimates for Alabama, Louisiana, and Mississippi do not reflect population changes that occurred after Hurricane Katrina on August 29, 2005. The populations of these three states and of Orleans parish in Louisiana, Baldwin and Mobile counties in Alabama, and George, Harrison, and Rankin counties in Mississippi were reduced following Hurricane Katrina; East Baton Rouge parish in Louisiana had an increased population. As a result, 2005 death rates for these areas (except East Baton Rouge) calculated using the population estimates on this file will be too low; the death rates calculated for East Baton Rouge will be somewhat too high. Death rates for Orleans parish are especially affected. At the time of the CMF 1999-2005 release, alternative population estimates for these areas were being developed by the National Cancer Institute.

Description of the 1990-based Postcensal Population Data in Archived CMF

In the archive data, the national, state, and county estimates for 1991-99 are postcensal estimates developed by the U.S. Census Bureau. Postcensal population estimates are estimates made for the years following a decennial census before the next census has been taken. The Census Bureau annually produces postcensal estimates of the population for various levels of geography and demographic detail. The estimates produced in

estimates of the population for various levels of geography and demographic detail. The estimates produced in this annual production cycle are collectively referred to as a series of estimates, and the current series of estimates is referred to by the last year in the series. Each series contains estimates for each year from the census year forward, so each new series contains estimates for all of the years in the previous series. The estimates in a given series may not be the same as the estimates in the previous series. For example, the 1998 series of state and county estimates contains estimates for 1997 which in some cases differ substantially from the estimates for 1997 released in the 1997 series of estimates.

a. National estimates for 1991-1999 in the archive data:

The postcensal national estimates on the archived CMF 1979-98, CMF 1999, and CMF 1999-2001 are the same as those used by NCHS to calculate published death rates. Each year when the CMF was updated, national estimates for the new year were added to the file and the estimates for previous years were retained. As a result, the postcensal national estimates for the archive 1991-1999 CMF are from different series of estimates, as outlined below.

- The national estimates of the July 1, **1991** resident population of the U.S. are from the *792I series of intercensal estimates* developed by the U.S. Census Bureau. They are consistent with the postcensal estimates for that year produced shortly thereafter.
- The national estimates for July 1, **1992** are from the 1990-93 annual time series described in *Population Division Product PPL-8*.
- The national estimates for July 1, **1993** are from the 1990-94 annual time series.
- The July 1, **1994** and July 1, **1995** national estimates are from the 1990-95 annual time series described in *Population Division Product PPL-41*.
- The July 1, **1996** national estimates are from the 1990-96 annual time series described in *Population Division Product PPL-57*.
- The July 1, **1997** national estimates are from the 1990-97 annual time series described in *Population Division Product PPL-91R*.
- The July 1, **1998** national estimates are from the 1990-98 annual time series.
- The July 1, **1999** national estimates are from the 1990-99 annual time series.

b. State estimates for 1991-1999 in the archive data:

The state estimates are from the 1990-1999 annual time series of postcensal estimates of the July 1 resident population of the 50 States and the District of Columbia prepared by the U.S. Census Bureau.

c. County estimates for 1991-1999 in the archive data:

The county estimates are from the U.S. Census Bureau 1990-99 annual time series of postcensal estimates of the July 1 resident population of the 3,141 counties in the U.S. (as defined in 1990).

Frequently Asked Questions about Compressed Mortality

The questions are in three sections:

[Questions about Death Rates](#)

[Data Release Questions](#)

[Race and Ethnicity Questions](#)

1. Questions about Death Rates

a. How are crude death rates calculated in WONDER?

The "crude death rate" is the number of deaths divided by the population, multiplied by 100,000.

$$\text{Crude Death Rate} = (\text{number of deaths} / \text{population}) * 100,000$$

Note: 100,000 is the default multiplier, other multipliers can be specified in the query.

b. How are age-adjusted death rates calculated in WONDER?

The age-adjusted rate is calculated by multiplying the age-specific death rate for each age group by the corresponding weight from the specified standard population, summing across all age groups, and then multiplying this result by 100,000 (or whatever multiplier is specified in the query).

$$\text{Age-Adjusted Death Rate} = \text{Sum of } (\text{Age Specific Death Rate} * \text{Standard Population weight}) * 100,000$$

The age-specific death rate is the number of deaths for a given age group divided by the population of that age group.

$$\text{Age Specific Death Rate} = (\text{number of deaths in age group} / \text{population of age group})$$

The "standard population weight" for an age group is calculated by dividing the population for the age group by the sum of the populations for all of the age groups in the query. Please see the question below on "children under 1 year" age categories.

$$\text{Standard Population Weight} = \text{population for age group} / \text{sum of age group populations for all age groups in query}$$

See <http://seer.cancer.gov/seerstat/tutorials/aarates/definition.html> for a step-by-step tutorial with an example of the calculations.

Note that the precision of the age-specific death rate is rounded to 1 decimal place, before proceeding to the next step in the calculation of age-adjusted death rates for NCHS Detailed Mortality and NCHS Multiple Cause of Death on WONDER, in order to match rates in NCHS publications. However, Compressed Mortality on WONDER does not round the age-specific death rate. Slight differences may be noted when comparing age-adjusted death rates. This rounding step may have a more noticeable effect on the precision of rates calculated for small numbers of deaths.

c. **What are the "Standard" and "Non-Standard" populations?**

WONDER allows the user to select the population distribution used for calculating age-adjusted rates. Three "Standard" populations are offered: the year 2000 standard population (the default), the 1970 standard population, and the 1940 standard population. Alternatively, the user can specify a "Non-Standard" population for use as the population distribution in the age-adjustment.

- The 1940 and 2000 standard populations were obtained from the National Center for Health Statistics. Beginning with the 1999 data year, NCHS adopted the year 2000 projected population of the U.S. as the standard population for use in age adjusting death rates. The year 2000 standard replaced the 1940 standard population that had been used for over 50 years. The new population standard affects levels of mortality, and to some extent, trends and group comparisons.
- The 1970 standard population is the one used by the National Cancer Institute.
- When the user requests that a "non-standard" population is used in the calculation of age-adjusted rates, WONDER uses the Census population estimates/counts included in the Compressed Mortality File to determine the weights used in the age-adjustment. See [Population Data Description](#) for more information.

d. **What age categories are used for age-adjusted rates?**

Only age groups that fall within the age range specified in the query are used to calculate an age-adjusted rate. The "total population" for a query is the sum of the populations of each age group included in that query. For example, if an age-adjusted rate is requested for 45-74 year olds, then the total population is the sum of the 45-54 year olds, 55-64 year olds, and 65-74 year old populations. For the 1940, 1970 and 2000 standard populations, the possible age groups are:

less than 1 year, 1-4, 5-14, 15-24, 25-34,85 years and over.

If the user specifies a "non-standard" population for use in age-adjustment, the possible age groups are:

less than 1 year, 1-4, 5-9, 10-14, 15-19, 20-24, 25-34,85 years and over.

Note that age groups differ from the age groups used for "**standard**" years, affecting the classification of deaths in the age range from 5 years to 24 years of age.

See [Age Adjustment of Death Rates](#) for more information.

e. **What about children under 1 year and rate calculation?**

When calculating mortality rates for "Infant Age Groups" (under 1 day, 1-6 days, 7-27 days, 28-264 days), the population is the number of live births in the given time period.

Notes:

- Age-adjusted rates cannot be calculated for infant age groups, because the denominator population is the number of live births in the specified years.
- In the CMF 1999-2013 and the archive CMF 1999-2009 online databases, rates for infant age groups are not shown for fewer than twenty deaths, nor are race and Hispanic Origin data available, due to privacy constraints; see [Assurance of Confidentiality](#) for more information. However, rates for race and Hispanic Origin are available for the age group "under 1 year of age." The "under 1 year of age" age group represents the population estimates for the given time period.
- In the CMF 1999-2003 online database, the "under 1 year of age" age group represents the population estimates for the given time period. (Prior to August 2006, in all previous CMF online databases, the number of live births in the given time period had been substituted for the "under 1 year of age" population estimates.)
- For more information, see [Mortality for Infants](#).

f. **Why are death rates sometimes flagged as "Unreliable" or "Suppressed"?**

Death rates based on counts less than twenty (death count ≤ 20) are flagged as "*Unreliable*". A death rate based on fewer than 20 deaths has a relative standard error (RSE(R)) of 23 percent or more. A RES(R) of 23 percent is considered statistically unreliable.

Death counts and death rates are "*Suppressed*" when the data meets the criteria for confidentiality constraints. See [Assurance of Confidentiality](#) for more information.

g. **Why do the rates change for past years?**

The rates change because the population estimates used the denominators in the rate calculations change. The population estimates used as denominators change in order to provide the most recently available best estimate. In the years following the decennial census, the Census Bureau annually produces a set of estimates containing estimates of the current year population and revised estimates of the population for previous years. Each set of estimates is referred to as a postcensal series. Reference [Description of the 1990-based Postcensal Population Estimates](#).

National death rates for 1979, 1981-89 and 1991-1999 computed using the CMF may not agree with death rates published previously by NCHS. The population estimates for these years on the CMF are intercensal estimates, which have replaced the postcensal population estimates originally used by NCHS to calculate published death rates. NCHS has published some revised death rates using the intercensal population estimates found on the current data release. To reproduce the earlier rates, please use the appropriate archive data. Reference [CMF Archives](#).

2. Data Release Questions

a. What are the Assurance of Confidentiality constraints?

Data reports for years 1989 and later meet the [NCHS data use restrictions](#). Vital statistics data are suppressed due to confidentiality constraints, in order to protect personal privacy. For data from year 1989 and later years, the term "*Suppressed*" replaces sub-national death counts, births counts, death rates and associated confidence intervals and standard errors, as well as corresponding population figures, when the figure represents zero to nine (0-9) persons.

With the release of CMF 1999-2008 on February 15, 2012, additional privacy constraints apply to infant mortality statistics representing infant age groups and live births as the denominator population. When an infant mortality measure represents fewer than ten (0-9) infant deaths, all corresponding live birth population denominator figures are suppressed. When the infant mortality measure represents ten to nineteen (10-19) infant deaths, the number of deaths and live births are shown, but rates and associated measures are not shown. Race and Hispanic origin data are not available in this online database for infant age groups. However, race and Hispanic origin data are available for persons under one year of age in the other age groups, which use population estimates as population denominator data. Race and Hispanic origin detail for infant mortality statistics are available in the [Linked Birth / Infant Death Records](#) data collections.

Prior to May 23, 2011, data cells in tables for year 1989 and later years were suppressed only for single county-level data, when the data represented five or fewer (1-5) deaths for a time period less than three years, and the county's total population in the April 1st, 2000 Census was fewer than one hundred thousand (100,000) persons.

Totals and sub-totals are suppressed when the value falls within scope of the suppression criteria, or when the summary value includes a single suppressed figure, in order to prevent the inadvertent disclosure of suppressed values.

The confidentiality constraints and use of the "*Unreliable*" flag are established by the original data providers. For more information, please contact the [data providers](#).

b. What are my responsibilities in accessing this data?

See [Data Use Restrictions](#) to review the policies affecting access to the Compressed Mortality data. Note that use of the data implies consent or agreement to abide by the policies.

c. Why separate query pages for CMF 1968-1978, CMF 1979-1998 and CMF 1999 and later?

The [International Classification of Diseases](#) (ICD) is used to classify underlying cause of death. The ICD Eighth Revision is used from 1968-1978, the ICD Ninth Revision is used from 1979-1998, and the ICD Tenth Revision is used since 1999. The classification systems differ significantly. As a result of these changes, the two classification schemes are different enough to make direct comparisons of cause-of-death difficult. NCHS has conducted a comparability study to measure the discontinuities between the Ninth and Tenth Revisions of the ICD for selected causes of death.

In order to avoid delivering potentially misleading information, separate Mortality query pages are available on CDC WONDER, one for the Eighth Revision data years (1969-1978), one for the Ninth Revision data years (1979-1998), and one for the Tenth Revision data years (1999 and later). Deaths cannot be tabulated across the 1998-1999 boundary in a single query. We fully recognize that this approach creates limitations for users of these data. We are hopeful that better approaches can be implemented once a method for addressing the data discontinuity has been developed.

d. Why are there "Archive" query pages for previous releases?

CDC's current policy on data release requires that previously published data remain available for researchers for comparison purposes. WONDER provides the previously published data designated as "archive" data, in contrast to the currently available published release. Each year the Compressed Mortality File is updated with a new year of data. Other revisions are made to the preceding years of data, such as changes in denominator population estimates and changes in county location codes. For more information, please see

[County Geography Changes](#)

[CMF Archives](#)

3. Race and Ethnicity Questions

a. What about differences in race reporting on death certificates and self-reporting in the Census?

See [Race Reporting](#) for more information about the issues of race categories and ethnicity in the data.

b. What racial categories are included in the "Other" classification for CMF Vintage 2005 and earlier?

The racial categories for all years of the CMF are white, black, and other races. Other races includes the American Indian or Alaskan Native race category and the Asian or Pacific Islander race category.

c. How are multi-racial persons classified in CMF?

Race data are collected on death certificates in accordance with the 1977 OMB standards on race and ethnicity. The 1977 standards specified four race categories (white, black, American Indian or Alaska Native, and Asian or Pacific Islander) and did not permit more than one racial category to be identified for an individual. Population data through the 1990s were also obtained in accordance with the 1977 standards. Race data on the 2000 census were collected in accordance with the 1997 OMB standards on race and ethnicity. The 1997 standards specify 5 single-race categories (American Indian or Alaskan Native, Asian, black, Hawaiian or Other Pacific Islander, and white) and permit the reporting of more than one race. As a result, there were 31 racial groups on the 2000 census (5 single-race groups and 26 multiple-race groups). NCHS, in collaboration with the Census Bureau, developed methodology for bridging the multiple-race groups to single-race categories, so that the race categories in the population data would match the race categories in the mortality data. Please see [U.S. Census Populations With Bridged Race Categories](#).

d. How are Hispanic persons who reported their race as "Other" on the census assigned to a race group?

race group:

The Census Bureau has assigned all persons (including Hispanic persons) who specified their race as "other" on the census (1980, 1990, and 2000) to one of the OMB specified racial categories. The algorithm used by the Census Bureau to make these assignments has differed for the 1980, 1990, and 2000 censuses, and is described in the [Population Data](#) section.

CMF Archives

Archives of previously published CMF versions are provided so that researchers can validate statistics and references from previous years. Each year the Compressed Mortality File is updated with a new year of data. Other revisions are made to the preceding years of data, such as changes in denominator population estimates and changes in county location codes. Changes in population estimates are reflected in changes in mortality rates. Death counts are not revised in later releases of Compressed Mortality File, other than dividing the deaths in previously combined county or county equivalents.

Archive copies of the CMF 1999-2012, CMF 1999-2011 and CMF 1999-2010 online databases are not needed, because the region, state and county population data for years 1999-2012 in those release are the same as used in the CMF 1999-2013 Archive.

CMF 1999 - 2015 with ICD-10 codes Archive

- This database was the active CMF data release for 1999-2015 (Series 20, No. 2U, 2016) from December 2016 - December 2017, when it was replaced by the CMF 1999-2016 (Series 20 No. 2V, 2017).
- 2015 population estimates: The national population estimates for 2014 are from the Vintage 2015 series of bridged-race postcensal estimates of the July 1 resident population. The region, state and county population estimates for 2015 are from the Vintage 2015 series of bridged-race postcensal estimates of the July 1 resident population.
- 2014 population estimates: The national population estimates for 2014 are from the Vintage 2014 series of bridged-race postcensal estimates of the July 1 resident population. The region, state and county population estimates for 2014 are from the Vintage 2015 series of bridged-race postcensal estimates of the July 1 resident population.
- 2013 population estimates: The national population estimates for 2013 are from the Vintage 2013 series of bridged-race postcensal estimates of the July 1 resident population. The region, state and county population estimates for 2013 are from the Vintage 2015 series of bridged-race postcensal estimates of the July 1 resident population.
- 2012 population estimates: The national population estimates for 2012 are from the Vintage 2012 series of bridged-race postcensal estimates of the July 1 resident population. The region, state and county population estimates for 2012 are from the Vintage 2015 series of bridged-race postcensal estimates of the July 1 resident population.
- 2011 population estimates: The national population estimates for 2011 are from the Vintage 2011 series of bridged-race postcensal estimates of the July 1 resident population. The region, state and county population estimates for 2011 are from the Vintage 2015 series of bridged-race postcensal estimates of the July 1 resident population.
- 2010 population estimates: The population estimates for 2010 are bridged-race modified April 1 census counts.
- 2001-2009 population estimates: the national, region, division, state and county population estimates for years 2001 and later, on the previous CMF 1999-2010 are from the revised 2000-2009 series of bridged-race intracensal estimates of the July 1 resident population.
- 2000 population estimates: The population estimates for 2000 are bridged-race modified April 1 census counts.
- 1999 population estimates: The population estimates for 1999 are estimates of the July 1 resident population from the bridged-race intercensal estimates.
- Data are available for Broomfield county, Colorado [08014] and Denali, Alaska [02068], only for years 2003 and later. Before 2003, data for these areas are aggregated with neighboring areas. Data for Clifton Forge City, Virginia (51560) are available only for the years 1999-2000. In the year 2001, the area merged with neighboring Alleghany county (51005).

CMF 1999 - 2014 with ICD-10 codes Archive

- This database was the active CMF data release for 1999-2014 (Series 20, No. 2T, 2015) from December 2015 - December 2016, when it was replaced by the CMF 1999-2015 (Series 20 No. 2U, 2016).
- 2014 population estimates: The national population estimates for 2014 are from the Vintage 2014 series of bridged-race postcensal estimates of the July 1 resident population. The region, state and county population estimates for 2014 are from the Vintage 2014 series of bridged-race postcensal estimates of the July 1 resident population.
- 2013 population estimates: The national population estimates for 2013 are from the Vintage 2013 series of bridged-race postcensal estimates of the July 1 resident population. The region, state and county population estimates for 2013 are from the Vintage 2014 series of bridged-race postcensal estimates of the July 1 resident population.
- 2012 population estimates: The national population estimates for 2012 are from the Vintage 2012 series of bridged-race postcensal estimates of the July 1 resident population. The region, state and county population estimates for 2012 are from the Vintage 2014 series of bridged-race postcensal estimates of the July 1 resident population.
- 2011 population estimates: The national population estimates for 2011 are from the Vintage 2011 series of bridged-race postcensal estimates of the July 1 resident population. The region, state and county population estimates for 2011 are from the Vintage 2014 series of bridged-race postcensal estimates of the July 1 resident population.
- 2010 population estimates: The population estimates for 2010 are bridged-race modified April 1 census counts.
- 2001-2009 population estimates: the national, region, division, state and county population estimates for years 2001 and later, on the previous CMF 1999-2010 are from the revised 2000-2009 series of bridged-race intracensal estimates of the July 1 resident population.

- 2000 population estimates: The population estimates for 2000 are bridged-race modified April 1 census counts.
- 1999 population estimates: The population estimates for 1999 are estimates of the July 1 resident population from the bridged-race intercensal estimates.
- Data are available for Broomfield county, Colorado [08014] and Denali, Alaska [02068], only for years 2003 and later. Before 2003, data for these areas are aggregated with neighboring areas. Data for Clifton Forge City, Virginia (51560) are available only for the years 1999-2000. In the year 2001, the area merged with neighboring Alleghany county (51005).

CMF 1999 - 2013 with ICD-10 codes Archive

- This database was the active CMF data release for 1999-2013 (Series 20, No. 2S, 2014) from January 2015 - December 2015, when it was replaced by the CMF 1999-2014 (Series 20 No. 2T, 2015).
- 2013 population estimates: The national population estimates for 2013 are from the Vintage 2013 series of bridged-race postcensal estimates of the July 1 resident population. The region, state and county population estimates for 2013 are from the Vintage 2013 series of bridged-race postcensal estimates of the July 1 resident population.
- 2012 population estimates: The national population estimates for 2012 are from the Vintage 2012 series of bridged-race postcensal estimates of the July 1 resident population. The region, state and county population estimates for 2012 are from the Vintage 2013 series of bridged-race postcensal estimates of the July 1 resident population.
- 2011 population estimates: The national population estimates for 2011 are from the Vintage 2011 series of bridged-race postcensal estimates of the July 1 resident population. The region, state and county population estimates for 2011 are from the Vintage 2013 series of bridged-race postcensal estimates of the July 1 resident population.
- 2010 population estimates: The population estimates for 2010 are bridged-race modified April 1 census counts.
- 2001-2009 population estimates: the national, region, division, state and county population estimates for years 2001 and later, on the previous CMF 1999-2010 are from the revised 2000-2009 series of bridged-race intracensal estimates of the July 1 resident population.
- 2000 population estimates: The population estimates for 2000 are bridged-race modified April 1 census counts.
- 1999 population estimates: The population estimates for 1999 are estimates of the July 1 resident population from the bridged-race intercensal estimates.
- Data are available for Broomfield county, Colorado [08014] and Denali, Alaska [02068], only for years 2003 and later. Before 2003, data for these areas are aggregated with neighboring areas. Data for Clifton Forge City, Virginia (51560) are available only for the years 1999-2000. In the year 2001, the area merged with neighboring Alleghany county (51005).

CMF 1999 - 2009 with ICD-10 codes Archive

- This database was the active CMF data release for 1999-2009 (Series 20, No. 2O, 2012) from July 2012 to February 2013, when it was replaced by the CMF 1999-2010 (Series 20 No. 2P, 2013).
- 2001-2009 population estimates: the region, division, state and county population estimates for years 2001 and later, on the archive CMF 1999-2009 are estimates of the July 1 resident population from the county-level bridged-race Vintage 2009 postcensal series. National population estimates for 2001-2009 are from the corresponding postcensal vintage (e.g., Vintage 2001 for 2001, Vintage 2002 for 2002).
- 2000 population estimates: The population estimates for 2000 are bridged-race modified April 1 census counts.
- 1999 population estimates: The population estimates for 1999 are estimates of the July 1 resident population from the bridged-race intercensal estimates.
- Data are available for Broomfield county, Colorado [08014] and Denali, Alaska [02068], only for years 2003 and later. Before 2003, data for these areas are aggregated with neighboring areas. Data for Clifton Forge City, Virginia (51560) are available only for the years 1999-2000. In the year 2001, the area merged with neighboring Alleghany county (51005).

CMF 1999 - 2008 with ICD-10 codes Archive

- This database was the active CMF data release for 1999-2008 (Series 20, No. 2N, 2011) from February 2012 to July 2012, when it was replaced by the CMF 1999-2009 (Series 20 No. 2O, 2012).
- 2001-2008 population estimates: The region, division, state and county population estimates for years 2001 and later, on the archive CMF 1999-2008 are estimates of the July 1 resident population from the county-level bridged-race Vintage 2009 postcensal series. National population estimates for 2001-2008 are from the corresponding postcensal vintage (e.g., Vintage 2001 for 2001, Vintage 2002 for 2002).
- 2000 population estimates: The population estimates for 2000 are bridged-race modified April 1 census counts.
- 1999 population estimates: The population estimates for 1999 are estimates of the July 1 resident population from the bridged-race intercensal estimates.
- Data are available for Broomfield county, Colorado [08014] and Denali, Alaska [02068], only for years 2003 and later. Before 2003, data for these areas are aggregated with neighboring areas. Data for Clifton Forge City, Virginia (51560) are available only for the years 1999-2000. In the year 2001, the area merged with neighboring Alleghany county (51005).

CMF 1999 - 2007 with ICD-10 codes Archive

- This database was the active CMF data release for 1999-2007 (Series 20, No. 2M, 2010) from October 2010 to January 2012, when it was replaced by the CMF 1999-2008 (Series 20 No. 2N, 2011).
- 2001-2007 population estimates: The region, division, state and county population estimates for years 2001 and later, on the archive CMF 1999-2007 are estimates of the July 1 resident population from the

county-level bridged-race Vintage 2008 postcensal series. National population estimates for 2001-2007 are from the corresponding postcensal vintage (e.g., Vintage 2001 for 2001, Vintage 2002 for 2002).

- 2000 population estimates: The population estimates for 2000 are bridged-race modified April 1 census counts.
- 1999 population estimates: The population estimates for 1999 are estimates of the July 1 resident population from the bridged-race intercensal estimates.
- Data are available for Broomfield county, Colorado [08014] and Denali, Alaska [02068], only for years 2003 and later. Before 2003, data for these areas are aggregated with neighboring areas. Data for Clifton Forge City, Virginia (51560) are available only for the years 1999-2000. In the year 2001, the area merged with merged with neighboring Alleghany county (51005).

CMF 1999 - 2006 with ICD-10 codes Archive

- This database was the active CMF data release for 1999-2006 (Series 20, No. 2L, 2010) from August 2009 to October 2010, when it was replaced by the CMF 1999-2007 (Series 20 No. 2M, 2010).
- 2001-2006 population estimates: The region, division, state and county population estimates for years 2001 and later, on the archive CMF 1999-2006 are estimates of the July 1 resident population from the county-level bridged-race Vintage 2007 postcensal series. National population estimates for 2001-2006 are from the corresponding postcensal vintage (e.g., Vintage 2001 for 2001, Vintage 2002 for 2002).
- 2000 population estimates: The population estimates for 2000 are bridged-race modified April 1 census counts.
- 1999 population estimates: The population estimates for 1999 are estimates of the July 1 resident population from the bridged-race intercensal estimates.
- Data are available for Broomfield county, Colorado [08014] and Denali, Alaska [02068], only for years 2003 and later. Before 2003, data for these areas are aggregated with neighboring areas. Data for Clifton Forge City, Virginia (51560) are available only for the years 1999-2000. In the year 2001, the area merged with merged with neighboring Alleghany county (51005).
- New measures are available beginning with the CMF 1999-2006 database: 95% confidence intervals and standard errors.

CMF 1999 - 2005 with ICD-10 codes Archive

- This database was the active CMF data release for 1999-2005 (Series 20, No. 2K, 2008) from March 2008-August 2009, when it was replaced by the CMF 1999-2006 (Series 20 No. 2L, 2009).
- 2001-2005 population estimates: The region, division, state and county population estimates for years 2001 and later on the archive CMF 1999-2005 are estimates of the July 1 resident population from the county-level bridged-race Vintage 2006 postcensal series.
- 2000 population estimates: The population estimates for 2000 are bridged-race modified April 1 census counts.
- 1999 population estimates: The population estimates for 1999 are estimates of the July 1 resident population from the bridged-race intercensal estimates.
- Data are available for Broomfield county, Colorado [08014] and Denali, Alaska [02068], only for years 2003 and later. Before 2003, data for these areas are aggregated with neighboring areas. Data for Clifton Forge City, Virginia (51560) are available only for the years 1999-2000. In the year 2001, the area merged with merged with neighboring Alleghany county (51005).
- The CMF 1999-2005 has **not** adjusted state and county level populations for migration due to Hurricanes Katrina and Rita in 2005, see [About Population Migration due to Hurricanes in 2005](#) for more information.
- The CMF 1999-2005 does not provide data for Hispanic Origin, nor data for these race groups: American Indian or Alaskan Native; Asian or Pacific Islander.

CMF 1999 - 2004 with ICD-10 codes Archive

- This database was the active CMF data release for 1999-2004 (Series 20, No. 2J, 2007) from April 2007 - March 2008, when it was replaced by the CMF 1999-2005 (Series 20 No. 2K, 2008).
- 2001-2004 population estimates: The region, division, state and county population estimates for years 2001 and later, on the archive CMF 1999-2004 are estimates of the July 1 resident population from the county-level bridged-race Vintage 2005 postcensal series.
- 2000 population estimates: The population estimates for 2000 are bridged-race modified April 1 census counts.
- 1999 population estimates: The population estimates for 1999 are estimates of the July 1 resident population from the bridged-race intercensal estimates.
- Data are available for Broomfield county, Colorado [08014] and Denali, Alaska [02068], only for 2003 and later. Before 2003, data for these areas are aggregated with neighboring areas. Data for Clifton Forge City, Virginia (51560) are available only for the years 1999-2000. In the year 2001, the area merged with merged with neighboring Alleghany county (51005).
- The CMF 1999-2004 does not provide data for Hispanic Origin, nor data for these race groups: American Indian or Alaskan Native; Asian or Pacific Islander.

CMF 1999 - 2003 with ICD-10 codes Archive

- This database was the active CMF data release for 1999-2003 (Series 20, No. 2I, 2006) from August 2006 to April 2007, when it was replaced by the CMF 1999-2004 (Series 20 No. 2J, 2007).
- 2001-2003 population estimates: The region, division, state and county population estimates on the archive CMF 1999-2003 are estimates of the July 1 resident population from the county-level bridged-race Vintage 2004 postcensal series.
- 2000 population estimates: The population estimates for 2000 are bridged-race modified April 1 census counts.
- 1999 population estimates: The population estimates for 1999 are estimates of the July 1 resident

- population from the bridged-race intercensal estimates.
- Data are available for Broomfield county, Colorado [08014] and Denali, Alaska [02068], only for 2003. Before 2003, data for these areas are aggregated with neighboring areas. Data for Clifton Forge City, Virginia (51560) are available only for the years 1999-2000. In the year 2001, the area merged with merged with neighboring Alleghany county (51005).
- The CMF 1999-2005 does not provide data for Hispanic Origin, nor data for these race groups: American Indian or Alaskan Native; Asian or Pacific Islander.

CMF 1999 with ICD-10 codes Archive

- This database was the active CMF data release (CMF 1989-2000, Series 20, No. 2C, 2001) from January 2002 to November 2003, when it was replaced by CMF 1999-2001 (Series 20, No. 2G, 2004).
- 1999 population estimates: The population figures for 1999 are 1990-based postcensal population estimates, whereas the current CMF release has intercensal population estimates (based on both the 1990 and 2000 censuses) for 1999.
- This query only provides data for 1999, due to differences in ICD-9 and ICD-10 disease classifications.
- The CMF 1999 does not provide data for Urbanization, Hispanic Origin, nor data for these race groups: American Indian or Alaskan Native; Asian or Pacific Islander.

CMF 1979-1998 with ICD-9 codes Archive

- This database was the active CMF data release (CMF 1989-2000, Series 20, No. 2C, 2001) from January 2002 through November 2003, when it was replaced by CMF 1989-1998 (Series 20, No. 2E, 2003).
 - 1991-1998 population estimates: The population figures for 1991-1998 are 1990-based postcensal population estimates, whereas the current CMF release has bridged-race intercensal population estimates (based on both the 1990 and 2000 censuses) for the years 1991-1998.
 - This query only provides data for 1979 through 1998, due to differences in disease classifications.
 - County-level data for the state of Alaska are not available in this database. Dade county, Florida represents Miami-Dade, Florida for all years 1979-1998. The database was updated in May 2003 to include death count and populations for La Paz county, Arizona since 1989, and for Cibola county, New Mexico since 1994. Location exceptions for the Archive CMF 1979-1998 are summarized in the table below:
- | Location | Available | Unavailable | Notes |
|-----------------------------------|-----------|----------------------|--|
| Alaskan boroughs and census areas | --*-- | 1979-1998 | Only Alaska state level available |
| Cibola, New Mexico (35006) | 1989-1998 | 1979-1988 | Aggregated with Valencia (35061) before 1989 |
| Dade, Florida (12025) | 1979-1998 | --*-- | Represents Miami-Dade [12086] |
| Kalawao, Hawaii [15005] | --*-- | 1979-1998 | Aggregated with neighboring areas |
| La Paz, Arizona (04012) | 1994-1998 | 1979-1993 | Aggregated with Yuma (04027) before 1994 |
| Miami-Dade, Florida (12086) | --*-- | 1979-1998 | Represented by Dade (12025) |
| South Boston, Virginia (51780) | 1979-1994 | 1995-1998 | Aggregated with Halifax (51083) in 1995 |
| Unknown, Georgia (13999) | 1988-1991 | 1979-1987, 1992-1998 | AIDS deaths only |
- The CMF 1979- 1998 does not provide data for Urbanization, Hispanic Origin, nor data for these race groups: American Indian or Alaskan Native; Asian or Pacific Islander.

For more information, please see

[Locations: About County Geography Changes](#)

[Archive Mortality Data Requests](#)

[Data Source Citations for CMF On-line Databases](#)

Mortality for Infants (under 1 Year of Age)

Causes of death among persons less than one year of age vary greatly during the first year of life, and therefore special "rates" (actually, ratios) have long been used in public health to provide meaningful indicators of infant mortality. Infant mortality rates are typically calculated as the number of deaths per 1,000 live births. Infant Age Groups" for rates calculated using the number live births as the population denominator. The default multiplier for Infant Age Groups (live births population) is 1,000 births. However, the default multiplier for death rates calculated with the population estimate for persons under 1 year of age is 100,000 persons.

Three commonly used indicators of infant mortality that can be calculated in WONDER are:

1. Infant Mortality Rate

Number of deaths of infants (less than 1 year of age of death)
divided by the number of live births during a given period,
then multiplied by 1,000;

(Deaths of persons under 1 year of age) / Live Births) * 1000

2. Neonatal Mortality Rate

Number of deaths of infants less than 28 days of age
divided by the number of live births during a given period,
then multiplied by 1,000;

(Deaths of persons under 28 days of age) / Live Births) * 1000

3. Postneonatal Mortality Rate

Number of deaths of infants 28 days to 1 year of age
divided by the number of live births during a given period,
then multiplied by 1,000.

(Deaths of persons age 28 days to 1 year of age) / Live Births) * 1000

(Deaths of persons age 28 days to 1 year of age) / Live Births) * 1000

Note that all three indicators use the same denominator: number of live births during a given period.

To support these and other infant mortality indicators, the Compressed Mortality File provides first-year mortality data as follows:

Infant Age Groups

less than one day old;

1 to 6 days old;

7 to 27 days old;

and 28 to 364 days old.

Hints:

- Select "**Infant Age Groups**" for rates calculated using the number live births as the population denominator. The default multiplier for Infant Age Groups (live births population) is 1,000 births.
- The single age group labeled "under 1 of age year" in the standard "Age Groups" list represents the population estimates for this age group. (Prior to August 2006, the number of live births in the given time period had been substituted for the "under 1 year of age" population estimates. Since August 2006, the number of live births for the specified year are available separately.) Death rates based on the population estimates are calculated per 100,000 persons, unless another multiplier is specified.
- Change the default multiplier for the rate per number of persons in the [Additional Rate Options](#) section on the Request Form tab.

Notes:

- Age-adjusted rates are not available for the live births population, because each infant age group uses the same population, the number of live births, to produce the age-specific rates.
- Age-adjusted rates are available for the "under 1 year of age" group, when this group is combined with other age groups. Age-adjusted rates are not calculated for any single age group because the ratio is effectively "1" in this case.
- The number of live births are not summed together for the population total when the data are grouped by infant age groups, because the number of live births is used as the population denominator for each infant age group.
- Note that rates for infant age groups are not shown for fewer than twenty deaths, nor are race and Hispanic Origin data available, due to privacy constraints; see [Assurance of Confidentiality](#) for more information.

County Geography Changes: notes about specific county-level changes in boundaries and codes

Changes in county geography occur from time to time. For example, one county may absorb another, two counties may be merged resulting in the deletion of both of them and the creation of a new county, or part of a county may be split off to form a new county or be merged with an existing county. Creation and deletion of counties results in missing data for those counties for some years. County boundary changes can result in substantial increases or decreases in the population of the affected counties and hence impact birth and death counts, population estimates, and birth and death rates for those counties. Creation and deletion of counties often is implemented later in the vital statistics system than in the Census population files. Thus, for the CMF, county codes on the population data have been modified so that they match those in the corresponding vital statistics files. County geography changes that involve creation or deletion of counties in the CMF data are listed below. They are organized by state and county name.

1. Alaska boroughs and census areas:

The boroughs and census areas of Alaska undergo frequent changes making it difficult to work with individual Alaskan areas. Prior to 1989, the CMF did not include data for the individual Alaska areas. The FIPS codes used for vital statistics coding for Alaska changed in 1994 and in 2003 and therefore changed on the CMF. Specific area reporting details for Alaska are given below and summarized in the [table](#).

a. Alaska (Entire State)

No data are available on the CMF for individual Alaska areas for the years 1965-1988. For these years, only state-level records (all individual areas combined) with a FIPS code of 02900 appear on the CMF. Alaska data are available for all areas combined for years 1965-1988. Data are reported as "Entire State, AK" (FIPS code 02900) for years 1968-1978, and as "Alaska (all counties, 1979-1988)" (FIPS code 02900) for years 1979-1988. Death counts and population estimates are available for individual areas within Alaska for years 1989-present.

b. Aleutians East borough, Alaska

Aleutians East borough, Alaska (FIPS code 02013) deaths and populations are on the CMF for 1994-present. For years 1989-1993, deaths and populations are reported for Aleutians Islands Census Area. Aleutians East borough (FIPS code 02013) was created from part of Aleutian Islands Census Area (FIPS code=02010) in 1987 from part of Aleutian Islands census area (FIPS code 02010) and an unpopulated part of Dillingham (FIPS code 02070).

c. Aleutian Islands Census Area, Alaska

Aleutian Islands Census Area, Alaska (FIPS code 02010) deaths and populations are on the CMF only for the years 1989-1993. For years 1994 - present, deaths and populations are reported for two areas, Aleutians East Borough (FIPS code=02013) and Aleutians West Census Area (FIPS code=02016).

d. Aleutians West Census Area, Alaska

Aleutians West Census Area, Alaska (FIPS code 02016) deaths and populations for Aleutians West are on the CMF for 1994 - present. For years 1989-1993, deaths and populations are reported for Aleutians Islands Census Area. Aleutians West Census Area, Alaska (FIPS code 02016) was created in 1990 from that part of Aleutian Islands (FIPS code 02010) that did not become part of Aleutians East (FIPS code 02013).

e. **Denali borough, Alaska**

Denali Borough, Alaska (FIPS code 02068) deaths and populations are on the CMF for years 2003 - present. For years 1989-2003, deaths and populations are reported for Yukon-Koyukuk (FIPS code 02290). Denali Borough, Alaska (FIPS code 02068) was created from the Yukon-Koyukuk Census Area (FIPS code 02290) and a small part of Southeast Fairbanks (FIPS code 02240) on December 7, 1990.

f. **Dillingham census area, Alaska**

Dillingham, Alaska (FIPS code 02070) deaths and populations are available on the CMF for years 1989 - present. There may be a discontinuity between 1993 and 1994 in the data reported for Dillingham because in 1989 part of Dillingham was removed to form Lake and Peninsula Borough (FIPS code 02164). This change was implemented in the vital records files and the CMF beginning 1994.

g. **Hoonah-Angoon Census Area, Alaska**

Hoonah-Angoon Census Area, Alaska (FIPS code 02105) data are only available for 2014 and later; for computational purposes, counts and population estimates for 1999-2013 are set to zero. Thus, counts and rates shown in multi-year requests for this entity do not include any data for years prior to 2014, only data for 2014 and later. In 2007, Skagway-Hoonah-Angoon Census Area (FIPS code 02232) was divided into Hoonah-Angoon Census Area (FIPS code 02105) and Skagway Municipality (FIPS code 02230). This change has been implemented in the Census Bureau's population files, yet not implemented in the mortality files until year 2014. Therefore, the population estimates for Hoonah-Angoon and Skagway Municipality are recoded to Skagway-Hoonah-Angoon Census Area for the CMF population file for the years before 2014.

h. **Ketchikan Gateway Borough, Alaska**

Ketchikan Gateway Borough (FIPS code 02130) deaths and populations are available on the CMF for 1989-present. In 2009, this Borough had a boundary change when it annexed Outer Ketchikan, formerly part of Prince of Wales-Outer Ketchikan Census Area (FIPS code 02201). The annexed territory was mostly unpopulated. The annexation was implemented in the Census 2001-2010 intercensal population estimates, so for years 2001 and beyond the population of Outer Ketchikan is reported for Ketchikan Gateway, not for Prince of Wales-Outer Ketchikan. The annexation was implemented in the vital records data in 2014, so for years 2001-2013, any deaths that occurred in Outer Ketchikan were reported for Prince of Wales-Outer Ketchikan Census Area, not for Ketchikan Gateway.

i. **Kobuck, Alaska**

Kobuck, Alaska (FIPS code 02140) became Northwest Arctic borough (FIPS code 02188). There are no records for Kobuck on the CMF.

j. **Kusilvak Census Area, Alaska**

Kusilvak Census Area, Alaska (FIPS code 02158) does not appear on the CMF. Deaths and population data are available under its former name and FIPS code: Wade-Hampton Census Area, Alaska (FIPS code 02270).

k. **Lake and Peninsula Borough, Alaska**

Lake and Peninsula Borough, Alaska (FIPS code 02164) deaths and populations are available on the CMF for years 1994 - present. For years 1989-1993, deaths and populations for this area are reported for Dillingham. Lake and Peninsula Borough, Alaska (FIPS code 02164) was created from part of Dillingham, Census Area, Alaska (FIPS code 02070) in 1989.

l. **Northwest Arctic Borough, Alaska**

Northwest Arctic Borough, Alaska (FIPS code 02185) deaths and populations are available on the CMF for years 1989 - present. This area was formed in 1982 when an unpopulated part of North Slope Borough (FIPS code=02185) was combined with Kobuck (FIPS code=02140).

m. **Petersburg Borough/Census Area, Alaska**

Petersburg Borough/Census Area, Alaska (FIPS code 02195) data are only available for 2014 and later; for computational purposes, counts and population estimates for 1999-2013 are set to zero. Thus, counts and rates shown in multi-year requests for this entity do not include any data for years prior to 2014, only data for 2014 and later. Petersburg Borough (FIPS code 02195) was created in 2013 from part of former Petersburg Census Area (also 02195) and a mostly unpopulated part of Hoonah-Angoon Census Area (FIPS code 02105). A part of the former Petersburg Census Area (population around 600 persons) went to Prince of Wales-Hyder Census Area (FIPS code 02198). Petersburg Census Area (FIPS code 02195) was created in 2009 from the Petersburg part of Wrangell-Petersburg Census Area (FIPS code 02280). The changes have been implemented in the Census Bureau's population files, but not in the mortality files until year 2014. Therefore, the 2001 through 2013 population estimates for Petersburg Census Area (FIPS code 02195) have been aggregated with those for the new Wrangell Borough (FIPS code 02275) and recoded to the former Wrangell-Petersburg (FIPS code 02280) for the years before 2014.

n. **Prince of Wales-Hyder Census Area, Alaska**

Prince of Wales-Hyder Census Area, Alaska (FIPS code 02198) data are only available for 2014 and later; for computational purposes, counts and population estimates for 1999-2013 are set to zero. Thus, counts and rates shown in multi-year requests for this entity do not include any data for years prior to 2014, only data for 2014 and later. Prince of Wales-Hyder Census Area was formed in 2008 from part of Prince of Wales-Outer Ketchikan Census Area (FIPS code 02201). This change was implemented in the Census Bureau's population files but was not implemented in the vital records files until year 2014. Therefore, the population estimates for years prior to year 2014 for Prince of Wales-Hyder have been recoded to Prince of Wales-Outer Ketchikan Census Area. Population estimates for years 2001-2009 for Outer Ketchikan, which were aggregated into the Ketchikan Gateway estimates population files, cannot be recovered, but are estimated to be small.

o. **Prince of Wales-Outer Ketchikan Census Area, Alaska**

Prince of Wales-Outer Ketchikan Census Area, Alaska (FIPS code 02201) data are available only for 1989-2013. For 2014 and beyond, death counts and population estimates for Prince of Wales-Outer Ketchikan Census Area are reported as Prince of Wales-Hyder Census Area (FIPS code 02198). Death counts and population estimates for this entity from multi-year requests, only reflect data for years 1989-2013; for year 2014 and beyond they have been set to zero. Prince of Wales-Outer Ketchikan Census Area, Alaska (FIPS code 02201) deaths and populations are available on the CMF for years 1989-2013. In 2009, Prince of Wales-Outer Ketchikan was disaggregated. The Outer Ketchikan portion was annexed by Ketchikan Gateway Borough, the Meyers Church part of Prince of Wales was annexed by Wrangell City and Borough, and the remainder became Prince of Wales-Hyder Census Area. This change was implemented in the Census Bureau's population files but was not yet been implemented in the vital records files until year 2014. Therefore, the population estimates for Prince of Wales-Outer Ketchikan were obtained by recoding the population estimates for Prince of Wales-Hyder to Prince of Wales-Outer Ketchikan Census Area for years before 2014.

There may be a discontinuity between the 2000 and 2001 estimates for this area because the populations of Outer Ketchikan and Meyers Church cannot be recovered.

p. **Skagway Municipality, Alaska**

Skagway Municipality, Alaska (FIPS code 02230) data are only available for 2014 and later; for computational purposes, counts and population estimates for 1999-2013 are set to zero. Thus, counts and rates shown in multi-year requests for this entity do not include any data for years prior to 2014, only data for 2014 and later. Skagway-Hoonah-Angoon Census Area (FIPS code 02232) was divided into Skagway Municipality (FIPS code 02230) and Hoonah-Angoon Census Area (FIPS code 02105) in 2007. This change was implemented in the Census Bureau's population files but was not implemented in the vital records files until year 2014. Therefore, the population estimates for Skagway Municipality have been aggregated with those for Hoonah-Angoon Census Area and recoded to Skagway-Hoonah-Angoon Census Area for the CMF population file for years before 2014.

q. **Skagway-Hoonah-Angoon Census Area, Alaska**

Skagway-Hoonah-Angoon Census Area, Alaska (FIPS code 02232) data are available only for 1994-2013. For 2014 and beyond, death counts and population estimates for Skagway-Hoonah-Angoon Census Area are reported as Hoonah-Angoon Census Area (FIPS code 02105) and Skagway Municipality, (FIPS code 02230). Death counts and population estimates for this entity from multi-year requests, only reflect data from 1994-2013; for 2014 and beyond they have been set to zero. Skagway-Hoonah-Angoon Census Area, Alaska (FIPS code 02232) deaths and populations are available on the CMF for years 1994-2013. For years 1989-1993, data for Skagway-Hoonah-Angoon are reported for Skagway-Yakutat-Angoon (FIPS code 02231). Skagway-Hoonah-Angoon was formed in September 22, 1992 from that part of Skagway-Yakutat-Angoon not incorporated into Yakutat Borough (FIPS code=02282). In 2007, Skagway-Hoonah-Angoon was split into Hoonah-Angoon Census Area (FIPS code 02105) and Skagway Municipality (FIPS code 02230). This change was implemented in the Census Bureau's population files but was not implemented in the vital records files until year 2014. Therefore, the population estimates for Hoonah-Angoon Census Area and Skagway Municipality have been aggregated and recoded to Skagway-Hoonah-Angoon Census Area for years before 2014.

r. **Skagway-Yakutat-Angoon Census Area, Alaska**

Skagway-Yakutat-Angoon, Alaska (FIPS code 02231) deaths and populations are on the CMF for years 1989-1993. For years 1994 - present, deaths and populations for this area are reported for Yakutat (FIPS code 02282) and Skagway-Hoonah-Angoon (FIPS code 02232). Effective September 22, 1992, Skagway-Yakutat-Angoon Census Area was deleted after Yakutat (FIPS code 02282) and Skagway-Hoonah-Angoon (FIPS code 02232) were formed. This change was implemented in the vital records files, and hence in the CMF, beginning with the 1994 data year.

s. **Wrangell City and Borough, Alaska**

Wrangell City and Borough, Alaska (FIPS code 02275) data are only available for 2014 and later; for computational purposes, counts and population estimates for 1999-2013 are set to zero. Thus, counts and rates shown in multi-year requests for this entity do not include any data for years prior to 2014, only data for 2014 and later. Wrangell City and Borough (FIPS code 02275) was created in 2009 from part of Wrangell-Petersburg Census Area (FIPS code 02280) and the Meyers Church part of Prince of Wales-Outer Ketchikan Census Area (FIPS code 02201). This change was implemented in the Census Bureau's population estimates but was not implemented in the vital records files until year 2014. Therefore, the population estimates for Wrangell City and Borough have been aggregated with those for Petersburg (FIPS code 02195) and recoded to Wrangell-Petersburg Census Area for the CMF population file for the years before 2014. The recombined area includes the additional population for Myers Church.

t. **Wrangell-Petersburg Census Area, Alaska**

Wrangell-Petersburg Census Area, Alaska (FIPS code 02280) data are available only for 1989-2013. For 2014 and beyond, death counts and population estimates for Wrangell-Petersburg Census Area are reported as Petersburg Borough/Census Area (FIPS code 02195) and Wrangell City and Borough, (FIPS code 02275). Death counts and population estimates for this entity from multi-year requests, only reflect data from 1989-2013; for 2014 and beyond they have been set to zero. Wrangell-Petersburg Census Area, Alaska (FIPS code 02280) deaths and populations are available on the CMF for years 1989-2013. In 2008, Wrangell-Petersburg (FIPS code 02280) split to form part of Wrangell City and Borough (FIPS code 02275) and all of Petersburg Census Area (FIPS code 02195). This change was implemented in the Census Bureau's population estimates but was not implemented in the vital records files until year 2014. Therefore, the population estimates for this area on the CMF for years before 2014 were obtained by combining the estimates for Wrangell City and Borough with those for Petersburg Census Area. Because the new Wrangell City and Borough includes part of the former Prince of Wales-Outer Ketchikan (Meyers Church), the population of the recombined area is augmented somewhat.

u. **Yakutat Borough, Alaska**

Yakutat Borough, Alaska (FIPS code 02282) deaths and populations are available on the CMF for years 1994 - present. For years 1991-1993, deaths and populations for Yakutat are aggregated with those for Skagway-Hoonah-Angoon (FIPS code 02231). Yakutat Borough was created September 22, 1992 from part of Skagway-Yakutat-Angoon (FIPS code 02231). This change was implemented in the vital records files for the 1994 data year.

v. **Yukon-Koyukuk, Alaska**

Yukon-Koyukuk Census Area, Alaska (FIPS code 02290) deaths and populations are available on the CMF for years 1989 - present. However, there are discontinuities between 2002 and 2003 in the mortality and population data for Yukon-Koyukuk, because part of Yukon-Koyukuk Census Area was removed to form Denali Borough, Alaska (FIPS code 02068). This change was implemented in the vital records files and the CMF in the 2003 data year

w. **Table of Alaska boroughs and census areas in the CMF from 1989 - 1998**

Borough / Census Area Name	FIPS Code	
	1989-93	1994-98
Aleutian Islands Census Area	02010	--*--
Aleutians East Borough	--*--	02113
Aleutians West Census Area	--*--	02016
Anchorage Borough	02020	02020
Bethel Census Area	02050	02050
Bristol Bay Borough	02060	02060
Denali Borough (02068)	--*--	--*--
Dillingham Census Area	02070	02070
Fairbanks North Star Borough	02090	02090
Haines Borough	02100	02100
Juneau Borough	02110	02110
Kenai Peninsula Borough	02122	02122
Ketchikan Gateway Borough	02130	02130
Kobuck(-2140)	--*--	--*--
Kodiak Island Borough	02150	02150
Lake and Peninsula Borough	--*--	02164
Matanuska-Susitna Borough	02170	02170
Nome Census Area	02180	02180
North Slope Borough	02185	02185
Northwest Arctic Borough	02188	02188
Prince of Wales-Outer Ketchikan C.A	02201	02201
Sitka Borough	02220	02220
Skagway-Yakutat-Angoon Census Area	02231	--*--
Skagway-Hoonah-Angoon Census Area	--*--	02232
Southeast Fairbanks Census Area	02240	02240
Valdez-Cordova Census Area	02261	02261
Wade Hampton Census Area	02270	02270
Wrangell-Petersburg Census Area	02280	02280
Yakutat Borough	--*--	02282
Yukon-Koyukuk Census Area	02290	02290
--*-- Code does not appear on file for these years.		

2. **Arizona:**

1. **La Paz, Arizona**
La Paz county, Arizona (FIPS code 04012) deaths and populations are available for years 1994 - present. For years 1965 - 1993, deaths and populations for this area are aggregated with those for Yuma county, Arizona (FIPS code 04027). In January, 1983, La Paz county, Arizona (FIPS code 04012) was formed from the northern portion of Yuma county (FIPS code 04027). This change was implemented in the vital records files and in the CMF beginning in 1994.
2. **Yuma, Arizona**
Yuma county, Arizona (FIPS code 02027) deaths and populations are available on the CMF for years 1968 - present. However, there are discontinuities between 1993 and 1994 in the data reported for Yuma County. These discontinuities occur because part of Yuma County was removed to form La Paz county (FIPS code 04012) in January 1983. This change was implemented in the vital records files and in the CMF beginning in 1994.

3. **Colorado:**

1. **Adams, Colorado**
Adams county, Colorado (FIPS code 08001) shows a discontinuity in the mortality and population data between 2002 and 2003. This discontinuity occurs because territory in each of these four counties has been combined to form a new county, Broomfield, Colorado (FIPS code 08014). Beginning in 2003, deaths and population counts for this territory are reported for Broomfield county and are no longer included with data for Adams county.
2. **Boulder, Colorado**
Boulder county, Colorado (FIPS code 08003) shows a discontinuity in the mortality and population data between 2002 and 2003. This discontinuity occurs because territory in each of these four counties has been combined to form a new county, Broomfield, Colorado (FIPS code 08014). Beginning in 2003, deaths and population counts for this territory are reported for Broomfield county and are no longer included with data for Boulder county.
3. **Broomfield county**
Broomfield county, Colorado (FIPS code 08014) was created effective November 15, 2001 from parts of four counties: Adams, Boulder, Jefferson, and Weld. Deaths and population estimates for Broomfield county appear on the CMF beginning in the year 2003. Deaths and population estimates before 2003 are coded to the original locations.
4. **Jefferson, Colorado**
Jefferson county, Colorado (FIPS code 08059) shows a discontinuity in the mortality and population data between 2002 and 2003. This discontinuity occurs because territory in each of these four counties has been combined to form a new county, Broomfield, Colorado (FIPS code 08014). Beginning in 2003, deaths and population counts for this territory are reported for Broomfield county and are no longer included with data for Jefferson county.
5. **Weld, Colorado**
Weld county, Colorado (FIPS code 080123) shows a discontinuity in the mortality and population data between 2002 and 2003. This discontinuity occurs because territory in each of these four counties has been combined to form a new county, Broomfield, Colorado (FIPS code 08014). Beginning in 2003, deaths and population counts for this territory are reported for Broomfield county and are no longer included with data for Weld county.

4. **Florida: Dade county and Miami city**

Dade county, Florida (FIPS code 12025) was renamed Miami-Dade County and its FIPS code changed to 12086, effective November 13, 1997. The CMF 1999-2009 and CMF 1979-1998 have the area coded to Miami-Dade (12086) for all years. The archive CMF 1999-2003 and later archives CMF releases have the area coded to Miami-Dade (12086) for all years. The CMF 1968-1978, the archive CMF 1999, and the archive CMF 1979-1998 have the area coded to Dade County, FL (12025) for all years.

5. **Georgia:**

1. **Columbus city and Muscogee county, Georgia**
The independent city Columbus, Georgia does not appear on the CMF. Death counts and population estimates for Columbus city (FIPS code 13510) have been aggregated with those for Muscogee county (FIPS code 13215).
2. **Georgia, unknown county**
For years 1988-1991, an additional county code (FIPS code 13999) was created for an "unknown"

county in Georgia. Deaths occurring in Georgia in years 1988-1991 with HIV infection mentioned as the underlying cause of death or one of the multiple causes of death are assigned to this fictitious county when fewer than 3 occurred in the actual county of residence of the decedent. No population estimates are available for FIPS code 13999. The deaths assigned to this FIPS code are included in Georgia state totals.

6. Hawaii: Kalawao, Hawaii

Kalawao, Hawaii [FIPS code 15005) has data on the CMF beginning in the year 1989. There are no data for the years for years 1979-1988 in the CMF 1979-1998 online database, and no data for the full span of years in the archive 1979-1998 online database. There are no data for the full span of years in the 1969-1978 online database. Death counts and population estimates for Kalawao, Hawaii (FIPS code = 15005) are aggregated with those for Maui county, Hawaii (FIPS code=15009), when data for Kalawao, Hawaii are not available.

7. Louisiana and Orleans and East Baton Rouge parishes after Hurricane Katrina in 2005:

The July 1st 2005 population estimates for Louisiana do not reflect population changes that occurred after Hurricane Katrina on August 29, 2005. The population of Orleans parish in Louisiana was reduced following Hurricane Katrina; East Baton Rouge parish in Louisiana had an increased population. As a result, 2005 death rates for Orleans parish calculated using the population estimates will be too low; the death rates calculated for East Baton Rouge will be somewhat too high. Death rates for Orleans parish are especially affected.

8. Maryland: Baltimore city and Baltimore county

The independent city of Baltimore, Maryland has been treated as a county. Death counts and population estimates are reported separately for Baltimore city (FIPS code 24510) and Baltimore county (FIPS code 24005).

9. Missouri:

1. St. Genevieve county, Missouri

In order to achieve alphabetical consistency, the FIPS code for St. Genevieve, Missouri was changed in 1979 from 29193 to 29186. The new code (29186) has been used throughout the CMF.

2. St. Louis city and St. Louis county, Missouri

The independent city of St. Louis, Missouri has been treated as a county. Death counts and population estimates are reported separately for St. Louis city (FIPS code 29510) and St. Louis county (FIPS code 29189).

10. Montana: Yellowstone National Park

Until November 7, 1997, the Montana portion of Yellowstone Park was not in any county and therefore was treated as a county equivalent (FIPS code 30113). On that date, the Montana portion of Yellowstone Park became part of Gallatin, Montana (FIPS code 30031) and Park, Montana (FIPS code 30067). The number of deaths in Yellowstone Park was so small that this should not create a discontinuity. Data for Yellowstone Park (30113) does not appear after data year 1988 on the CMF 1979-1998. However, Yellowstone Park (30113) data are available for the years 1979-1998 on the Archive CMF 1978-1998. and Yellowstone Park (30113) data are available for the years 1969-1978 in the 1968-1978 CMF. Deaths and population coded as Yellowstone National Park, Montana (FIPS code 30113) in the year 1968 are recoded to Park County, Wyoming (FIPS code 56029).

11. Nevada: Carson City

The independent city of Carson City, Nevada (FIPS code 32510) has been treated as a county. Death counts and population estimates are reported for Carson City.

12. New Mexico: Cibola county and Valencia county

Valencia county, New Mexico (FIPS code 35061) data are available on the CMF for years 1968 - present. Data for Cibola county, New Mexico (FIPS code 35006) are available in the CMF for years 1989 - present. However, there are discontinuities between 1988 and 1989 in the data reported for Valencia County. These discontinuities occur because part of Valencia County was removed to form Yuma County (in 1981) and this change was implemented in the vital records files and in the CMF beginning in 1989. Hence Valencia shows an abrupt drop in deaths and populations in 1989.

13. New York: New York City boroughs

The five boroughs of New York City have been treated as counties and maintained as separate entities on this file.

Borough	County	FIPS Code
Bronx	Bronx	36005
Brooklyn	Kings	36047
Manhattan	New York	36061
Queens	Queens	36081
Staten Island	Richmond	36085

14. South Dakota: Jackson county and Washabaugh county

In 1979, Washabaugh county, South Dakota (FIPS code 46131) merged with Jackson county, South Dakota (FIPS code 46071). For all years, death counts and population estimates for Washabaugh county have been aggregated with those for Jackson county.

15. South Dakota: Oglala Lakota county and Shannon county

Oglala Lakota County, South Dakota (FIPS code 46102) does not appear on the CMF; deaths and population data are available under its former name and FIPS code: Shannon county, South Dakota (FIPS code 46113).

16. Virginia independent cities:

a. Alleghany, Virginia

Alleghany county, Virginia (FIPS code 51005) deaths and populations are available on the CMF for years 1968 - present. Clifton Forge city, Virginia (FIPS code 51560) data are available for years 1968-2000. Beginning with the 2001 data year, Clifton Forge deaths and population estimates are aggregated with those of Alleghany County because this independent city merged with the county in 2001. As a result of this change, there is a discontinuity between 2000 and 2001 in the data reported for Alleghany County.

b. Bedford City, Virginia

Bedford city, Virginia (FIPS code 51515) data are available only for years 1979 through 2010 in the Compressed Mortality online databases. For years 1968-1978 and for year 2011 and beyond, death counts and population estimates for Bedford city have been combined with Bedford County (FIPS

counts and population estimates for Bedford City have been combined with Bedford County (FIPS code 51019). Death counts and population estimates for this entity from multi-year requests, only reflect data from 1979 through 2010; for years 1968-1978 and for year 2011 and beyond they have been set to zero. Bedford City, Virginia (FIPS code 51515), formerly an independent city, merged with Bedford County, Virginia (FIPS code 51019) on July 1, 2013. Beginning in year 2011, this change is effective for deaths and population estimates in the Compressed Mortality data. Deaths and population estimates for Bedford City, Virginia (FIPS code 51515) are only available for the years 1979 -2011. Deaths and population estimates are missing (zero) for Bedford City, Virginia for the years 1968 -1978 and the year 2011 and later. Bedford County, Virginia (FIPS code 51019) has a discontinuity in the population estimates between years 1978 and 1979 and years 2010 and 2011 due to the change in inclusion of the city population. Prior to December 30, 2015, deaths and population estimates for Bedford City, Virginia (FIPS code 51515) in years 2011 through 2013 were reported in Compressed Mortality. Bedford City reported 94 total deaths in 2011, 92 total deaths in 2012, and 54 total deaths in 2013. Note that deaths are reported separately for Bedford City, Virginia (FIPS code 51515) in years 2011 through 2013 in the Compressed Mortality File research data sets for those years, and in the [Detailed Mortality](#) and [Multiple Cause of Death](#) online databases.

- c. **Clifton Forge city, Virginia**
Clifton Forge city, Virginia (FIPS code 51560) deaths and populations are available on the CMF for years 1968-2000. On July 1, 2001, Clifton Forge city, formerly an independent city, merged with Alleghany county (FIPS code 51005).
- d. **Nansemond city, Virginia**
Nansemond city, Virginia (FIPS code 51123) has been part of the independent city of Suffolk, VA (FIPS code 51800) since 1979. For all years, death counts and population estimates for Nansemond have been aggregated with those for Suffolk city.
- e. **Halifax, Virginia**
For CMF 1979-1998, there is a discontinuity in the mortality and population data for Halifax, Virginia (FIPS code 51083) between 1988 and 1989. The discontinuity occurs because South Boston city, Virginia (FIPS code 51780) merged with Halifax county. For CMF 1979-1998, beginning in data year 1989, deaths and population counts for South Boston city are reported with those of Halifax county. However, for CMF 1979-1998 Archive data, death counts and population estimates for South Boston city are aggregated with those of Halifax county since 1995.
- f. **South Boston city, Virginia**
South Boston city, Virginia (FIPS code 51780) deaths and populations are available on the CMF for years 1968-1988, and available through year 1994 in the archive CMF 1979-1998. Death counts and population estimates for South Boston city are aggregated with those of Halifax county since 1989 in the current release; however South Boston city data are aggregated with Halifax county since 1995 for the archive CMF 1979-1998. On June 30, 1995, South Boston city, Virginia (FIPS code 51780), formerly an independent city, merged with Halifax county (FIPS code 51083).
- g. **Table of Virginia independent cities and counties**
The Virginia independent cities are treated as counties and appear on the CMF with the following FIPS codes:

Independent City		County		
Name	FIPS code	Name	FIPS code	City Data available *
Alexandria	51510	Arlington	51013	1968-current
Bedford	51515	Bedford	51019	1979-2010
Bristol	51520	Washington	51191	1979-current
Buena Vista	51530	Rockbridge	51163	1979-current
Charlottesville	51540	Albemarle	51003	1979-current
Chesapeake	51550			1968-current
Clifton Forge	51560	Alleghany	51005	1979-2000
Colonial Heights	51570	Chesterfield	51041	1979-current
Covington	51580	Alleghany	51005	1979-current
Danville	51590	Pittsylvania	51143	1979-current
Emporia	51595	Greensville	51081	1979-current
Fairfax	51600	Fairfax	51059	1979-current
Falls Church	51610	Fairfax	51059	1979-current
Franklin	51620	Southampton	51175	1979-current
Fredericksburg	51630	Spotsylvania	51177	1979-current
Galax	51640	Grayson	51077	1979-current
Hampton	51650			1968-current
Harrisonburg	51660	Rockingham	51165	1979-current
Hopewell	51670	Prince George	51149	1979-current
Lexington	51678	Rockbridge	51163	1979-current
Lynchburg	51680	Campbell	51031	1979-current
Manassas	51683	Prince William	51153	1979-current
Manassas Park	51685	Prince William	51153	1979-current
Martinsville	51690	Henry	51089	1979-current
Newport News	51700			1968-current
Norfolk	51710			1968-current
Norton	51720	Wise	51195	1979-current
Petersburg	51730	Dinwiddie	51053	1979-current
Poquoson	51735	York	51199	1979-current
Portsmouth	51740	Norfolk city	51710	1979-current
Radford	51750	Montgomery	51121	1979-current
Richmond	51760	Henrico	51087	1979-current
Roanoke	51770	Roanoke	51161	1979-current
Salem	51775	Roanoke	51161	1979-current
South Boston *	51780	Halifax	51083	1979-1988, 1979-1994 in Archive
Staunton	51790	Augusta	51015	1979-current
Suffolk	51800			1968-current
Virginia Beach	51810			1968-current
Waynesboro	51820	Augusta	51015	1979-current
Williamsburg	51830	James City	51095	1979-current
Winchester	51840	Frederick	51069	1979-current

* Note that data discontinuities occur when data are not available for all years.

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\$100 in 1919 is worth \$1,715.65 today

The U.S. dollar has lost 94% its value since 1919

Updated: October 13, 2022

\$100 in 1919 is equivalent in purchasing power to about \$1,715.65 today, an increase of \$1,615.65 over 103 years. The dollar had an average inflation rate of 2.80% per year between 1919 and today, producing a cumulative price increase of 1,615.65%.

This means that today's prices are 17.16 times higher than average prices since 1919, according to the Bureau of Labor Statistics consumer price index. A dollar today only buys 5.829% of what it could buy back then.

The inflation rate in 1919 was 14.57%. The current inflation rate compared to last year is now 8.20%. If this number holds, \$100 today will be equivalent in buying power to \$108.20 next year. The [current inflation rate](#) page gives more detail on the latest inflation rates.

Inflation from 1919 to 2022

Cumulative price change	1,615.65%
Average inflation rate	2.80%
Converted amount (\$100 base)	\$1,715.65
Price difference (\$100 base)	\$1,615.65
CPI in 1919	17.300
CPI in 2022	296.808
Inflation in 1919	14.57%
Inflation in 2022	8.20%
\$100 in 1919	\$1,715.65 in 2022

Buying power of \$100 in 1919

This chart shows a calculation of buying power equivalence for \$100 in 1919 (price index tracking began in 1635).

For example, if you started with \$100, you would need to end with \$1,715.65 in order to "adjust" for inflation (sometimes referred to as "beating inflation").

[Download](#)

When \$100 is equivalent to \$1,715.65 over time, that means that the "real value" of a single U.S. dollar decreases over time. In other words, a dollar will pay for fewer items at the store.

This effect explains how inflation erodes the value of a dollar over time. By calculating the value in 1919 dollars, the chart below shows how \$100 is worth less over 103 years.

[Download](#)

According to the Bureau of Labor Statistics, each of these USD amounts below is equal in terms of what it could buy at the time:

Dollar inflation: 1919-2022

Year	Dollar Value	Inflation Rate
1919	\$100.00	14.57%
1920	\$115.61	15.61%
1921	\$103.47	-10.50%
1922	\$97.11	-6.15%
1923	\$98.84	1.79%
1924	\$98.84	0.00%
1925	\$101.16	2.34%
1926	\$102.31	1.14%
1927	\$100.58	-1.69%
1928	\$98.84	-1.72%
1929	\$98.84	0.00%

Year	Dollar Value	Inflation Rate
1930	\$96.53	-2.34%
1931	\$87.86	-8.98%
1932	\$79.19	-9.87%
1933	\$75.14	-5.11%
1934	\$77.46	3.08%
1935	\$79.19	2.24%
1936	\$80.35	1.46%
1937	\$83.24	3.60%
1938	\$81.50	-2.08%
1939	\$80.35	-1.42%
1940	\$80.92	0.72%
1941	\$84.97	5.00%
1942	\$94.22	10.88%
1943	\$100.00	6.13%
1944	\$101.73	1.73%
1945	\$104.05	2.27%
1946	\$112.72	8.33%
1947	\$128.90	14.36%
1948	\$139.31	8.07%
1949	\$137.57	-1.24%
1950	\$139.31	1.26%
1951	\$150.29	7.88%
1952	\$153.18	1.92%
1953	\$154.34	0.75%

Year	Dollar Value	Inflation Rate
1954	\$155.49	0.75%
1955	\$154.91	-0.37%
1956	\$157.23	1.49%
1957	\$162.43	3.31%
1958	\$167.05	2.85%
1959	\$168.21	0.69%
1960	\$171.10	1.72%
1961	\$172.83	1.01%
1962	\$174.57	1.00%
1963	\$176.88	1.32%
1964	\$179.19	1.31%
1965	\$182.08	1.61%
1966	\$187.28	2.86%
1967	\$193.06	3.09%
1968	\$201.16	4.19%
1969	\$212.14	5.46%
1970	\$224.28	5.72%
1971	\$234.10	4.38%
1972	\$241.62	3.21%
1973	\$256.65	6.22%
1974	\$284.97	11.04%
1975	\$310.98	9.13%
1976	\$328.90	5.76%
1977	\$350.29	6.50%

Year	Dollar Value	Inflation Rate
1978	\$376.88	7.59%
1979	\$419.65	11.35%
1980	\$476.30	13.50%
1981	\$525.43	10.32%
1982	\$557.80	6.16%
1983	\$575.72	3.21%
1984	\$600.58	4.32%
1985	\$621.97	3.56%
1986	\$633.53	1.86%
1987	\$656.65	3.65%
1988	\$683.82	4.14%
1989	\$716.76	4.82%
1990	\$755.49	5.40%
1991	\$787.28	4.21%
1992	\$810.98	3.01%
1993	\$835.26	2.99%
1994	\$856.65	2.56%
1995	\$880.92	2.83%
1996	\$906.94	2.95%
1997	\$927.75	2.29%
1998	\$942.20	1.56%
1999	\$963.01	2.21%
2000	\$995.38	3.36%
2001	\$1,023.70	2.85%

Year	Dollar Value	Inflation Rate
2002	\$1,039.88	1.58%
2003	\$1,063.58	2.28%
2004	\$1,091.91	2.66%
2005	\$1,128.90	3.39%
2006	\$1,165.32	3.23%
2007	\$1,198.51	2.85%
2008	\$1,244.53	3.84%
2009	\$1,240.10	-0.36%
2010	\$1,260.44	1.64%
2011	\$1,300.23	3.16%
2012	\$1,327.13	2.07%
2013	\$1,346.57	1.46%
2014	\$1,368.42	1.62%
2015	\$1,370.04	0.12%
2016	\$1,387.32	1.26%
2017	\$1,416.88	2.13%
2018	\$1,452.20	2.49%
2019	\$1,477.79	1.76%
2020	\$1,496.02	1.23%
2021	\$1,566.30	4.70%
2022	\$1,715.65	9.54%*

* Compared to previous annual rate. Not final. See [inflation summary](#) for latest 12-month trailing value.
Click to show 97 more rows

This conversion table shows various other 1919 amounts in today's dollars, based on the 1,615.65% change in prices:

Conversion: 1919 dollars today

Initial value	Equivalent value
\$1 dollar in 1919	\$17.16 dollars today
\$5 dollars in 1919	\$85.78 dollars today
\$10 dollars in 1919	\$171.57 dollars today
\$50 dollars in 1919	\$857.83 dollars today
\$100 dollars in 1919	\$1,715.65 dollars today
\$500 dollars in 1919	\$8,578.27 dollars today
\$1,000 dollars in 1919	\$17,156.53 dollars today
\$5,000 dollars in 1919	\$85,782.66 dollars today
\$10,000 dollars in 1919	\$171,565.32 dollars today
\$50,000 dollars in 1919	\$857,826.59 dollars today
\$100,000 dollars in 1919	\$1,715,653.18 dollars today
\$500,000 dollars in 1919	\$8,578,265.90 dollars today
\$1,000,000 dollars in 1919	\$17,156,531.79 dollars today

Inflation by City

Inflation can vary widely by city, even within the United States. Here's how some cities fared in 1919 to 2022 (figures shown are purchasing power equivalents of \$100):

- **San Francisco, California:** 3.06% average rate, \$100 → \$2,225.06, cumulative change of 2,125.06%
- **Seattle, Washington:** 2.95% average rate, \$100 → \$1,991.24, cumulative change of 1,891.24%
- **New York:** 2.84% average rate, \$100 → \$1,798.11, cumulative change of 1,698.11%
- **Boston, Massachusetts:** 2.83% average rate, \$100 → \$1,779.17, cumulative change of 1,679.17%
- **Philadelphia, Pennsylvania:** 2.76% average rate, \$100 → \$1,647.50, cumulative change of 1,547.50%
- **Chicago, Illinois:** 2.75% average rate, \$100 → \$1,636.88, cumulative change of 1,536.88%
- **Houston, Texas:** 2.71% average rate, \$100 → \$1,567.05, cumulative change of 1,467.05%
- **Atlanta, Georgia:** 2.68% average rate, \$100 → \$1,519.82, cumulative change of 1,419.82%
- **Detroit, Michigan:** 2.67% average rate, \$100 → \$1,502.66, cumulative change of 1,402.66%

San Francisco, California experienced the highest rate of inflation during the 103 years between 1919 and 2022 (3.06%).

Detroit, Michigan experienced the lowest rate of inflation during the 103 years between 1919 and 2022 (2.67%).

Note that some locations showing 0% inflation may have not yet reported latest data.

Inflation by Country

Inflation can also vary widely by country. For comparison, in the UK £100.00 in 1919 would be equivalent to £5,739.06 in 2022, an absolute change of £5,639.06 and a cumulative change of 5,639.06%.

In Canada, CA\$100.00 in 1919 would be equivalent to CA\$1,554.31 in 2022, an absolute change of CA\$1,454.31 and a cumulative change of 1,454.31%.

Compare these numbers to the US's overall absolute change of \$1,615.65 and total percent change of 1,615.65%.

Inflation by Spending Category

CPI is the weighted combination of many categories of spending that are tracked by the government. Breaking down these categories helps explain the main drivers behind price changes.

This chart shows the average rate of inflation for select CPI categories between 1919 and 2022.

Compare these values to the overall average of 2.80% per year:

Category	Avg Inflation (%)	Total Inflation (%)	\$100 in 1919 → 2022
Food and beverages	3.98	5,490.14	5,590.14
Housing	4.21	6,921.08	7,021.08
Apparel	1.19	236.94	336.94
Transportation	3.43	3,132.11	3,232.11
Medical care	4.68	10,999.83	11,099.83
Recreation	1.25	260.59	360.59
Education and communication	1.80	530.52	630.52
Other goods and services	4.96	14,558.22	14,658.22

The graph below compares inflation in categories of goods over time. Click on a category such as "Food" to toggle it on or off:

For all these visualizations, it's important to note that not all categories may have been tracked since 1919. This table and charts use the earliest available data for each category.

Inflation rates of specific categories

[Medical Care](#) · [Housing](#) · [Rent](#) · [Food](#) · [More](#)

Inflation-adjusted measures

[S&P 500 price](#) · [S&P 500 earnings](#) · [Shiller P/E](#)

How to calculate inflation rate for \$100 since 1919

Our calculations use the following inflation rate formula to calculate the change in value between 1919 and today:

$$\frac{\text{CPI today} - \text{CPI in 1919}}{\text{CPI in 1919}} \times 100 = \text{Today's value}$$

Then plug in [historical CPI values](#). The U.S. CPI was 17.3 in the year 1919 and 296.808 in 2022:

$$\frac{296.808 - 17.3}{17.3} \times 100 = \$1,715.65$$

\$100 in 1919 has the same "purchasing power" or "buying power" as \$1,715.65 in 2022.

To get the total inflation rate for the 103 years between 1919 and 2022, we use the following formula:

$$\frac{\text{CPI in 2022} - \text{CPI in 1919}}{\text{CPI in 1919}} \times 100 = \text{Cumulative inflation rate (103 years)}$$

Plugging in the values to this equation, we get:

$$\frac{296.808 - 17.3}{17.3} \times 100 = 1,616\%$$

Comparison to S&P 500 Index

The average inflation rate of 2.80% has a compounding effect between 1919 and 2022. As noted above, this yearly inflation rate compounds to produce an overall price difference of 1,615.65% over 103 years.

To help put this inflation into perspective, if we had invested \$100 in the S&P 500 index in 1919, our investment would be *nominally* worth approximately \$2,616,090.69 in 2022. This is a return on investment of 2,615,990.69%, with an absolute return of \$2,615,990.69 on top of the original \$100.

These numbers are not inflation adjusted, so they are considered *nominal*. In order to evaluate the *real* return on our investment, we must calculate the return with inflation taken into account.

The compounding effect of inflation would account for 94.17% of returns (\$2,463,607.03) during this period. This means the inflation-adjusted *real* return of our \$100 investment is \$152,383.66. You may also want to account for capital gains tax, which would take your real return down to around \$129,526 for most people.

Investment in S&P 500 Index, 1919-2022

Original Amount	Final Amount	Change	
Nominal	\$100	\$2,616,090.69	2,615,990.69%
Real Inflation Adjusted	\$100	\$152,483.66	152,383.66%

Information displayed above may differ slightly from other S&P 500 calculators. Minor discrepancies can occur because we use the latest CPI data for inflation, annualized inflation numbers for previous years, and we compute S&P price and dividends from January of 1919 to latest available data for 2022 using average monthly close price.

For more details on the S&P 500 between 1919 and 2022, see the [stock market returns calculator](#).

Data source & citation

Raw data for these calculations comes from the Bureau of Labor Statistics' [Consumer Price Index](#) (CPI), established in 1913. Inflation data from 1634 to 1912 is sourced from a [historical study](#) conducted by political science professor Robert Sahr at Oregon State University and from the American Antiquarian Society.

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Special thanks to QuickChart for their [chart image API](#), which is used for chart downloads.

[in2013dollars.com](#) is a reference website maintained by the [Official Data Foundation](#).

» [Read more about inflation and investment.](#)

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- [Canada Inflation](#)
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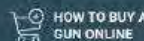
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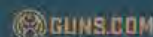
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Jerry Miculek, “Dual Glock 17 Rapid Fire 60 Rounds in 5 Seconds! 660 RPM”

The video “Dual Glock 17 Rapid Fire 60 Rounds in 5 Seconds! 660 RPM,” referred to in the Declaration of Randolph Roth (Roth Decl. 32 n.107), is available at <https://www.youtube.com/watch?v=1H5KsnoUBzs>.



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ARE BINARY TRIGGERS LEGAL (2022) ALL YOU NEED TO KNOW



 Alfred Mendoza  January 31, 2022

If you are looking for an affordable alternative to owning a machine gun without spending too much, buying binary triggers would be your best choice. It would spice up your shooting sprees and improve your home defense without breaking your bank. However, you must determine whether or not binary triggers are legal to own.

Are binary triggers legal? We'll guide you through the important things you need to know.

[Table of Contents](#) [\[Show\]](#)

WHAT'S A BINARY TRIGGER?

A binary trigger is a small, simple, but excellent device that allows every shooter to greatly increase the rate of fire of any pistol, carbine, or rifle without breaking any laws.

This device can replace a standard trigger system ([single-stage](#), [two-stage](#)) with a binary one, making it possible to move close to becoming fully automatic.

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And the best thing about this tool is that it wouldn't cost you much to achieve this function like owning a machine gun or an automatic weapon does.

HOW DOES IT WORK?

To install a binary trigger, insert the IDS on the trigger's left side and go through the pinhole, guiding the IDS spring back into the IDS slot. Then, place the spacers on either end of the binary trigger, facing upward on the outside ends. Wrap one of the trigger springs around the assembly and insert the sub-assembly into the lower receiver.

Insert the trigger pins on both sides, and wrap the hammer spring around the hammer. Then put on the safety spring, grip screw, and handle. Lastly, attach the short paddle to the safety selector and then insert the buffer and buffer spring into the receiver extension.

Also Read: [Difference Between IDPA & USPSA](#)

PRACTICAL APPLICATIONS OF BINARY TRIGGERS

Binary triggers are cheap alternatives to turn your ordinary pistol, carbine, or weapon into automatic. It is a very compact and affordable choice that wouldn't worry you for accidentally breaking it when used.

It is also easy to store because it can be put inside a desk drawer or a small safe.

It is also lightweight, as it doesn't weigh more than 10 pounds.

It can also be used on several platforms and various calibers at once. It is also compatible with any BCG.

Close X

WHY WERE THEY BANNED?

Technically, binary triggers aren't banned throughout the entire United States of America. However, there was an unfortunate event that involved a gunman using multiple AR-15s outfitted with bump stocks. He committed a horrific mass shooting in La Vegas in 2017, so a gun control plan was set out that targets assault weapons, high-capacity magazines, and ghost guns. [1]

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ARE THEY LEGAL IN YOUR STATE?

It is always highly encouraged to determine whether your state allows using binary triggers legally to avoid being charged with unlawful usage of such tools. Based on our research, a binary trigger is currently banned in North Dakota, Hawaii, Connecticut, New Jersey, Maryland, Washington, California, D.C., Iowa, New York, and Rhode Island, Florida.

FAQS

— Are binary triggers machine guns?

No, binary triggers are not machine guns. Although they somehow mimic the function of machine guns, they are technically different. Machine guns may also be legal to use in some states, but federal laws highly regulate them.

Close X

SO, IS A BINARY TRIGGER LEGAL TO USE?

At this time of writing, a binary trigger is still legal to use in some states. However, our team always encourages gun owners to research and fact-check whether binary triggers are legal in the state they live in to avoid any legal or [gun charges](#).

As of now, the U.S. government is still in the process of deciding whether it is legal to use these tools. Fortunately, so far, most states still don't consider binary triggers as illegal attachments for any suited firearm. If you still happen to want to purchase a binary trigger in a state where it is banned, you will have to get a certain license to make it legal.

References:

1. <https://www.forbes.com/sites/aaronsmith/2021/04/01/bidens-gun-control-doesnt-target-gat-cranks-mimicking-machine-guns>

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Alfred Mendoza

Born and raised in Austin TX, Alfred has been shooting guns since he was 18. That's two decades of expertly upholding the Texan gun culture. He is a firm believer in the freedom of exercising constitutional rights, and that includes the right of every law-abiding citizen to own and carry a gun.

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M16

Assault rifle



M16A1	
Country of origin	United States
Entered service	1967
Caliber	5.56x45 mm
Weight (empty)	2.89 kg
Length	986 mm
Barrel length	508 mm
Muzzle velocity	945 m/s
Cyclic rate of fire	650 - 750 rpm
Practical rate of fire	40 - 100 rpm
Magazine capacity	20, 30 rounds
Sighting range	500 m
Range of effective fire	460 m

It was created by Armalite to meet the US Army requirement for a new assault rifle, chambered for a new intermediate cartridge. This rifle was designed by Eugene Stoner and designated as the Armalite Rifle 15, or AR-15 for short. It was based on the previous Armalite AR-10 rifle, chambered for 7.62x51 mm ammunition. However the AR-15 was scaled-down, extensively modified and used a new 5.56x45 mm (.223 Remington) ammunition. First Armalite AR-15 rifles were delivered to the US Army for testing in 1958. Initial tests revealed some reliability and accuracy problems. In 1959 due to financial problems all rights for the design of this

rifle were sold to a Colt company. Later Eugene Stoner, designer of this rifle, left the Armalite company and joined the Colt company. The Colt company made some modifications to this weapon and in 1962 sent a batch of 1 000 AR-15 assault rifles to Vietnam for field trials and evaluation. In 1964 the US Army and US Air Force officially adopted this rifle as the M16. Shortly after this weapon was adopted by the military, Colt introduced a semi-automatic only version for civil customers and law enforcement forces and also used the AR-15 trademark for this weapon. Currently variants of this assault rifle are still in service with the US Military, as well as over 50 operators worldwide. It is still manufactured in USA, Canada and China.

The US Army demanded for a very light weapon. So the M16 has a number of lightweight materials in order to save weight. It uses aluminum in place of steel, fiberglass construction in place of wood. Also it has an ergonomic design.

The M16 is a gas operated, selective fire weapon, chambered for the 5.56x45 mm (.223 Remington) round. At the time of its introduction the M16 had many flaws, however many of them were fixed and this weapon is considered as one of the best assault rifles in the world. It is a reliable, accurate and comfortable to use weapon. Unfortunately the M16 can not match reliability of the famous [AK-47](#) or [AK-74](#). However the M16 has longer range and is much more accurate than AK- type assault rifles.

First production models of the M16 had a relatively short effective range of only 450 meters. The main reason for this was an unstabilized bullet. Later models were adapted for a new round and have improved range and accuracy. One interesting feature about the M16 is its progressive design, as weapon's barrel is in the same axis with buttstock. This feature reduces muzzle climb and increases accuracy, as the recoil force is directed backwards, rather than upwards.

The safety / fire mode selector switch is located on the left side of the receiver, above the pistol grip. It has three positions for "safe", "semi-auto" and "full-auto". A cocking handle is located at the rear of the receiver and does not reciprocate when the gun is fired. Ejection port is located on the right side.

The trigger guard was designed to fall down for shooting with gloves in cold weather. The intended tool to do that is the tip of the cartridge.

The original M16 rifles were fed from a box-shaped aluminum magazine, holding 20 rounds. New 30-round curved magazines were introduced in 1970.

Standard adjustable iron sights of the M16 are of diopter type. Range adjustments are made by rotating a rear knob. First production rifles had a sighting range of 500 meters.



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This assault rifle has a solid buttstock. It is worth mentioning, that because of internal design this weapon can not be adapted for a folding stock. Alternatively a telescopic stock can be used.

The M16 and its variants are compatible with the [M203](#) 40 mm underbarrel grenade launcher, mounted in place of the standard handguard. A knife-bayonet can be attached. Some types of flash hiders can be used to cut barbed wire by placing the flash hider over the wire and firing.



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Variants

M16A1 improved version of the original M16. It has been adopted by the US Army as a standard rifle in 1967.

M16A2 a variant of the previous M16A1, adapted for a new SS109 5.56x45 mm standard NATO round. This assault rifle has a heavier barrel and different rear sight. After the Vietnam War the US military examined use of their M16 assault rifles in combat. It was determined that firing on full-auto past 3 rounds largely resulted in a waste of ammunition. So a full-auto firing mode was replaced by a 3-round burst mode. Ejection port of the M16A2 has a spent case deflector. The M16A2 has been adopted by the US Army in 1982 and by the US Marine Corps in 1983. Soon it became the standard-issue rifle. Even though the M16A2 was eventually replaced by newer -A3 and -A4 versions, as well as M4 carbines, a number of these assault rifles remain in service with all branches of US military.



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M16A3 improved version, fitted with Picatinny-type rail instead of the carrying handle, which accepts a variety of scopes. It comes with a detachable carrying handle with built-in sights. Weapon's trigger mechanism has a semi- and full-auto modes only. Only a relatively small number of these assault rifles was adopted by the US Navy SEALs, US Navy Seabees, and some other units.



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[M16A4](#) similar to the M16A3, however has a three-round burst mode instead of the full-auto mode. It was adopted by the US Marine Corps in 1998 as a replacement for their M16A2. It became a standard-issue USMC weapon and was widely used up until 2015, when it was replaced by a more compact [M4 carbine](#). Currently the M16A4 is still used by support and non-infantry marines.

[M4 carbine](#), a shortened version of the M16A2, fitted with a telescopic buttstock. It was adopted by the US Army in 1994. Currently it is also a standard-issue weapon of the US Marine Corps.



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“Rapid Manual Trigger Manipulation (Rubber Band Assisted)”

The video “Rapid Manual Trigger Manipulation (Rubber Band Assisted),” referred to in the Declaration of Randolph Roth (Roth Decl. 33 n.110), is available at https://www.youtube.com/watch?v=PVfwFP_RwTQ.

American Homicide Supplemental Volume (AHSV)

Weapons (W)

Randolph Roth

October, 2009

A supplement to Randolph Roth, *American Homicide*
(The Belknap Press of Harvard University Press, 2009)

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Table of Contents

The World

Figure 1: National Homicide Rates versus Gun Ownership Rates, 1989-2002, by Region

The United States since World War I

Figure 2: Gun Use in Homicides by Region, 1919-1933 (victims ages 15 and older)

Figure 3: Gun Use in Suicides by Region, 1919-1933 (victims ages 15 and older)

Figure 4: Gun Use in Homicides by Region and Race, 1919-1933 (victims ages 15 and older)

Figure 5: Gun Use in Homicides versus Homicide Rate in the United States, 1919-1933 (victims ages 15 and older). Hawaii, Puerto Rico, and the Virgin Islands are included.

Figure 6: Gun Use in Homicides versus Homicide Rate in the United States, 1929-1933 (victims ages 15 and older). Hawaii, Puerto Rico, and the Virgin Islands are not included.

Figure 7: Percent Gun Use in Homicides versus Percent Gun Use in Suicides in the United States, 1929-1933

Figure 8: Gun Use in Homicides in the United States by Region, 1919-1933 and 1976-2003

Figure 9: Gun Use and Homicide Type in the United States, 1976-2003

Figure 10: Household Ownership of Firearms by Region in the United States, 2001

Figure 11: Homicide Rate with Firearms versus Percentage of Households with Firearms, 1999-2005

Figure 12: Homicide Rate without Firearms versus Percentage of Households with Firearms, 1999-2005

Figure 13: Suicide Rate with Firearms versus Percentage of Households with Firearms, 1999-2005

Figure 14: Suicide Rate without Firearms versus Percentage of Households with Firearms, 1999-2005

England

Figure 15: Weapons Use in Homicides in Middlesex County, England, 1549-1632

Figure 16: Weapons Use in Homicides in Essex and Surrey Counties, England, 1559-1625

Figure 17: Weapons Use in Homicides among Unrelated Men in England, 1549-1632

The United States, 1770-1900

Figure 18: Proportion of Handguns among Guns Used in Homicides

The North

New England, 1630-1797

Figure 19: Gun Use in Homicides versus Homicide Rates among Unrelated European American Adults

Figure 20: Weapons Use in Homicides among European American Adults in New England

Figure 21: Gun Use and Homicide Type in Homicides among European American Adults in New England

Figure 22: Weapons Use in Homicides of African Americans and Native Americans by European American Adults in New England

Figure 23: Gun Use and Homicide Type in Homicides among Native American Adults in New England, 1676-1797

New Netherlands, 1636-1656

Figure 24: Weapons Use in Homicides among European American Adults

New Hampshire and Vermont, 1775-1900

Figure 25: Gun Use in Homicides versus Homicide Rates among Unrelated Adults

Figure 26: Gun Use and Homicide Type

Figure 27: Gun Use in Homicides

Figure 28: Weapons Use in Homicides

New York City, 1797-1900

Figure 29: Gun Use in Homicides among Unrelated Adults versus Homicide Rate

Figure 30: Gun Use and Homicide Type

Figure 31: Gun Use in Homicides

Figure 32: Weapons Use in Homicides

Figure 33: Ethnicity and Weapons Use in Homicides

Ross and Holmes Counties, Ohio, 1798-1900

Figure 34: Gun Use in Homicides versus Homicide Rates among Unrelated Adults

Figure 35: Gun Use and Homicide Type

Figure 36: Gun Use in Homicides

Figure 37: Weapons Use in Homicides

Cuyahoga County, Ohio, 1822-1876

Figure 38: Gun Use in Homicides versus Homicide Rates among Unrelated Adults

Figure 39: Gun Use and Homicide Type

Figure 40: Gun Use in Homicides

Figure 41: Weapons Use in Homicides

Calhoun, Henderson, and Williamson Counties, Illinois, 1805-1900

Figure 42: Weapons Use in Homicides

Chicago, 1879-1885

Figure 43: Weapons Use in Homicides

Figure 44: Race, Ethnicity, and Gun Use in Homicides

The Northeast and the Midwest, 1847-1900

Figure 45: Race, Ethnicity, and Gun Use in Homicides among Unrelated Adults

Figure 46: Race, Ethnicity, and Gun Use in All Homicides

The South

Maryland, 1634-1762

Figure 47: Gun Use in Homicides versus Homicide Rates among Unrelated European American Adults

Figure 48: Gun Use in Homicides among European Americans

Figure 49: Weapons Use in Homicides among European American Adults

Figure 50: Weapons Use in Interracial Homicides among Adults

Virginia, 1785-1900

Figure 51: Weapons Use in Homicides in Virginia, 1785-1880

Figure 52: Weapons Use in Homicides in Virginia, 1881-1900

Figure 53: Gun Use by Homicide Assailants in Virginia

Georgia and South Carolina, 1779-1900

Figure 54: Weapons Use in Homicides of African Americans in Georgia and South Carolina

Figure 55: Weapons Use in Homicides of European Americans in Georgia and South Carolina

Figure 56: Gun Use by Homicide Assailants in Georgia and South Carolina

Florida, 1821-1861

Figure 57: Weapons Use in Homicides in Florida by Race of Assailant

The Trans-Mississippi West

California, 1830-1900

Figure 58: Gun Use in Homicides

Figure 59: Weapons Use in Homicides in Seven California Counties, 1849-1899

Figure 60: Gun Use and Homicide Type in Seven California Counties, 1849-1899

Figure 61: Weapons Use in Homicides in Los Angeles, 1830-1900

Figure 62: Gun Use and Homicide Type in Los Angeles, 1830-1900

Figure 63: Weapons Use in Homicides in San Francisco, 1849-1900

Figure 64: Gun Use and Homicide Type in San Francisco, 1849-1900

Douglas County, Nebraska, Gila County, Arizona, and Las Animas County, Colorado, 1880-1900

Figure 65: Weapons Use in Homicides

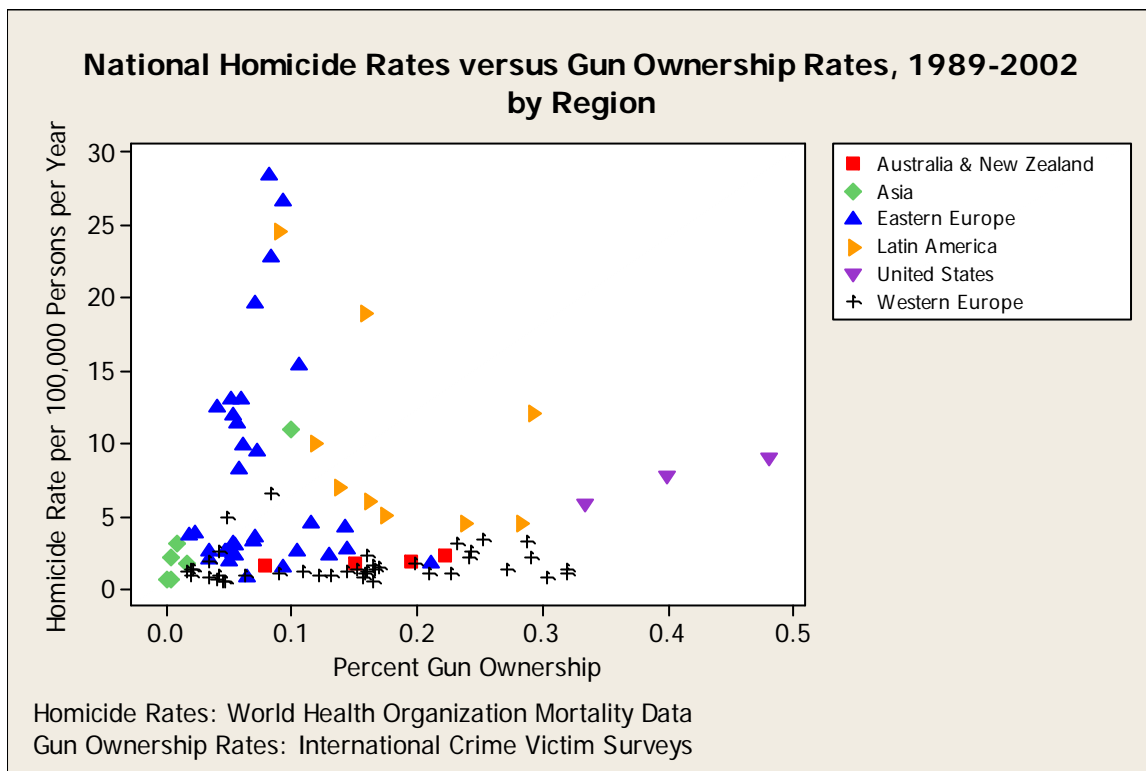
Figure 66: Gun Use and Homicide Type

Arizona, California, Colorado, and Nebraska, 1830-1900

Figure 67: Race, Ethnicity, and Weapons Use in Homicides

The World

Figure W 1



Note: The data for Columbia, 1997, were excluded. It had a gun ownership rate of 18 percent and a homicide rate of 57 per 100,000 persons per year.

The United States since World War I

Sources

The main sources for studying gun use in homicides since World War I are the *Mortality Statistics of the United States* (1919-33), published by the Bureau of the Census, and the *Supplemental Homicide Reports* (1976-2003), compiled by the Federal Bureau of Investigation. The *Mortality Statistics* do not distinguish among types of homicides, but the SHR's do.

The main sources for studying gun ownership

Figure W 2

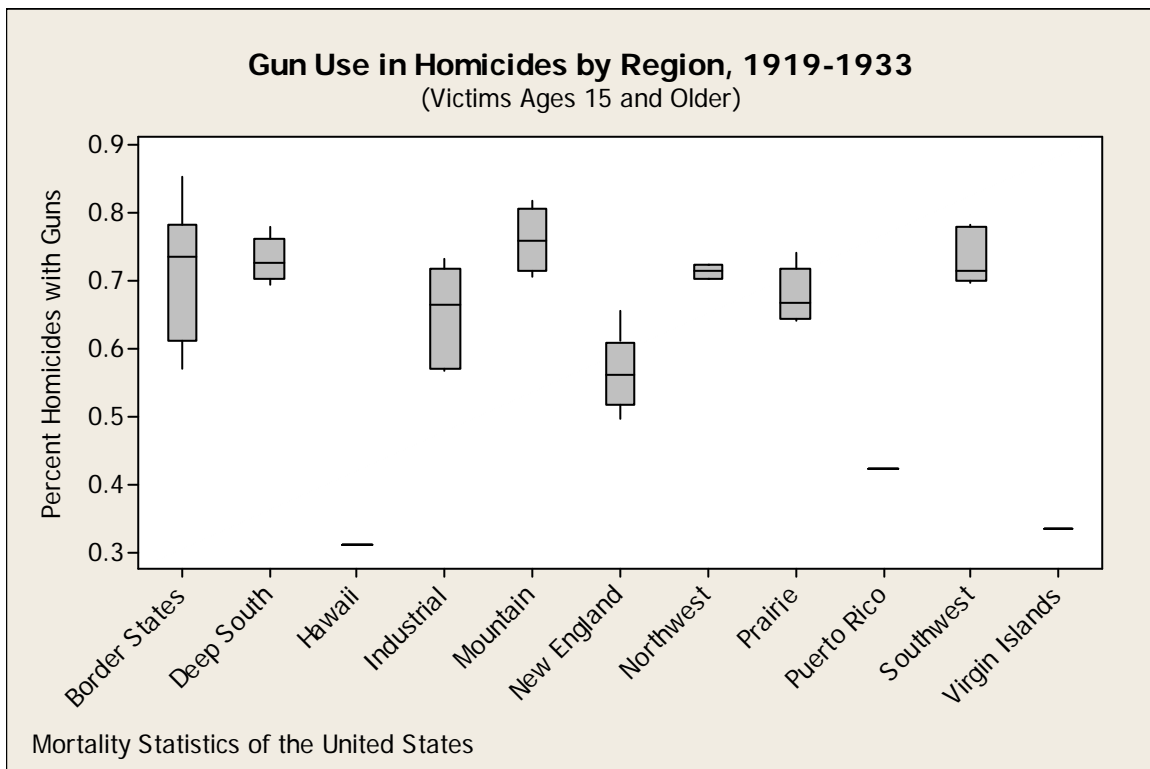


Figure W 3

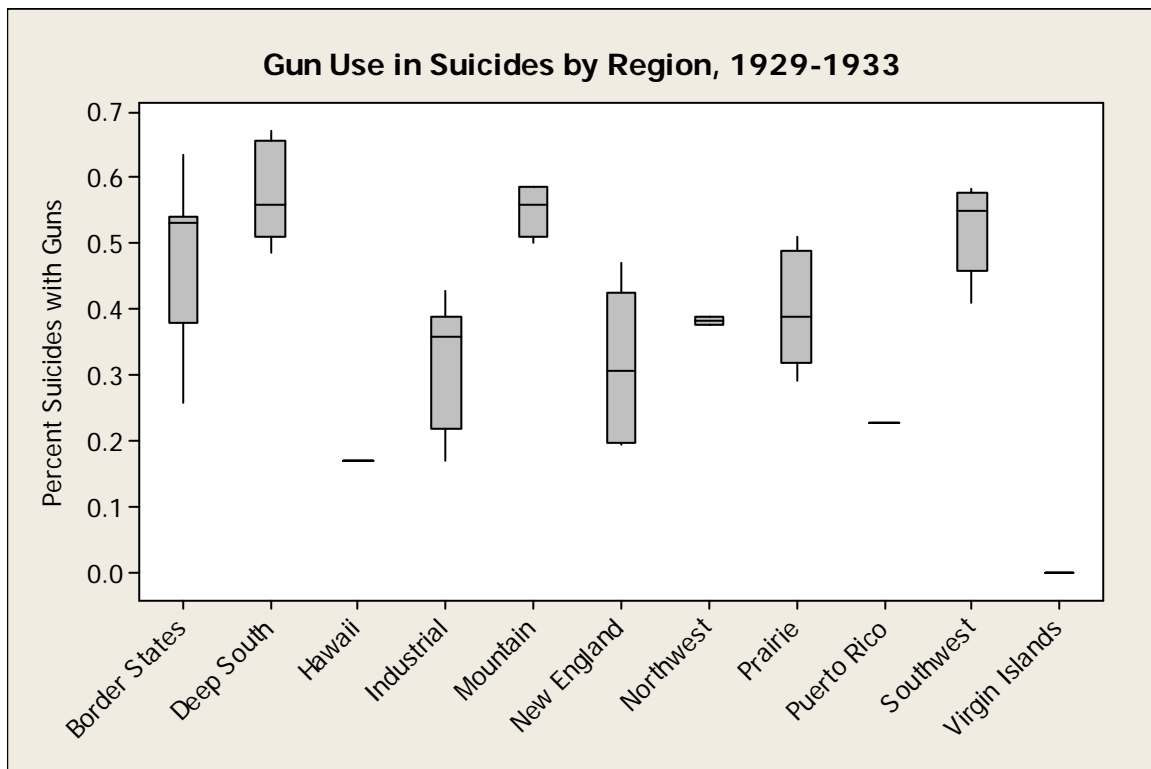


Figure W 4

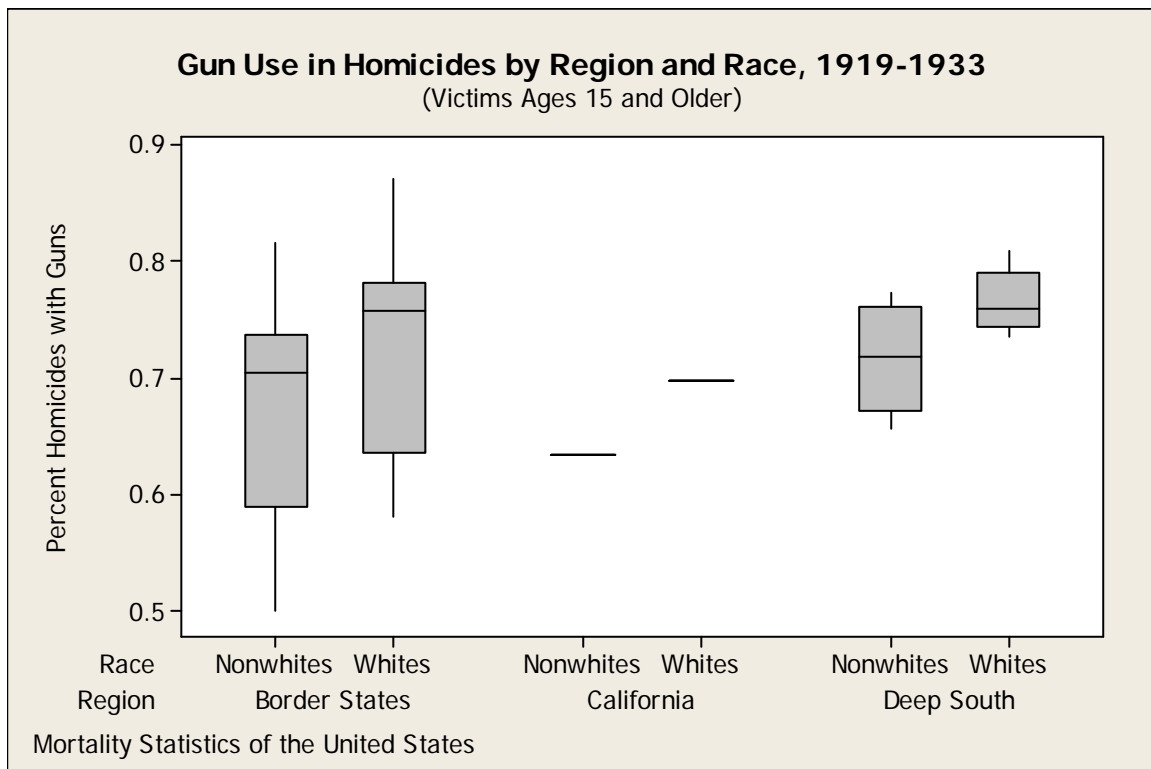


Figure W 5

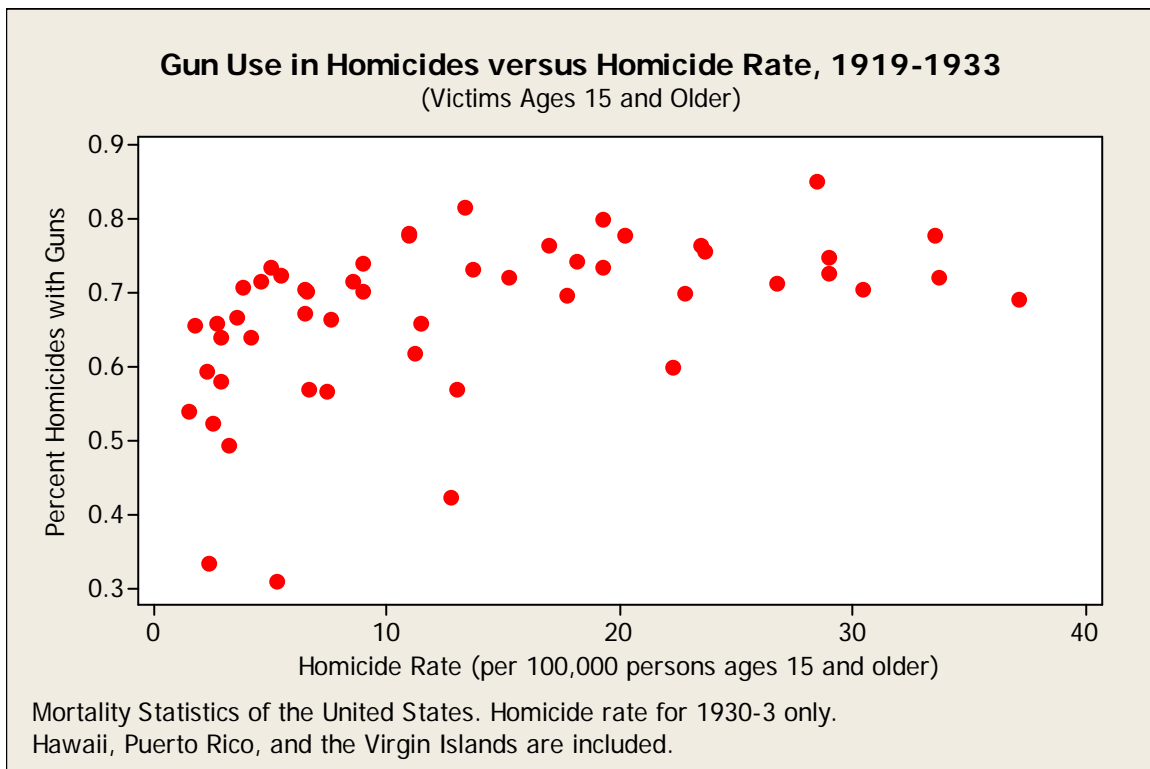


Figure W 6

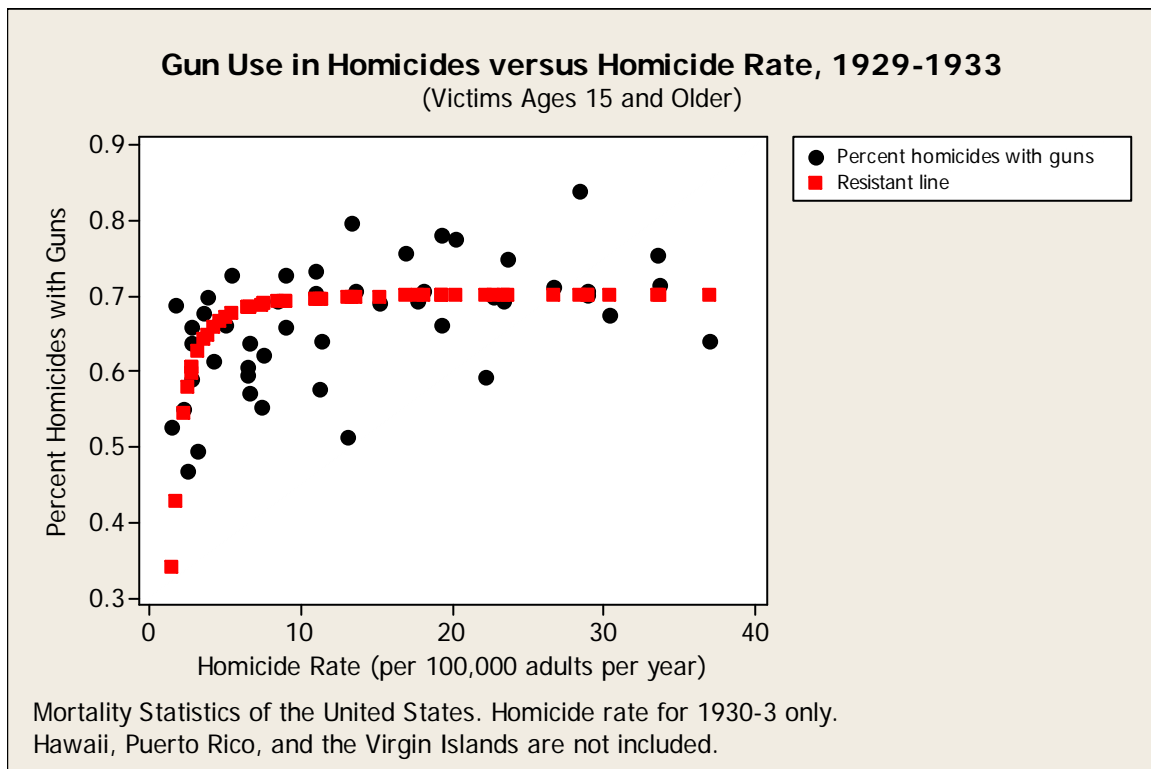


Figure W 7

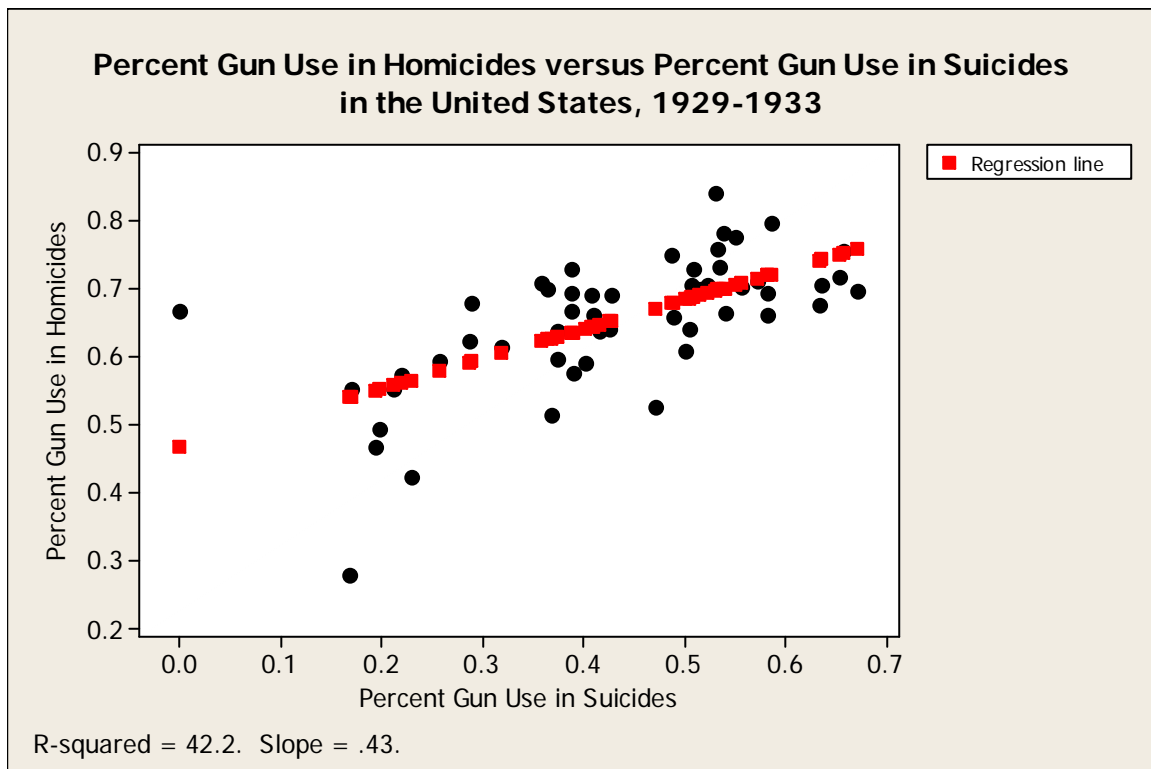


Figure W 8

Gun Use in Homicides in the United States by Region

	1919-33	1976-2003
Alaska	--	.65
Border States	.76	.72
Deep South	.73	.72
Hawaii	.31	.39
Industrial States	.66	.67
Mountain States	.76	.62
New England	.53	.56
Northwest	.71	.57
Prairie States	.70	.62
Southwest	.72	.67
Total		.69

Source: Bureau of the Census, Mortality Statistics of the United States (1919-33), and Federal Bureau of Investigation, Supplemental Homicide Reports (1976-2003).

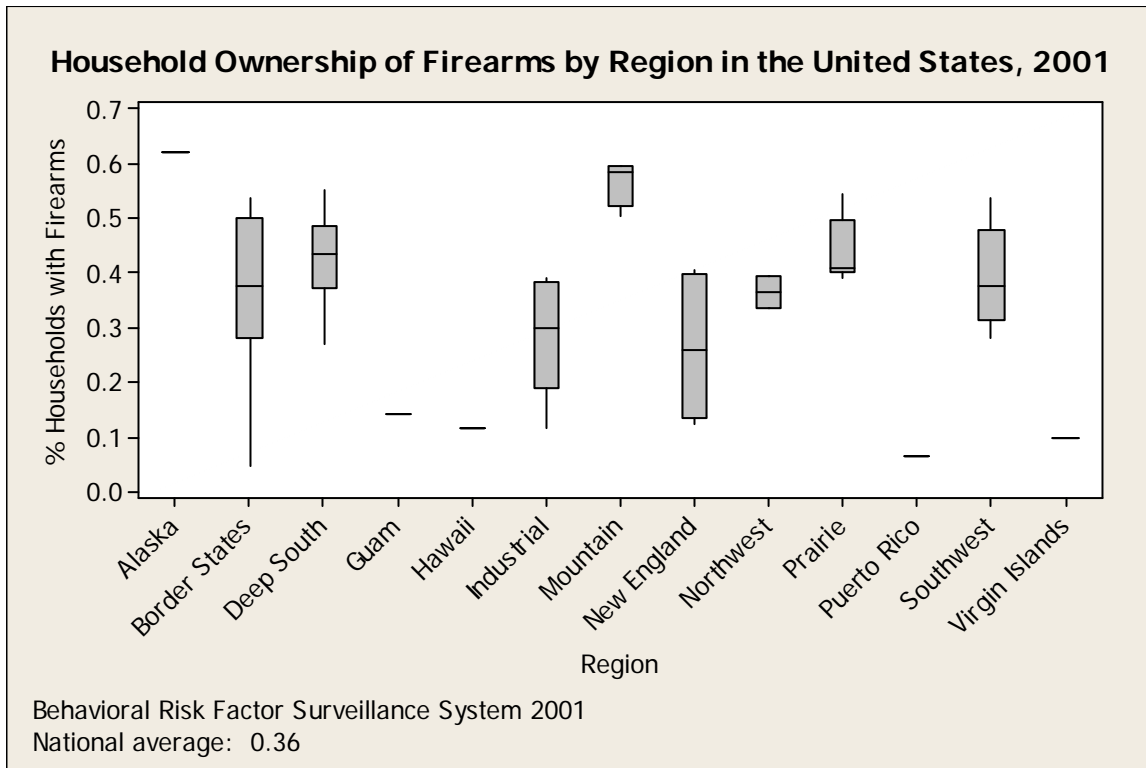
Figure W 9

Gun Use and Homicide Type in the United States, 1976-2003

Spouse	.69
Ex-Spouse	.81
Lover	.60
Gay Relationship	.30
Relative	.62
Stranger	.71
Known to Victim	.67
Unknown Relationship	.72

Source: Federal Bureau of Investigation, Supplemental Homicide Reports.

Figure W 10



Note: Respondents who “refused to answer” whether they owned guns were assumed to be gun owners, and those who were “unsure” whether they owned guns were not included in the total number of respondents. Of the 421,334 persons who responded to the BRFSS survey, 15,424 refused to answer (3.7 percent) and 2,148 (0.5 percent) were unsure. The pattern of household ownership of firearms changes little when respondents who “refused to answer” are excluded from the analysis, except in the Mountain states, where 6.8 percent refused to answer.

The Behavioral Risk Factor Surveillance System (BRFSS) is a collaborative project of the Centers for Disease Control and Prevention (CDC), and U.S. states and territories. The BRFSS, administered and supported by CDC's Behavioral Surveillance Branch, is an on going data collection program designed to measure behavioral risk factors in the adult population 18 years of age or older living in households. The BRFSS was initiated in 1984, with 15 states collecting surveillance data on risk behaviors through monthly telephone interviews. The number of states participating in the survey increased, so that by 2001, 50 States, the District of Columbia, Puerto Rico, Guam, and the Virgin Islands were participating in the BRFSS. For details, see Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System Users Guide. 1998.

Figure W 11

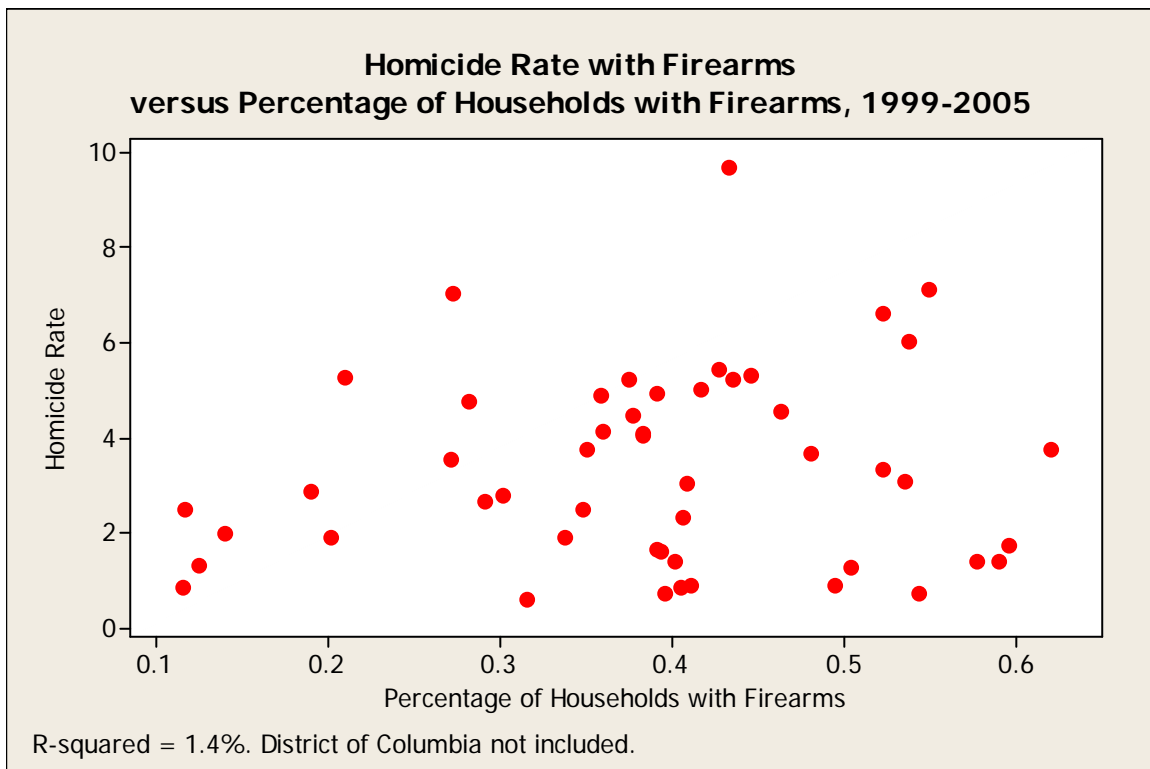


Figure W 12

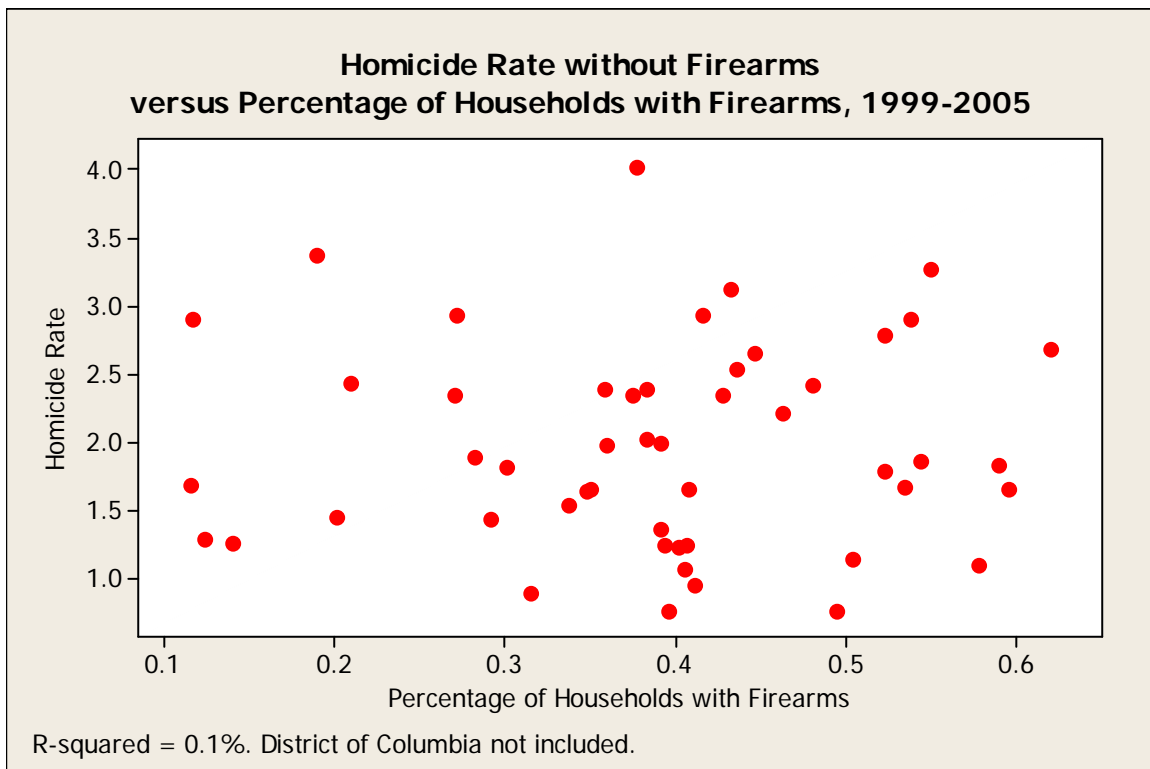


Figure W 13

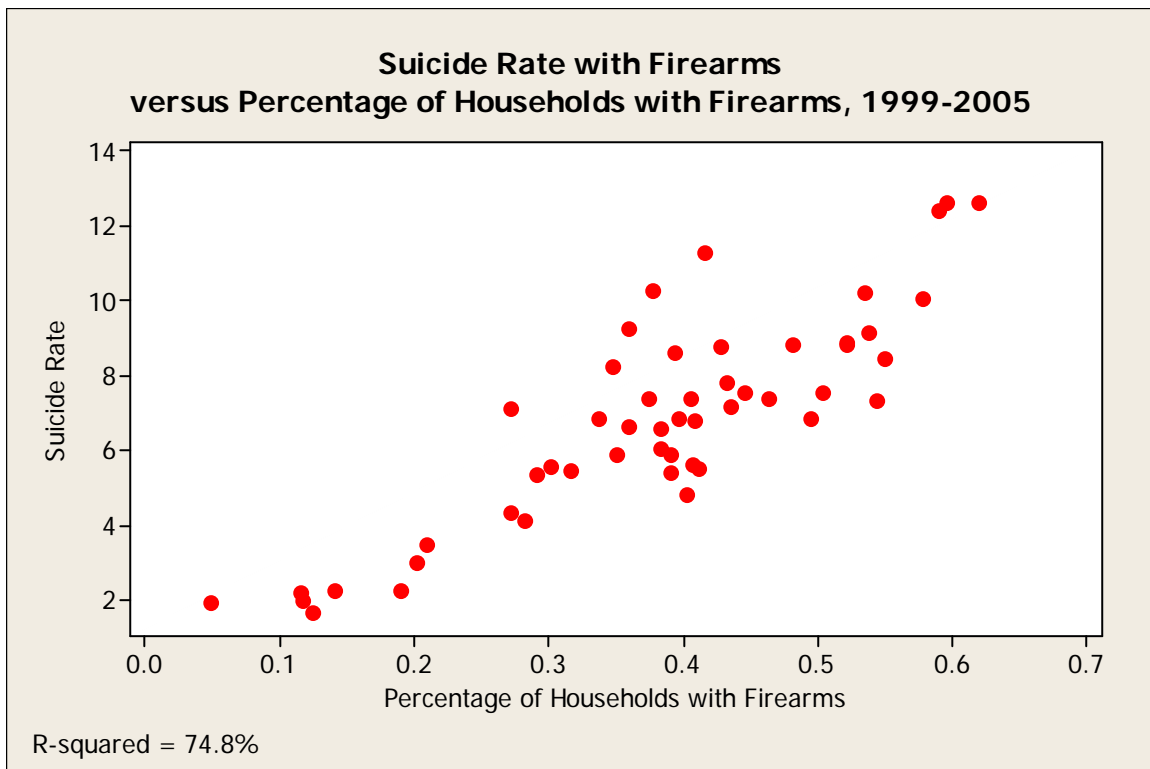
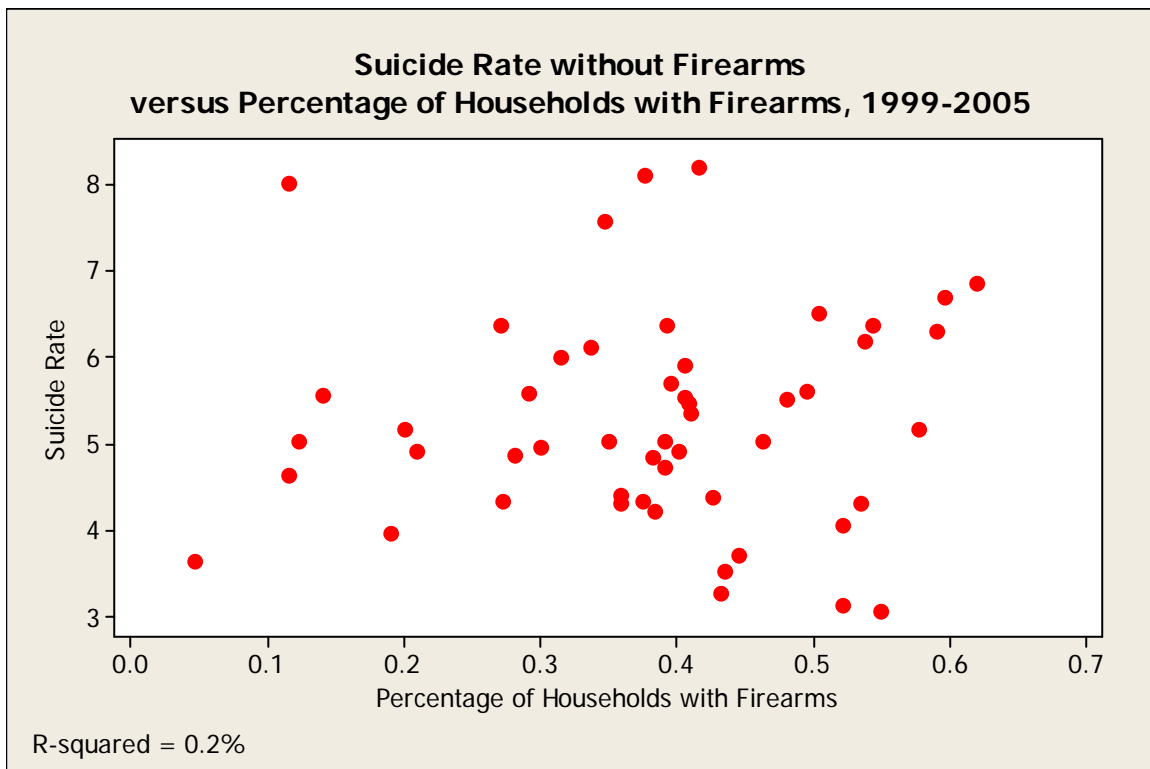


Figure W 14



England

Figure W 15

Weapons Use in Homicides in Middlesex County, England, 1549-1632

	Household	Marital	Unrelated	Relative	All
Dagger	0	0	21	0	21
Sword	1	0	94	0	95
Other sharp	0	4	23	0	27
Pike	1	0	2	0	3
Blunt	1	2	27	1	31
Gun	0	0	5	0	5
Physical	0	2	19	2	23
Poison	1	2	1	0	4
Unknown	0	0	12	1	13
All	4	10	204	4	222

Percentages

Dagger	0.00	0.00	0.10	0.00	0.09
Sword	0.25	0.00	0.46	0.00	0.43
Other sharp	0.00	0.40	0.11	0.00	0.12
Pike	0.25	0.00	0.01	0.00	0.01
Blunt	0.25	0.20	0.13	0.25	0.14
Gun	0.00	0.00	0.02	0.00	0.02
Physical	0.00	0.20	0.09	0.50	0.10
Poison	0.25	0.20	0.00	0.00	0.02
Unknown	0.00	0.00	0.06	0.25	0.06

Figure W 16

Weapons Use in Homicides in Essex and Surrey Counties, England, 1559-1625

	Household	Marital	Unrelated	Relative	All
Dagger	1	1	28	0	30
Sword	1	1	69	1	72
Other sharp	3	2	70	6	81
Pike	1	0	10	0	11
Blunt	10	2	84	5	101
Gun	0	0	2	0	2
Physical	6	7	38	3	54
Poison	1	6	2	2	11
Unknown	0	0	1	0	1
All	23	19	304	17	363

Percentages

Dagger	0.04	0.05	0.09	0.00	0.08
Sword	0.04	0.05	0.23	0.06	0.20
Other sharp	0.13	0.11	0.23	0.35	0.22
Pike	0.04	0.00	0.03	0.00	0.03
Blunt	0.43	0.11	0.28	0.29	0.28
Gun	0.00	0.00	0.01	0.00	0.01
Physical	0.26	0.37	0.13	0.18	0.15
Poison	0.04	0.32	0.01	0.12	0.03
Unknown	0.00	0.00	0.00	0.00	0.00

Figure W 17
Weapons Use in Homicides among Unrelated Men
in England, 1549-1632

	Middlesex, 1549-1632	Essex and Surrey, 1559-1625
Dagger	.12	.10
Sword	.53	.24
Other Sharp	.10	.23
Pike	.01	.04
Blunt	.13	.28
Gun	.02	.01
Physical	.07	.10
Poison	.00	.00
Unknown	.02	.00
N	178	290

United States, 1770-1900

Figure W 18

Proportion of Handguns among Guns Used in Homicides

	VT & NH	GA & SC	VA	OH	CA
1770-1815 ¹	.10	.00		.17	
1816-1846	.50	.50		--	
1847-1865	.35	.65		.58	.84
1866-1880	.74	.67	.78	.91	.73
1881-1900	.72	.74	.75	.89	.77

NOTE: The proportions are equal to the number of known handguns divided by the number of known handguns plus the number of known long guns. The proportions are lower if guns of unspecified type are included in the denominator, but the trends in each jurisdiction are similar.

Cuyahoga County, Ohio: The proportion cannot be calculated, 1822-46, because there were no gun homicides. The proportions were .67, 1847-65, and 1.00, 1866-76.

Florida: The proportion was .31 for white assailants, 1821-1861. No black or Native American assailants were reported to have committed a homicide with a handgun.

Douglas County, Nebraska: The proportion was .89, 1880-1900.

Las Animas County, Colorado: The proportion was .94, 1880-1900.

Gila County, Arizona: The proportion was .66, 1880-1900.

¹ The data begin in 1770 in Vermont and New Hampshire, in 1790 in Georgia and South Carolina, in 1798 in Ohio, and in 1849 in California. The data from Virginia do not distinguish adequately between handguns and other guns before the end of the Civil War, and no gun homicides occurred in Ross, Holmes, or Cuyahoga counties, Ohio, between 1816 and 1846. There are no data yet available for Cuyahoga County, 1877-1900.

The North

New England, 1630-1797

Figure W 19

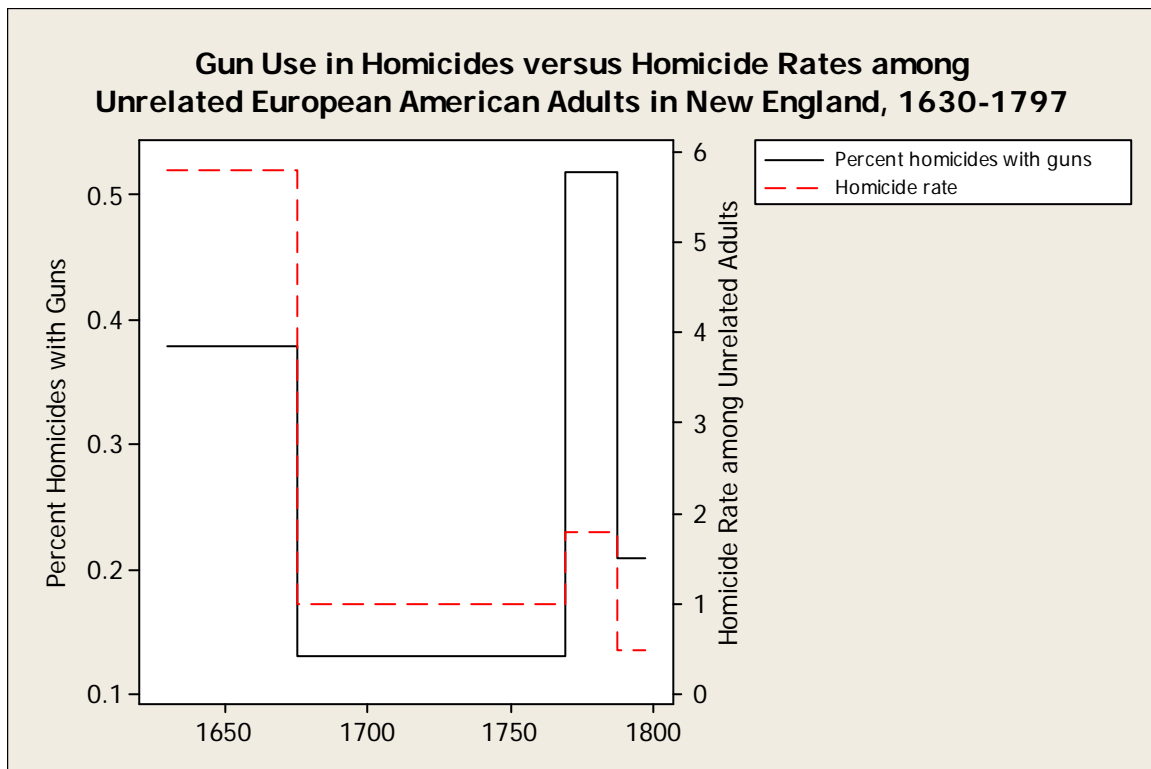


Figure W 20

**Weapons Use in Homicides among European American Adults
in New England, 1630-1797**

	1630- 1675	1676- 1769	1770- 1787	1788- 1797
Gun	.36	.13	.46	.20
Sharp	.20	.27	.17	.20
Blunt	.16	.24	.12	.28
Physical	.28	.33	.23	.32
Poison	.00	.03	.02	.00
Whip	.00	.00	.00	.00
Number of Weapons Identified	25	94	94	25
Number of Weapons Not Identified	5	11	5	1
% Unknown Weapon	.17	.10	.05	.04

Note: Nine of the 24 known homicides among unrelated adults with known weapons, 1630-1675, were committed with guns (38 percent); 10 of 77, 1676-1769 (13 percent), 42 of 81, 1770-1787 (52 percent), and 4 of 19, 1788-1797 (21 percent).

Figure W 21

**Gun Use and Homicide Type in Homicides among European American Adults
in New England, 1630-1797**

	Unrelated	Marital	Relative
Percent Homicides Committed with Guns	.34	.00	.20
Number of Weapons Identified	194	24	20
Number of Weapons Not Identified	18	3	1
% Unknown Weapon	.08	.11	.05

Figure W 22

**Weapons Use in Homicides of African Americans and Native Americans
by European American Adults in New England, 1676-1797**

	Black Victims	Native American Victims
Gun	.29	.57
Sharp	.00	.17
Blunt	.21	.03
Physical	.29	.23
Poison	.00	.00
Whip	.21	.00
Number of Weapons Identified	14	36
Number of Weapons Not Identified	3	8
% Unknown Weapon	.18	.18

Figure W 23

Gun Use and Homicide Type in Homicides among Native American Adults in New England, 1676-1797

	Unrelated	Marital	Relative	Romance
Percent Homicides Committed with Guns	.14	.13	.00	.50
Number of Weapons Identified	43	16	4	2
Number of Weapons Not Identified	9	1	2	0
% Unknown Weapon	.17	.06	.33	.00

Note: There were only 5 known homicides of blacks by blacks in New England, 1676-1797. Two were marital homicides and three were homicides of unrelated adults. None were committed with guns.

New Netherlands, 1636-1656

Figure W 24

**Weapons Use in Homicides among European American Adults
in New Netherlands, 1638-1656**

Gun	.40
Sharp	.20
Blunt	.20
Physical	.20
Poison	.00
Whip	.00
Number of Weapons Identified	5
Number of Weapons Not Identified	3
% Unknown Weapon	.38

Note: All known homicides in New Netherlands, 1638-1656, were among unrelated adults.

New Hampshire and Vermont, 1775-1900

Figure W 25

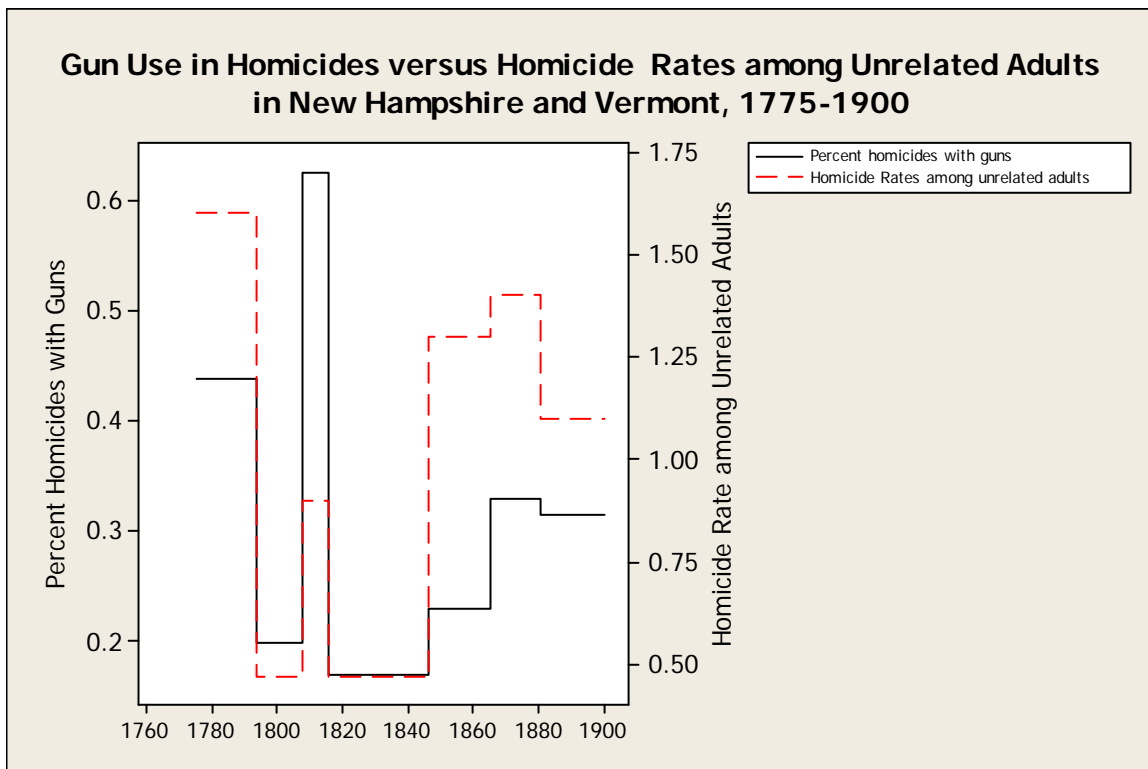


Figure W 26

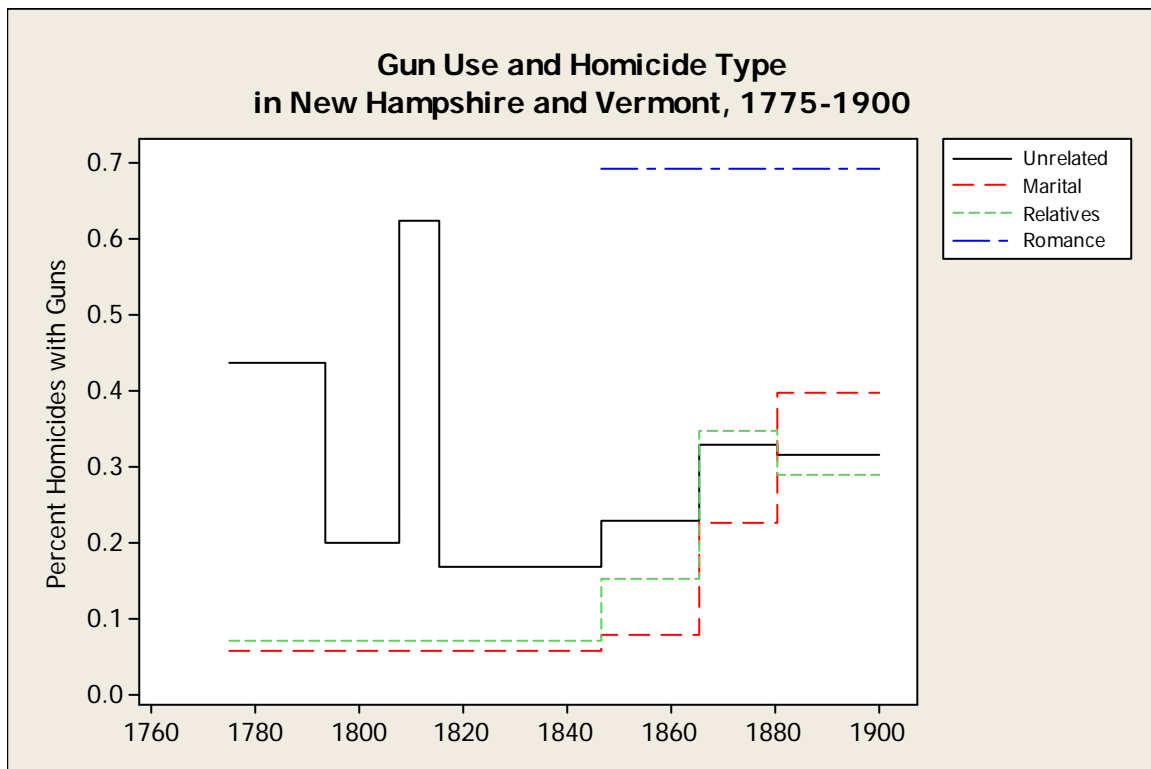


Figure W 27

Gun Use in Homicides in New Hampshire and Vermont, 1775-1900

	1775-1815	1816-1846	1847-1880	1881-1900
Homicides among unrelated adults	.49	.17	.28	.32
Marital homicides	.06	.06	.11	.40
Homicides of Relatives	.07	.07	.28	.29
Romance homicides	--	--	.69	.69
All homicides	.40	.14	.26	.35
Number of Weapons Identified	45	70	280	213
Number of Weapons Not Identified	4	5	12	3
% Unidentified Weapons	.08	.07	.04	.01

Note: Does not include homicides of Native Americans.

Figure W 28

Weapons Use in Homicides in New Hampshire and Vermont, 1775-1900

	1798-1815	1816-1846	1847-1880	1881-1900
Gun	.40	.14	.26	.35
Sharp	.16	.21	.25	.18
Blunt	.27	.43	.24	.16
Physical	.18	.19	.17	.24
Poison	.00	.03	.07	.07
Number of weapons Identified	45	70	280	213
Number of weapons Not identified	4	5	12	3

Note: Does not include homicides of Native Americans.

New York City, 1797-1874

The data are from Monkkonen (2001). The data for 1797-1874 are from Monkkonen's data on individual homicides. The data for 1797-1900 are from Monkkonen's data on annual homicides.

Figure W 29

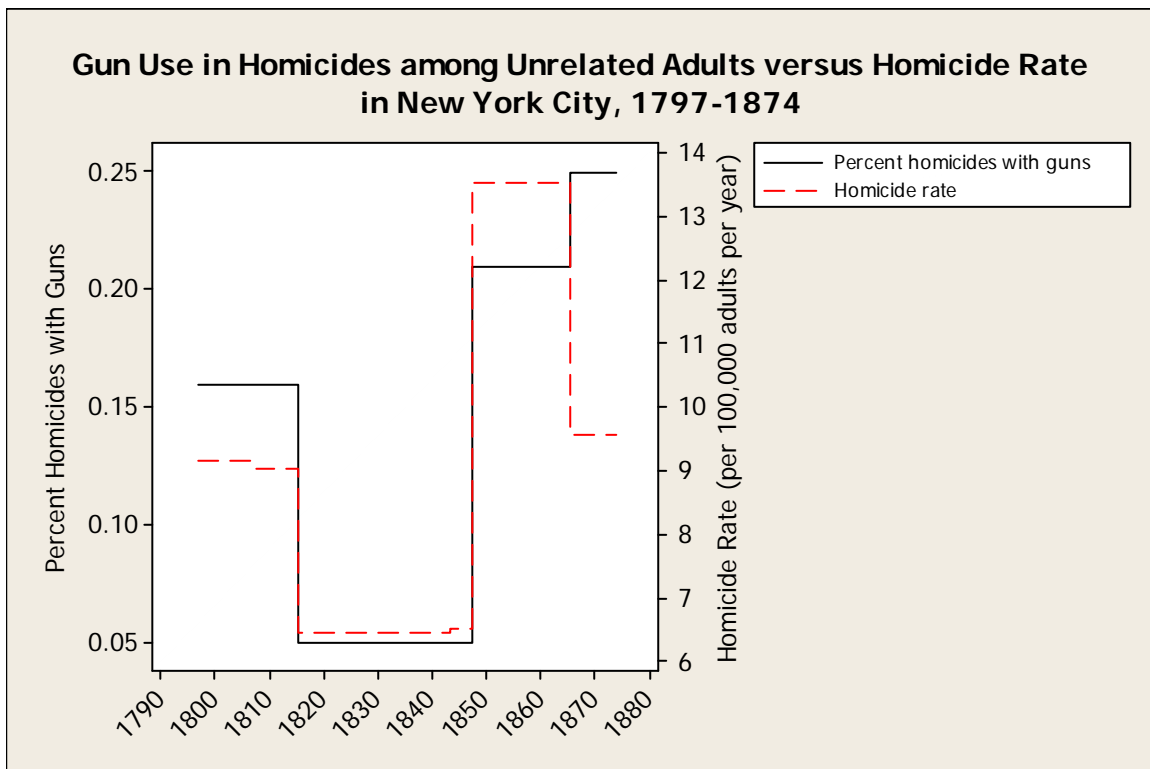


Figure W 30

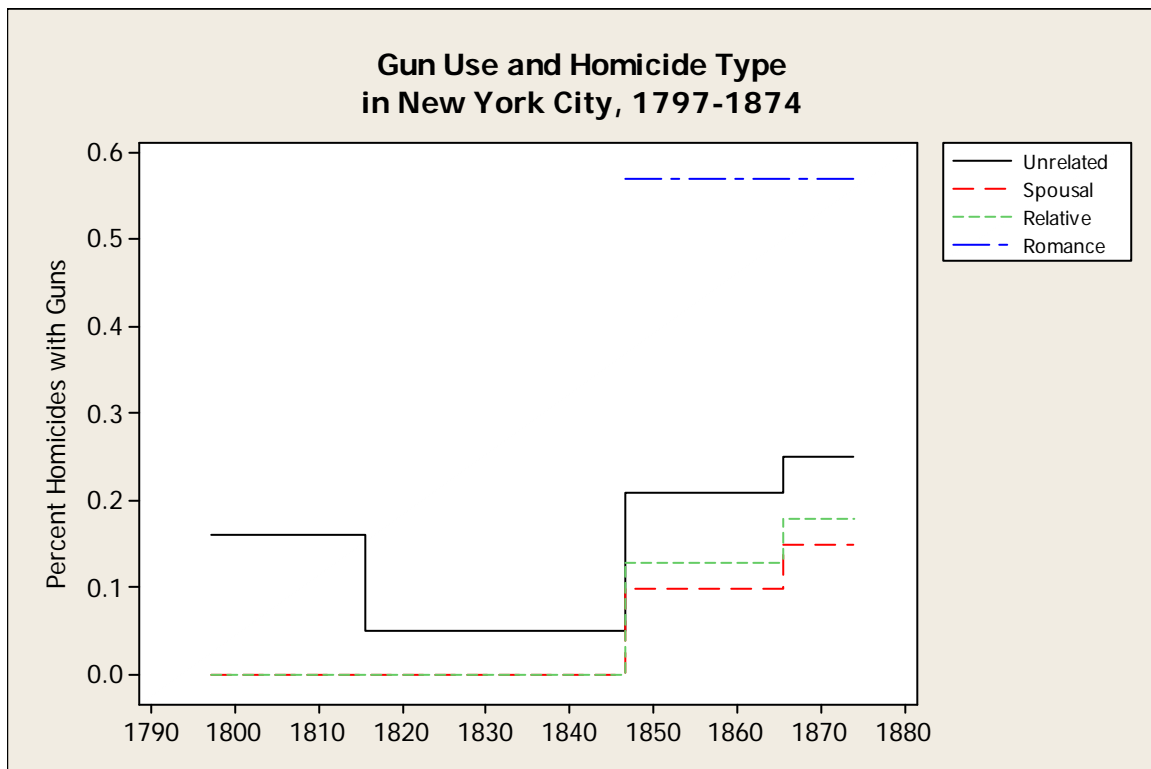


Figure W 31

Gun Use in Homicides in New York City, 1797-1874

	1797-1815	1816-1846	1847-1865	1866-1874
Homicides among unrelated adults	.16	.05	.21	.25
Spousal homicides	.00	.00	.10	.15
Homicides of relatives	.00	.00	.13	.18
Homicides of lovers ¹	--	--	.57	.57
All homicides	.13	.05	.20	.25
Number of weapons Identified	75	279	919	437
Number of weapons Not identified	22	33	149	25

¹ Includes all homicides of lovers, 1797-1874. N = 36. They are not included in the numbers of weapons identified and not identified. One weapon involved in the homicide of a lover could not be identified.

1797-1815: 22 weapons could not be identified, 2 in spouse homicides and 20 in non-family homicides. N: 8 spouse, 3 family, 64 non-family.

1816-1846: 33 weapons could not be identified, 2 in spouse homicides and 31 in non-family homicides. N: 41 spouse, 5 family, 233 non-family.

1847-1865: 149 weapons could not be identified, 12 in spouse homicides and 137 in non-family homicides. N: 106 spouse, 30 family, 783 non-family.

1866:1874: Only 25 weapons could not be identified, all in non-family homicides. N: 59 spouse, 11 family, 367 non-family.

Figure W 32

Weapons Use in Homicides in New York City, 1797-1900

	Gun	Knife	Poison	Other
1797-1815	.13	.19	.04	.65
1816-1847	.05	.22	.03	.71
1848-1865	.20	.30	.02	.47
1866-1874	.25	.27	.01	.46
1875-1900	.35	.21	--	.44
N	867	772	37	1508

Note: 230 weapons could not be identified through 1874.

Figure W 33

Ethnicity and Weapons Used in Homicides in New York City, 1797-1874

Ethnicity	Percent Homicides with Guns	
	1797-1860	1861-1874
Native-born White	.27	.50
German	.28	.37
Irish	.09	.26
Black	.03	.26
Italian	.00	.21

Monkkonen (2001: 35).

Ross and Holmes Counties, Ohio, 1798-1900

Figure W 34

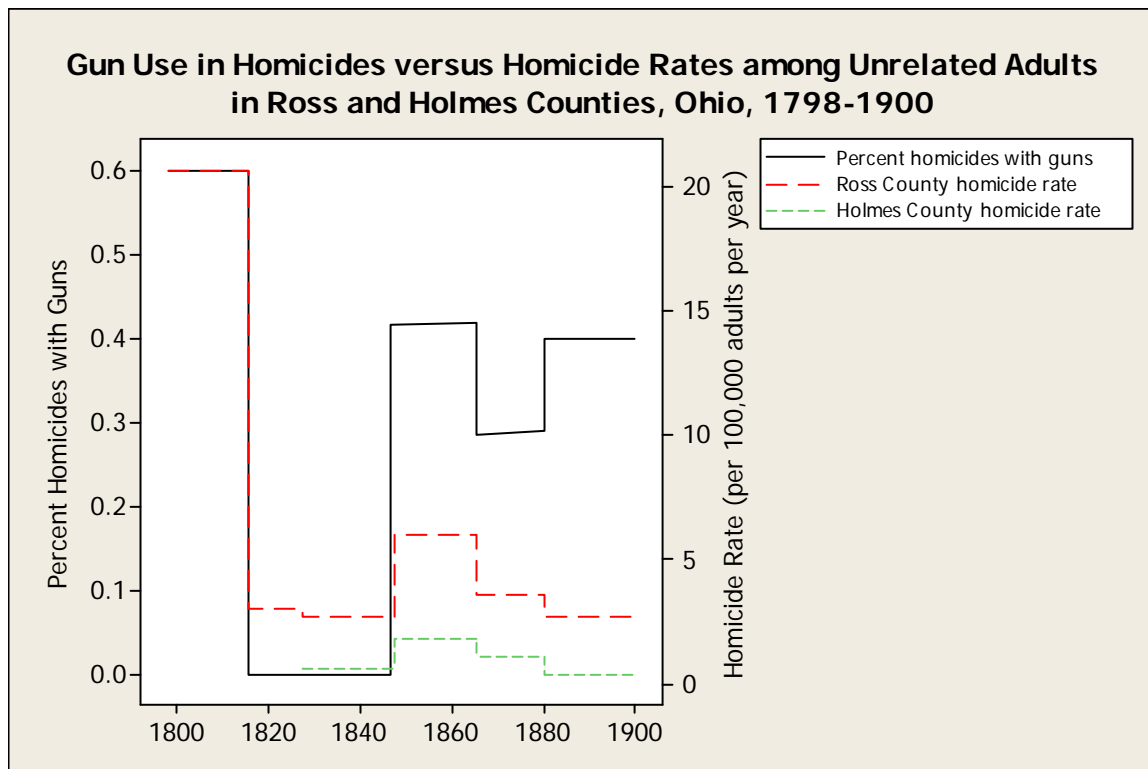
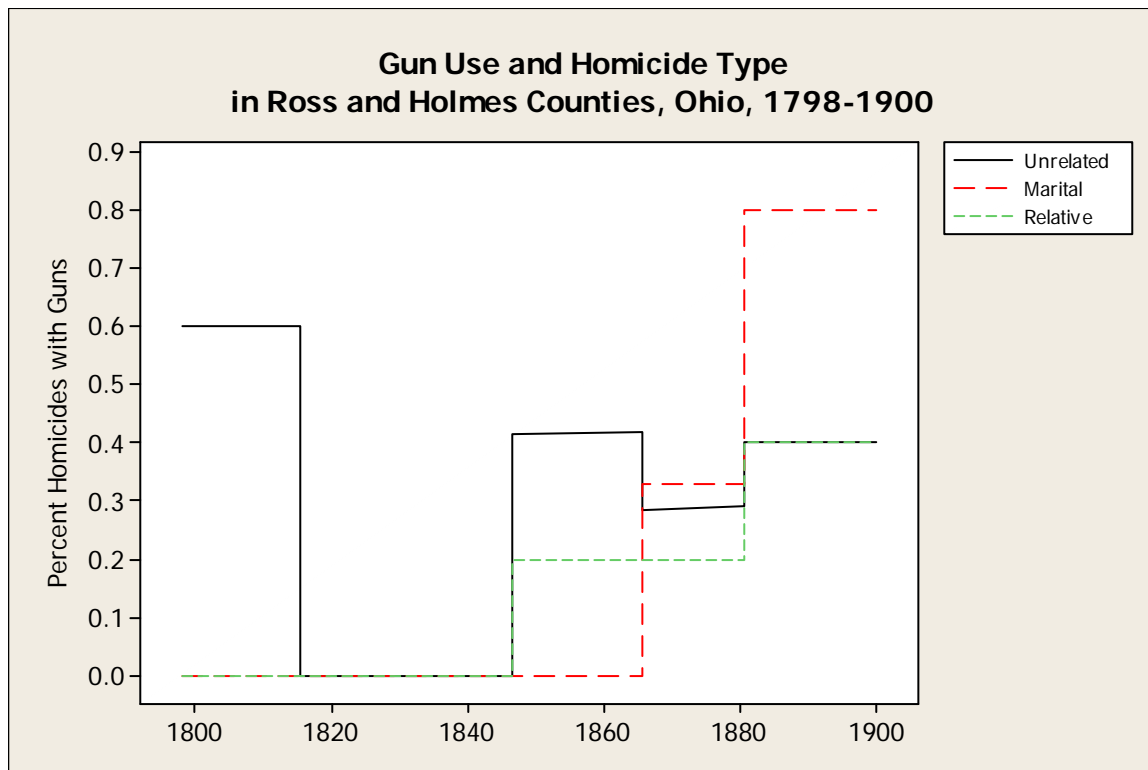


Figure W 35



Note: There were only two romance homicides in these counties. Guns were not used in either homicide.

Figure W 36
Gun Use in Homicides in Ross and Holmes Counties,
Ohio, 1798-1900

	1798-1815	1816-1846	1847-1880	1881-1900
Homicides among unrelated adults	.60	.00	.37	.40
Marital homicides	--	.00	.17	.80
Homicides of Relatives	--	.00	.20	.40
All homicides	.60	.00	.31	.48
Number of weapons Identified	10	16	51	25
Number of weapons Not identified	3	0	5	0

Note: Does not include homicides of Native Americans.

Figure W 37
Weapons Use in Homicides in Ross and Holmes Counties,
Ohio, 1798-1900

	1798-1815	1816-1846	1847-1880	1881-1900
Gun	.60	.00	.31	.48
Sharp	.10	.31	.22	.24
Blunt	.20	.31	.29	.20
Physical	.10	.38	.12	.08
Poison	.00	.00	.06	.00
Number of weapons Identified	10	16	51	25
Number of weapons Not identified	3	0	5	0

Note: Does not include homicides of Native Americans.

Cuyahoga County, Ohio, 1822-1876

Figure W 38

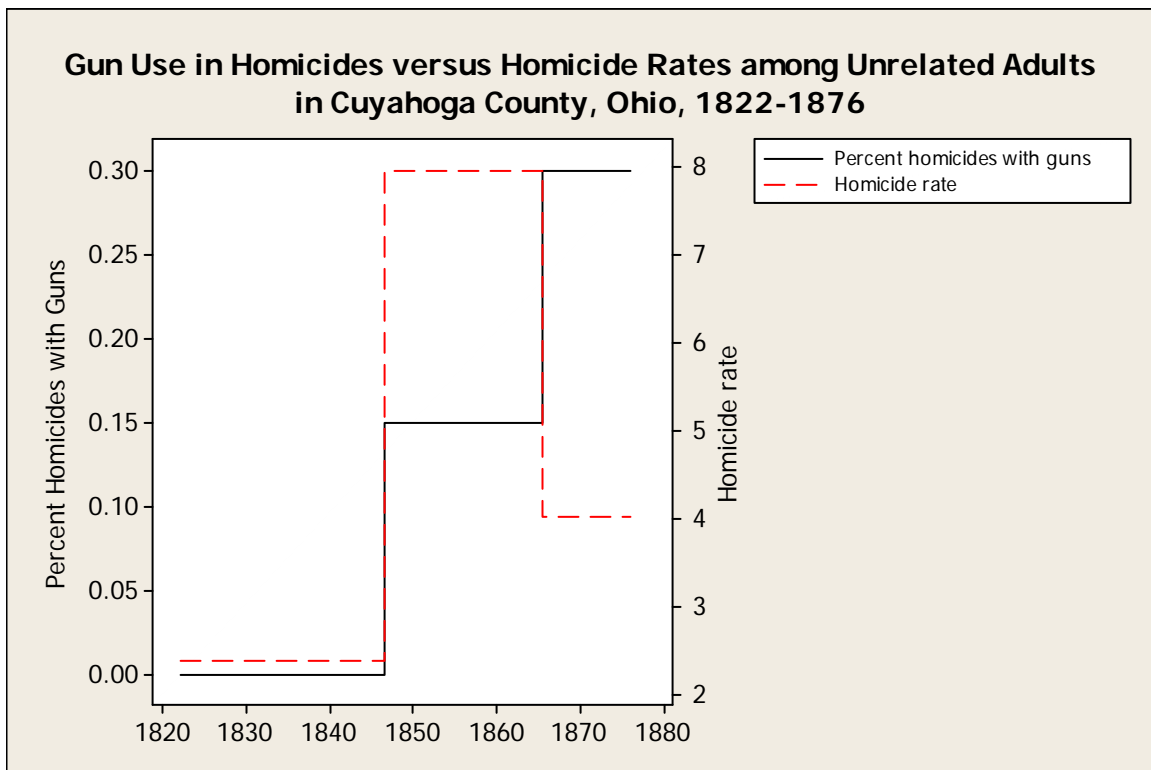


Figure W 39

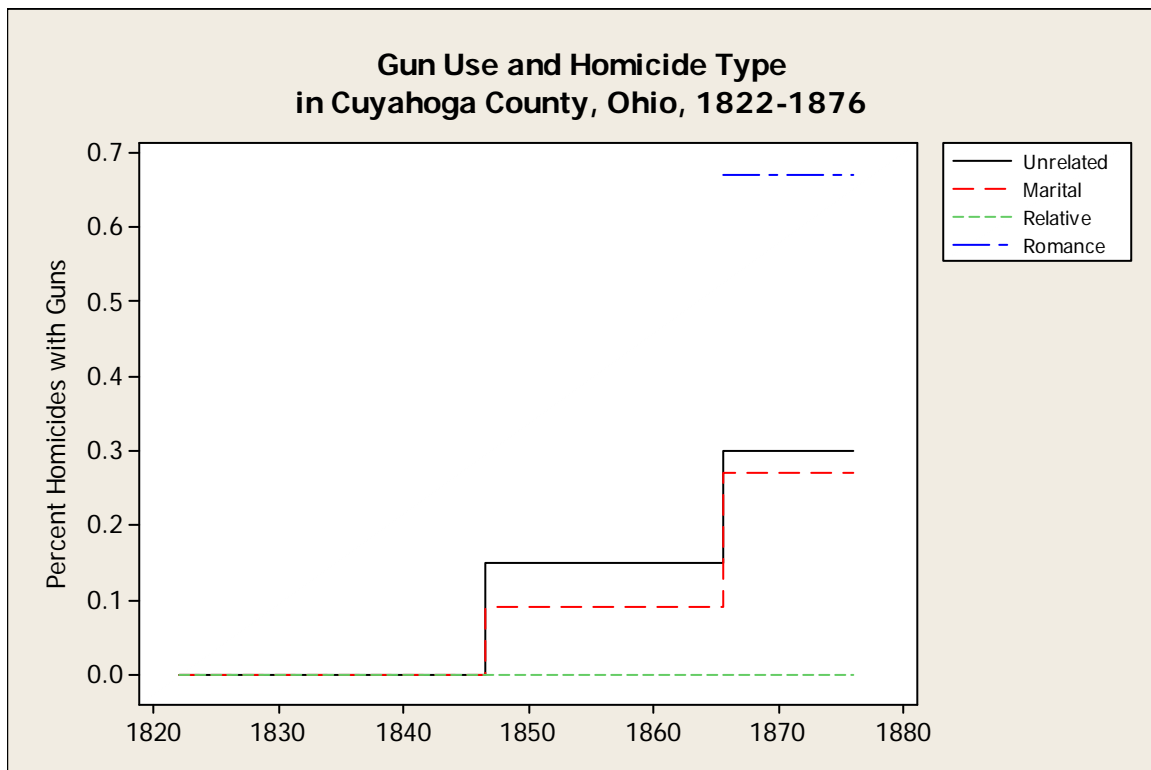


Figure W 40
Gun Use in Homicides in Cuyahoga County,
Ohio, 1822-1876

	1822-1846	1847-1865	1866-1876
Homicides among unrelated adults	.00	.15	.30
Marital homicides	.00	.09	.27
Homicides of Relatives	--	--	--
Romance homicides	--	--	.67
All homicides	.00	.13	.29
Number of Weapons Identified	6	67	65
Number of Weapons Not Identified	0	0	2
% Unknown Weapons	.00	.00	.03

Figure W 41
Weapons Use in Homicides in Cuyahoga County,
Ohio, 1822-1876

	1822-1846	1847-1865	1866-1876
Gun	.00	.13	.29
Sharp	.00	.19	.26
Blunt	.50	.19	.08
Physical	.33	.33	.23
Poison	.00	.03	.03
Violence (Blunt or Physical)	.17	.12	.11
Number of Weapons Identified	6	67	65
Number of Weapons Not Identified	0	0	2
% Unknown Weapons	.00	.00	.03

**Calhoun, Henderson, and Williamson Counties, Illinois,
1805-1900**

Figure W 42

**Weapons Use in Homicides in Calhoun, Henderson, and Williamson Counties,
Illinois, 1805-1900**

	1805-1832	1833-1865 ¹	1866-1900
Gun	.75	.72	.66
Sharp	.13	.07	.19
Blunt	.00	.17	.10
Physical	.13	.03	.05
Number of Weapons Identified	9	38	66
Number of Weapons Not Identified	1	9	7
% Unknown Weapons	.10	.19	.10

¹ Only 3 known homicides occurred from the end of the frontier period in 1832 to the Mexican War (1833-1846). The weapon is known in only one of those homicides: a knife.

Chicago, 1879-1885

Figure W 43

Weapons Use in Homicides in Chicago, 1879-1885

	Gun	Blunt	Physical	Sharp
Homicides among unrelated adults	.49	.19	.13	.19
Marital homicides	.48	.03	.24	.26
Homicides of Relatives	.63	.13	.13	.13
Romance homicides	.73	.18	.00	.09
All homicides	.51	.16	.14	.19
Number of Weapons Identified	245			
Number of Weapons Not Identified	1			
% Unknown Weapons	.00			

Note: A long gun was used in only one known case. All other homicides with known weapons appear to have been committed with revolvers.

Figure W 44

Race, Ethnicity, and Gun Use in Homicides in Chicago, 1879-1885

All homicides

German or Dutch	.69	35
English, Scots, or Welsh ¹	.55	100
French	.50	2
African American	.46	24
Irish	.45	44
Italian	.33	9
Scandinavian	.33	3
East European	.30	10
Chinese	.00	2
Unknown assailant	.38	16

¹ One unknown weapon was used by a Scots assailant.

Homicides among unrelated adults

German or Dutch	.71	17
English, Scots, or Welsh	.55	78
Irish	.51	37
French or French Canadian	.50	2
African American	.41	17
Scandinavian	.33	3
East European	.25	8
Italian	.25	8
Chinese	.00	2
Unknown assailant	.38	16

The Northeast and the Midwest, 1847-1900

Figure W 45

**Race, Ethnicity, and Gun Use in Homicides among Unrelated Adults
in the Northeast and Midwest, 1847-1900¹**

	Guns	Known Weapons	Percentage Gun Use
German or Dutch	24	48	.50
English, Scots, or Welsh	156	340	.46
Italian	5	14	.36
African American	11	31	.35
East European	3	9	.33
French	11	35	.31
Unknown assailant	33	107	.31
Scandinavian	2	7	.29
Irish	33	118	.28
Chinese	0	2	.00
All ²	278	711	.39

¹ Includes data from New Hampshire and Vermont; Chicago; Calhoun, Henderson, and Williamson counties, Illinois; and Cuyahoga, Holmes, and Ross counties, Ohio.

² Gun use in family and intimate homicides was nearly identical: 34 percent.

Figure W 46

**Race, Ethnicity, and Gun Use in All Homicides
in the Northeast and Midwest, 1847-1900¹**

	Guns	Known Weapons	Percentage Gun Use
German or Dutch	39	80	.49
English, Scots, or Welsh	233	543	.43
Italian	6	15	.40
African American	17	47	.36
Eastern European	5	14	.36
French	15	49	.31
Unknown assailant	33	108	.31
Scandinavian	2	7	.29
Irish	38	167	.23
Chinese	0	2	.00
All	388	1032	.38

¹ Includes data from New Hampshire and Vermont; Chicago; Calhoun, Henderson, and Williamson counties, Illinois; and Cuyahoga, Holmes, and Ross counties, Ohio.

The South

Maryland, 1635-1762

Figure W 47

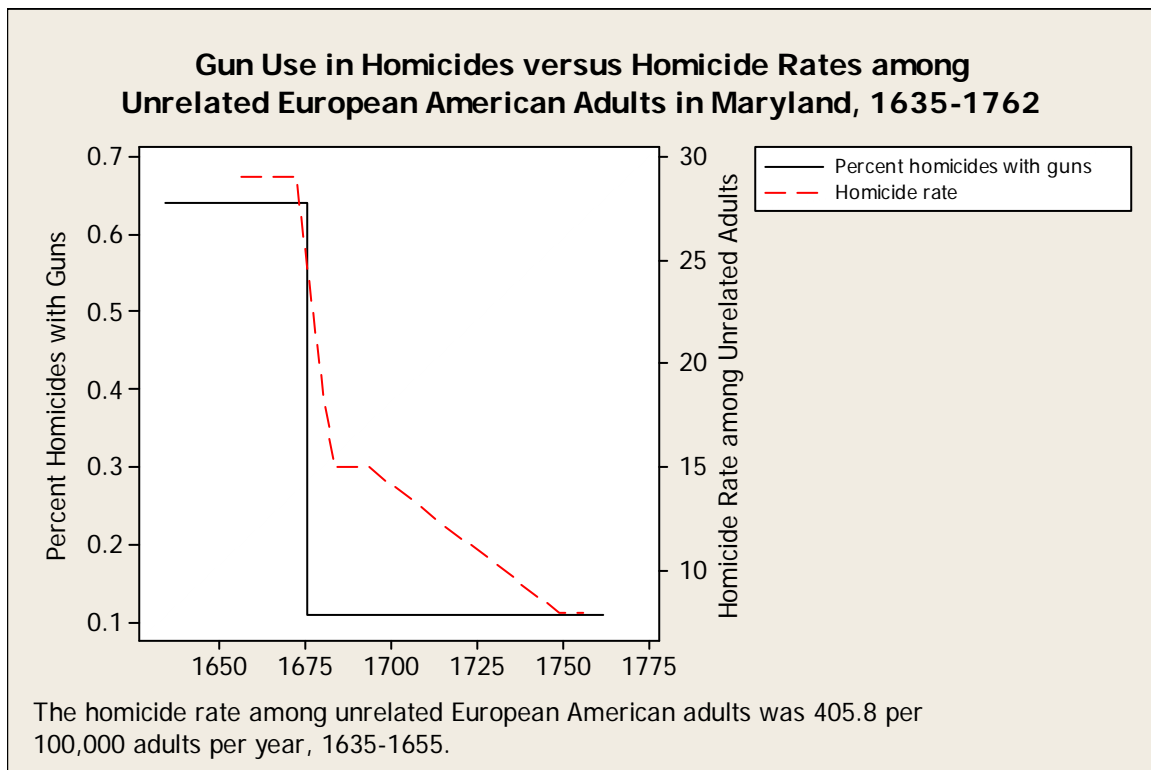


Figure W 48

Gun Use in Homicides among European Americans in Maryland, 1635-1762

	1635-1675	1676-1762
Homicides among unrelated adults	.40	.11
Marital homicides	.00	.00
Homicides of Relatives	--	.00
Romance homicides	--	--
All homicides	.40	.10
Number of Weapons Identified	43	79
Number of Weapons Not Identified	14	19
% Unknown Weapons	.25	.19

Note: Assumes that only half of the twenty victims of political homicide in 1655 were killed by firearms. If all were killed with firearms, the proportion of victims of homicides among unrelated adults who were killed by guns, 1634-75, would have been 64 percent. Seventeen (or the higher figure of 27) of the 42 known homicides among unrelated adults with known weapons, 1635-1675, were committed with guns (40 percent); 8 of 71, 1676-1762 (11 percent).

Figure W 49

**Weapons Use in Homicides among European American Adults
in Maryland, 1635-1762**

	1635-1675	1676-1762
Gun	.63	.10
Sharp	.05	.23
Blunt	.19	.38
Physical	.07	.28
Poison	.00	.01
Whip	.07	.00
Number of Weapons Identified	43	79
Number of Weapons Not Identified	14	19
% Unknown Weapon	.25	.19

Figure W 50

Weapons Use in Interracial Homicides among Adults in Maryland, 1635-1762

	European Assailant/ African Victim	African Assailant/ European Victim
Gun	.08	.21
Sharp	.25	.21
Blunt	.50	.29
Physical	.08	.29
Poison	.00	.00
Whip	.08	.00
Number of Weapons Identified	12	14
Number of Weapons Not Identified	1	5
% Unknown Weapon	.08	.26

Virginia, 1785-1900

Figure W 51

Weapons Use in Homicides in Virginia, 1785-1880

Percent used by assailants who were

	African American	European American	Unknown
African American victims			
Gun	.11	.41	.60
Sharp	.36	.09	.00
Whip	.00	.19	.00
Other	.53	.31	.40
Number of weapons Identified	28	32	10
Number of weapons Not identified	4	2	3
European American victims			
Gun	.00	.33	.00
Sharp	.30	.33	.50
Whip	.00	.00	.00
Other	.70	.35	.50
Number of weapons Identified	10	40	2
Number of weapons Not identified	2	8	3

Figure W 52

Weapons Use in Homicides in Virginia, 1881-1900

Percent used by assailants who were

	African American	European American	Unknown
African American victims			
Gun	.57	.33	1.00
Knife	.00	.00	.00
Other	.43	.67	.00
Number of weapons Identified	7	6	1
Number of weapons Not identified	4	0	0
European American victims			
Gun	.20	.71	1.00
Knife	.00	.12	.00
Other	.80	.17	.00
Number of weapons Identified	5	17	1
Number of weapons Not identified	0	0	0

Note: The race of the assailant could not be identified in 10 cases. The weapon is unknown in 6 of those cases. Three of the four known weapons were guns. One of the gun victims was black, the other two of unknown race.

Figure W 53

Gun Use by Homicide Assailants in Virginia, 1785-1900

Percent used by assailants who were			
	African American	European American	Unknown
1785-1880	.08	.36	.50
Known weapons	38	72	12
1881-1900 ¹	.46	.61	.80
Known weapons	13	23	5

¹ Includes victims of unknown race.

Georgia and South Carolina, 1779-1900

Figure W 54

**Weapons Use in Homicides of African Americans
in Georgia and South Carolina, 1779-1900**

Percent used by assailants who were

	African American	European American	Unknown
1779-1863			
Gun	.00	.32	-
Knife	.25	.11	-
Whip	.00	.32	-
Other	.75	.26	-
Number of weapons Identified	16	38	0
1864-1900			
Gun	.57	.77	.80
Knife	.11	.10	.20
Whip	.00	.00	.00
Other	.33	.13	.00
Number of weapons Identified	46	30	5

Figure W 55

**Weapons Use in Homicides of European Americans
in Georgia and South Carolina, 1779-1900**

Percent used by assailants who were

	African American	European American	Unknown
1779-1863			
Gun	.17	.41	.50
Knife	.08	.26	.25
Whip	.00	.00	.00
Other	.75	.33	.25
Number of weapons Identified	12	70	4
1864-1900			
Gun	.56	.82	.83
Knife	.33	.04	.00
Whip	.00	.00	.00
Other	.11	.14	.17
Number of weapons Identified	9	82	6

Figure W 56

Gun Use by Homicide Assailants in Georgia and South Carolina, 1779-1900

Percent used by assailants who were

	African American	European American	Unknown
1779-1863	.07	.38	.50
Known weapons	28	108	4
1864-1900	.57	.80	.82
Known weapons	54	112	11

Florida, 1821-1861

Figure W 57

Weapons Use in Homicides in Florida by Race of Assailant, 1821-1861

	Black	Native American	White
Gun	.30	1.00	.44
Sharp	.39	.00	.19
Blunt	.26	.00	.11
Physical	.04	.00	.04
Poison	.00	.00	.00
Whip	.00	.00	.03
Hanged	.00	.00	.19
Number of Weapons Identified	23	6	163
Number of Weapons Not Identified	27	4	172
% Unknown Weapon	.54	.40	.51

Note: Fifty-five percent of victims of white assailants who were not hanged were killed with guns.

The Trans-Mississippi West

California, 1830-1900

Figure W 58

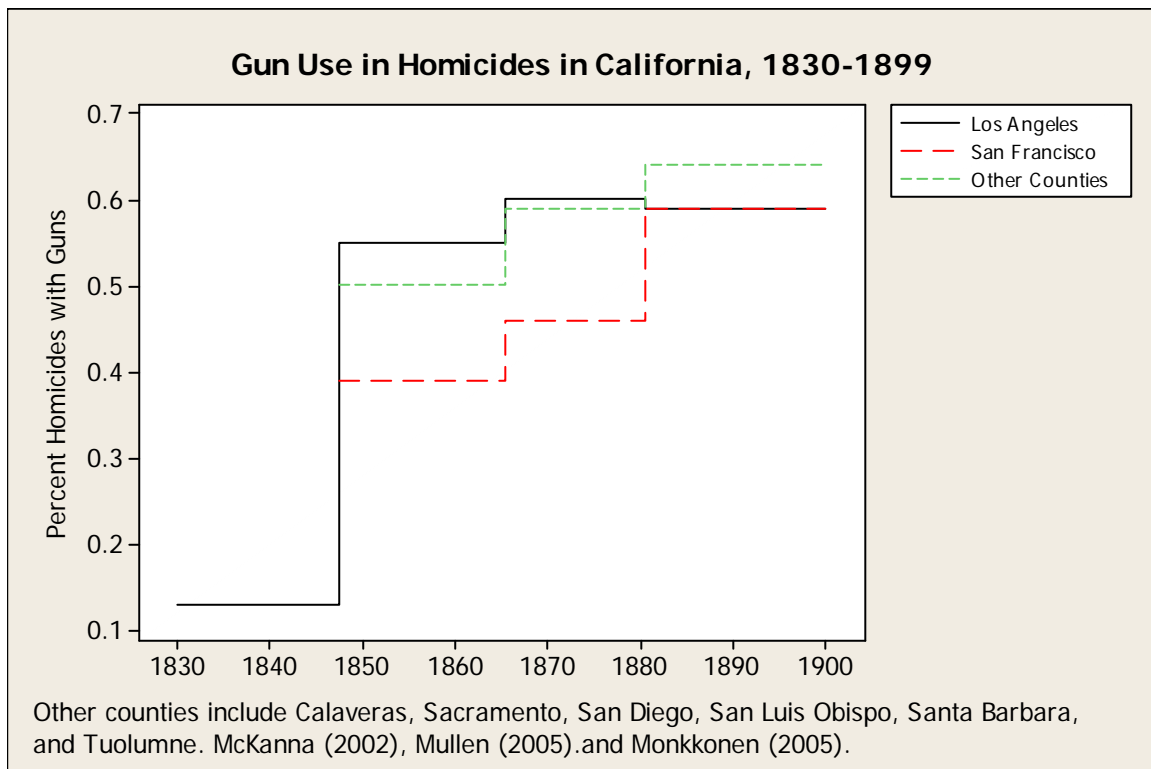


Figure W 59

Weapons Use in Homicides in Seven California Counties, 1849-1899

	Gun	Sharp	Blunt	Physical	Poison
1849-1865	.50	.32	.07	.11	.00
1866-1880	.59	.26	.10	.03	.02
1881-1899	.65	.19	.09	.06	.01
All	.57	.26	.08	.08	.01
Known weapons	693	318	101	91	10

	Proportion of guns of known type that were handguns	Proportion of all guns that were known handguns
1849-1865	.84	.76
1866-1880	.73	.66
1881-1900	.77	.74

Note: Weapons could not be identified in 172 of 681 homicides (25 percent), 1849-1865; in 84 of 379 homicides (22 percent), 1866-1880; and in 66 of 475 homicides (14 percent), 1881-1899.

Source: McKanna (2002). Includes Calaveras, Sacramento, San Diego, San Joaquin, San Luis Obispo, Santa Barbara, and Tuolumne counties.

Figure W 60

Gun Use and Homicide Type in Seven California Counties, 1849-1899

	Percent with guns	Homicides with known weapons	Percent with unknown weapons
Homicides among unrelated adults	.57	1138	.22
Family and intimate homicides	.67	75	.06
All homicides	.57	1213	.21

Source: McKanna (2002). Includes Calaveras, Sacramento, San Diego, San Joaquin, San Luis Obispo, Santa Barbara, and Tuolumne counties.

Figure W 61

Weapons Use in Homicides in Los Angeles, 1830-1900

	Gun	Sharp	Blunt	Physical	Poison
1830-1846	.13	.56	.00	.31	.00
1847-1865	.55	.29	.07	.09	.00
1866-1880	.62	.20	.07	.11	.00
1881-1900	.63	.15	.07	.13	.02
All	.59	.21	.07	.12	.01
Known weapons	274	97	33	57	5

Note: Weapons could not be identified in 17 of 33 homicides (52 percent), 1830-1846; in 133 of 246 homicides (54 percent), 1847-1865; in 102 of 183 homicides (56 percent), 1866-1880; and in 38 of 294 homicides (13 percent), 1881-1900.

Source: Monkkonen (2005).

Figure W 62

Gun Use and Homicide Type in Los Angeles, 1830-1900

	Percent with guns	Homicides with known weapons	Percent with unknown weapons
Homicides among unrelated adults	.57	410	.41
Marital homicides	.77	39	.13
Homicides of relatives	.91	11	.21
Romance homicides	.33	6	.14
All homicides	.59	466	.38

Source: Monkkonen (2005).

Figure W 63

Weapons Use in Homicides in San Francisco, 1849-1900

	Gun	Sharp	Blunt	Physical	Poison
1849-1865	.40	.43	.06	.10	.02
1866-1880	.47	.40	.07	.06	.01
1881-1900	.60	.22	.08	.09	.01
All	.52	.32	.07	.08	.01
Known weapons	438	267	60	67	11

Note: Weapons could not be identified in 46 of 222 homicides (21 percent), 1849-1865; in 55 of 302 homicides (18 percent), 1866-1880; and in 92 of 512 homicides (18 percent), 1881-1900.

Source: Mullin (2005).

Figure W 64

Gun Use and Homicide Type in San Francisco, 1849-1900

	Percent with guns	Homicides with known weapons	Percent with unknown weapons
Homicides among unrelated adults	.50	684	.20
Marital homicides	.61	85	.15
Homicides of relatives	.38	22	.08
Romance homicides	.63	52	.09
All homicides	.52	843	.19

Source: Mullin (2005).

**Douglas County, Nebraska
Gila County, Arizona
Las Animas County, Colorado
1880-1900**

Figure W 65
Weapons Use in Homicides
in Arizona, Colorado, and Nebraska, 1880-1900

	Gun	Sharp	Blunt	Physical	Poison
Douglas county, Nebraska	.63	.10	.17	.10	.00
Las Animas County, Colorado	.66	.21	.09	.02	.02
Gila County, Arizona	.82	.09	.04	.04	.00
All homicides	.70	.12	.11	.06	.00

Proportion of Guns Used That Were Known Handguns:

Douglas County, Nebraska	.89
Las Animas County, Colorado	.94
Gila County, Arizona	.66

Note: 1 of 106 weapons in Douglas County, Nebraska, could not be identified, 26 of 73 in Las Animas County, Colorado, and 9 of 77 in Gila County, Arizona.

Source: McKanna (1997).

Figure W 66

Gun Use and Homicide Type in Arizona, Colorado, and Nebraska, 1880-1900

	Percent with guns	Homicides with known weapons	Percent with unknown weapons
Homicides among unrelated adults	.67	181	.17
Family and intimate homicides	.82	39	.00
All homicides	.70	220	.14

Source: McKanna (1997).

Arizona, California, Colorado, and Nebraska, 1830-1900

Figure W 67

Race, Ethnicity, and Gun Use in Homicides in Arizona, California, Colorado, and Nebraska, 1830-1900

	Percent with guns	Homicides with known weapons	Percent with unknown weapons
White, Non-Hispanic	.62	1683	.19
Asian	.55	265	.20
Hispanic	.53	320	.34
African American	.52	50	.07
Native American	.46	135	.30
Unknown	.40	289	.35
All	.57	2742	.23

Source: McKanna (1997, 2002), Monkkonen (2005), and Mullin (2005).

TC 3-22.9

Rifle and Carbine

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*Training Circular
No. 3-22.9

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Rifle and Carbine

Contents

	Page
PREFACE	viii
INTRODUCTION	ix
Chapter 1 OVERVIEW	1-1
Safe Weapons Handling	1-2
Rules of Firearms Safety.....	1-2
Weapon Safety Status	1-4
Weapons Control Status	1-10
Overmatch	1-10
Chapter 2 RIFLE AND CARBINE PRINCIPLES OF OPERATION	2-1
Army Standard Service Rifle	2-1
Upper Receiver	2-2
Lower Receiver	2-3
Cycle of Function	2-4
Cooling.....	2-13
Chapter 3 AIMING DEVICES	3-1
Units of Angular Measurement.....	3-2
Optics.....	3-8
Thermal Sights.....	3-15
Pointers / Illuminators / Lasers	3-19
Chapter 4 MOUNTABLE EQUIPMENT	4-1
Adaptive Rail System	4-1
Mountable Weapons	4-2
Mountable Aiming Devices.....	4-4
Mountable Accessories	4-5

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i

Contents

Chapter 5	EMPLOYMENT	5-1
	Shot Process.....	5-2
	Functional Elements of the Shot Process	5-3
	Target Acquisition	5-4
Chapter 6	STABILITY	6-1
	Support	6-1
	Muscle Relaxation.....	6-4
	Natural Point of Aim	6-4
	Recoil Management	6-5
	Shooter–Gun Angle	6-5
	Field of View	6-5
	Carry Positions.....	6-6
	Stabilized Firing	6-13
	Firing Positions	6-15
Chapter 7	AIM	7-1
	Common Engagements	7-1
	Common Aiming Errors.....	7-5
	Complex Engagements.....	7-6
	Target Conditions.....	7-10
	Environmental Conditions	7-16
Chapter 8	CONTROL	8-1
	Trigger Control	8-2
	Breathing Control	8-4
	Workspace Management	8-4
	Calling the Shot.....	8-5
	Rate of fire	8-6
	Follow-Through	8-7
	Malfunctions.....	8-8
	Transition to Secondary Weapon.....	8-14
Chapter 9	MOVEMENT	9-1
	Movement Techniques.....	9-1
	Forward Movement.....	9-2
	Retrograde Movement	9-2
	Lateral Movement	9-3
	Turning Movement.....	9-4
Appendix A	AMMUNITION.....	A-1
Appendix B	BALLISTICS.....	B-1
Appendix C	COMPLEX ENGAGEMENTS	C-1
Appendix D	DRILLS	D-1
Appendix E	ZEROING.....	E-1

Contents



Appendix F 10-METER BORESIGHT OFFSETS AND 25-METER ZERO



Glossary	Glossary-1
References	References-1
Index	Index-1

Figures

Figure 1-1. Employment skills	1-1
Figure 1-2. Small unit range overmatch	1-12
Figure 2-1. Upper receiver.....	2-2
Figure 2-2. Lower receiver.....	2-3
Figure 2-3. Feeding example.....	2-5
Figure 2-4. Chambering example.....	2-6
Figure 2-5. Locking example	2-7
Figure 2-6. Firing example.....	2-8
Figure 2-7. Unlocking example.....	2-9
Figure 2-8. Extraction example	2-10
Figure 2-9. Ejection example.....	2-11
Figure 2-10. Cocking example	2-12
Figure 3-1. Minute of angle example.....	3-2
Figure 3-2. Mil example	3-3
Figure 3-3. Close combat optic / Rifle combat optic reticle / Thermal reticle examples.....	3-4
Figure 3-4. Stadia reticle example.....	3-5
Figure 3-5. Electromagnetic spectrum	3-7
Figure 3-6. Carrying handle with iron sight example	3-9
Figure 3-7. Back up iron sight	3-10
Figure 3-8. CCO Reticle, Comp M2 examples	3-12
Figure 3-9. RCO reticle example.....	3-14
Figure 3-10. Thermal weapon sight example.....	3-15
Figure 3-11. Weapon thermal sights by version.....	3-17
Figure 3-12. Thermal weapons sight, narrow field of view reticle example.....	3-18
Figure 3-13. Thermal weapons sight, wide field of view reticle example.....	3-18

Contents

Figure 3-14. AN/PEQ-2	3-21
Figure 3-15. AN/PEQ-15, ATPIAL	3-23
Figure 3-16. AN/PEQ-15A, DBAL-A2	3-25
Figure 3-17. AN/PSQ-23, STORM.....	3-27
Figure 4-1. M320 attached to M4 series carbine example.....	4-2
Figure 4-2. M203 grenade launcher example	4-2
Figure 4-3. M26 shotgun example	4-3
Figure 4-4. Bipod example	4-5
Figure 4-5. Vertical foregrip example.....	4-6
Figure 6-1. Stock weld	6-4
Figure 6-2. Hang carry example	6-7
Figure 6-3. Safe hang example.....	6-8
Figure 6-4. Collapsed low ready example.....	6-9
Figure 6-5. Low ready position.....	6-10
Figure 6-6. High ready position	6-11
Figure 6-7. Ready position or up position	6-12
Figure 6-8. Firing position stability example.....	6-14
Figure 6-9. Standing, unsupported example.....	6-16
Figure 6-10. Standing, supported example.....	6-17
Figure 6-11. Squatting position	6-18
Figure 6-12. Kneeling, unsupported example	6-19
Figure 6-13. Kneeling, supported example	6-20
Figure 6-14. Sitting position—crossed ankle	6-21
Figure 6-15. Sitting position—crossed-leg	6-22
Figure 6-16. Sitting position—open leg.....	6-23
Figure 6-17. Prone, unsupported example	6-24
Figure 6-18. Prone, supported example	6-25
Figure 6-19. Prone, roll-over example	6-26
Figure 6-20. Reverse roll-over prone firing position.....	6-27
Figure 7-1. Horizontal weapon orientation example	7-2
Figure 7-2. Vertical weapons orientation example.....	7-3
Figure 7-3. Front sight post/reticle aim focus.....	7-4
Figure 7-4. Immediate hold locations for windage and lead example	7-8
Figure 7-5. Immediate hold locations for elevation (range) example.....	7-9

Contents

Figure 7-6. Front sight post method example.....	7-11
Figure 7-7. Immediate holds for range to target.....	7-13
Figure 7-8. Immediate holds for moving targets example	7-14
Figure 7-9. Oblique target example	7-15
Figure 7-10. Wind value	7-17
Figure 7-11. Wind effects	7-18
Figure 7-12. Wind hold example	7-19
Figure 8-1. Arc of movement example	8-2
Figure 8-2. Natural trigger finger placement.....	8-3
Figure 8-3. Workspace example	8-5
Figure 8-4. Malfunction corrective action flow chart.....	8-12
Figure A-1. Small arms ammunition cartridges	A-1
Figure A-2. Cartridge case	A-2
Figure A-3. Propellant.....	A-3
Figure A-4. 5.56mm primer detail.....	A-4
Figure A-5. Bullet example, Armor-piercing cartridge	A-5
Figure A-6. Ball cartridge.....	A-6
Figure A-7. Ball with tracer cartridge	A-6
Figure A-8. Armor-piercing cartridge	A-7
Figure A-9. Short range training ammunition cartridge	A-7
Figure A-10. Blank cartridge.....	A-8
Figure A-11. Close combat mission capability kit cartridge.....	A-8
Figure A-12. Dummy cartridge	A-9
Figure B-1. Internal ballistic terms.....	B-2
Figure B-2. External ballistic terms.....	B-3
Figure B-3. Trajectory.....	B-4
Figure B-4. Lethal zone example	B-11
Figure C-1. Mil Relation Formula example.....	C-2
Figure C-2. Standard dismount threat dimensions example	C-3
Figure C-3. RCO range determination using the bullet drop compensator reticle.....	C-4
Figure C-4. Reticle relationship using a stadiametric reticle example.....	C-5
Figure C-5. Deliberate lead formula example.....	C-7

Contents

	Figure C-6. Deliberate trapping method example	C-8
	Figure C-7. Oblique target example	C-9
	Figure C-8. Wind value	C-11
	Figure C-9. Wind effects	C-12
	Figure C-10. Wind formula and ballistics chart example	C-14
	Figure C-11. Hold-off example	C-15
	Figure C-12. Quick high angle formula example.....	C-17
	Figure C-13. Compound wind and lead determination example.....	C-18
	Figure E-1. Wind effects on zero at 300 meters	E-3
	Figure E-2. M16A2 / M16A4 weapons 25m zero target.....	E-5
	Figure E-3. M4-/M16-series weapons 25m zero short range and pistol marksmanship target.....	E-6
	Figure E-4. Grouping.....	E-7
	Figure E-5. Marking shot groups.....	E-8
	Figure E-6a. Horizontal diagnostic shots	E-12
	Figure E-6b. Vertical diagnostic shots	E-13
△	Figure F-1. 10-meter target offset symbols.....	F-2
△	Figure F-2. Blank 10-meter target offset	F-3
△	Figure F-3. M16A2 10-meter boresighting target.....	F-4
△	Figure F-4. 300-meter zero of the advanced combat optical gunsight	F-9
△	Figure F-5. Advanced combat optical gunsight points of aim (100 to 300 meters).....	F-10

Tables

Table 1-1. General safe condition of the weapon for each weapon safety status.....	1-4
Table 1-2. Weapons Control Status.....	1-10
Table 2-1. Model Version Firing Methods Comparison	2-4
Table 3-1. Laser Aiming Devices for the M4 and M16.....	3-19
Table 4-1. Attachment Related Technical Manuals and Mounting	4-4
Table 5-1. Shot Process example	5-2
Table A-1. Small Arms Color Coding and Packaging Markings	A-10
Table A-2. 5-56mm, M855, Ball	A-11

Contents

Table A-3. 5.56mm, M855A1, Enhanced Performance Round (EPR), Ball	A-12
Table A-4. 5.56mm, M856A1, Tracer	A-13
Table A-5. 5.56mm, Mk301, MOD 0, DIM Tracer.....	A-14
Table A-6. 5.56mm, M995, Armor Piercing	A-15
Table A-7. 5.56mm, M862, Short Range Training Ammunition	A-16
Table A-8. 5.56mm, M1037, Short Range Training Ammunition	A-17
Table A-9. 5.56mm, M1042 Close Combat Mission Capability Kit	A-18
Table A-10. 5.56mm, M200, Blank	A-19
△ Table C-1. Standard holds beyond zero distance example	C-16
Table F-1. Offset mounting	F-5

Preface

Training Circular (TC) 3-22.9 provides Soldiers with the critical information for their rifle or carbine and how it functions, its capabilities, the capabilities of the optics and ammunition, and the application of the functional elements of the shot process.

TC 3-22.9 uses joint terms where applicable. Selected joint and Army terms and definitions appear in both the glossary and the text. Terms for which TC 3-22.9 is the proponent publication (the authority) are italicized in the text and are marked with an asterisk (*) in the glossary. Terms and definitions for which TC 3-22.9 is the proponent publication are boldfaced in the text. For other definitions shown in the text, the term is italicized and the number of the proponent publication follows the definition.

The principal audience for TC 3-22.9 is all members of the profession of arms. Commanders and staffs of Army headquarters serving as joint task force or multinational headquarters should also refer to applicable joint or multinational doctrine concerning the range of military operations and joint or multinational forces. Trainers and educators throughout the Army will also use this publication.



Commanders, staffs, and subordinates ensure that their decisions and actions comply with applicable United States, international, and in some cases host-nation laws and regulations. Commanders at all levels ensure that their Soldiers operate in accordance with the law of war and the rules of engagement. (See FM 6-27/MCTP 11-10C.)

This publication applies to the active Army, the Army National Guard (ARNG)/Army National Guard of the United States (ARNGUS), and the United States Army Reserve (USAR). Unless otherwise stated in this publication, masculine nouns and pronouns do not refer exclusively to men.

Uniforms depicted in this manual were drawn without camouflage for clarity of the illustration.

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Introduction

This manual is comprised of nine chapters and five appendices, and is specifically tailored to the individual Soldier's use of the M4- or M16-series weapon. This TC provides specific information about the weapon, aiming devices, attachments, followed by sequential chapters on the tactical employment of the weapon system.

The training circular itself is purposely organized in a progressive manner, each chapter or appendix building on the information from the previous section. This organization provides a logical sequence of information which directly supports the Army's training strategy for the weapon at the individual level.

Chapters 1 through 4 describe the weapon, aiming devices, mountable weapons, and accessories associated with the rifle and carbine. General information is provided in the chapters of the manual, with more advanced information placed in appendix A, Ammunition, and appendix B, Ballistics.

Chapters 5 through 9 provide the employment, stability, aiming, control and movement information. This portion focuses on the Soldier skills needed to produce well aimed shots. Advanced engagement concepts are provided in appendix C of this publication. Appendix D of this publication provides common tactical drills that are used in training and combat that directly support tactical engagements. Finally, appendix E of this publication, is provided at a common location in this and future weapons publications to provide a common location for reference.

This manual does not cover the specific rifle or carbine training strategy, ammunition requirements for the training strategy, or range operations. These areas will be covered in separate training circulars.

Conclusion

TC 3-22.9 applies to all Soldiers, regardless of experience or position. This publication is designed specifically for the Soldier's use on the range during training, and as a reference while deployed.

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Chapter 1

Overview

This TC is designed to provide Soldiers the critical information on their rifle or carbine to properly and effectively engage and destroy threats in a direct fire engagement. It relies on the Soldier's understanding of the weapon, how it functions, its capabilities, the capabilities of the optics and ammunition, and how to properly employ those capabilities to achieve mastery through the application of the functional elements of the shot process.

This chapter describes the principles of proper weapons handling, tactical applications and control measures for handling the weapons, and an overview of the concepts of overmatch as it pertains to a Soldier's individual weapon.

1-1. Each Soldier is responsible for placing accurate and effective fires on threat targets with their individual weapon. This manual defines the functional elements of the shot process, the principles of operation of the weapon, the characteristics and description of ballistics and ammunition, and the various engagement techniques that are essential to build Soldier proficiency with their weapon. It includes standard drills and techniques that assist the Soldier to build, improve, and sustain their skills to achieve accurate and precise shots consistently during combat operations (see figure 1-1).

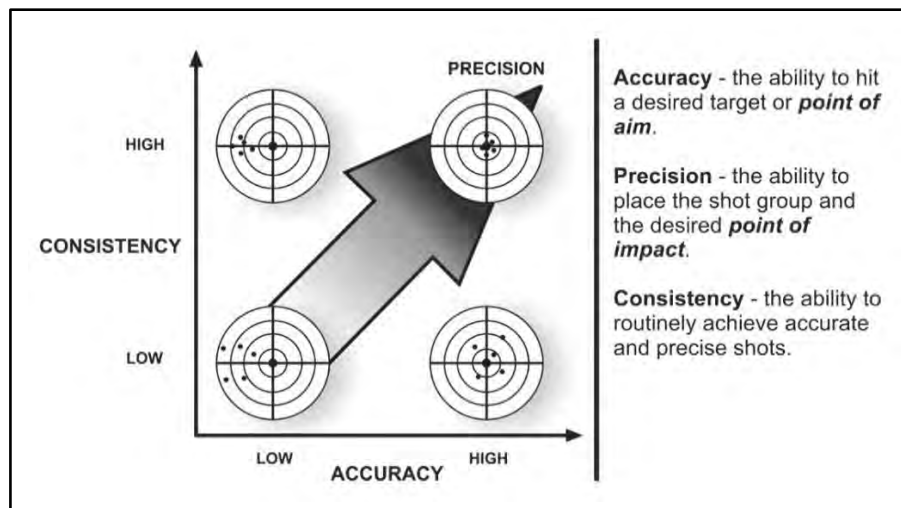


Figure 1-1. Employment skills

Chapter 1

SAFE WEAPONS HANDLING

1-2. Safe weapons handling procedures are a consistent and standardized way for Soldiers to handle, operate, and employ the weapon safely and effectively. Weapons handling is built on three components; the Soldier, the weapon, and the environment:

- The **Soldier** must maintain situational understanding of friendly forces, the status of the weapon, and the ability to evaluate the environment to properly handle any weapon. The smart, adaptive, and disciplined Soldier is the primary safety mechanism for all weapons under his control.
- The **weapon** is the primary tool of the Soldier to defeat threats in combat. The Soldier must know of and how to operate the mechanical safeties built into the weapons they employ, as well as the principles of operation for those weapons.
- The **environment** is the Soldier's surroundings. The Soldier must be aware of muzzle discipline, the nature of the target, and what is behind it.

1-3. To safely and effectively handle weapons, Soldiers must be cognitively aware of three distinct weapons handling measures:

- **The rules of firearms safety.**
- **Weapons safety status.**
- **Weapons control status.**

1-4. These measures directly support the components of safe weapons handling. They are designed to provide redundant safety measures when handling any weapon or weapon system, not just rifles and carbines.

1-5. This redundancy allows for multiple fail-safe measures to provide the maximum level of safety in both training and operational environments. A Soldier would have to violate two of the rules of firearms safety or violate a weapon safety status in order to have a negligent discharge.

Note. Unit standard operating procedures (SOPs), range SOPs, or the operational environment may dictate additional safety protocols; however, the rules of firearms safety are always applied. If a unit requires Soldiers to violate these safety rules for any reason, such as for the use of blank rounds or other similar training munitions during training, the unit commander must take appropriate risk mitigation actions.

RULES OF FIREARMS SAFETY

1-6. The Rules of Firearms Safety are standardized for any weapon a Soldier may employ. Soldiers must adhere to these precepts during training and combat operations, regardless of the type of ammunition employed, except as noted above.

Overview

Rule 1: Treat Every Weapon as if it is Loaded

1-7. Any weapon handled by a Soldier must be treated as if it is loaded and prepared to fire. Whether or not a weapon is loaded should not affect how a Soldier handles the weapon in any instance.

1-8. Soldiers must take the appropriate actions to ensure the proper weapon status is applied during operations, whether in combat or training.

Rule 2: Never Point the Weapon at Anything You Do Not Intend to Destroy

1-9. Soldiers must be aware of the orientation of their weapon's muzzle and what is in the path of the projectile if the weapon fires. Soldiers must ensure the path between the muzzle and target is clear of friendly forces, noncombatants, or anything the Soldier does not want to strike.

1-10. When this is unavoidable, the Soldier must minimize the amount of time the muzzle is oriented toward people or objects they do not intend to shoot, while simultaneously applying the other three rules of fire arms safety.

Rule 3: Keep Finger Straight and Off the Trigger Until Ready to Fire

1-11. Soldiers must not place their finger on the trigger unless they intend to fire the weapon. The Soldier is the most important safety feature on any weapon. Mechanical safety devices are not available on all types of weapons. When mechanical safeties are present, Soldiers must not solely rely upon them for safe operation knowing that mechanical measures may fail.

1-12. Whenever possible, Soldiers should move the weapon to mechanical safe when a target is not present. If the weapon does not have a traditional mechanical safe, the trigger finger acts as the primary safety.

Rule 4: Ensure Positive Identification of the Target and its Surroundings

1-13. The disciplined Soldier can positively identify the target and knows what is in front of and what is beyond it. The Soldier is responsible for all bullets fired from their weapon, including the projectile's final destination.

1-14. Application of this rule minimizes the possibility of fratricide, collateral damage, or damage to infrastructure or equipment. It also prepares the Soldier for any follow-on shots that may be required.

Chapter 1

WEAPON SAFETY STATUS

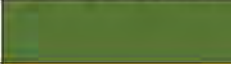



△ 1-15. The readiness of a Soldier's weapon is termed as its *weapon safety status (WSS)*. It is a standard code that uses common colors (green, amber, red, and black) to represent the level of readiness for a given weapon.

1-16. Each color represents a specific series of actions that are applied to a weapon. They are used in training and combat to place or maintain a level of safety relevant to the current task or action of a Soldier, small unit, or group.

△ 1-17. The WSS ratings are evaluated by the level of safety measures applied to the weapon itself. Table 1-1 describes the general safe condition of the weapon for each WSS, based on the standard color scheme found in ADP 1-02.

Note. If the component, assembly, or part described is unclear, refer to the weapon's technical manual (TM) or chapter 2 of this publication.

△ **Table 1-1. General safe condition of the weapon for each weapon safety status**

Weapon Safety Status	General Description	Color Amplifier
GREEN	Fully Safe	
AMBER	Substantially Safe	
RED	Marginally Safe	
BLACK	Not Safe	

△ 1-18. All firers and leaders must be fluent in the general meaning of each WSS, how it pertains to the weapon being employed, and the responsibilities of the firer to own each shot or burst. The following are the basic definitions for each WSS:

- Green, "Fully Safe" – the weapon is clear, no ammunition is present the chamber is empty, and the fire selector switch is set to SAFE.
- △ ● Amber, "Substantially Safe" – a leader must clear and verify that the weapon's bolt is forward, the chamber is empty, and ammunition is introduced to the weapon. This is an administrative or preparatory WSS. Leaders use amber primarily for mounted operations and during combat operations when directed to maintain a substantially safe weapon with the ability to rapidly transition and escalate to red or black, based on the situation.

△ **Note.** WSS amber is not used in the live-fire events described in this publication.

Overview

- △ ● Red, “Marginally Safe” – the fire selector switch is set to SAFE, the magazine is locked in the magazine well, a round is in the chamber, and the bolt is locked in the forward position.
- △ ● Black, “Not Safe” – Indicates when the weapon is fully prepared to fire, the firer has positively identified the target, the fire selector switch is set to FIRE, and the firer’s finger is on the trigger, and the fire is in the process of engaging the target.

△ *Note.* WSS black is used to describe the actions of the firer when in a red status and entering an engagement sequence. WSS black describes the distinct difference between red and actively and deliberately engaging a threat.

- △ 1-19. Figures 1-2 through 1-5 on pages 1-6 through 1-9 describe the standard color code for the M4-series/M16-series rifle and carbine. The Soldier performs actions described in figures 1-2 through 1-5 to move from one color code to the next.

Chapter 1

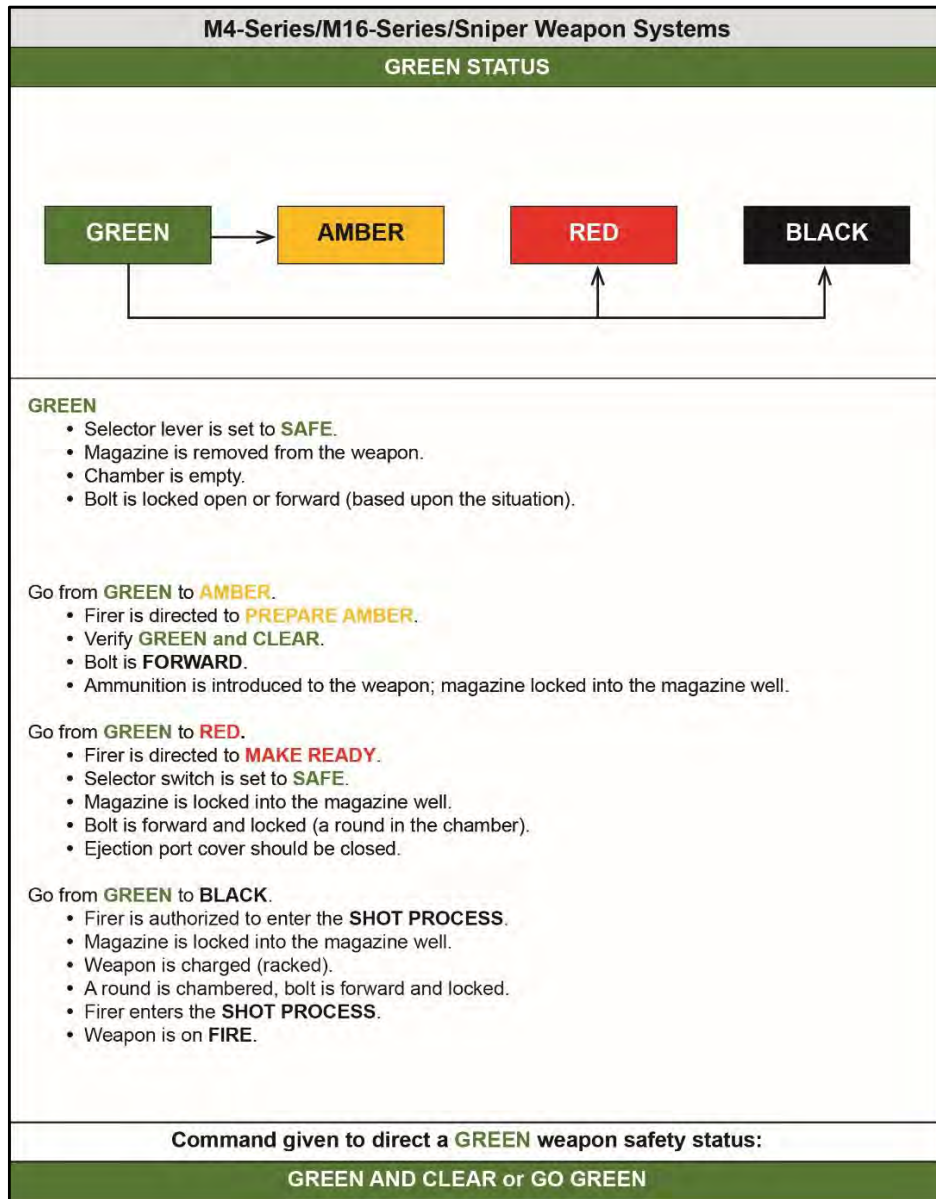


Figure 1-2. M4-/M16-series weapons, green weapon safety status

Overview

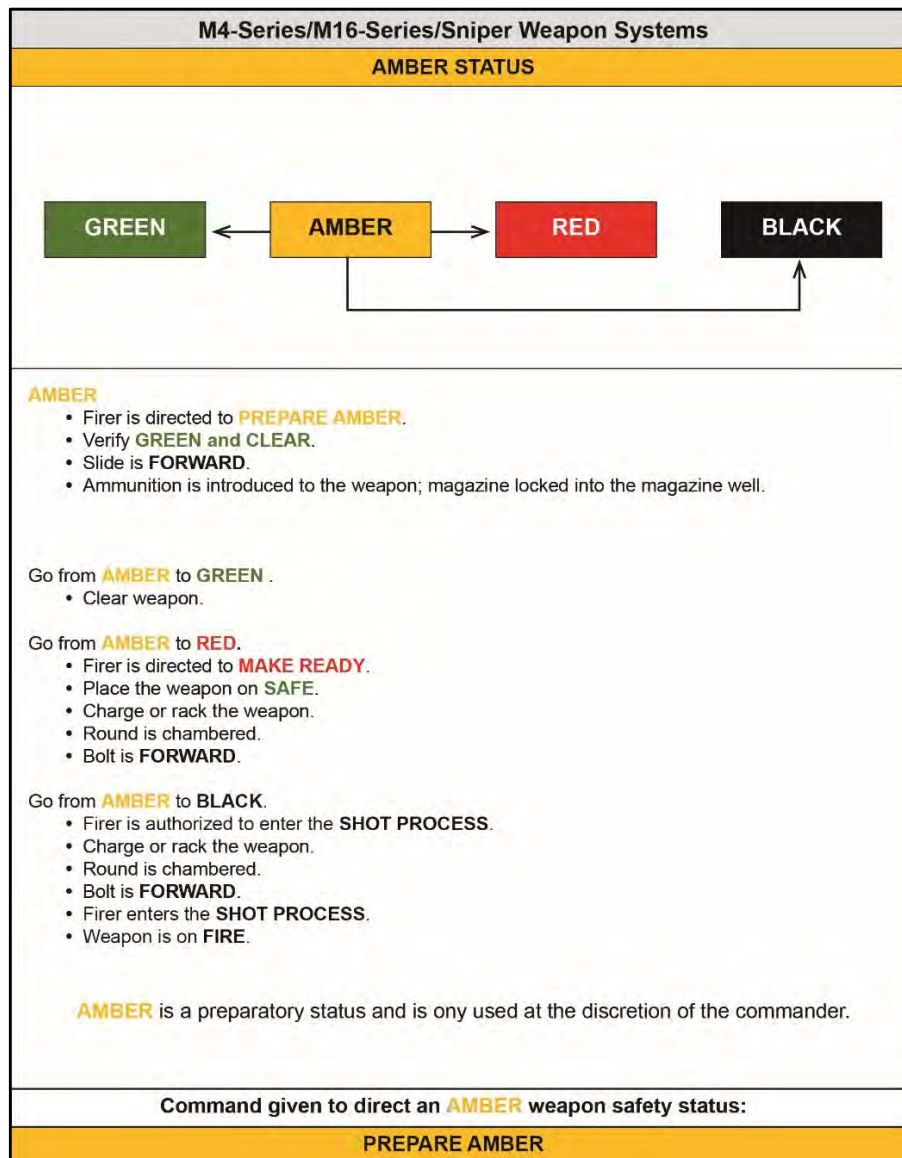


Figure 1-3. M4-/M16-series weapons, amber weapon safety status

Chapter 1

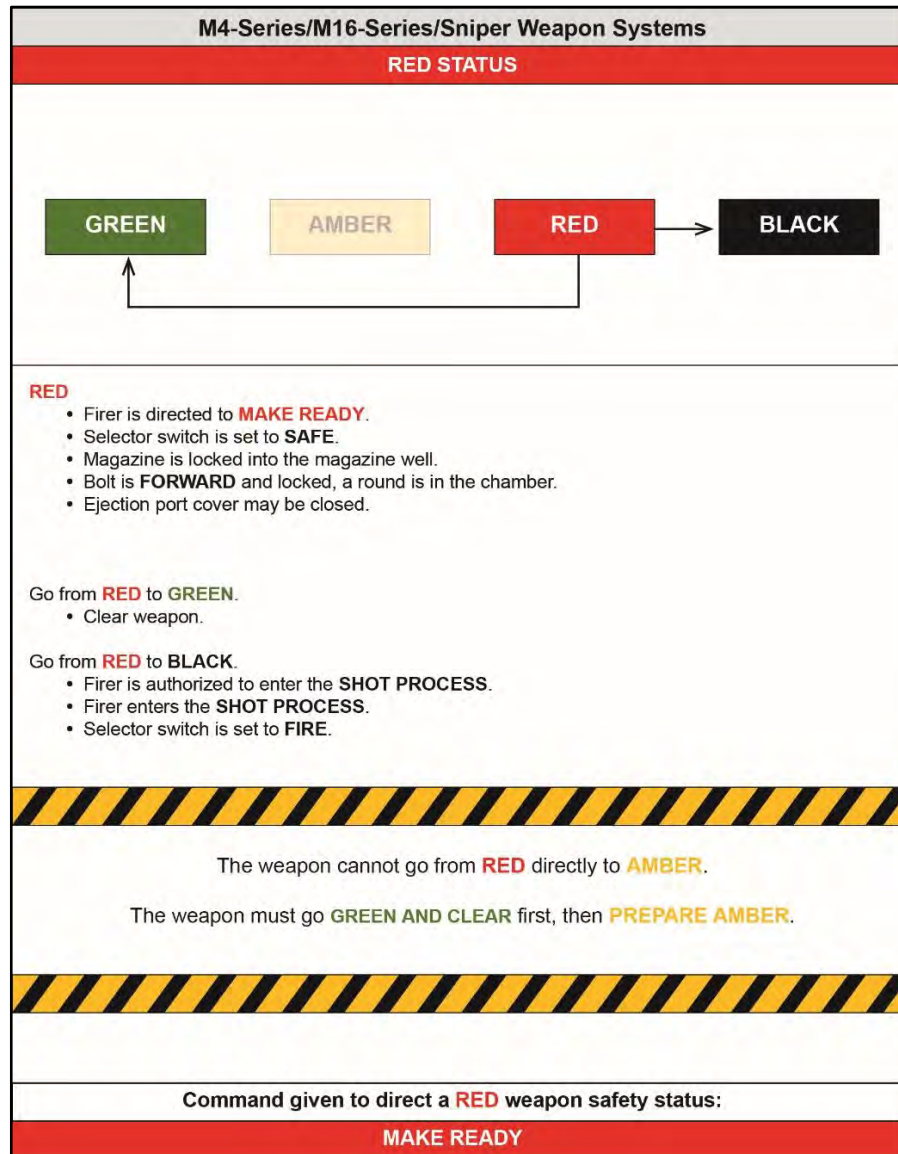


Figure 1-4. M4-/M16-series weapons, red weapon safety status

Overview

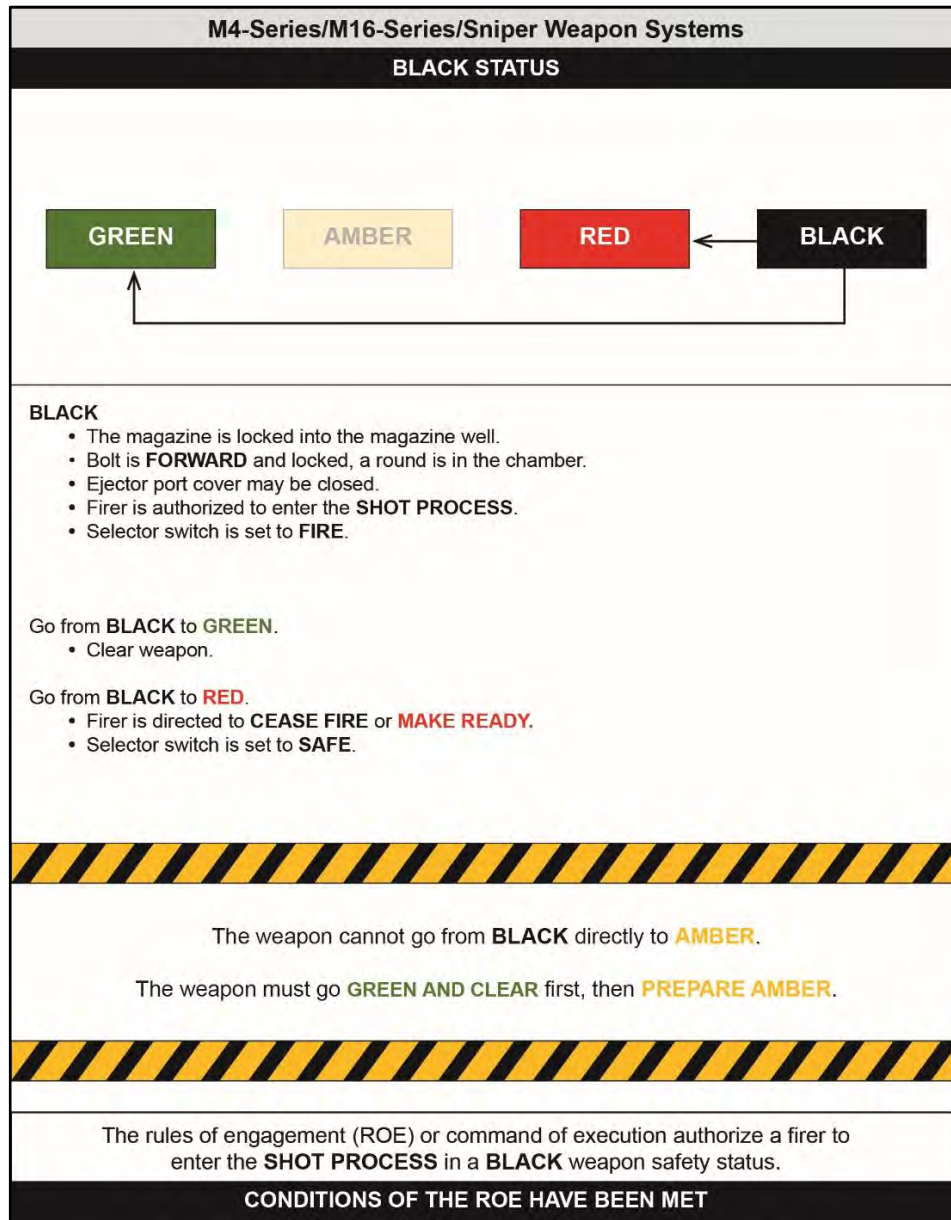


Figure 1-5. M4/M16-series weapons, black weapons safety status



WEAPONS CONTROL STATUS

1-20. A *weapons control status (WCS)* is a tactical method of fire control given by a leader that incorporates the tactical situation, rules of engagement for the area of operations, and expected or anticipated enemy contact. The WCS outlines the target identification conditions under which friendly elements may engage a perceived threat with direct fire.

1-21. Table 1-2 provides a description of the standard WCS used during tactical operations, both in training and combat. They describe when the firer is authorized to engage a threat target once the threat conditions have been met.

Table 1-2. Weapons Control Status

WEAPONS CONTROL STATUS	DESCRIPTION
WEAPONS HOLD	Engage only if engaged or ordered to engage.
WEAPONS TIGHT	Engage only if target <i>is positively identified as enemy</i> .
WEAPONS FREE	Engage targets <i>not positively identified as friendly</i> .

1-22. A weapon control status and a weapons safety status are both implemented and available to leaders to prevent fratricide and limit collateral damage. These postures or statuses are typically suited to the area of operation or type of mission and should always be clearly outlined to all Soldiers, typically in the operations order (OPORD), warning order (WARNORD), or fragmentary order (FRAGORD).

OVERMATCH

1-23. Overmatch is the Soldier applying their learned skills, employing their equipment, leveraging technology, and applying the proper force to create an unfair fight in favor of the Soldier. To achieve and maintain overmatch against any threat, this publication focuses on providing information that develops the Soldier's direct fire engagement skills using the following attributes:

- **Smart** – the ability to routinely generate understanding through changing conditions.
- **Fast** – the ability to physically and cognitively outmaneuver adversaries.
- **Lethal** – deadly in the application of force.
- **Precise** – consistently accurate in the application of power to ensure deliver of the right effects in time, space, and purpose.

1-24. This requires the Soldier to understand the key elements that build the unfair advantage and exploit them at every opportunity during tactical operations. The components of overmatch are:

Overview



- **Target detection, acquisition, and identification** – the ability of the Soldier to detect and positively identify any suspected target as hostile at greater distances than their adversary. This relies upon Soldier training and their ability to leverage the capabilities of their optics, thermals, and sensors.
- **Engagement range** – provide the Soldier with weapons, aiming devices, and ammunition capable of striking and defeating a threat at a greater range than the adversary can detect or engage the friendly force with effective fires.
- **Limited visibility** – provide the Soldier to make operations during limited visibility an advantage through technology and techniques, and compound their adversary's disadvantages during those conditions.
- **Precision** – provide a weapon and ammunition package that enhances the Soldier's consistent application of shots with a level of precision greater than the adversary's.
- **Speed** – the weapon, aiming devices, and accessories a Soldier employs must seamlessly work in unison, be intuitive to use, and leverage natural motion and manipulations to facilitate rapid initial and subsequent shots during an engagement at close quarters, mid-, and extended ranges.
- **Terminal performance** – ensures that precise shots delivered at extended ranges provide the highest probability to defeat the threat through exceptional ballistic performance.

1-25. Although not a component of overmatch, exceptional training is critical to create smart, fast, lethal, and precise Soldiers. Training builds proficiency in a progressive, logical, and structured manner and provides Soldiers the skills necessary to achieve overmatch against any adversary. This requires the training program to provide experience to the Soldier in all the components of overmatch to their fullest extent possible in the shortest amount of time.

TARGET DETECTION, ACQUISITION, AND IDENTIFICATION

1-26. The first component of overmatch at the Soldier level is the ability to detect targets as far away as possible during limited and low visibility conditions. This manual describes the aiming devices for the service rifle that enhance the Soldier's target detection and acquisition skills. The Soldier must be able to detect, acquire, and identify targets *at ranges beyond* the maximum effective range of their weapon and ammunition.

1-27. This publication also provides key recognition information to build the Soldier's skills in correctly identifying potential targets as friend, foe, or noncombatant (neutral) once detected.

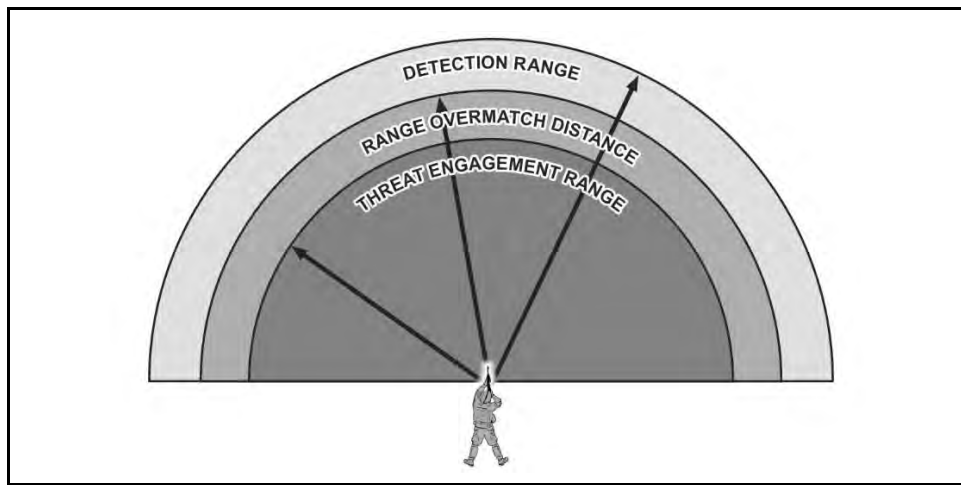
ENGAGEMENT RANGE

1-28. To ensure small unit success, the Soldier requires weapon systems that can effectively engage threats at ranges greater than those of their adversaries. This creates a standoff distance advantage that allows friendly forces to destroy the target outside the threat's maximum effective range.

Chapter 1

1-29. Range overmatch provides a tactical engagement buffer that accommodates the Soldier's time to engage with precision fires. For example, a Soldier that has the capability to effectively engage personnel targets at a range of 500 meters will have range overmatch of 10 to 20 percent over a threat rifleman. That 10 to 20 percent range difference is equivalent to a distance of 40 to 80 meters, which is approximately the distance a maneuvering threat can traverse in 15 to 40 seconds.

- △ 1-30. Figure 1-6 portrays the battlefield from the Soldier's perspective. With mobile, maneuvering threats, the target acquisition capabilities must compliment the engagement of those threats at the maximum effective range of the weapon, optic, and ammunition.



△ **Figure 1-6. Small unit range overmatch**

LIMITED VISIBILITY

1-31. Soldiers must be able to detect, acquire, identify, and engage threats in all light conditions, regardless of the tactical situation. To provide that capability, aiming devices are provided that minimize the effects of limited visibility, but not completely.

1-32. Image intensifiers and thermal optics provide a significant overmatch capability, but they also have limitations and disadvantages. A general discussion of their capabilities, particularly what those systems can view within the spectrum of light is provided. Soldiers must understand what can be "seen" or viewed and what cannot when using their assigned equipment. Understanding the advantages and limitations of their equipment has a direct impact on force protection, fratricide and collateral damage prevention, and maintaining overmatch during tactical operations.

PRECISION

1-33. The Army standard service rifle is designed with a specific level of accuracy out to its maximum effective range. This level of accuracy is more consistent and reliable

Overview

through the use of magnified aiming devices and superior ammunition. The Soldier must build the skills to use them effectively to deliver precision fires during tactical engagements.

SPEED

1-34. The close fight requires rapid manipulations, a balance of speed and accuracy, and very little environmental concerns. Soldiers must move quickly and efficiently through their manipulations of the fire control to maintain the maximum amount of muzzle orientation on the threat through the shot process. This second-nature efficiency of movement only comes from regular practice, drills, and repetition.

1-35. The foundation of speed of action is built through understanding the weapon, ammunition, ballistics, and principles of operation of the associated aiming devices. It is reinforced during drills (appendix D), and the training program of the unit.

1-36. The goal of training to overmatch is to increase the speed at which the Soldier detects a threat, identifies it as hostile, and executes the shot process with the desired target effect. This manual is constructed to provide the requisite information in a progressive manner to build and reinforce Soldier understanding, confidence, and ability to execute tactical operations with speed and smooth fluidity of motion.

TERMINAL BALLISTIC PERFORMANCE

1-37. Terminal ballistic performance is the actions of a projectile from the time it strikes an object downrange until it comes to rest. The ammunition used with the service rifle performs exceptionally well out to its maximum effective range and beyond. This manual provides information on the various munition types available for training and combat, their capabilities and purpose, and the service (combat) round's terminal ballistic performance (see appendix A, Ammunition, and appendix B, Ballistics).

1-38. Soldiers must understand the capabilities of their ammunition, whether designed for training or combat use. That understanding creates a respect for the weapon and ammunition, reinforces the precepts of safe weapons handling, and an understanding of the appropriate skills necessary to deliver lethal fires.

1-39. Soldiers that understand the "how" and "why" of their weapon system, aiming devices, ammunition, and procedures work or function develops a more comprehensive understanding. That level of understanding, coupled with a rigorous training program that builds and strengthens their skills create more proficient Soldiers. The proficiencies and skills displayed during training translate into smart, fast, lethal and precise Soldiers for the small unit during decisive action combat operations.

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Chapter 2

Rifle and Carbine Principles of Operation

This chapter provides the general characteristics, description, available components, and principles of operation for the M4- and M16-series weapons. It provides a general overview of the mechanics and theory of how weapons operate, key terms and definitions related to their functioning, and the physical relationship between the Soldier, the weapon, and the optics/equipment attached to the weapon.

ARMY STANDARD SERVICE RIFLE

2-1. The Army standard service rifle is either the M16-series rifle or M4-series carbine. These weapons are described as a lightweight, 5.56-mm, magazine-fed, gas-operated, air-cooled, shoulder-fired rifle or carbine. They fire in semiautomatic (single-shot), three-round burst, or in automatic mode using a selector lever, depending on the variant. The weapon system has a standardized mounting surface for various optics, pointers, illuminators, and equipment, to secure those items with common mounting and adjustment hardware.

2-2. Each service rifle weapon system consists of components, assemblies, subassemblies, and individual parts. Soldiers must be familiar with these items and how they interact during operation.

- **Components** are uniquely identifiable group of fitted parts, pieces, assemblies or subassemblies that are required and necessary to perform a distinctive function in the operation of the weapon. Components are usually removable in one piece and are considered indivisible for a particular purpose or use.
- **Assemblies** are a group of subassemblies and parts that are fitted to perform specific set of functions during operation, and cannot be used independently for any other purpose.
- **Subassemblies** are a group of parts that are fitted to perform a specific set of functions during operation. Subassemblies are compartmentalized to complete a single specific task. They may be grouped with other assemblies, subassemblies and parts to create a component.
- **Parts** are the individual items that perform a function when attached to a subassembly, assembly, or component that serves a specific purpose.

2-3. Each weapon consists of two major components: the upper receiver and the lower receiver. These components are described below including their associated assemblies, subassemblies, and parts.

Chapter 2

UPPER RECEIVER

2-4. An aluminum receiver helps reduce the overall weight of the rifle/carbine and allows for mounting of equipment and accessories. The upper receiver consists of the following (see figure 2-1):

- **Barrel assembly.**
 - **Barrel.** The bore and chamber of the barrel are chrome-plated to reduce wear and fouling over the life of the weapon.
 - **Flash hider or compensator.** Located at the end of the barrel, is provided to reduce the signature of the weapon during firing and reduce barrel movement off target during firing.
 - **Sling swivel.** The attachment hardware for the sling system used to properly carry the weapon.
 - **Front sight assembly.** Includes an adjustable front sight post that facilitates zeroing the weapon, serves as the forward portion of the iron sight or back up iron sight, and assists with range determination.
 - **Adapter rail system (ARS).** Provided in varying lengths, depending on the variant applied. Used to attach common aiming devices or accessories.
 - **Slip ring.** Provides a spring loaded locking mechanism for the weapon's hand guards.
 - **Ejection port.** Provides an opening in the upper receiver to allow ammunition or spent casing ejection from the weapon.
 - **Ejection port cover.** Provides a dust cover for the ejection port, protecting the upper receiver and bolt assembly from foreign objects.
 - **Forward assist assembly.** Provides a Soldier applied mechanical assist to the bolt assembly during operations.

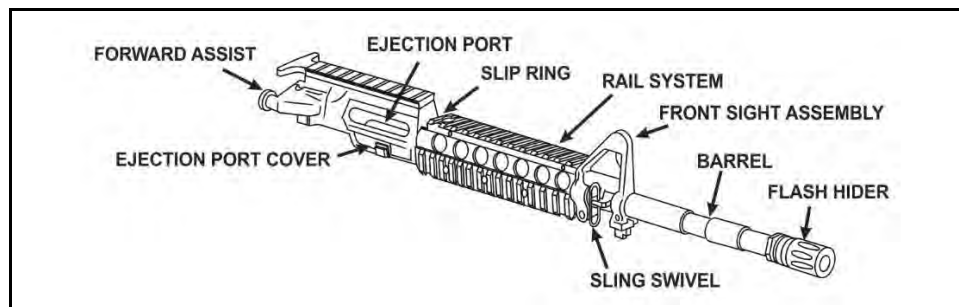


Figure 2-1. Upper receiver

Rifle and Carbine Principles of Operation

LOWER RECEIVER

2-5. The lower receiver shown in figure 2-2, on page 2-3, consists of the following components, assemblies, and parts:

- **Trigger assembly.** Provides the trigger, pins, springs, and other mechanical components necessary to fire the weapon.
- **Bolt catch.** A mechanical lever that can be applied to lock the bolt to the rear by the Soldier, or automatically during the cycle of function when the magazine is empty (see page 2-4).
- **Rifle grip.** An ambidextrous pistol-type handle that assists in recoil absorption during firing.
- **Magazine catch assembly.** Provides a simple, spring-loaded locking mechanism to secure the magazine within the magazine well. Provides the operator an easy to manipulate, push-to-release textured button to release the magazine from the magazine well during operation.
- **Buttstock assembly.** Contains the components necessary for proper shoulder placement of the weapon during all firing positions, returning the bolt assembly to battery, and managing the forces of recoil during operation.
 - The M4-/M4A1-series carbine has a four position collapsible buttstock assembly: Closed, ½ open, ¾ open, and fully-open.
 - M16-series rifles have a fixed buttstock with cleaning kit compartment or an applied modified work order (MWO) collapsible buttstock.
- **Action spring.** Provides the stored energy to return the bolt carrier assembly back into battery during operation.
- **Lower receiver extension.** Provides space for the action spring and buffer assembly during operation.

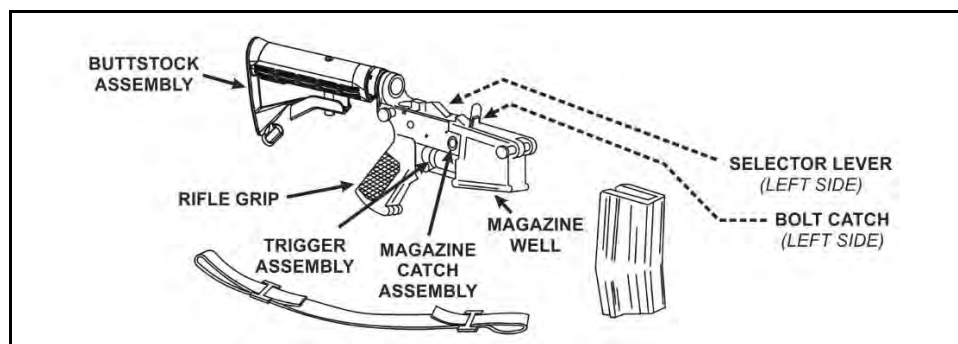


Figure 2-2. Lower receiver

2-6. Additional information on the characteristics and components of the M4-/M4A1-/M16-series weapons can be found in technical manual (TM) 9-1005-319-10. Soldiers will use the technical manual for preventative maintenance checks and services (PMCS),

Chapter 2

and operation under normal conditions, as well as more detailed information on the principles of operation.

2-7. Each variant of the rifle and carbine have subtle capabilities differences. The primary differences are shown in table 2-1, and are specific to the weapon's selector switch, buttstock, and barrel length.

Table 2-1. Model Version Firing Methods Comparison

Weapon	Selector Switch Position			Buttstock	Barrel Length
M16A2	SAFE	SEMI	BURST	Full	20 inches
M16A3	SAFE	SEMI	AUTO	Full	20 inches
M16A4	SAFE	SEMI	BURST	Full	20 inches
M4	SAFE	SEMI	BURST	Collapsible	14.5 inches
M4A1	SAFE	SEMI	AUTO	Collapsible	14.5 inches
Legend: SEMI: semi-automatic firing selection AUTO: fully automatic firing selection BURST: three-round burst firing selection					

CYCLE OF FUNCTION

2-8. The *cycle of function* is the mechanical process a weapon follows during operation. The information provided below is specific to the cycle of function as it pertains specifically to the M4- and M16-series weapons.

2-9. The cycle starts when the rifle is ready with the bolt locked to the rear, the chamber is clear, and a magazine inserted into the magazine well with at least one cartridge. From this state, the cycle executes the sequential phases of the cycle of functioning to fire a round and prepare the weapon for the next round. The phases of the cycle of function in order are—

- Feeding.
- Chambering.
- Locking.
- Firing.
- Unlocking.
- Extracting.
- Ejecting.
- Cocking.

2-10. For the weapon to operate correctly, semiautomatic and automatic weapons require a *system of operation* to complete the cycle of functioning. The M4- and M16-series weapons use a direct impingement gas operating system. This system uses a portion of the high pressure gas from the cartridge being fired to physically move the assemblies and subassemblies in order to complete the cycle of function.

Rifle and Carbine Principles of Operation

FEEDING

2-11. Feeding is the process of mechanically providing a cartridge of ammunition to the entrance of the chamber (see figure 2-3).

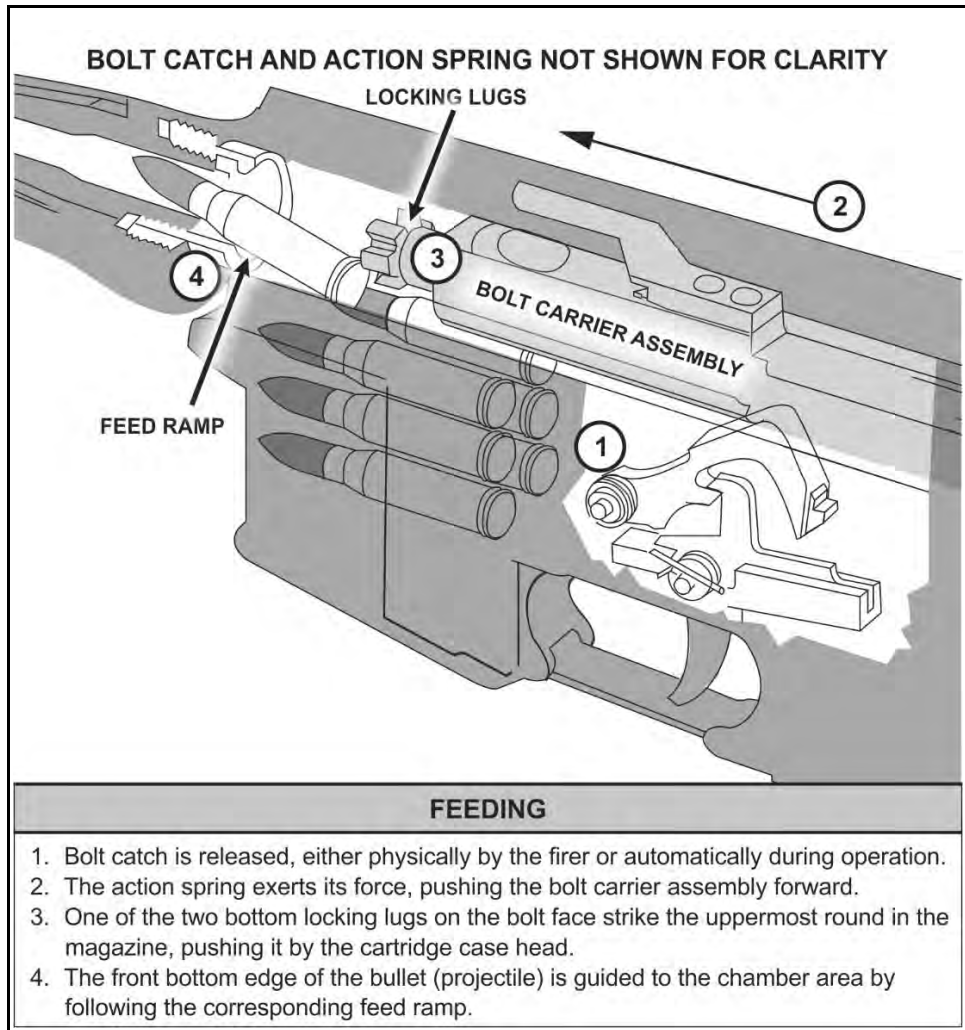


Figure 2-3. Feeding example

Chapter 2

CHAMBERING

2-12. Chambering is the continuing action of the feeding round into the chamber of the weapon (see figure 2-4).

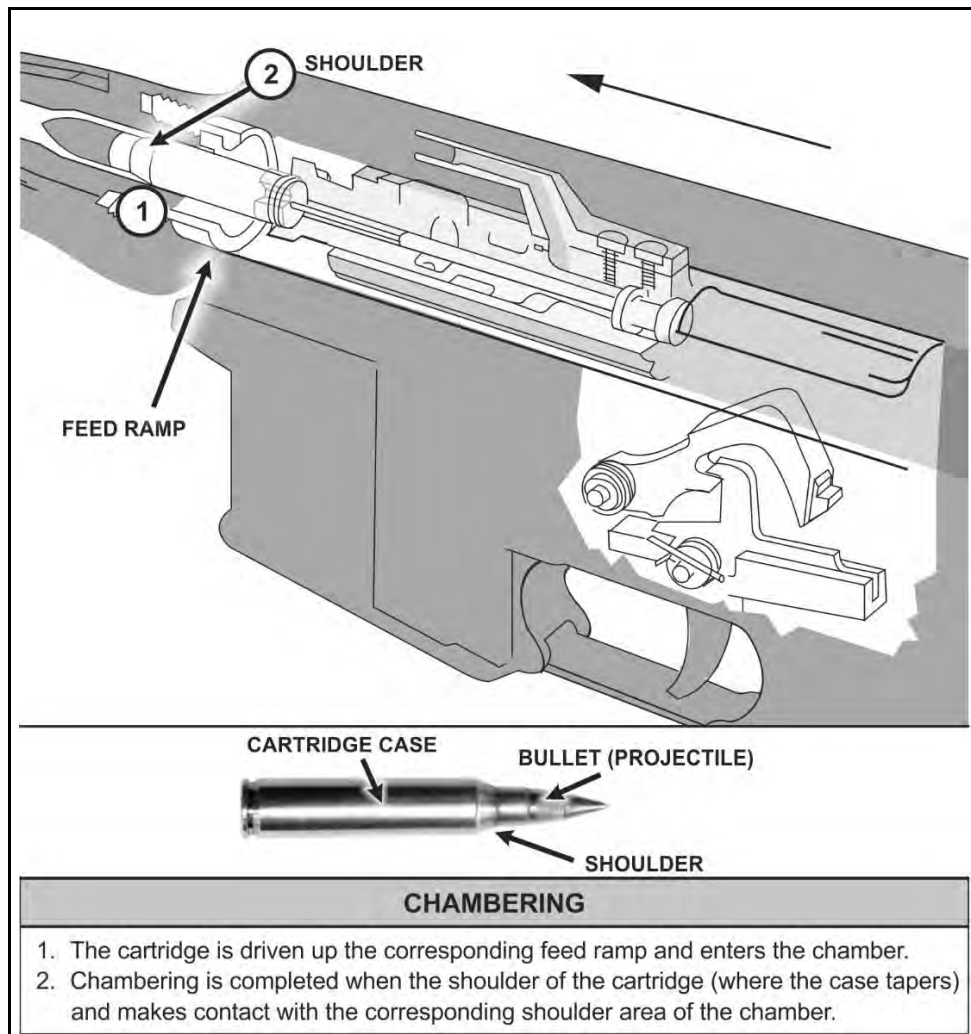


Figure 2-4. Chambering example

Rifle and Carbine Principles of Operation

LOCKING

2-13. Locking is the process of creating a mechanical grip between the bolt assembly and chamber with the appropriate amount of headspace (clearance) for safe firing (see figure 2-5). With the M4- and M16-series weapons, locking takes place simultaneously with the final actions of chambering.

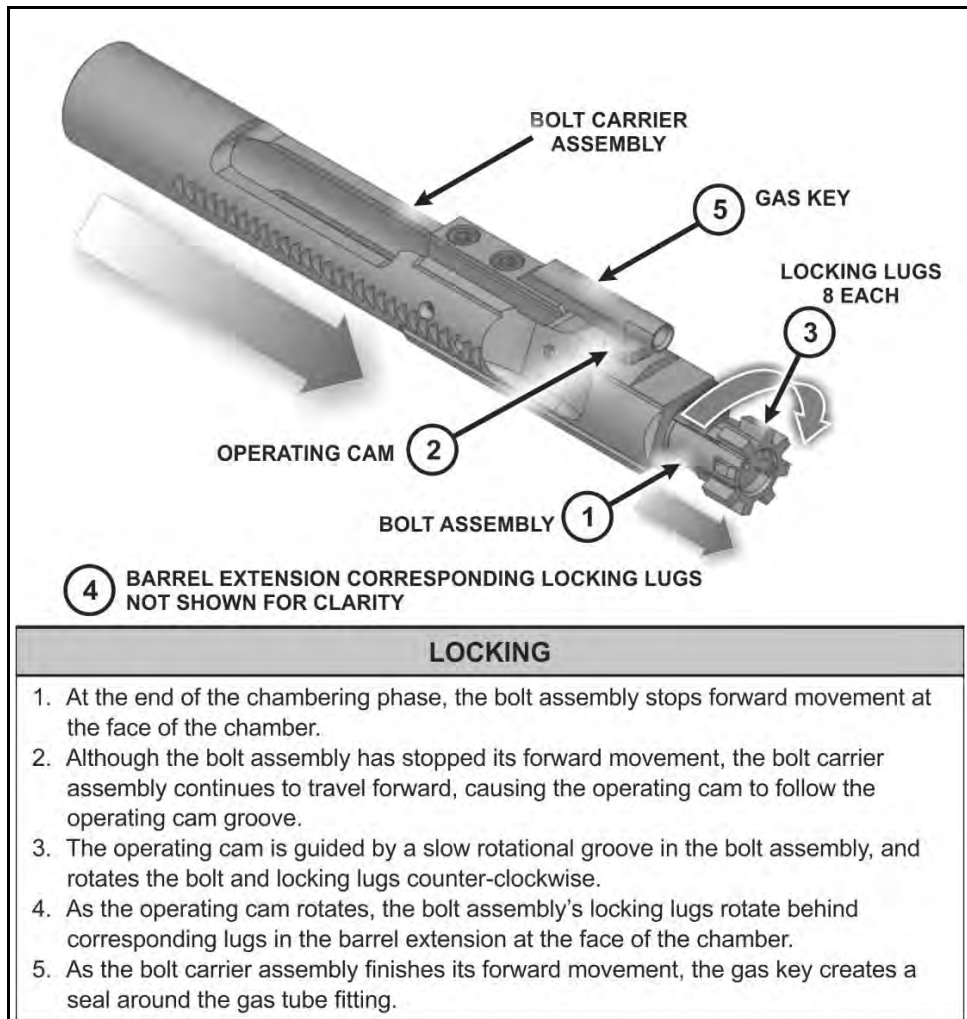


Figure 2-5. Locking example

Chapter 2

FIRING

2-14. Firing is the finite process of initiating the primer detonation of the cartridge and continues through shot-exit of the projectile from the muzzle (see figure 2-6).

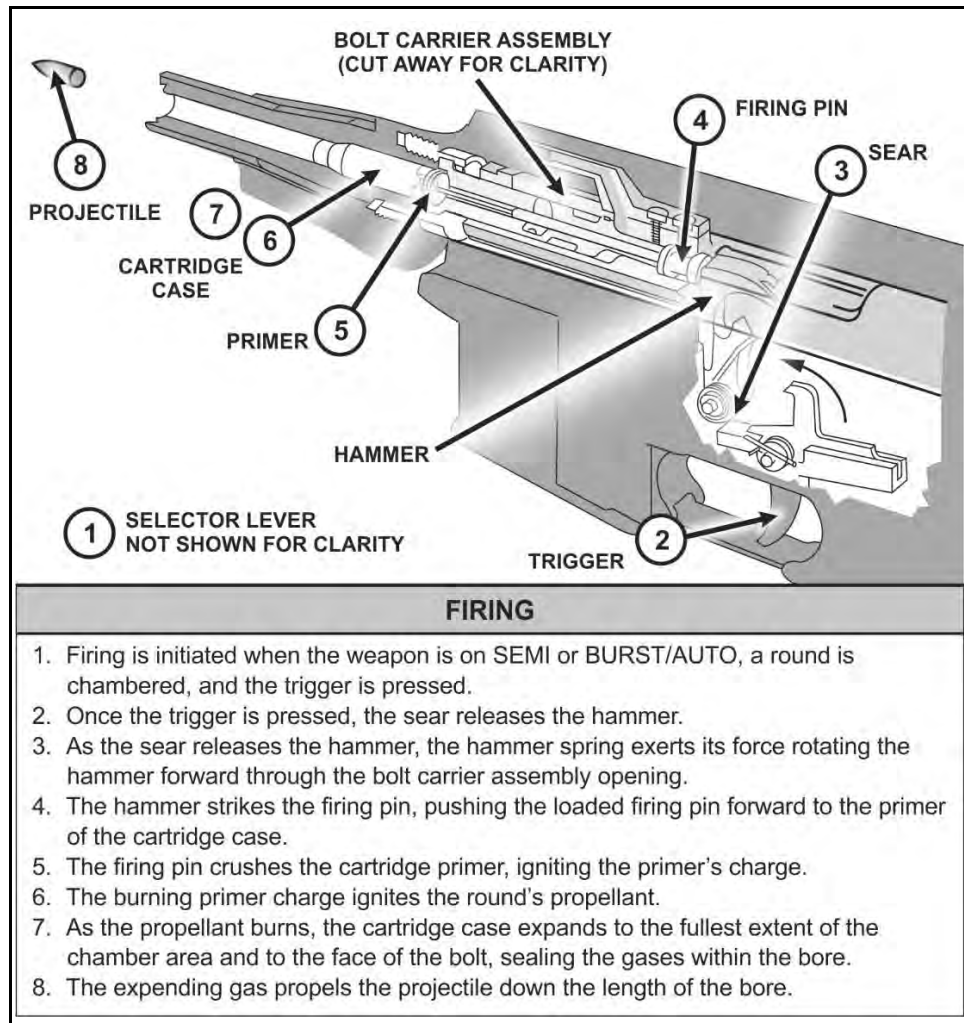


Figure 2-6. Firing example

Rifle and Carbine Principles of Operation

UNLOCKING

2-15. Unlocking is the process of releasing the locking lugs on the bolt face from the corresponding recesses on the barrel extension surrounding the chamber area (see figure 2-7).

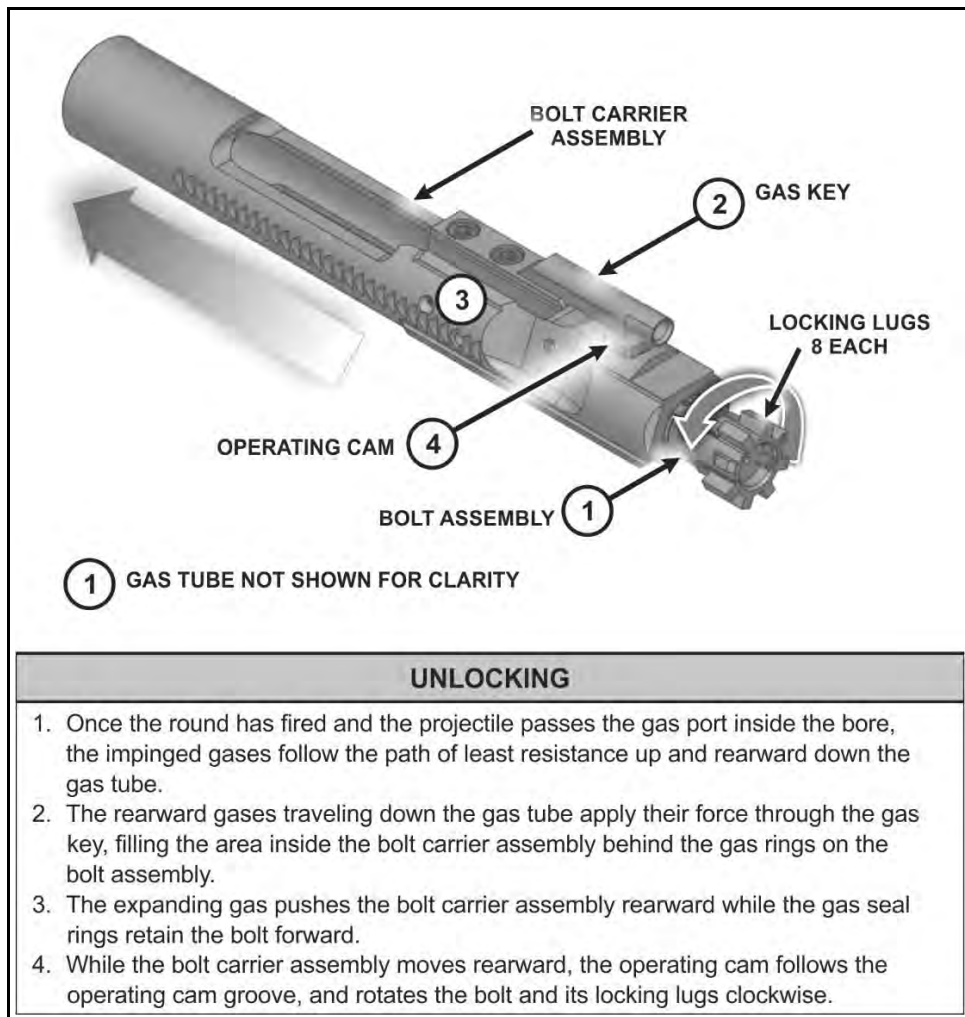


Figure 2-7. Unlocking example

Chapter 2

EXTRACTING

2-16. Extracting is the removal of the expended cartridge case from the chamber by means of the extractor (see figure 2-8).

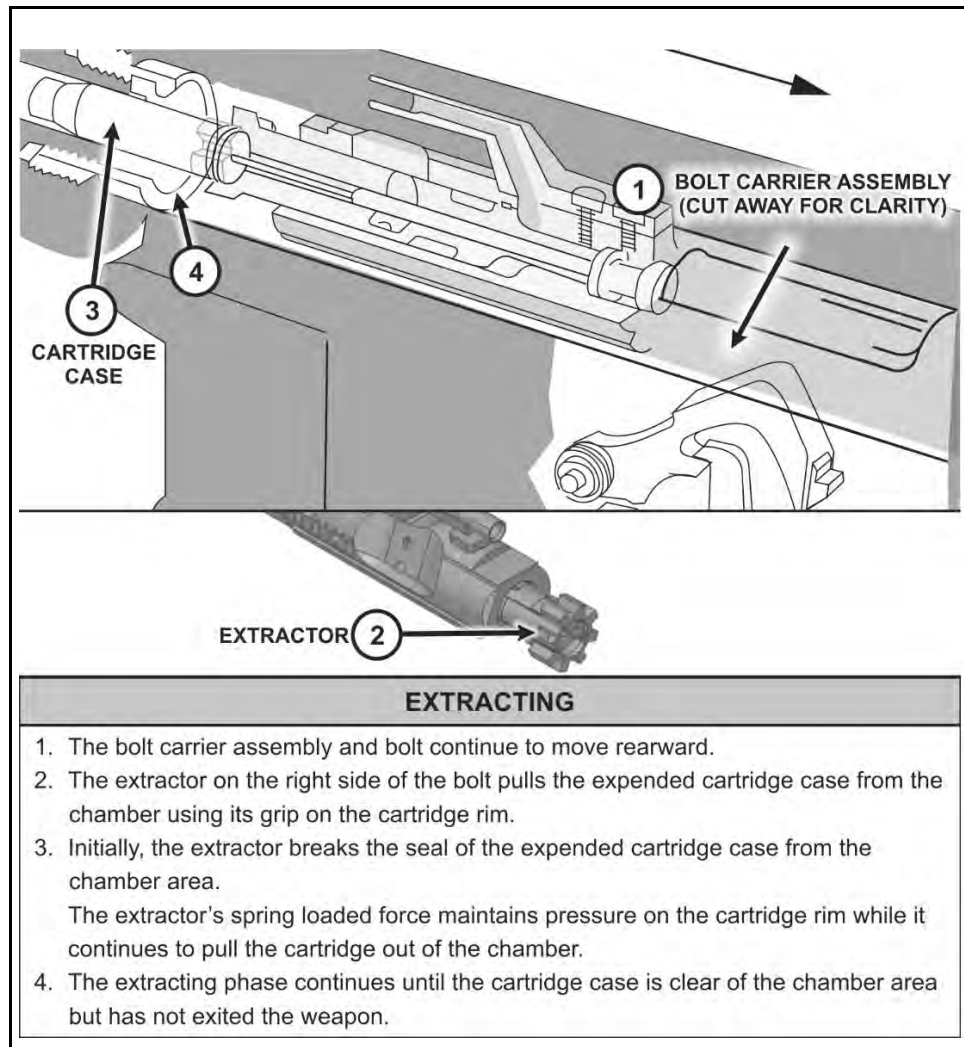


Figure 2-8. Extraction example

Rifle and Carbine Principles of Operation

EJECTING

2-17. Ejecting is the removal of the spent cartridge case from the weapon itself (see figure 2-9.)

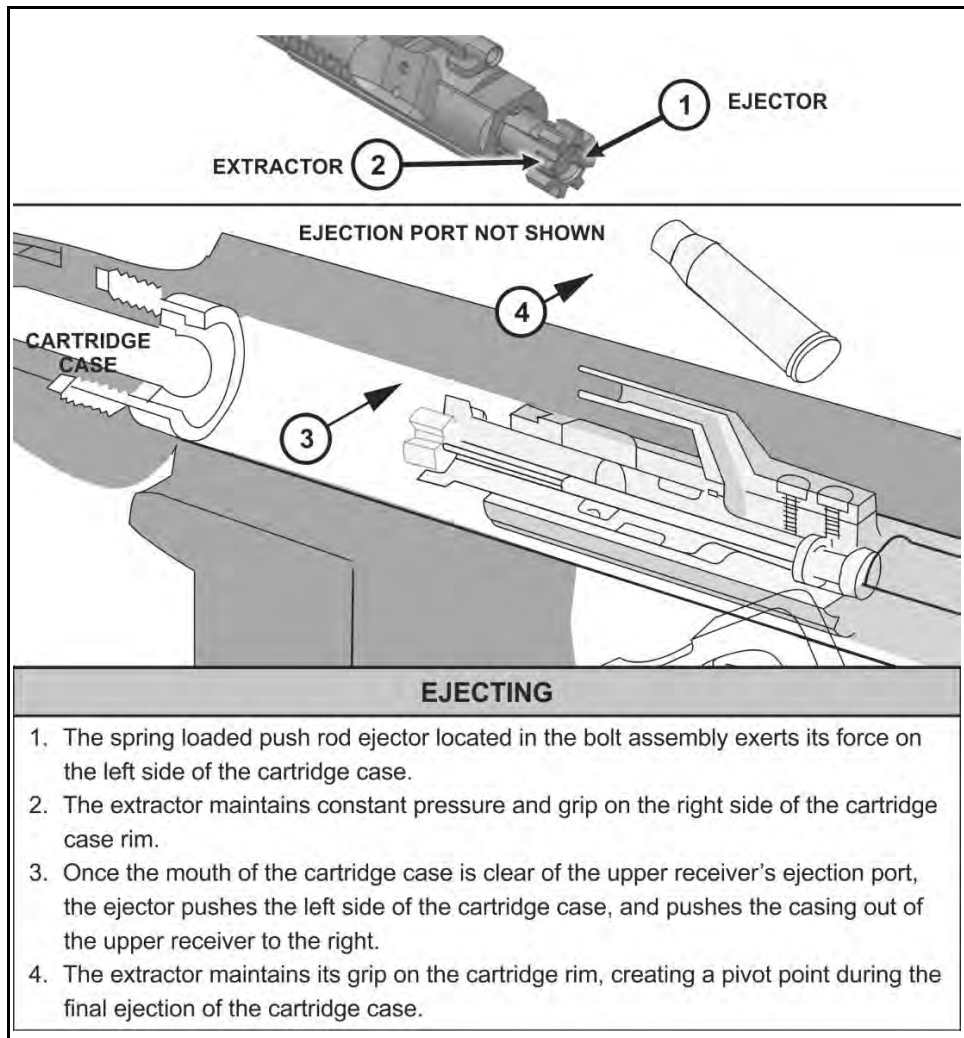


Figure 2-9. Ejection example

Chapter 2

COCKING

2-18. Cocking is the process of mechanically positioning the trigger assembly's parts for firing (see figure 2-10). The cocking phase completes the full cycle of functioning.

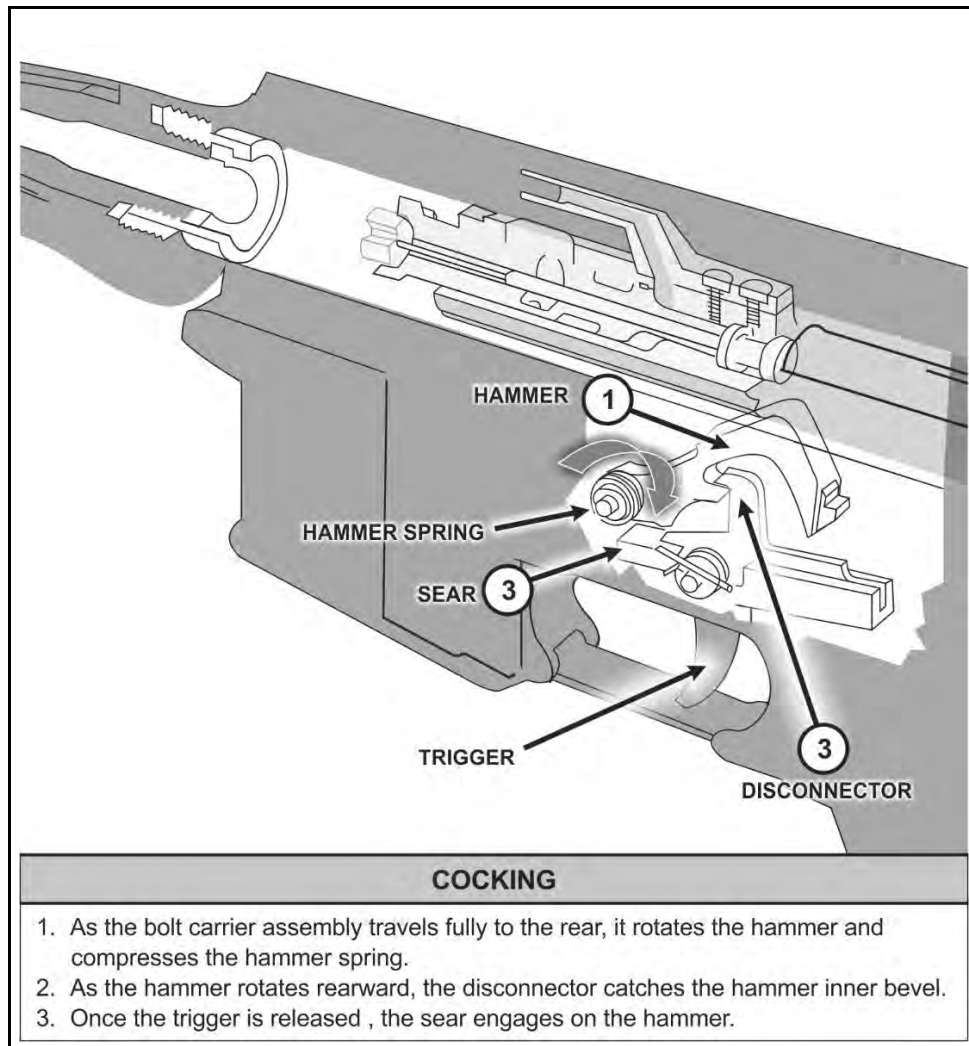


Figure 2-10. Cocking example

Rifle and Carbine Principles of Operation

COOLING

2-19. Cooling is the process of dissipating heat from the weapon during firing. Although not part of the cycle of functioning, cooling the weapon during firing is critical to ensure the weapon continues to operate efficiently. Firing a round generates heat and pressure within the chamber and bore, which radiates outward through the metal of the barrel.

2-20. The temperature generated by the burning of propellant powders is over one thousand degrees Fahrenheit. Some of the heat produced during firing is retained in the chamber, bore, and barrel during firing and poses a significant hazard to the firer.

2-21. How this heat is absorbed by the weapon and dissipated or removed, is a function of engineering and design. Lightweight weapons like the M4 and M16 do not have sufficient mass to withstand thermal stress efficiently. The weapon system must have a means to radiate the heat outward, away from the barrel to allow continuous firing.

2-22. There are three methods to reduce the thermal stress on a weapon. The M4- and M16-series of weapons use all three of these methods to varying degrees to cool the chamber, bore, and barrel to facilitate continuous operation. These methods of cooling are—

- **Radiational cooling** – allows for the dissipation of heat into the surrounding cooler air. This is the least efficient means of cooling, but is common to most small arms weapons, including the rifle and carbine.
- **Conduction cooling** – occurs when a heated object is in direct physical contact with a cooler object. Conduction cooling on a weapon usually results from high chamber operating temperatures being transferred into surrounding surfaces such as the barrel and receiver of the weapon. The transfer from the chamber to the cooler metals has the net effect of cooling the chamber. Thermal energy is then carried away by other means, such as radiant cooling, from these newly heated surfaces.
- **Convection cooling** – requires the presence of a moving air current. The moving air has greater potential to carry away heat. The hand guards and ARS of the rifle and carbine are designed to facilitate air movement. The heat shield reflects heat energy away from the hand guard and back towards the barrel. The net effect is an updraft that brings the cooler air in from the bottom. This process establishes a convection cycle as heated air is continually replaced by cooler air.

2-23. Soldiers should be aware of the principles of the weapon's cooling methods' direct effects on their line of sight when viewing a target through an aiming device. Dissipating heat along the length of the barrel can create a mirage effect within the line of sight which can cause a significant error to the true point of aim when using magnified optics.

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Chapter 3

Aiming Devices

Every weapon has a method of aiming, that is either fixed or attached to operate the weapon effectively. Soldiers must be familiar with the various aiming devices, how they operate, and how to employ them correctly to maximize their effectiveness. This chapter provides the principles of operation of the most widely available aiming devices, and provides general information concerning their capabilities, function and use.

3-1. An aiming device is used to align the Soldier, the weapon, and the target to make an accurate and precise shot. Each aiming device functions in a different manner. To employ the weapon system to its fullest capability, the Soldier must understand how their aiming devices function.

3-2. The following aiming devices are described within this chapter:

- **Iron.** Iron represent the various types of mechanical sighting systems available on the weapon. They are available in two distinct types:
 - Iron sights (rear aperture and front sight post).
 - Back up iron sights (BUIS).
- **Optics.** These are optics predominantly for day firing, with limited night capability. The optics found within this manual come in two types:
 - Close Combat Optic (CCO).
 - Rifle Combat Optic (RCO, previously referred to as the Advanced Combat Optic Gunsight or ACOG).
- **Thermal.** These are electronic sighting systems that provide a view of the field of view (FOV) based on temperature variations. There are numerous variants of thermal optics, but are grouped into one type:
 - Thermal Weapon Sight (TWS).
- **Pointer/Illuminator/Laser.** These aiming devices use either a laser beam, flood light, or other light to aim the weapon at the target. There are three types of pointers, illuminators, and lasers used by the service rifle:
 - Advanced Target Pointer Illuminator Aiming Light (ATPIAL).
 - Dual Beam Aiming Laser–Advanced (DBAL-A2).
 - Illuminator, Integrated, Small Arms (STORM).

Chapter 3**UNITS OF ANGULAR MEASUREMENT**

3-3. There are two major units of angular measurement the Army uses: mils and minutes of angle (MOA). These two different units are commonly used terms to describe a measurement of accuracy when firing a weapon, system, or munition. They typically include the accuracy of a specific weapon, the performance of ammunition, and the ability of a shooter as it relates to firing the weapon.

MINUTE OF ANGLE

3-4. A minute of angle (MOA) is an angular unit of measurement equal to $1/60^{\text{th}}$ of a degree (see figure 3-1). The most common use of MOA is when describing the distance of change required when zeroing a weapon.

3-5. One MOA equals 1.047 inches per 100 yards. For most applications, a Soldier can round this to 1 inch at 100 yards or 1.1 inches at 100 meters to simplify their arithmetic.

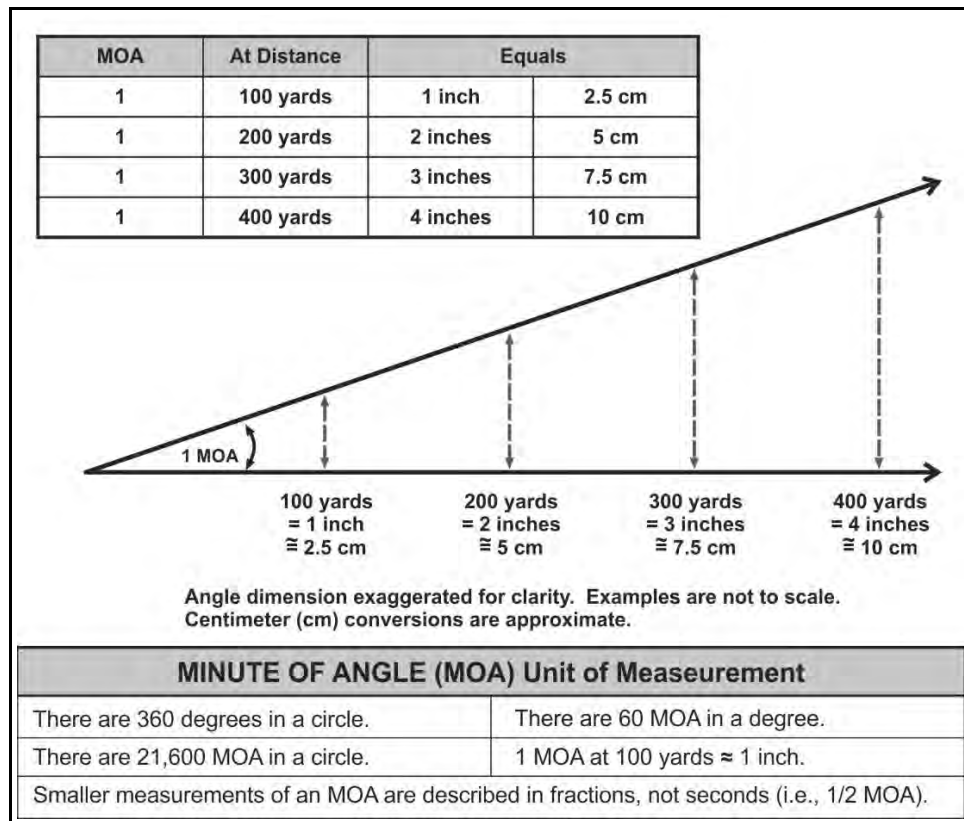


Figure 3-1. Minute of angle example

Aiming Devices**MILS**

3-6. The mil is a common unit of angular measurement that is used in direct fire and indirect fire applications. (see figure 3-2)

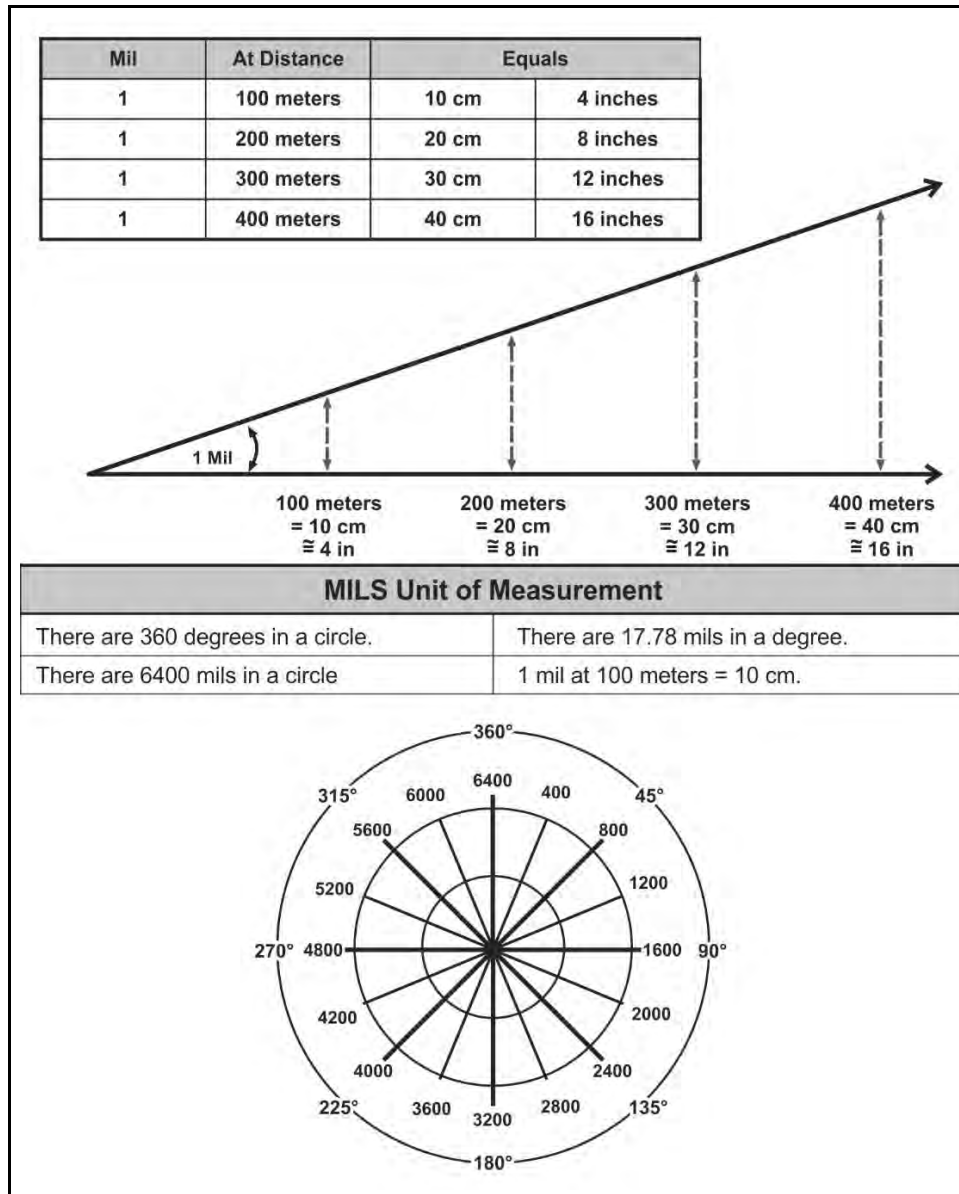


Figure 3-2. Mil example

Chapter 3

3-7. This mil to degree relationship is used when describing military reticles, ballistic relationships, aiming devices, and on a larger scale, map reading and for indirect fire.

RETICLE

3-8. A reticle is a series of fine lines in the eyepiece of an optic, such as a CCO, TWS, or RCO (see figure 3-3) used as a measuring scale with included aiming or alignment points. Reticles use either mils or minute of angle for their unit of measurement.

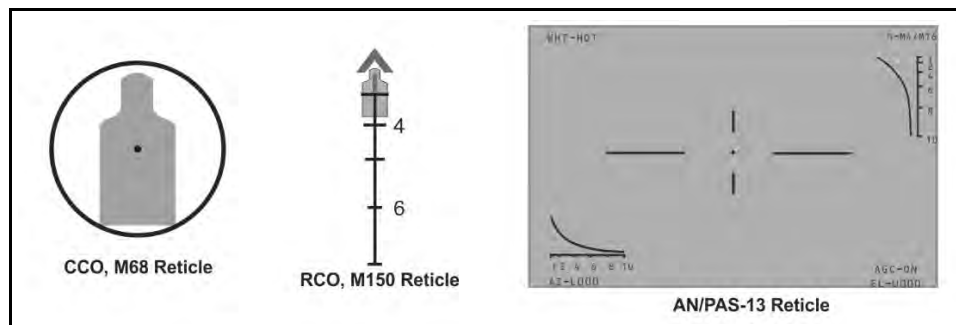


Figure 3-3. Close combat optic / Rifle combat optic reticle / Thermal reticle examples

Aiming Devices

STADIA RETICLE (STADIAMETRIC RETICLE)

3-9. Commonly used in the thermal weapon sight, a stadia reticle provides a means of rapidly determining the approximate range to target of a viewed threat, based on its standard dimensions. The stadia reticle (sometimes referred to as “stadia metric” or “choke sight”) can provide approximate range to target information using width or height of a viewed dismounted target using standard threat dimensions (see figure 3-4).

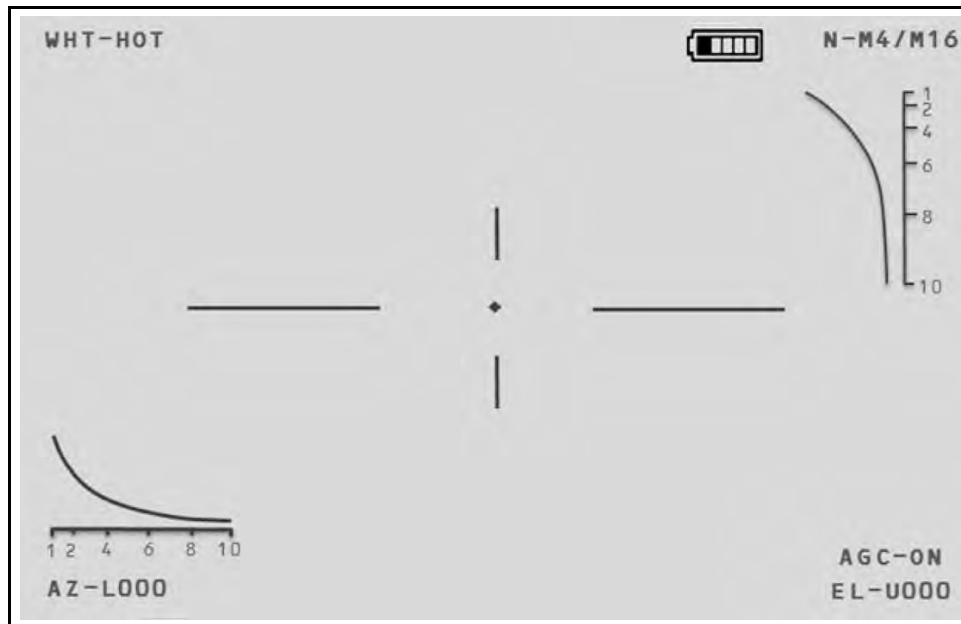


Figure 3-4. Stadia reticle example

3-10. There are two stadia reticles found on the rifle / carbine reticle within the thermal weapons sight; vertical and horizontal.

- **Vertical stadia.** At the lower left of the sight picture, Soldiers can evaluate the range to target of a standing dismounted threat.
- **Horizontal stadia.** In the upper right portion of the sight picture, Soldiers can evaluate the range to target of an exposed dismounted threat based on the width of the target.

Chapter 3

ELECTROMAGNETIC SPECTRUM

3-11. A major concern for the planning and use of thermal and other optics to aid in the detection process is understanding *how they function*, but more appropriately, what they can “see”. Each device develops a digital representation of the scene or view it is observing based on what frequencies or wavelengths it can detect within the electromagnetic spectrum. (Note: Thermal devices see differences in heat.)

- **Thermal optics.** This equipment operates in the mid- and far-wavelength of the infrared band, which is the farthest of the infrared wavelengths from visible light. Thermal optics cannot translate (“see”) visible light. Thermal optics cannot “see” infrared equipment such as infrared (IR) strobe lights, IR chemical lights, illuminators, or laser pointers. They can only identify emitted radiation in the form of heat (see figure 3-5 on page 3-7).
- **Image intensifiers (I2).** This equipment, such as night vision devices, use the near area of the infrared spectrum closest to the frequencies of visible light, as well as visible light to create a digital picture of the scene. These systems cannot “see” or detect heat or heat sources.

3-12. These sights generally operate on the principles of convection, conduction, and radiation (mentioned in chapter 2 of this publication). The sight “picks up” or translates the IR wavelength (or light) that is emitted from a target scene through one of those three methods.

3-13. Things to be aware of (planning considerations) with these optics are that they have difficulty imaging through the following:

- **Rain** – absorbs the IR emitted by the target, makes it difficult to see.
- **Water** – acts as a mirror and generally reflects IR, providing a false thermal scene.
- **Glass** – acts similar to water, interfering with the sensor’s ability to accurately detect emitted radiation behind the glass.

3-14. Situations where IR can see better are the following:

- **Smoke** – will not obscure a target unless the chemical obscurant is extremely hot and dense, or if the target is sitting on top of the smoke source.
- **Dust** – may interfere with the accurate detection of the emitted thermal signature due to dust and debris density between the sensor and the target scene. Dust typically does not obscure the IR signature unless its temperature is similar to the target's.

3-15. Figure 3-5 depicts the areas of the electromagnetic spectrum. It details the various wavelengths within the spectrum where the aiming devices, night vision devices, and equipment operate. It illustrates where these items can and cannot “see” the others, respectively, within their operating range.

Aiming Devices

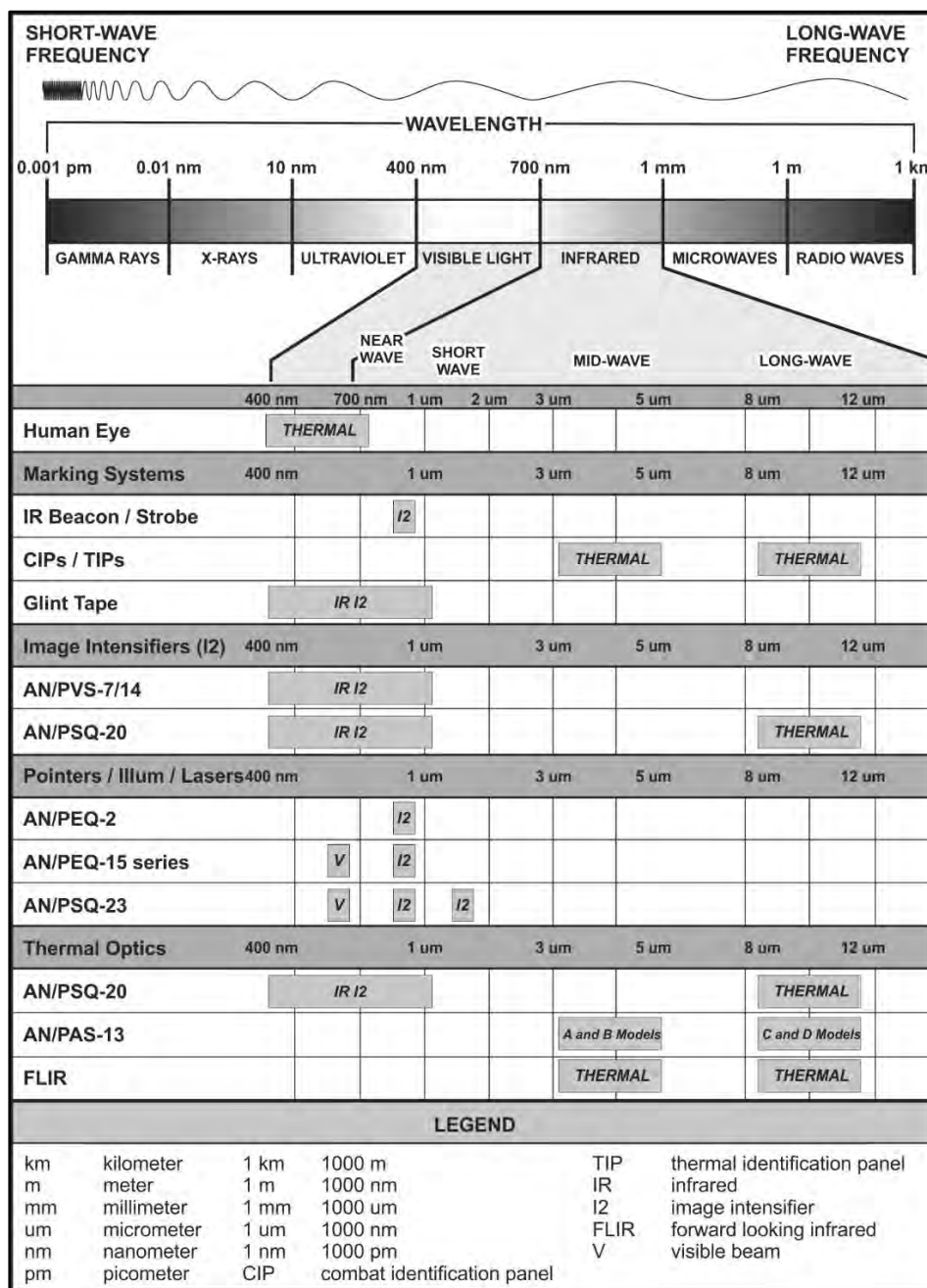


Figure 3-5. Electromagnetic spectrum

Chapter 3

OPTICS

3-16. Optics are sighting aids for rifles and carbines that provide enhanced aim point reticles, and may include magnified fields of view. Optics are specific to day operations, although may be used during limited visibility or night operations. They do not have any method of enhancing low light conditions.

3-17. Optics enhance the Soldier's ability to engage targets accurately and at extended ranges (see figure 3-6 on page 3-9). The available optics for mounting on the M4- and M16-series modular weapon system are:

- Iron Sight.
- Back Up Iron Sight (BUIS).
- CCO, M68.
- RCO, M150.

IRON SIGHT

3-18. Some versions of the M4 and M16 come with a carrying handle with an integrated rear aperture. The carrying handle may or may not be removable, depending on the version of the service rifle.

3-19. The integrated rear aperture includes adjustments for both azimuth (wind) and elevation. Specific instructions for zeroing these aiming devices are found in the respective weapon's technical manual.

3-20. The carrying handle has two selectable apertures for the engagement situation:

- Small aperture. Used for zeroing procedures and for mid- and extended-range engagements.
- Large aperture. Used during limited visibility, close quarters, and for moving targets at close or mid-range.

3-21. The iron sight uses the fixed front sight post to create the proper aim. Soldiers use the front sight post centered in the rear aperture. The following information is extracted from the weapon's technical manual.

Aiming Devices


		CARRYING HANDLE			
		DIMENSIONS			
		LENGTH	7.3 in	18.5 cm	
		WIDTH	3.5 in	9.0 cm	
		HEIGHT	1.9 in	4.8 cm	
		WEIGHT	20.8 oz	590 g	
FUNCTION	RIFLE	ADJUSTMENTS			
ZERO WINDAGE	M16A2	Center rear sight aperture for mechanical zero windage			
	M16A4				
	M4				
	M4A1				
ZERO ELEVATION	M16A2	300 meter mark +1 click up for 25 m zeroing			
	M16A4	Once zeroing is complete, rotate elevation knob -1 click down to apply 300 m zero			
	M4				
	M4A1				
WINDAGE	M16A2	1/2 MOA			
	M16A4	1/2 MOA			
	M4	1 MOA			
	M4A1	1 MOA			
ELEVATION (RANGE) FRONT SIGHT POST	M16A2	1 1/2 MOA			
	M16A4	1 1/2 MOA			
	M4	1 7/8 MOA			
	M4A1	1 7/8 MOA			
LEGEND					
BDC	bullet drop compensator	g	grams	MOA	minute of angle
cm	centimeters	in	inches	oz	ounces

Figure 3-6. Carrying handle with iron sight example

13 May 2016

TC 3-22.9

3-9

Chapter 3**BACK UP IRON SIGHT**

3-22. The BUIS is a semi-permanent flip-up sight equipped with a rail-grabbing base. The BUIS provides a backup capability effective out to 600 meters and can be installed on M16A4 rifles and M4-series carbines. (See figure 3-7.)

3-23. The BUIS on the first notch of the integrated rail, nearest to the charging handle. The BUIS remains on the modular weapon system (MWS) unless the carrying handle/sight is installed. The following information is extracted from the weapon's technical manual.

		BACK UP IRON SIGHT (BUIS)			
		DIMENSIONS			
		LENGTH	2.1 in	5.3 cm	
		WIDTH	1.3 in	3.3 cm	
		HEIGHT	1.5 in	3.8 cm	
		WEIGHT	4.3 oz	122 g	
FUNCTION	SINGLE CLICK				
ZERO WINDAGE	M16A4	White Line			
	M4	White Line			
	M4A1	White Line			
ZERO ELEVATION	M16A4	White Line			
	M4	300 meter setting			
	M4A1	300 meter setting			
WINDAGE	M16A4	1/2 MOA			
	M4	3/4 MOA			
	M4A1	3/4 MOA			
ELEVATION (RANGE) FRONT SIGHT POST	M16A4	1 1/2 MOA			
	M4	2 MOA			
	M4A1	2 MOA			
LEGEND					
cm	centimeters	in	inches	oz	ounces
g	grams	MOA	minute of angle		

Figure 3-7. Back up iron sight

Aiming Devices

CLOSE COMBAT OPTIC, M68

3-24. The close combat optic (CCO), M68 is a non-telescopic (unmagnified) reflex sight that is designed for the “eyes-open” method of sighting (see figure 3-8). It provides Soldiers the ability to fire with one or two eyes open, as needed for the engagement sequence in the shot process.

3-25. The CCO provides a red-dot aiming point using a 2 or 4 MOA diameter reticle, depending on the variant. The red dot aiming point follows the horizontal and vertical movement of the firer’s eye, allowing the firer to remain fixed on the target. No centering or focusing on the front sight post is required. There are three versions of the CCO available in the force.

Note. Re-tighten the torque-limiting knob after firing the first three to five rounds to fully seat the M68.

3-26. The CCO is zeroed to the weapon. It must remain matched with the same weapon, attached at the same slot in the attached rail system or be re-zeroed. If the CCO must be removed for storage, Soldiers must record the serial number and the rail slot to retain zero.

Note. The weapon must be re-zeroed if the CCO is not returned to the same rail slot on the adaptive rail system.

Advantages

3-27. The CCO offers a distinct speed advantage over iron sights in most if not all engagements. The adjustments on brightness allow the Soldier to have the desired brightness from full daylight to blackout conditions.

3-28. The CCO is the preferred optic for close quarter’s engagements.

Disadvantages

3-29. The CCO lacks a bullet drop compensator or other means to determine accurate range to target beyond 200m.

3-30. The following information is an extract from the equipment’s technical manual for Soldier reference.

Chapter 3

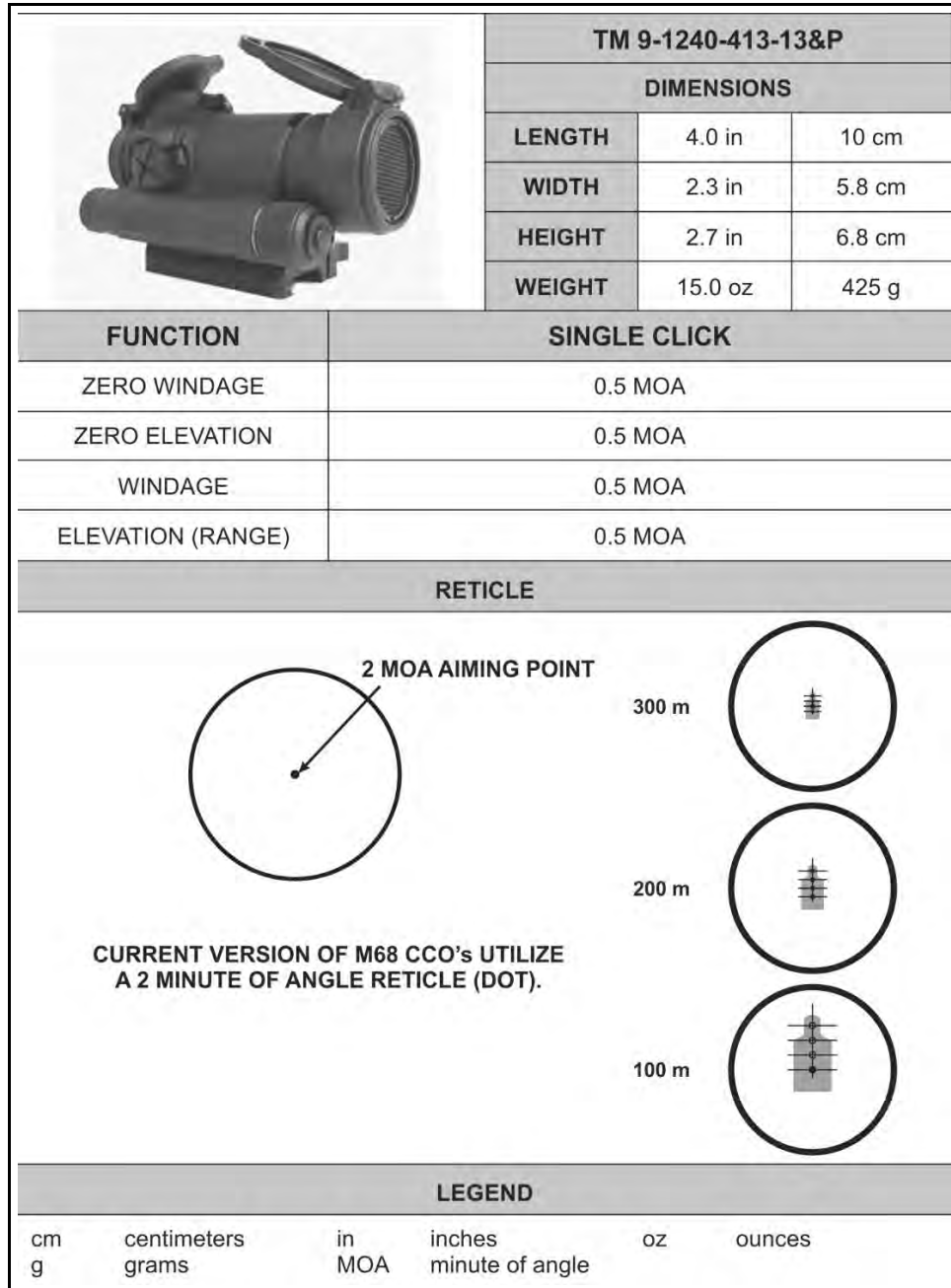


Figure 3-8. CCO Reticle, Comp M2 examples

Aiming Devices

RIFLE COMBAT OPTIC

3-31. The RCO (see figure 3-9) is designed to provide enhanced target identification and hit probability for the M4-/M4A1- or M16-series weapon.

3-32. There are several versions of the RCO available for use across the force. Soldiers must be familiar with their specific version of their assigned RCO, and be knowledgeable on the specific procedures for alignment and operation (see figure 3-9 for RCO azimuth and elevation adjustments).

3-33. The reticle pattern provides quick target acquisition at close combat ranges to 800 meters using the bullet drop compensator (BDC) (see figure 3-10 on page 3-15). It is designed with dual illuminated technology, using fiber optics for daytime employment and tritium for nighttime and low-light use.

3-34. The RCO is a lightweight, rugged, fast, and accurate 4x power optic scope specifically designed to allow the Soldier to keep both eyes open while engaging targets and maintain maximum situational awareness.

Advantages

3-35. The bullet drop compensator (BDC) is accurate for extended range engagements using either M855 or M855A1 ball ammunition. The ballistic difference between the two rounds is negligible under 400 meters and requires no hold determinations.

3-36. This is a widely fielded optic that is rugged, durable, and operates in limited light conditions. The self-illuminating reticle allows for continuous operations through end evening nautical twilight (EENT).

Disadvantages

3-37. This optic's ocular view is limited when engaging targets in close quarters engagements. This requires additional training to master the close quarter's skills while employing the RCO to achieve overmatch against the threat.

3-38. The RCO reticle does not include stadia lines. Windage must be applied by the shooter from a determined estimate. The RCO has a specific eye relief of 70-mm (millimeter) or 1.5 inches. If the eye relief is not correct, the image size will be reduced.

3-39. The fiber optic illuminator element can provide excessive light to the reticle during certain conditions that produce a glare. The RCO does not have a mechanical or built in method to reduce the effects of the glare created. The increased lighting may interfere with the shooter's point of aim and hold determinations. Soldiers may use alternate methods to reduce the glare by reducing the amount of fiber optic exposed to direct sunlight during operating conditions.

3-40. The following information is an extract from the equipment's technical manual for Soldier reference.

Chapter 3

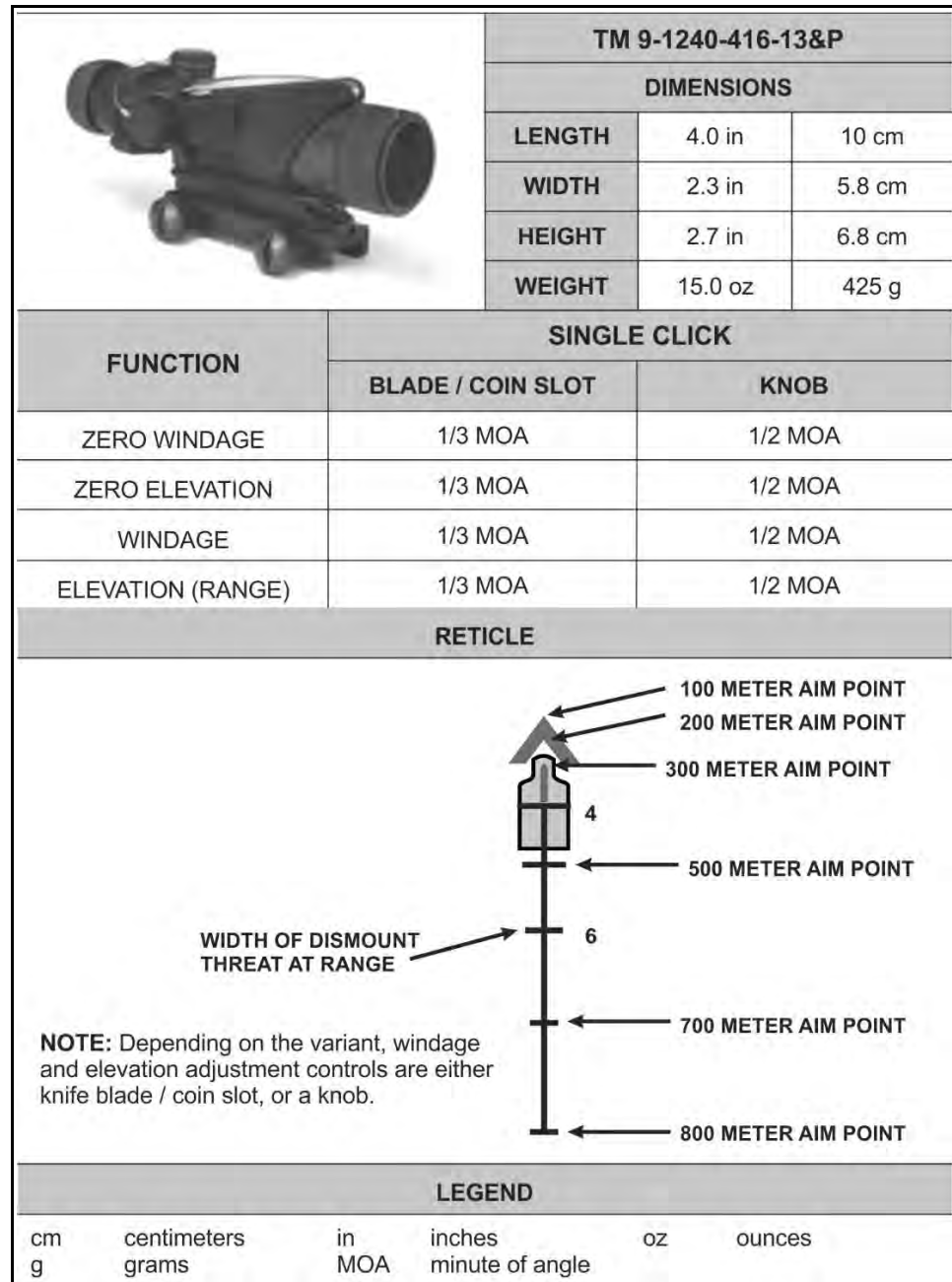


Figure 3-9. RCO reticle example

Aiming Devices

THERMAL SIGHTS

3-41. Thermal sights are target acquisition and aiming sensors that digitally replicate the field of view based on an estimation of the temperature. They use advanced forward-looking infrared technology that identify the infrared emitted radiation (heat) of a field of view, and translate those temperatures into a gray- or color-scaled image. The TWS is capable of target acquisition under conditions of limited visibility, such as darkness, smoke, fog, dust, and haze, and operates effectively during the day and night.

3-42. The TWS is composed of five functional groups: (See figure 3-10.)

- **Objective lens** – receives IR light emitting from an object and its surroundings. The objective lens magnifies and projects the IR light.
- **Detector assembly** – senses the IR light and converts it to a video signal.
- **Sensor assembly** – the sensor electronics processes the video for display on the liquid crystal display (LCD) array in the field of view.
- **LCD array/eyepiece** – the LCD array provides the IR image along with the reticle selected. The light from the LCD array is at the eyepiece.
- **User controls** – the control electronics allows the user to interface with the device to adjust contrast, thermal gain, sensitivity, reticle display, and magnification.

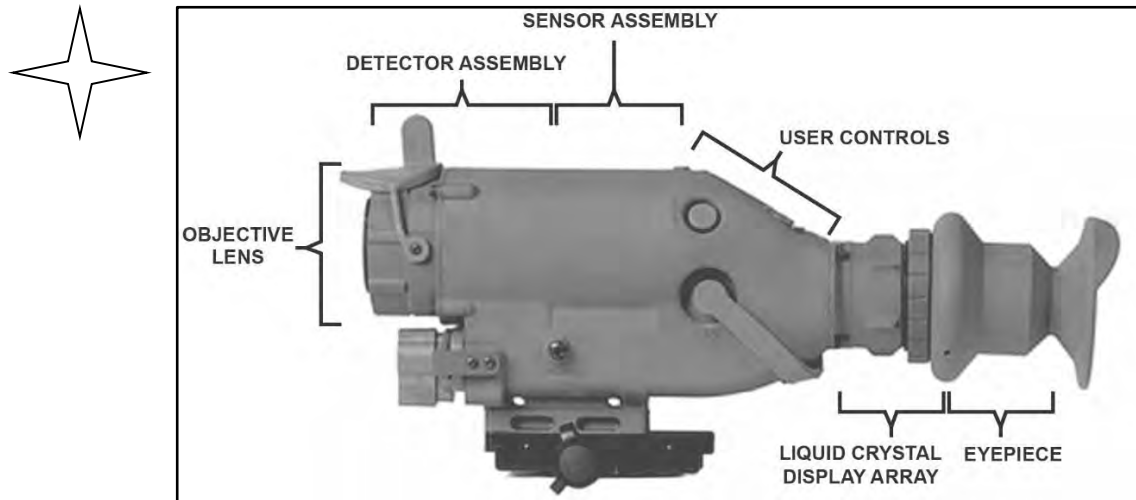


Figure 3-10. Thermal weapon sight example

3-43. A small detector used in thermal sensors or optics to identify IR radiation with wavelengths between 3 and 30 μm (micrometer). The thermal optic calculates and processes the thermal scene into a correlating video image signal based on the temperature identified. These optics can differentiate thermal variations of 1 degree Celsius of the viewable scene. These variations generate a corresponding contrasting gradient that develops a thermal representation on the LCD screen in the eyepiece.

Chapter 3

AN/PAS-13 SERIES OF WEAPON THERMAL SIGHTS

3-44. There are several versions of weapons thermal sights (WTS) available for use across the force. Soldiers must be familiar with their specific model and version of their assigned weapon thermal sight, and be knowledgeable on the specific procedures for alignment and operation. The various models and versions are identified in their official model nomenclature:

- **Version 1 (v1)** – Light Weapons Thermal Sight (LWTS).
- **Version 2 (v2)** – Medium Weapons Thermal Sight (MWTS).
- **Version 3 (v3)** – Heavy Weapons Thermal Sight (HWTS).

3-45. Weapons thermal sights are silent, lightweight, and compact, and have durable battery-powered IR imaging sensors that operate with low battery consumption. (See figure 3-11.)

Advantages

3-46. Military grade weapon thermal weapon sights are designed with the following advantages:

- Small and lightweight.
- Real-time imagery. Devices provide real-time video of the thermal scene immediately after power on.
- Long-lasting battery life. Low power consumption over time.
- Reliable. Long mean time between failures (MTBF).
- Quiet. The lack of a cooling element allows for a very low operating noise level.
- One optic fits on multiple weapons. The use of the ARS rail mounting bracket allows for the same optic to be used on other weapons.
- The F- and G-models attach in front of other aiming devices to improve their capabilities and eliminate the zeroing procedures for the device.

Disadvantages

3-47. These devices have limitations that Soldiers should take into consideration, particularly during combat operations. The primary disadvantages are:

- Cannot interpret (“see”) multispectral infrared. These systems view a specific wavelength for emitted radiation (heat variations), and do not allow viewing of all aiming and marking devices at night.
- Reliance on rechargeable batteries and charging stations. Although the batteries are common and have a relatively long battery life, additional equipment is required to charge them. If common nonrechargeable (alkaline) batteries are used, a separate battery adapter is typically required.
- Cannot interpret thermal signatures behind glass or water effectively.
- Thermal systems cannot always detect friendly marking systems worn by dismounts.

Aiming Devices

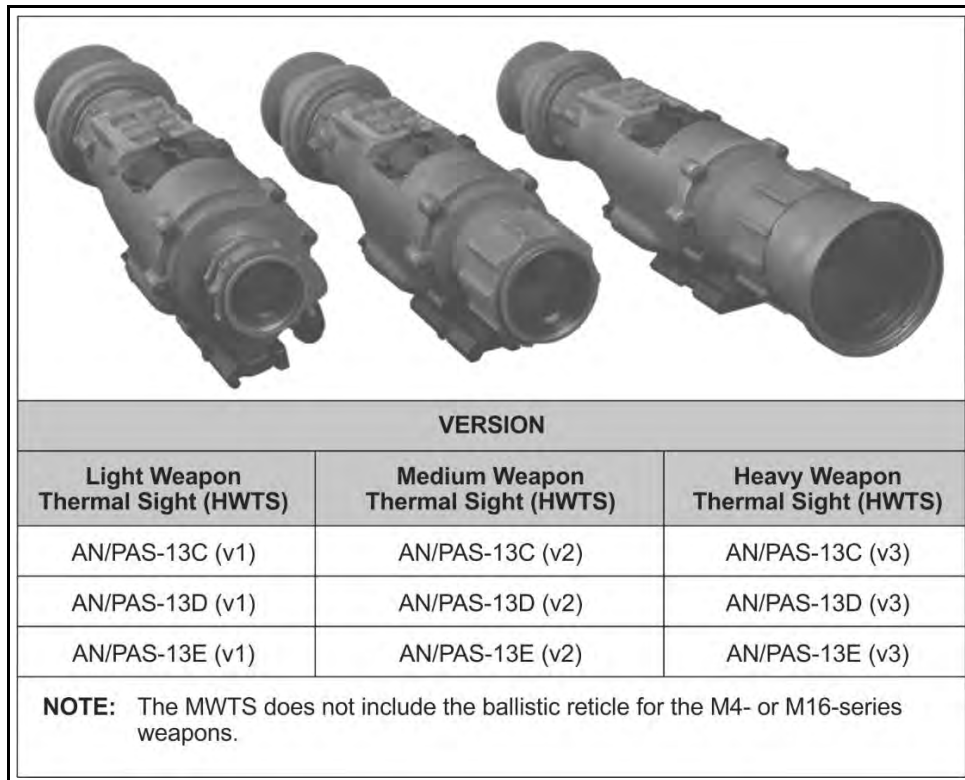


Figure 3-11. Weapon thermal sights by version

3-48. Thermal sight has a wide field of view and a narrow field of view (see figures 3-12 and 3-13).

Chapter 3

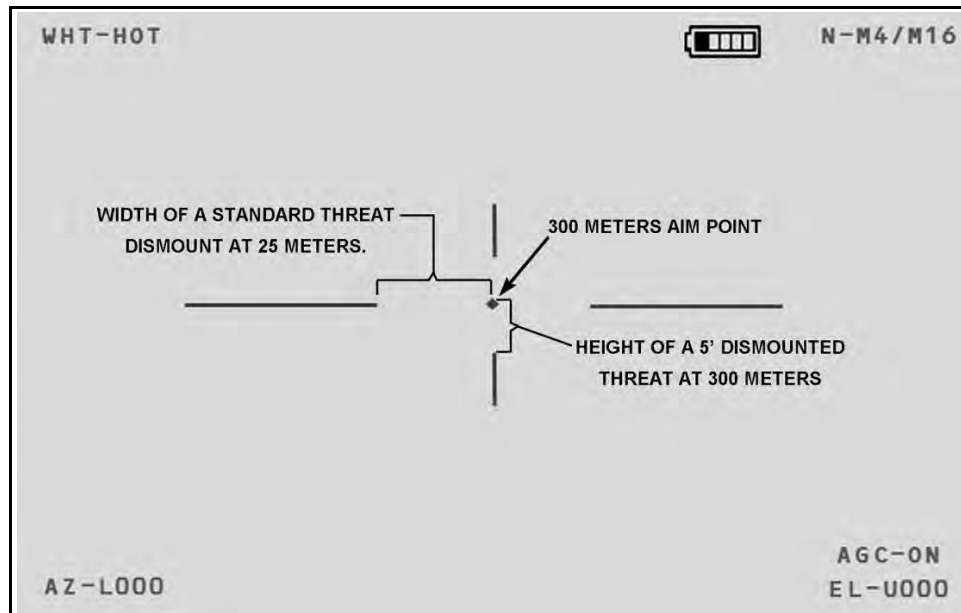


Figure 3-12. Thermal weapons sight, narrow field of view reticle example

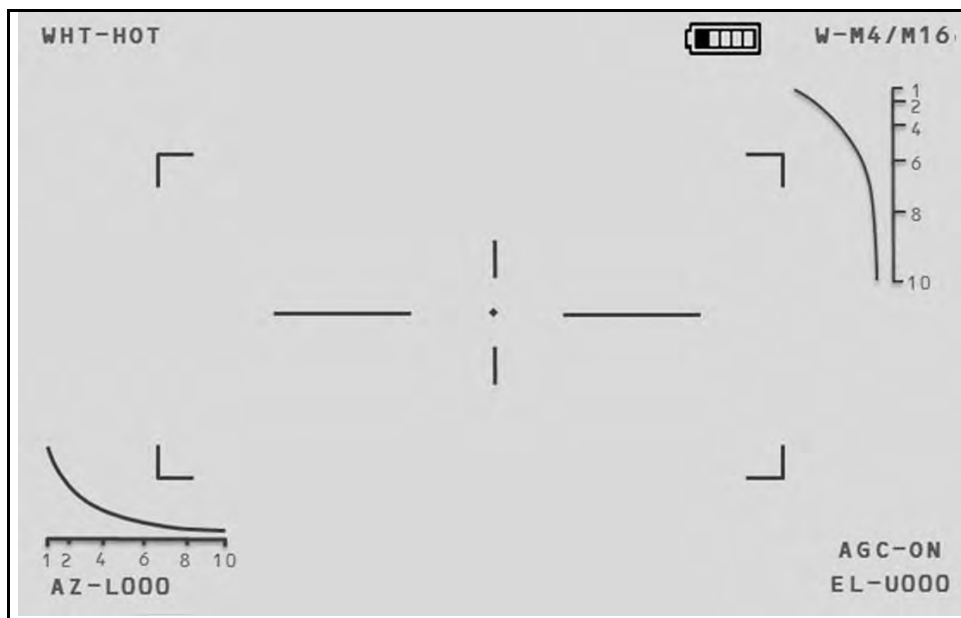


Figure 3-13. Thermal weapons sight, wide field of view reticle example

Aiming Devices

POINTERS / ILLUMINATORS / LASERS

3-49. Pointers, illuminators, and laser devices for small arms weapons emit a collimated beam of IR light for precise aiming and a separate IR beam for illumination. These devices operate in one single mode at a time, as selected by the user. The laser is activated by a selector switch on the device or by a remote mechanism installed on the weapon. The basic two modes or functions are:

- **Pointer.** When used as a pointer or aiming device, a small, pin-point beam is emitted from the device. The IR beam provides an infrared visible point when it strikes an object or target. The IR beam operates in the 400 to 800 nanometer wavelength and can only be seen by I2 optics, such as the AN-PVS-7 or -14 night vision devices.
- **Illuminator.** Typically used to illuminate a close quarters area as an infrared flood light. The illuminator provides a flood-light effect for the Soldier when used in conjunction with I2 night vision devices.

Note. Laser is an acronym for light amplified stimulated emitted radiation, but is predominantly used as a proper noun.

3-50. The following devices (see table 3-1) are the most common laser pointing devices available for use on the M4- and M16-weapons.

Table 3-1. Laser Aiming Devices for the M4 and M16

Laser Aiming Device	Device Name	Reference
AN/PEQ-2	Target Pointer/Illuminator/Aiming Light (TPIAL)	TM 9-5855-1915-13&P
AN/PEQ-15	Advanced Target Pointer/Illuminator/Aiming Light (ATPIAL)	TM 9-5855-1914-13&P
AN/PEQ-15A	Dual Beam Aiming Laser – Advanced2 (DBAL-A2)	TM 9-5855-1912-13&P
AN/PSQ-23	Illuminator, Integrated, Small Arms (STORM)	TM 9-5855-1913-13&P

Note. The ATPIAL, DBAL-A2, and STORM have collocated IR and visible aiming lasers. A single set of adjusters move both aiming beams. Although the aiming lasers are collocated, Soldiers should zero the laser they intend to use as their primary pointer to ensure accuracy and consistency during operation.

Chapter 3

AN/PEQ-2 TARGET POINTER/ILLUMINATOR AIMING LIGHT (TPIAL)

3-51. AN/PEQ-2 aiming devices are Class IIIb laser devices that emit a collimated beam of IR light for precise aiming and a separate IR beam for illumination of the target or target area (see figure 3-14 on page 3-21). Both beams can be independently zeroed to the weapon and to each other. The beams can be operated individually or in combination in both high and low power settings.

Note. The IR illuminator is equipped with an adjustable bezel to vary the size of the illumination beam based on the size and distance of the target.

3-52. The aiming devices are used with night observation devices (NODs) and can be used as handheld illuminators/pointers or mounted on the weapon with the included brackets and accessory mounts. In the weapon-mounted mode, the aiming devices can be used to direct fire and to illuminate and designate targets.

3-53. The aiming light is activated by pressing on either the ON/OFF switch lever, or the button on the optional cable switch. Either switch connects power from two AA batteries to an internal electronic circuit which produces the infrared laser. Internal lenses focus the infrared light into a narrow beam. The direction of the beam is controlled by rotating the mechanical Adjusters with click detents. These adjusters are used to zero the aiming light to the weapon.

3-54. Once zeroed to the weapon, the aiming light projects the beam along the line of fire of the weapon. The optical baffle prevents off-axis viewing of the aiming light beam by the enemy.

CAUTION

A safety block is provided for training purposes to limit the operator from selecting high power modes of operation.

3-55. The following information is an extract from the equipment's technical manual for Soldier reference.

Aiming Devices

	TM 9-5855-1915-13&P				
	DIMENSIONS				
	LENGTH	6.4 in	16.3 cm		
	WIDTH	2.8 in	7.1 cm		
	HEIGHT	1.2 in	3 cm		
	WEIGHT	9.5 oz	269 g		
POWER					
BATTERY LIFE		100 hours >32°			
		36 hours <32°			
POWER SOURCE		2 each AA batteries			
MODE OF OPERATION					
MODE	MARKINGS	TGT LASER	ILLUM LASER		
0	OFF	OFF	OFF		
1	AIM LO	LOW POWER	OFF		
2	DUAL LO	LOW POWER	LOW POWER		
3	AIM HI	HIGH POWER	OFF		
4	DUAL LO/HI	HIGH POWER	LOW POWER		
5	DUAL HI	HIGH POWER	HIGH POWER		
LASER		DIVERGENCE	WAVELENGTH		
IR BEAM		0.3 mRad	820-850 nm		
IR ILLUMINATOR		3.0 mRad	820-850 nm		
LEGEND					
cm	centimeters	IR	infrared	oz	ounces
g	grams	mRad	milliradians		
in	inches	nm	nanometers		

Figure 3-14. AN/PEQ-2

13 May 2016

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3-21

Chapter 3

AN/PEQ-15 ADVANCED TARGET POINTER/ILLUMINATOR/AIMING LIGHT

3-56. The AN/PEQ-15 ATPIAL is a multifunctional laser that emits both a visible and IR light for precise weapon aiming and target/area illumination. This ruggedized system can be used as a handheld illuminator/pointer or can be mounted to weapons equipped with an M4- or M5-ARS (Military Standard [MIL STD] 1913).

- **Visible light** – can be used to boresight the device to a weapon without the need of night vision goggles. A visible red-dot aiming laser can also be selected to provide precise aiming of a weapon during daylight or night operations.
- **Infrared laser** – emit a highly collimated beam of IR light for precise weapon aiming. A separate IR-illuminating laser can be adjusted from a flood light mode to a single point spot-divergence mode.

3-57. The lasers can be used as handheld illuminator pointers, or can be weapon-mounted with included hardware. The co-aligned visible and IR aiming lasers emit through laser ports in the front of the housing. These highly capable aiming lasers allow for accurate nighttime aiming and system boresighting.

3-58. The AN/PEQ-15 has an integrated rail grabber molded into the body to reduce weight and additional mounting hardware. (Refer to TM 9-5855-1914-13&P for more information.)

CAUTION

The AN/PEQ-15 can be used during force-on-force training in the low power modes only. High power modes can be used on live-fire ranges exceeding 220 meters only.

3-59. The AN/PEQ-15, ATPIAL's (see figure 3-15 on page 3-23) visible aiming laser provides for active target acquisition in low light conditions and close-quarters combat situations, and allows users to zero using the borelight without using NOD. When used in conjunction with NODs, its IR aiming and illumination lasers provide for active, covert target acquisition in low light or complete darkness.

3-60. The ATPIAL visible and IR aiming lasers are co-aligned. A single set of adjusters moves both aiming beams, and the user can boresight/zero using either aiming laser. The following information is an extract from the equipment's technical manual for Soldier reference.

Aiming Devices

	TM 9-5855-1914-13&P				
	DIMENSIONS				
	LENGTH	4.6 in	11.7 cm		
	WIDTH	2.8 in	7.1 cm		
	HEIGHT	1.9 in	4.1 cm		
	WEIGHT	7.5 oz	213 g		
POWER					
BATTERY LIFE		>6 hours in DUAL HIGH (DH) mode			
POWER SOURCE		1 each DL-123A, 3 volt			
MODE OF OPERATION					
POSITION	MODE	REMARKS			
VIS AL	Vis Aiming Laser	Visible Aim Laser ON			
O	OFF	Prevents inadvertent laser burst			
P	Program	Sets the desired IR pulse rate			
AL	AIM LOW	Low power of Aiming Laser			
DL	DUAL LOW	Aiming Laser and Illuminator on LOW			
AH	AIM HIGH	Aiming Laser set to HIGH			
IH	ILLUM HIGH	IR Illuminator set to HIGH			
DH	DUAL HIGH	IR Aim and Illuminator set to HIGH			
LASER		DIVERGENCE	WAVELENGTH		
IR BEAM		0.5 mRad	820-850 nm		
IR ILLUMINATOR		1.0 to 105 mRad	820-850 nm		
VISIBLE AIMING		0.5 mRad	605-665 nm		
LEGEND					
cm	centimeters	IR	infrared	oz	ounces
g	grams	mRad	milliradians		
in	inches	nm	nanometers		

Figure 3-15. AN/PEQ-15, ATPIAL

13 May 2016

TC 3-22.9

3-23

Chapter 3

AN/PEQ-15A, DUAL BEAM AIMING LASER – ADVANCED2

3-61. The AN/PEQ-15A DBAL-A2 is a multifunctional laser device that emits IR pointing and illumination light, as well as a visible laser for precise weapon aiming and target/area illumination. The visible and IR aiming lasers are co-aligned enabling the visible laser to be used to boresight both aiming lasers to a weapon without the need for night vision devices. This ruggedized system can be used as a handheld illuminator/pointer or can be mounted to weapons equipped with an M4 or M5 adapter rail system (MIL-STD-1913).

- **Visible light** – can be used to boresight the device to a weapon without the need of night vision goggles. A visible red-dot aiming laser can also be selected to provide precise aiming of a weapon during daylight or night operations.
- **Infrared laser** – emits a tightly focused beam of IR light for precise aiming of the weapon. A separate IR illumination provides supplemental IR illumination of the target or target area. The IR illuminator is equipped with an adjustable bezel to vary the size of the illumination beam on the size and distance to the target (flood to point divergence).

3-62. The lasers can be used as hand-held illuminator pointers, or can be weapon-mounted with included hardware. These highly capable aiming lasers allow for accurate nighttime aiming and system boresighting.

3-63. The AN/PEQ-15A, DBAL-A2 (see figure 3-16 on page 3-25) visible aiming laser provides for active target acquisition in low light conditions and close quarters combat situations, and allows users to zero using the borelight without using NODs. When used in conjunction with NODs, its IR aiming and illumination lasers provide for active, covert target acquisition in low light or complete darkness.

3-64. The DBAL-A2 visible and IR aiming lasers are co-aligned. A single set of adjusters moves both aiming beams, and the user can boresight/zero using either aiming laser. The following information is an extract from the equipment's technical manual for Soldier reference.

Aiming Devices


	TM 9-5855-1912-13&P				
	DIMENSIONS				
	LENGTH	3.5 in	8.7 cm		
	WIDTH	2.9 in	7.4 cm		
	HEIGHT	1.9 in	4.8 cm		
	WEIGHT	8 oz	224 g		
POWER					
BATTERY LIFE		>5.5 hours in IR DUAL HIGH mode			
POWER SOURCE		1 each DL-123A, 3 volt			
MODE OF OPERATION					
POSITION	MODE	REMARKS			
AL	LOW POWER	Low power for aim laser			
AH	HIGH POWER	High power for aim laser			
VIS A	VIS AIM RED	Aiming or marking laser for daylight			
VIS A	VIS AIM GREEN	Aiming or marking laser for daylight			
LASER		DIVERGENCE	WAVELENGTH		
IR BEAM		0.3 mRad	840 nm		
IR ILLUMINATOR		0.5 to 75 mRad	840 nm		
VISIBLE AIM, RED		0.3 mRad	635 nm		
VISIBLE AIM, GREEN		0.5 mRad	532 nm		
LEGEND					
cm	centimeters	IR	infrared	oz	ounces
g	grams	mRad	milliradians		
in	inches	nm	nanometers		

Figure 3-16. AN/PEQ-15A, DBAL-A2

Chapter 3

AN/PSQ-23, ILLUMINATOR, INTEGRATED, SMALL ARMS

3-65. The AN/PSQ-23 is a battery operated laser range finder (LRF) and digital magnetic compass (DMC) with integrated multifunctional lasers. The illuminator, integrated, small arms device is commonly referred to as the STORM laser. The visible and IR aiming lasers are co-aligned enabling the visible laser to be used to boresight both aiming lasers to a weapon without the need for night vision devices. This ruggedized system can be used as a handheld illuminator/pointer or can be mounted to weapons equipped with an M4 or M5 adapter rail system (MIL-STD-1913).

- **Laser range finder** – provides range to target information from 20 meters to 10,000 meters with an accuracy of +/- 1.5 meters.
- **Digital magnetic compass** – provides azimuth information and limited elevation information to the operator. The azimuth accuracy is +/- 0.5 degrees to +/- 1.5 degrees. The elevation accuracy is +/- 0.2 degrees. The DMC can identify bank or slopes up to 45 degrees with an accuracy of +/- 0.2 degrees.
- **Visible light** – provides for active target acquisition in low light and close quarters combat situations without the need for night vision devices. It can be used to boresight the device to a weapon without the need of night vision devices. A visible red-dot aiming laser can also be selected to provide precise aiming of a weapon during daylight or night operations.
- **Infrared laser** – emits a tightly focused beam of IR light for precise aiming of the weapon. A separate IR illumination provides supplemental IR illumination of the target or target area. The IR illuminator is equipped with an adjustable bezel to vary the size of the illumination beam on the size and distance to the target (flood to point divergence).
- **Infrared illuminator** – the STORM features a separately adjustable IR illuminator with adjustable divergence. It is fixed in the device housing and is set parallel to the rail mount.

Note. The STORM's LRF and DMC may be used in combination to obtain accurate positioning information for targeting purposes and other tactical applications.

3-66. The integrated visible aim laser (VAL) and illumination lasers provide for active, covert target acquisition in low light or complete darkness when used in conjunction with night vision devices. The STORM is also equipped with a tactical engagement simulation (TES) laser allowing it to be used in a laser-based training environment.

3-67. The AN/PEQ-15A, DBAL-A2 visible aiming laser provides for active target acquisition in low light conditions and close-quarters combat situations, and allows users to zero using the borelight without using NODs. When used in conjunction with NODs, its IR aiming and illumination lasers provide for active, covert target acquisition in low light or complete darkness. The following information is an extract from the equipment's technical manual for Soldier reference (see figure 3-17 on page 3-27).

Aiming Devices


	TM 9-5855-1913-13&P				
	DIMENSIONS				
	LENGTH	7.3 in	18.5 cm		
	WIDTH	3.5 in	9.0 cm		
	HEIGHT	1.9 in	4.8 cm		
	WEIGHT	20.8 oz	590 g		
POWER					
BATTERY LIFE		>5.5 hours in IR DUAL HIGH mode			
POWER SOURCE		2 each DL-123A, 3 volt			
MODE OF OPERATION					
POSITION	MODE	REMARKS			
VH	VIS HIGH	Aiming or marking in daylight/indoor			
AH	AIM HIGH	IR operates on high power			
IH	ILLUM HIGH	IR illum operates on high power			
DH	DUAL HIGH	IR/Illum both operate on high power			
BUTTON	MODE	REMARKS			
L	Laser activate	Activates aiming laser			
R	Range/Compass	Press/Hold 3 sec to enter menu power			
LASER		DIVERGENCE	WAVELENGTH		
IR BEAM		0.5 mRad	820-850 nm		
IR ILLUMINATOR		1.0 to 100 mRad	820-850 nm		
VISIBLE AIM, RED		0.5 mRad	605-665 nm		
LASER RANGE FINDER		1.0 mRad	1570 nm		
LEGEND					
cm	centimeters	IR	infrared	oz	ounces
g	grams	mRad	milliradians		
in	inches	nm	nanometers		

Figure 3-17. AN/PSQ-23, STORM

13 May 2016

TC 3-22.9

3-27

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Chapter 4

Mountable Equipment

Both the M4- and M16-series of weapons have a wide variety of attachments to increase Soldier lethality, situational awareness, and overmatch. The attachments can be applied in various locations on the weapon system. Soldiers must understand what the attachments are, how they are correctly positioned, how to align them with the weapon system, and how to integrate them into use to maximize the system's capabilities.

This chapter explains how the ARS is used to mount the various attachments. It describes the weapons, aiming devices, and accessories available for mounting, and includes general information on the proper mounting location as well as their basic capabilities.

ADAPTIVE RAIL SYSTEM

4-1. The ARS and rail grabbers are designed for M16- and M4-/M4A1-series weapons to mount:

- Weapons.
- Aiming devices.
- Accessories.

4-2. The ARS provides a secure mounting point for various accessories that may be mounted on the weapon's top, bottom, left, and right. Each rail groove has an incremental number identifying the slot location, starting from the rear of the weapon.

4-3. Soldiers should record the attachment or equipment's serial number (if applicable), the location of the attachment (for example, markings between lugs), and any boresight or alignment settings specific to the equipment at that location.

4-4. Once complete, the Soldier should mark the mounting bracket to identify the tightened position with a permanent marker. Marking the mounting bracket allows for rapid identification of loosening hardware during firing. Soldiers must periodically verify the mounting hardware does not loosen during operation. During zeroing or zero confirmation operations, Soldiers should retighten the mounting hardware after the first five rounds.

4-5. Soldiers must ensure the equipment is firmly affixed to the ARS before tie down is complete. If the attachments are loose, their accuracy and effectiveness will be degraded.

Chapter 4

MOUNTABLE WEAPONS

4-6. There are two types of weapons that can be physically attached to the M16-/M4-series rifles; grenade launchers and shotguns. These weapons are standard components of the unit's organizational equipment and serve specific purposes during combat operations.

4-7. These weapons are mounted under the barrel of the service rifle at specific locations. They may be removed by a qualified armorer only.

GRENADE LAUNCHERS

4-8. The M320/M320A1 grenade launcher is a lightweight grenade launcher that can operate in a stand-alone or attached configuration. The M320/M320A1 grenade launcher uses an integrated double-action-only trigger system. The M320 series is the replacement weapon for the M203. (See figure 4-1.)



Figure 4-1. M320 attached to M4 series carbine example

4-9. The M203 is a breach loaded attachable grenade launcher that is affixed to the bottom of the barrel of the M16-/M4-series rifle. The M203 cannot be used in a stand-alone configuration. (See figure 4-2)



Figure 4-2. M203 grenade launcher example

Mountable Equipment

4-10. Each mountable 40mm grenade launcher provides the following capabilities to the small unit (see the appropriate TM for authorized use):

- Pyrotechnic signal and spotting rounds:
 - Star cluster, white.
 - Star parachute, white.
 - Star parachute, green.
 - Star parachute, red.
 - Smoke, yellow.
 - Smoke, green.
 - Smoke, red.
 - Illumination, infrared.
- High explosive (HE).
- High explosive, dual purpose (HEDP).
- Nonlethal.
- Training practice (TP).

SHOTGUN SYSTEM

4-11. The M26 Modular Accessory Shotgun System (MASS) is an under-barrel shotgun attachment for the M16/M4/M4A1. The M26 uses a 3- or 5-round detachable box magazine and provides Soldiers with additional tactical capabilities. (Refer to TC 3-22.12 for more information). (See figure 4-3.)



Figure 4-3. M26 shotgun example

4-12. The M26 provides specific tactical capabilities to the Soldier using the following ammunition:

- Slug. Door breaching.
- Shot range, 00 buckshot.
- Nonlethal, rubber slug, buckshot, and riot control.

Chapter 4**MOUNTABLE AIMING DEVICES**

4-13. Aiming devices mounted to the weapon system should be placed in a specific location on the weapon to maximize their capabilities. Table 4-1 provides the preferred mounting locations of the most common attachments.

Table 4-1. Attachment Related Technical Manuals and Mounting

Attachment	Technical Manual	M4/M4A1, M16A4	M4/M4A1	M16A2/A3
BUIS		UR	UR	
CCO, M68	TM 9-1240-413-13&P	UR*	UR*	MT
RCO, M150	TM 9-1240-416-13&P	UR	UR	MT
AN/PVS-14	TM 11-5855-306-10	UR***		
AN/PEQ-15A	TM 9-5855-1912-13&P	RG**	BA	BA
AN/PEQ-15	TM 9-5855-1914-13&P	RG**	BA	BA
AN/PAS-13B(V1), LWTS	TM 11-5855-312-10	UR	UR	MT
AN/PAS-13B(V3), HWTS	TM 11-5855-312-10	UR	UR	MT
AN/PAS-13C(V1), LWTS	TM 11-5855-316-10	UR	UR	MT
AN/PAS-13C(V3), HWTS	TM 11-5855-316-10	UR	UR	MT
AN/PAS-13D(V)1 LWTS	TM 11-5855-324-10	UR	UR	MT
AN/PAS-13D(V2), MWTS	TM 11-5855-317-10	UR	UR	MT
AN/PAS-13D(V3), HWTS	TM 11-5855-317-10	UR	UR	MT
AN/PSQ-23	TM 9-5855-1913-13&P	RG**	BA	BA
Legend: BA – Bracket Assembly BUIS – Back up Irion Sight CCO – Close Combat Optic HTWS – Heavy Thermal Weapons Sight LTWS – Light Thermal Sight MWTS – Medium Thermal Sight MT – M16 Mount RCO – Rifle Combat Optic RG – Rail Grabber UR – Upper Receiver * With a half-moon spacer installed. ** Picatinny or Insight rail grabbers may be used. *** If used in conjunction with the CCO, the CCO will mount on the top rail of the ARS.				

Mountable Equipment

MOUNTABLE ACCESSORIES

4-14. Mountable accessories are items that may be attached to a weapon but are not required for operation. They provide assistance stabilizing the weapon or provide white-light illumination for specific tactical operations.

4-15. These devices are authorized as needed by the small unit. Some mountable accessories are aftermarket (commercial-off-the-shelf, or COTS) items that use the ARS for semipermanent attachment.

BIPOD

4-16. Bipods are highly adjustable that enhance stability within the battle space environment. They are secured by the front sling swivel or the advanced rail system on the foregrip of the weapon. They can be used in combination with a sand sock or other buttstock support to provide an extremely stable firing platform. (See figure 4-4.)

4-17. The bipod is an additional means to stabilize the weapon in various shooting positions. Despite primarily being used in prone position, bipods can be used for additional support in alternate shooting positions while using barricade supports. The bipod provides additional support which facilitates acquisition of muscle relaxation and natural point of aim. The use of bipods in barricade shooting can increase the Soldier's efficiency and probability of a first round hit while engaging targets.



Figure 4-4. Bipod example

Chapter 4

VERTICAL FOREGRIP

4-18. Vertical foregrips (VFGs) assist in transitioning from target to target in close quarter combat. (See figure 4-5.)

4-19. The further out the Soldier mounts the VFG, the smoother and quicker his transitions between multiple targets will be, however he should not mount it so far forward that using the VFG is uncomfortable.



Figure 4-5. Vertical foregrip example

FOREGRIP WITH INTEGRATED BIPODS

4-20. VFGs with integrated bipods are acceptable for common use. They combine the VFG capability with a small, limited adjustment bipod. They typically lack the full adjustment capabilities of full bipods, but provide a compact stable extrusion for the firer.

MOUNTED LIGHTS

4-21. The weapon-mounted lights are commonly issued throughout the Army. The purpose of the weapon mounted lights is to provide illumination and assist in target acquisition and identification during limited visibility operations.

4-22. Most weapon mounted lights provide selection between white light and infrared capabilities. Employment of the weapon mounted light is based upon mission, enemy, terrain and weather, troops and support available, time available, civil considerations (METT-TC) and unit SOP. The weapon mounted lights should be mounted in such a manner that the Soldier can activate and deactivate them efficiently and their placement does not hinder the use of any other attachment or accessory. They must be attached in such a manner as to prevent negligent or unintentional discharge of white light illumination during movement or climbing.

Chapter 5

EMPLOYMENT

The rifleman's primary role is to engage the enemy with well-aimed shots. (Refer to ATP 3-21.8 for more information.) In this capacity, the rate of fire for the M4 rifle is not based on how fast the Soldier can pull the trigger. Rather, it is based on how fast the Soldier can consistently acquire and engage the enemy with accuracy and precision.

Consistently hitting a target with precision is a complex interaction of factors immediately before, during, and after the round fires. These interactions include maintaining postural steadiness, establishing and maintaining the proper aim on the target, stabilization of the weapon while pressing the trigger, and adjusting for environmental and battlefield conditions.

5-1. Every Soldier must adapt to the firing situation, integrate the rules of firearms safety, manipulate the fire control, and instinctively know when, how, and where to shoot. It is directly influenced by the Soldier's ability to hit the target under conditions of extreme stress:

- Accurately interpret and act upon perceptual cues related to the target, front and rear sights, rifle movement, and body movement.
- Execute minute movements of the hands, elbows, legs, feet, and cheek.
- Coordinate gross-motor control of their body positioning with fine-motor control of the trigger finger.

5-2. Regardless of the weapon system, the goal of shooting remains constant: well-aimed shots. To achieve this end state there are two truths. Soldier's must—

- Properly point the weapon (sight alignment *and* sight picture).
- Fire the weapon without disturbing the aim.

5-3. To accomplish this, Soldiers must master sight alignment, sight picture, and trigger control.

- **Sight alignment** – sight alignment is the relationship between the aiming device and the firer's eye. To achieve proper and effective aim, the focus of the firer's eye needs to be on the front sight post or reticle. The Soldier must maintain sight alignment throughout the aiming process.
- **Sight picture** – the sight picture is the placement of the aligned sights on the target.
- **Trigger control** – the skillful manipulation of the trigger that causes the rifle to fire without disturbing the aim.

Chapter 5

SHOT PROCESS

5-4. The **shot process** is the basic outline of an individual engagement sequence all firers consider during an engagement, regardless of the weapon employed. The shot process formulates all decisions, calculations, and actions that lead to taking the shot. The shot process may be interrupted at any point before the sear disengaging and firing the weapon should the situation change.

5-5. The shot process has three distinct phases:

- **Pre-shot.**
- **Shot.**
- **Post-shot.**

5-6. To achieve consistent, accurate, well-aimed shots, Soldiers must understand and correctly apply the shot process. The sequence of the shot process does not change, however, the application of each element vary based on the conditions of the engagement.

5-7. Every shot that the Soldier takes has a complete shot process. Grouping, for example, is simply moving through the shot process several times in rapid succession.

5-8. The shot process allows the Soldier to focus on one cognitive task at a time. The Soldier must maintain the ability to mentally organize the shot process's tasks and actions into a disciplined mental checklist, and focus their attention on activities which produce the desired outcome; a well-aimed shot.

5-9. The level of attention allocated to each element during the shot process is proportional to the conditions of each individual shot. Table 5-1 provides an example of a shot process.

Table 5-1. Shot Process example

Pre-shot	Position
	Natural Point of Aim
	Sight Alignment / Picture
	Hold
Shot	Refine Aim
	Breathing Control
	Trigger Control
Post-shot	Follow-through
	Recoil management
	Call the Shot
	Evaluate

Employment

FUNCTIONAL ELEMENTS OF THE SHOT PROCESS

5-10. Functional elements of the shot process are the linkage between the Soldier, the weapon system, the environment, and the target that directly impact the shot process and ultimately the consistency, accuracy, and precision of the shot. When used appropriately, they build a greater understanding of any engagement.

5-11. The functional elements are interdependent. A accurate shot, regardless of weapon system, requires the Soldier to establish, maintain, and sustain—

- **Stability** – the Soldier stabilizes the weapon to provide a consistent base to fire from and maintain through the shot process until the recoil pulse has ceased. This process includes how the Soldier holds the weapon, uses structures or objects to provide stability, and the Soldier's posture on the ground during an engagement.
- **Aim** – the continuous process of orienting the weapon correctly, aligning the sights, aligning on the target, and the appropriate lead and elevation (hold) during a target engagement.
- **Control** – all the conscious actions of the Soldier before, during, and after the shot process that the Soldier specifically is in control of. The first of which is trigger control. This includes whether, when, and how to engage. It incorporates the Soldier as a function of safety, as well as the ultimate responsibility of firing the weapon.
- **Movement** – the process of the Soldier moving during the engagement process. It includes the Soldier's ability to move laterally, forward, diagonally, and in a retrograde manner while maintaining stabilization, appropriate aim, and control of the weapon.

5-12. These elements define the tactical engagement that require the Soldier to make adjustments to determine appropriate actions, and compensate for external influences on their shot process. When all elements are applied to the fullest extent, Soldiers will be able to rapidly engage targets with the highest level of precision.

5-13. Time, target size, target distance, and the Soldier's skills and capabilities determine the amount of effort required of each of the functional elements to minimize induced errors of the shot.

5-14. Each weapon, tactical situation, and sight system will have preferred techniques for each step in the shot process and within the functional elements to produce precision and accuracy in a timely manner. How fast or slow the shooter progresses through the process is based on target size, target distance, and shooter capability.

5-15. The most complex form of shooting is under combat conditions when the Soldier is moving, the enemy is moving, under limited visibility conditions. Soldiers and leaders must continue to refine skills and move training from the simplest shot to the most complex. Applying the functional elements during the shot process builds a firer's speed while maintaining consistency, accuracy, and precision during complex engagements.

5-16. Each of the functional elements and the Soldier actions to consider during the shot process are described later in this manual.

Chapter 5

TARGET ACQUISITION

5-17. Target acquisition is the ability of a Soldier to rapidly recognize threats to the friendly unit or formation. It is a critical Soldier function before any shot process begins. It includes the Soldier's ability to use all available optics, sensors, and information to detect potential threats as quickly as possible.

5-18. Target acquisition requires the Soldier to apply an acute attention to detail in a continuous process based on the tactical situation. The target acquisition process includes all the actions a Soldier must execute rapidly:

- **Detect** potential threats (target detection).
- **Identify** the threat as friend, foe, or noncombatant (target identification).
- **Prioritize** the threat(s) based on the level of danger they present (target prioritization).

TARGET DETECTION

5-19. Effective target detection requires a series of skills that Soldiers must master. Detection is an active process during combat operations with or without a clear or known threat presence. All engagements are enabled by the Soldier's detection skills, and are built upon three skill sets:

- **Scan and search** – a rapid sequence of various techniques to identify potential threats. Soldier scanning skills determine potential areas where threats are most likely to appear.
- **Acquire** – a refinement of the initial scan and search, based on irregularities in the environment.
- **Locate** – the ability to determine the general location of a threat to engage with accuracy or inform the small unit leader of contact with a potential threat.

Scan and Search

5-20. Scanning and searching is the art of observing an assigned sector. The goal of the scan and search is a deliberate detection of potential threats based on irregularities in the surrounding environment. This includes irregular shapes, colors, heat sources, movement, or actions the Soldier perceives as being "out of place," as compared to the surrounding area.

5-21. Soldiers use five basic search and scan techniques to detect potential threats in combat situations:

- **Rapid scan** – used to detect obvious signs of threat activity quickly. It is usually the first method used, whether on the offense or fighting in the defense.
- **Slow scan** – if no threats are detected during the rapid scan, Soldiers conduct the more deliberate scan using various optics, aiming devices, or sensors. The slow scan is best conducted in the defense or during slow movement or tactical halts.

Employment

- **Horizontal scan** – are used when operating in restricted or urban terrain. It is a horizontal sweeping scan that focuses on key areas where potential threats may be over watching their movement or position.
- **Vertical scan** – an up and down scan in restricted or urban environments to identify potential threats that may be observing the unit from an elevated position.
- **Detailed search** – used when no threats are detected using other scanning methods. The detailed search uses aiming devices, thermal weapon systems, magnified optics, or other sensors to slowly and methodically review locations of interest where the Soldier would be positioned if they were the threat (where would I be if I were them?)

Acquire

5-22. Target acquisition is the discovery of any object in the operational environment such as personnel, vehicles, equipment, or objects of potential military significance. Target acquisition occurs during target scan and search as a direct result of observation and the detection process.

5-23. During the scan and search, Soldiers are looking for “target signatures,” which are signs or evidence of a threat. Tactically, Soldiers will be looking for threat personnel, obstacles or mines (including possible improvised explosive devices [IEDs]), vehicles, or anti-tank missile systems. These target signatures can be identified with sight, sound, or smell.

Detection Best Practices

5-24. Threat detection is a critical skill that requires thoughtful application of the sensors, optics, and systems at the Soldier’s disposal. Finding potential threats as quickly and effectively as possible provides the maximum amount of time to defeat the threat. Soldiers should be familiar with the following best practices to increase target detection:

- Scan with the unaided eye first, then with a magnified optic.
- Practice using I2 and thermal optics in tandem during limited visibility.
- Understand the difference between I2 and thermal optics; what they can “see” and what they can’t. (See chapter 4 of this publication.)
- Thermal optics are the preferred sight for target acquisition and engagement, day or night.
- Don’t search in the same area as others in the small unit. Overlap, but do not focus on the same sector.
- Practice extreme light discipline during limited visibility including IR light discipline.
- Think as the threat. Search in areas that would be most advantageous from their perspective.
- Detecting threats is exponentially more difficult when operating in a chemical, biological, radiological, nuclear (CBRN) environment. Practice detection skills with personal protective equipment (PPE)/individual

Chapter 5

protective equipment (IPE) and understand the increased constraints and limitations, day and night.

Locate

5-25. Target location is the determination of where a target is in your operational environment in relation to the shooter, small unit, or element. Locating a target or series of targets occurs as a result of the search and acquisition actions of each Soldier in the small unit.

5-26. Once a target is located, the threat location can be rapidly and efficiently communicated to the rest of the unit. Methods used to announce a located target depend on the individual's specific position, graphic control measures for the operation, unit SOP, and time available.

TARGET IDENTIFICATION

5-27. Identifying (or discriminating) a target as friend, foe, or noncombatant (neutral) is the second step in the target acquisition process. The Soldier must be able to positively identify the threat into one of three classifications:

- **Friend.** Any force, U.S. or allied, that is jointly engaged in combat operations with an enemy in a theater of operation.
- **Foe (enemy combatant).** Any individual who has engaged acts against the U.S. or its coalition partners in violation of the laws and customs of war during an armed conflict.
- **Noncombatants.** Personnel, organizations, or agencies that are not taking a direct part in hostilities. This includes individuals such as medical personnel, chaplains, United Nations observers, or media representatives or those out of combat such as the wounded or sick. Organizations like the Red Cross or Red Crescent can be classified as noncombatants.

5-28. The identification process is complicated by the increasing likelihood of having to discriminate between friend/foe and combatant/noncombatant in urban settings or restricted terrain. To mitigate fratricide and unnecessary collateral damage, Soldiers use all of the situational understanding tools available and develop tactics, techniques, and procedures for performing target discrimination.

Fratricide Prevention

5-29. Units have other means of designating friendly vehicles from the enemy. Typically, these marking systems are derived from the unit tactical standard operating procedure (TACSOP) or other standardization publications, and applied to the personnel, small units, or vehicles as required:

- **Markings.** Unit markings are defined within the unit SOP. They distinctly identify a vehicle as friendly in a standardized manner.
- **Panels.** VS-17 panels provide a bright recognition feature that allows Soldiers to identify friendly vehicles through the day sight during unlimited visibility. Panels do not provide a thermal signature.

Employment

- **Lighting.** Chemical or light emitting diode lights provide a means of marking vehicles at night. However, chemical lights are not visible through a thermal sight. An IR variant is available for use with night vision devices. Lighting systems do not provide for thermal identification during day or limited visibility operations.
- **Beacons and Strobes.** Beacons and strobes are unit-procured, small-scale, compact, battery-operated flashing devices that operate in the near infrared wavelength. They are clearly visibly through night vision optics, but cannot be viewed through thermal optics.

Note. Beacons and strobes generate illumination signals that can only be viewed by I2 optics. The signal *cannot be viewed* by thermal optics. Leaders and Soldiers are required to be aware of which optic can effectively view these systems when developing their SOPs and when using them in training or combat.

Beacons and strobes have the potential to be viewed by enemy elements with night vision capabilities. Units should tailor use of the beacon based on METT-TC.

- **Symbols.** Unit symbols may be used to mark friendly vehicles. An inverted V, for example, painted on the flanks, rear, and fronts of a vehicle, aid in identifying a target as friendly. These are typically applied in an area of operations and not during training. Symbol marking systems do not provide for thermal identification during day or limited visibility operations.

TARGET PRIORITIZATION

5-30. When faced with multiple targets, the Soldier must prioritize each target and carefully plan his shots to ensure successful target engagement. Mental preparedness and the ability to make split-second decisions are the keys to a successful engagement of multiple targets. The proper mindset will allow the Soldier to react instinctively and control the pace of the battle, rather than reacting to the adversary threat.

5-31. Targets are prioritized into three threat levels—

- **Most dangerous.** A threat that has the capability to defeat the friendly force and is preparing to do so. These targets must be defeated immediately.
- **Dangerous.** A threat that has the capability to defeat the friendly force, but is not prepared to do so. These targets are defeated after all most dangerous targets are eliminated.
- **Least dangerous.** Any threat that does not have the ability to defeat the friendly force, but has the ability to coordinate with other threats that are more prepared. These targets are defeated after all threats of a higher threat level are defeated.

Chapter 5

5-32. When multiple targets of the same threat level are encountered, the targets are prioritized according to the threat they represent. The standard prioritization of targets establishes the order of engagement. Firers engage similar threats by the following guide:

- **Near before far.**
- **Frontal before flank.**
- **Stationary before moving.**

5-33. The prioritization of targets provides a control mechanism for the shooter, and facilitates maintaining overmatch over the presented threats. Firers should be prepared deviate from the prioritization guide based on the situation, collective fire command, or changes to the target's activities.

Chapter 6

Stability

Stability is the ability of the Soldier to create a stable firing platform for the engagement. The Soldier stabilizes the weapon to provide a consistent base from which to fire from and maintain through the shot process until the recoil impulse has ceased. This process includes how the Soldier holds the weapon, uses structures or objects to provide stability, and the Soldier's posture on the ground during an engagement. A stable firing platform is essential during the shot process, whether the Soldier is stationary or moving.

This chapter provides the principles of developing a stable firing platform, describes the interaction between the Soldier, weapon, the surroundings, and the methods to achieve the greatest amount of stability in various positions. It explains how the stability functional element supports the shot process and interacts and integrates the other three elements. Stability provides a window of opportunity to maintain sight alignment and sight picture for the most accurate shot.

SUPPORT

6-1. Stability is provided through four functions: support, muscle relaxation, natural point of aim, and recoil management. These functions provide the Soldier the means to best stabilize their weapon system during the engagement process.

6-2. The placement or arrangement of sandbags, equipment, or structures that directly provide support to the upper receiver of the weapon to provide increased stability. This includes the use of a bipod or vertical foregrip, bone and muscle support provided by the shooter to stabilize the rifle.

6-3. Support can be natural or artificial or a combination of both. Natural support comes from a combination of the shooter's bones and muscles. Artificial support comes from objects outside the shooter's body. The more support a particular position provides, the more stable the weapon.

- **Leg Position.** The position of the legs varies greatly depending on the firing position used. The position may require the legs to support the weight of the Soldier's body, support the firing elbow, or to meet other requirements for the firing position. When standing unsupported, the body is upright with the legs staggered and knees slightly bent. In the prone, the firer's legs may be spread apart flat on the ground or bent at the knee. In the sitting position, the legs may also serve an intricate part of the firing position.

Chapter 6

- **Stance/Center of Gravity.** The physical position of a Soldier before, during, and after the shot that relates to the firer's balance and posture. The position/center of gravity does not apply when firing from the prone position. The position/center of gravity specifically relates to the Soldier's ability to maintain the stable firing platform during firing, absorbing the recoil impulses, and the ability to aggressively lean toward the target area during the shot process.
- **Firing Elbow.** The placement of the firing elbow during the shot process. Proper elbow placement provides consistent firing hand grip while standing, sitting, or kneeling, and provides support stability in the prone position.
- **Nonfiring Elbow.** The Soldier's placement of the nonfiring elbow during the shot process supports the rifle in the all positions.
- **Firing Hand.** Proper placement of the firing hand will aid in trigger control. Place the pistol grip in the 'V' formed between the thumb and index finger. The pressure applied is similar to a firm handshake grip. Different Soldiers have different size hands and lengths of fingers, so there is no set position of the finger on the trigger. To grip the weapon, the Soldier places the back strap of the weapon's pistol grip high in the web of his firing side hand between his thumb and index (trigger) finger. The Soldier's trigger finger is indexed on the lower receiver, well outside the trigger guard and off the magazine release to prevent inadvertent release of the magazine. The firing hand thumb (or trigger finger for left-handed firers) is indexed on top of the safety selector switch. The Soldier grasps the pistol grip with his remaining three fingers ensuring there is no gap between his middle finger and the trigger guard.
- **Nonfiring Hand.** Proper placement of the non-firing hand is based on the firing position and placement of the non-firing elbow to provide the stability of the weapon. Placement is adjusted during supported and unsupported firing to maximize stability. The non-firing hand is placed as far forward as comfortable without compromising the other elements of the position or inducing extreme shooter-gun angle.
 - The nonfiring hand supports the weight of the rifle by grasping the fore arm. It should be a firm but relaxed grip. In all positions it should be as close to the handguard as naturally possible to aid in recoil management.
 - If possible, the firer should strive to have the thumb of the nonfiring hand provide downward force on the handguard. The pressure will provide the necessary force to assist in the management of the muzzle rise from recoil.
 - In all positions it should be as close to the end of the handguard as naturally possible to aid in recoil management.
 - Due to limited space on current MWS rails the above may not be possible but consideration should be given while mounting lasers to achieve an extended grip.
- **Butt Stock.** Correct placement of the butt stock in the firing shoulder will aid in achieving a solid stock weld. Side to side placement will vary

Stability

depending on equipment worn while firing. The butt stock is placed high enough in the shoulder to allow for an upright head position.

- The vertical placement of the butt stock will vary from firing position to firing position. A general guideline to follow is: the higher the position from the ground, the higher the butt stock will be in the shoulder.
- The term “butt stock” refers to both the butt stock (M16-series) and collapsible butt stock (M4-series) for clarity.
- **Stock Weld.** Stock weld is the placement of the firer’s head on the stock of the weapon. Correct stock weld is critical to sight alignment. The firer rests the full weight of the head on the stock. The head position is as upright as possible to give the best vision through the aiming device. It allows for scanning additional targets not seen through the aiming device.
 - When establishing the stock weld, bring the rifle up to your head, not your head down to the rifle. The firer’s head will remain in the same location on the stock while firing, but the location may change when positions are changed. The bony portion of the cheek placed on the stock is the basic starting point. Soldiers adapt to their facial structure to find the optimal placement that allows for both sight alignment and repetitive placement.
 - Figure 6-1 shows the differences in head placement, which effects sight alignment. The firer on the right is NOT resting the full weight of their head on the stock. The picture on the left shows the skin of the firer’s head being pushed down by the full weight of their head. This technique can be quickly observed and corrected by a peer coach.

Note. Soldiers’ bodies vary with the amount of flesh and the bone structure of the face. Firers who apply downward force simply to achieve the appearance in the correct (left) image in figure 6-1, on page 6-4, will not have relaxation and will not have a repeatable placement. The goal is to have alignment with consistent placement.

Chapter 6

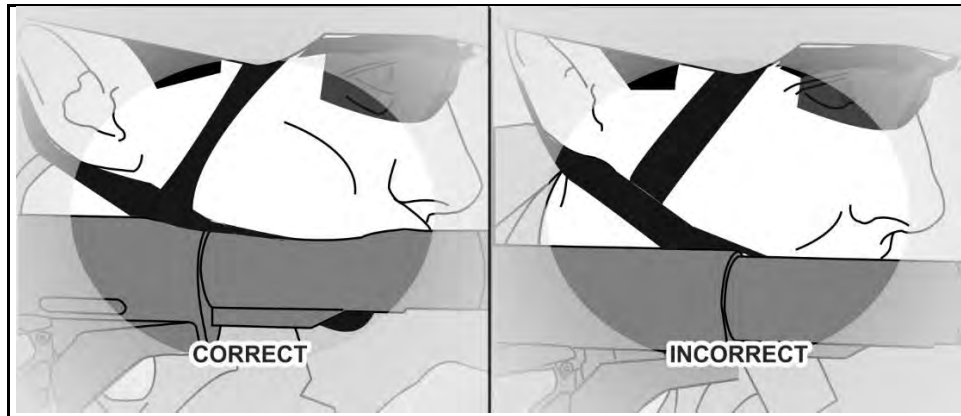


Figure 6-1. Stock weld

MUSCLE RELAXATION

6-4. Muscle relaxation is the ability of the Soldier to maintain orientation of the weapon appropriately during the shot process while keeping the major muscle groups from straining to maintain the weapon system's position. Relaxed muscles contribute to stability provided by support.

- Strained or fatigued muscles detract from stability.
- As a rule, the more support from the shooter's bones the less he requires from his muscles.
- The more skeletal support, the more stable the position, as bones do not fatigue or strain.
- As a rule, the less muscle support required, the longer the shooter can stay in position.

NATURAL POINT OF AIM

6-5. The natural point of aim is the point where the barrel naturally orients when the shooter's muscles are relaxed and support is achieved. The natural point of aim is built upon the following principles:

- The closer the natural point of aim is to the target, the less muscle support required.
- The more stable the position, the more resistant to recoil it is.
- More of the shooter's body on the ground equals a more stable position.
- More of the shooter's body on the ground equals less mobility for the shooter.

6-6. When a Soldier aims at a target, the lack of stability creates a wobble area, where the sights oscillate slightly around and through the point of aim. If the wobble area is larger than the target, the Soldier requires a steadier position or a refinement to their position to decrease the size of his wobble area before trigger squeeze.

Stability

Note. The steadier the position, the smaller the wobble area. The smaller the wobble area, the more precise the shot.

6-7. To check a shooter's natural point of aim, the Soldier should assume a good steady position and get to the natural pause. Close their eyes, go through one cycle, and then open their eyes on the natural pause. Where the sights are laying at this time, is the natural point of aim for that position. If it is not on their point of aim for their target, they should make small adjustments to their position to get the reticle or front sight post back on their point of aim. The Soldier will repeat this process until the natural point of aim is on the point of aim on their target.

RECOIL MANAGEMENT

6-8. Recoil management is the result of a Soldier assuming and maintaining a stable firing position which mitigates the disturbance of one's sight picture during the cycle of function of the weapon.

6-9. The Soldier's firing position manages recoil using support of the weapon system, the weight of their body, and the placement of the weapon during the shot process. Proper recoil management allows the sights to rapidly return to the target and allows for faster follow up shots.

SHOOTER-GUN ANGLE

6-10. The shooter gun-angle is the relationship between the shooters upper body and the direction of the weapon. This angle is typically different from firing position to firing position, and directly relates to the Soldier's ability to control recoil. Significant changes in the shooter-gun angle can result in eye relief and stock weld changes.

Note. Units with a mix of left and right handed shooters can take advantage of each Soldiers' natural carry positions, and place left-handed shooters on the right flanks, and right-handed shooters on the left flanks, as their natural carry alignment places the muzzle away from the core element, and outward toward potential threats, and reduces the challenges of firing when moving laterally.

FIELD OF VIEW

6-11. The field of view is the extent that the human eye can see at any given moment. The field of view is based on the Soldier's view *without* using magnification, optics, or thermal devices. The field of view is what the Soldier sees, and includes the areas where the Soldier can detect potential threats.

Chapter 6

CARRY POSITIONS

6-12. There are six primary carry positions. These positions may be directed by the leader, or assumed by the Soldier based on the tactical situation. The primary positions are—

- Hang.
- Safe hang.
- Collapsed low ready.
- Low ready.
- High ready.
- Ready (or ready-up).

Stability**HANG**

6-13. Soldiers use the hang when they need their hands for other tasks and no threat is present or likely (see figure 6-2). The weapon is slung and the safety is engaged. The hang carry should not be used when the weapon control status is RED. The reduced security of the weapon may cause the mechanical safety select lever to unintentionally move to SEMI or BURST/AUTO.

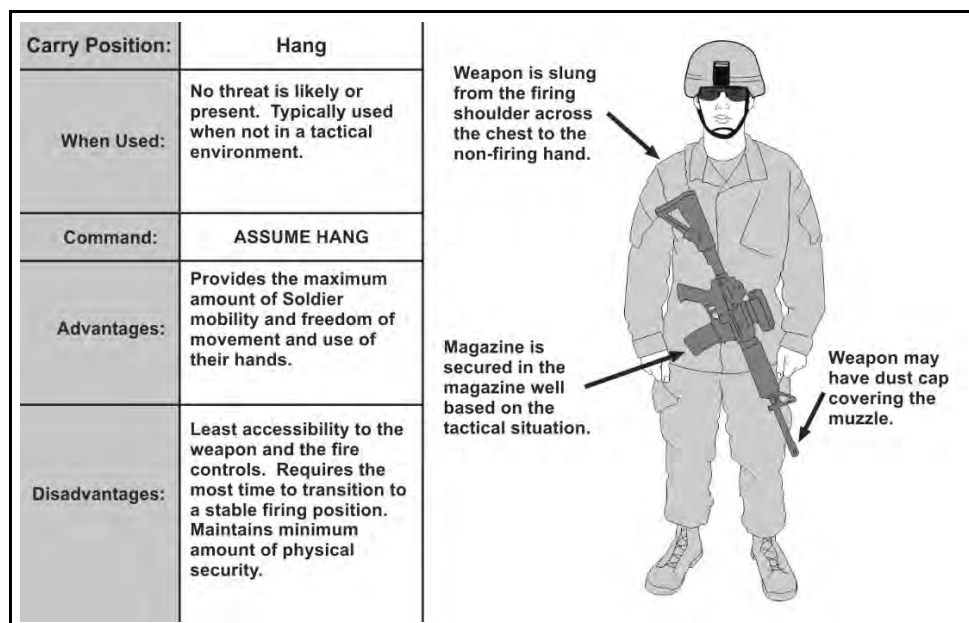


Figure 6-2. Hang carry example

Chapter 6

SAFE HANG

6-14. The safe hang is used when no immediate threat is present and the hands are not necessary (see figure 6-3). In the safe hang carry, the weapon is slung, the safety is engaged, and the Soldier has gripped the rifle's pistol grip. The Soldier sustains Rule 3, keeping the finger off the trigger until ready to engage when transitioning to the ready or ready up position.

6-15. In this position, the Soldier can move in any direction while simultaneously maintaining his muzzle oriented at the ground by using his firing hand. This carry provides control of the weapon, flexibility in movement, and positive control of the weapon's fire controls.

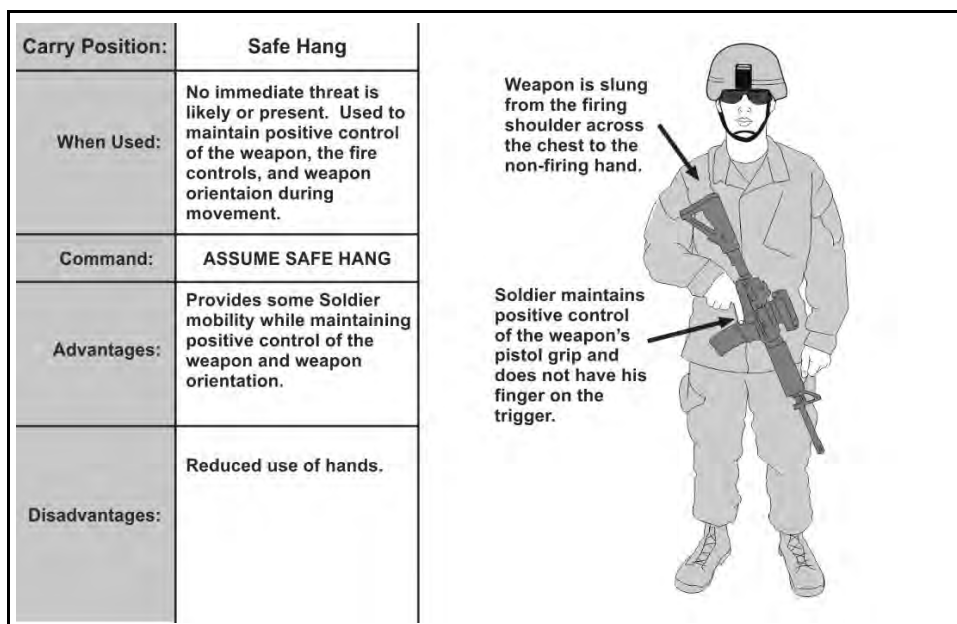


Figure 6-3. Safe hang example

Stability

COLLAPSED LOW READY

6-16. The collapsed low ready is used when a greater degree of muzzle control and readiness to respond to threats or weapon retention is necessary (such as crowded environments). In the collapsed low ready, the firing hand is secure on the weapon's pistol grip. The non-firing hand is placed on the hand guards or vertical foregrip (see figure 6-4).

6-17. This carry allows a Soldier to navigate crowded or restrictive environments while simultaneously minimizing or eliminating his muzzle covering (flagging) by maintaining positive control of the muzzle orientation.



Figure 6-4. Collapsed low ready example

Chapter 6

LOW READY

6-18. The low ready provides the highest level of readiness and with the maximum amount of observable area for target acquisition purposes

6-19. In the low ready position, the weapon is slung, the butt stock is in the Soldier's shoulder, and the muzzle is angled down at a 30- to 45-degree angle and oriented towards the Soldier's sector of fire.

6-20. Firing hand is positioned on the pistol grip with the index finger straight and out of the trigger guard. The thumb is placed on the selector lever with the lever placed on safe. From this carry, the Soldier is ready to engage threats within a very short amount of time with minimal movement. (See figure 6-5).

6-21. Observation is maintained to the sector of fire. The Soldier looks over the top of his optics or sights to maintain situation awareness of his sector. The Soldier's head remains upright.

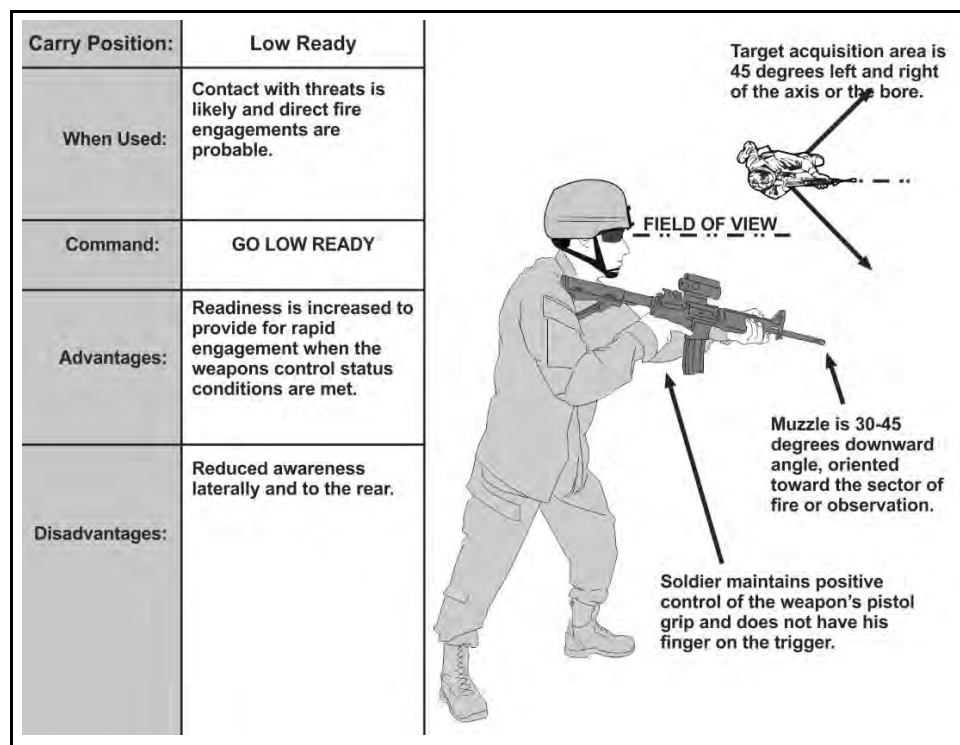


Figure 6-5. Low ready position

Stability

HIGH READY

6-22. The high ready is used when the Soldier's sector of fire includes areas overhead or when an elevated muzzle orientation is appropriate for safety (see figure 6-6). The high ready carry is used when contact is likely.

6-23. In the high ready, the weapon is slung, butt stock is in the armpit, the muzzle angled up to at least a 45-degree angle and oriented toward the Soldier's sector of fire—ensuring no other Soldiers are flagged.

6-24. The firing hand remains in the same position as the low ready. The non-firing side hand can be free as the weapon is supported by the firing side hand and armpit.

6-25. This position is not as effective as the low ready for several reasons: it impedes the field of view, flags friendlies above the sector of fire, and typically takes longer to acquire the target.

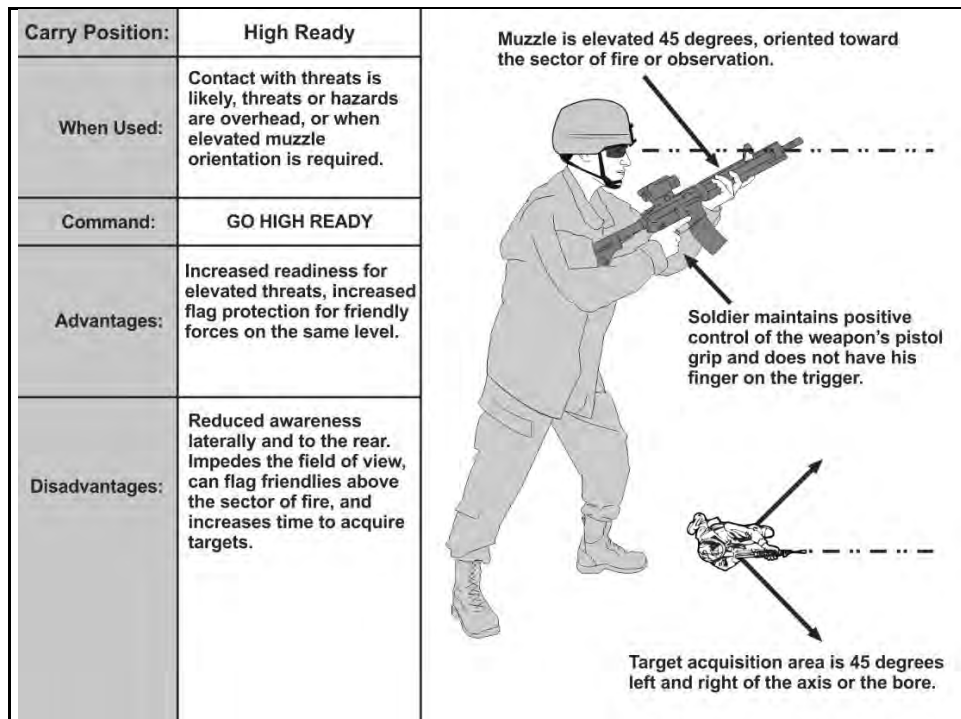


Figure 6-6. High ready position

Chapter 6

READY OR READY-UP

6-26. The ready is used when enemy contact is imminent (see figure 6-7). This carry is used when the Soldier is preparing or prepared to engage a threat.

6-27. In the ready, the weapon is slung, the toe of the butt stock is in the Soldier's shoulder, and muzzle is oriented toward a threat or most likely direction of enemy contact. The Soldier is looking through his optics or sights. His non-firing side hand remains on the hand guards or the vertical foregrip.

6-28. The firing hand remains on the pistol grip with the firing finger off the trigger until the decision to engage a target is made.

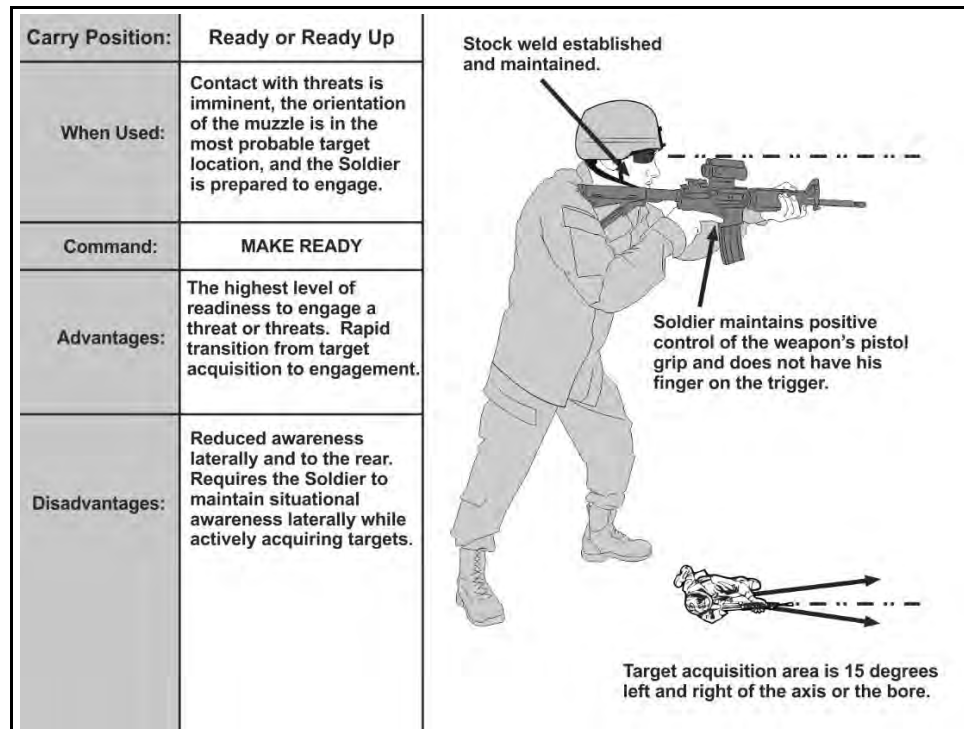


Figure 6-7. Ready position or up position

Stability

STABILIZED FIRING

6-29. The Soldier must stabilize their weapon, whether firing from a stationary position or while on the move. To create a stabilized platform, Soldiers must understand the physical relationship between the weapon system, the shooter's body, the ground, and any other objects touching the weapon or shooter's body. The more contact the shooter has to the ground will determine how stable and effective the position is. The situation and tactics will determine the actual position used.

6-30. When a shooter assumes a stable firing position, movement from muscle tension, breathing, and other natural activities within the body will be transferred to the weapon and must be compensated for by the shooter.

6-31. Failing to create an effective platform to fire from is termed a ***stabilization failure***. A stabilization failure occurs when a Soldier fails to:

- Control the movement of the barrel during the arc of movement
- Adequately support the weapon system
- Achieve their natural point of aim.

6-32. These failures compound the firing occasion's errors, which directly correlate to the accuracy of the shot taken. To maximize the Soldier's stability during the shot process, they correctly assume various firing positions when stationary, or offset the induced errors with other firing skills during tactical movement.

6-33. As a rule, positions that are lower to the ground provide a higher level of stability. When the center of gravity elevates the level of stability decreases as shown in figure°6-8.

Chapter 6

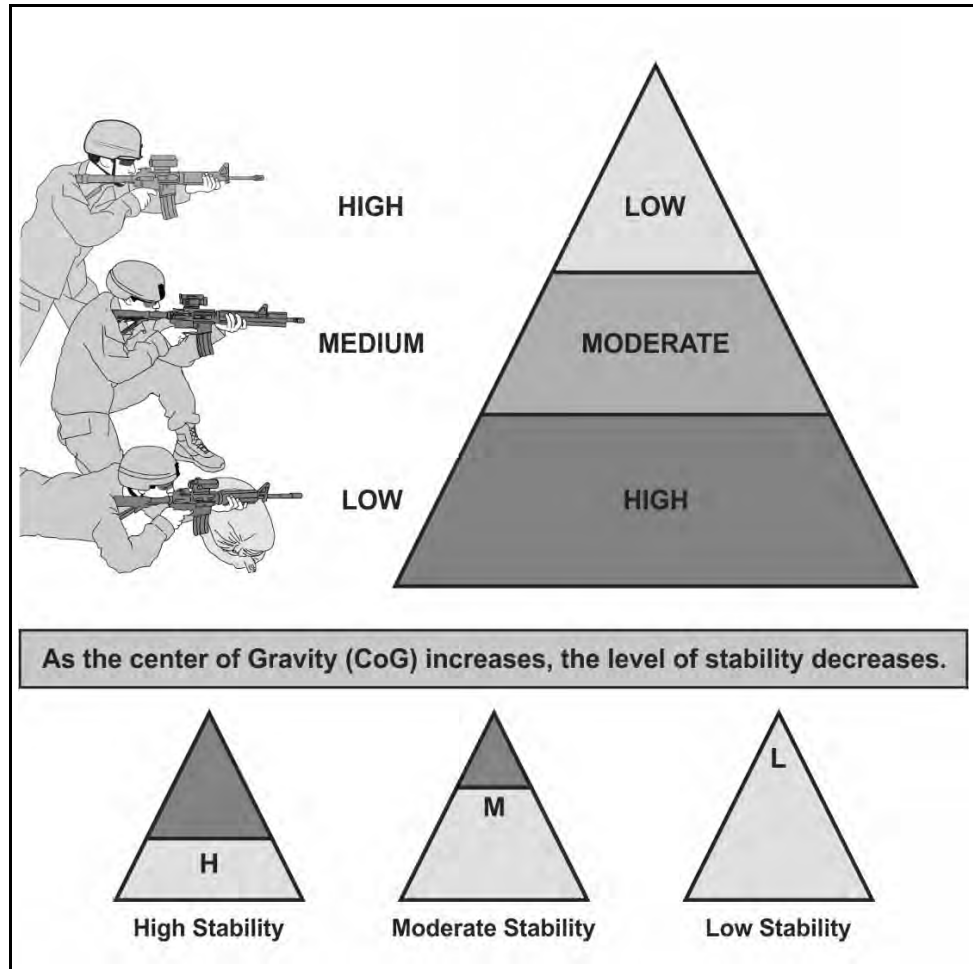


Figure 6-8. Firing position stability example

FIRING POSITIONS

6-34. The nature of combat will not always allow time for a Soldier to get into a particular position. Soldiers need to practice firing in a variety of positions, including appropriate variations. There are 12 firing positions with variations that are common to all Soldiers. The positions are listed highest to lowest. The primary position is listed in bold, with the position variations in italics:

- **Standing** –
 - *Standing, unsupported.*
 - *Standing, supported.*
- **Squatting** – This position allows for rapid engagement of targets when an obstruction blocks the firer from using standard positions. It provides the firer a fairly well supported position by simply squatting down to engage, then returning to a standing position once the engagement is complete. The squatting position is generally unsupported.
- **Kneeling** – The kneeling position is very common and useful in most combat situations. The kneeling position can be supported or unsupported.
 - *Kneeling, unsupported.*
 - *Kneeling, supported.*
- **Sitting** – There are three types of sitting positions: crossed-ankle, crossed-leg, and open-leg. All positions are easy to assume, present a medium silhouette, provide some body contact with the ground, and form a stable firing position. These positions allow easy access to the sights for zeroing.
 - *Sitting, crossed ankle.*
 - *Sitting, crossed leg.*
 - *Sitting, open leg.*
- **Prone** – The prone position is the most stable firing position due to the amount of the Soldier's body is in contact with the ground. The majority of the firer's frame is behind the rifle to assist with recoil management.
 - *Prone, unsupported.*
 - *Prone, supported.*
 - *Prone, roll-over.*
 - *Prone, reverse roll-over.*

6-35. Soldiers must practice the positions dry frequently to establish their natural point of aim for each position, and develop an understanding of the restrictive nature of their equipment during execution. With each dry repetition, the Soldier's ability to change positions rapidly and correctly are developed, translating into efficient movement and consistent stable firing positions.

6-36. Each of these firing positions is described using in a standard format using the terms defined earlier.

Chapter 6

STANDING, UNSUPPORTED

6-37. This position should be used for closer targets or when time is not available to assume a steadier position such as short range employment. The upper body should be leaned slightly forward to aid in recoil management. The key focus areas for the standing supported position are applied as described in figure 6-9 below:

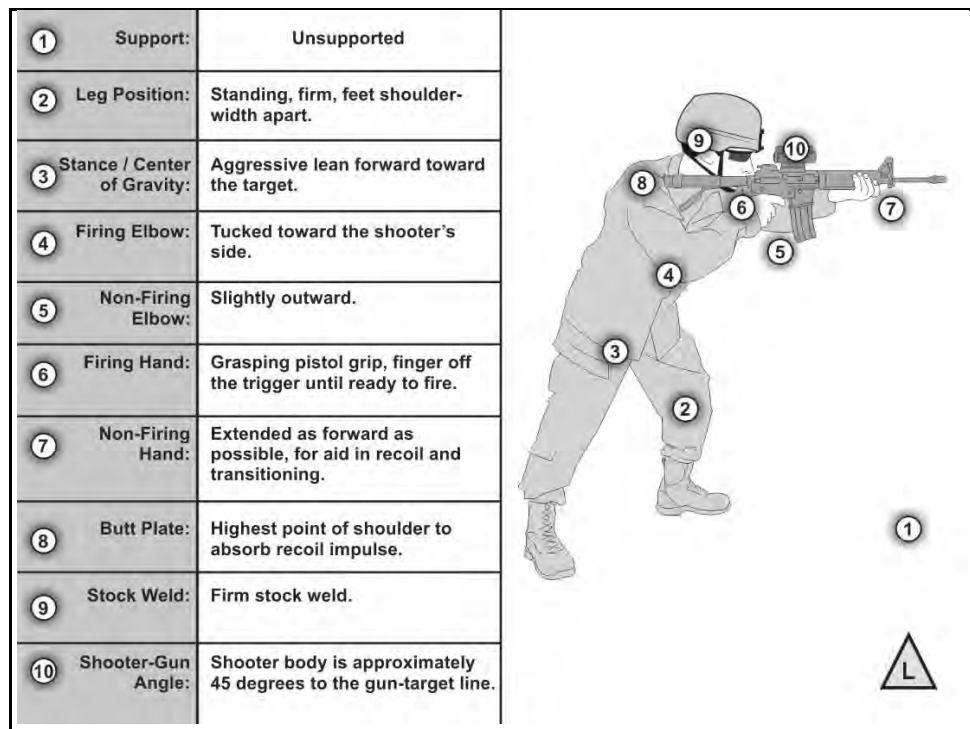


Figure 6-9. Standing, unsupported example

Stability**STANDING, SUPPORTED**

6-38. Soldier should ensure it is the handguard of the weapon NOT the barrel that is in contact with the artificial support. Barrels being in direct contact with artificial support will result in erratic shots. The standing supported position uses artificial support to steady the position (see figure 6-10.) Forward pressure should be applied by the rear leg and upper body to aid in recoil management. The key focus area for the standing supported position are applied in the following ways:

Nonfiring hand. The nonfiring hand will hold the hand guards firmly and push against the artificial support. Hand positioning will vary depending on the type of support used.

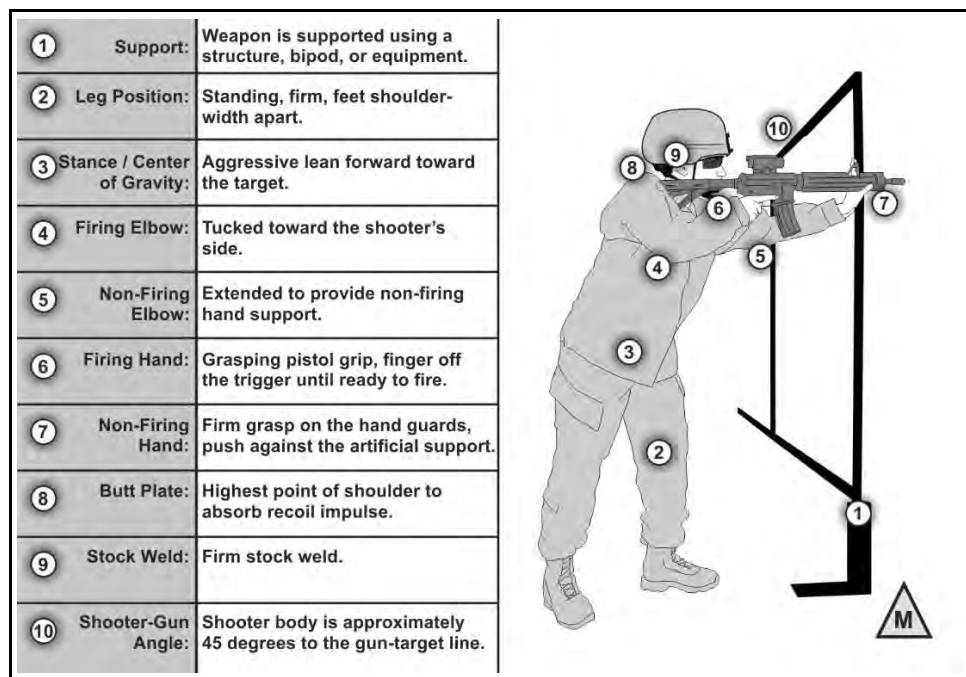


Figure 6-10. Standing, supported example

Chapter 6

SQUATTING

6-39. This position allows for rapid engagement of targets when an obstruction blocks the firer from using standard positions. It allows the firer a fairly stable position by simply squatting down to engage, then returning to a standing position after completing the engagement (see figure 6-11.)

6-40. Perform the following to assume a good squatting firing position:

- Face the target.
- Place the feet shoulder-width apart.
- Squat down as far as possible.
- Place the back of triceps on the knees ensuring there is no bone on bone contact.
- Place the firing hand on the pistol grip and the nonfiring hand on the upper hand guards.
- Place the weapon's butt stock high in the firer's shoulder pocket.

Note. The firer may opt to use pressure from firing hand to rotate weapon to place the magazine against the opposite forearm to aid in stabilization.

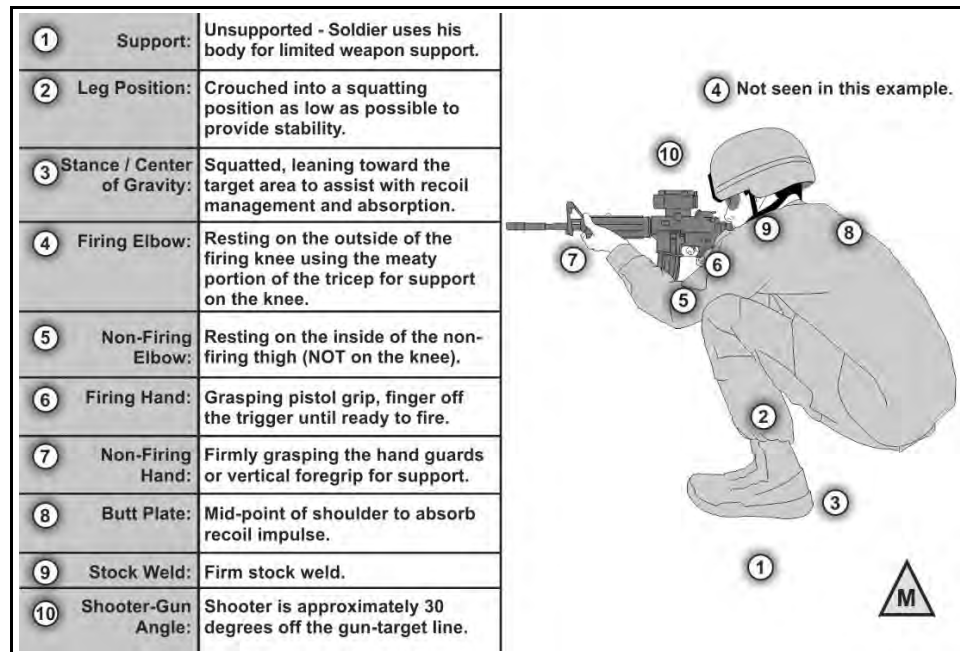


Figure 6-11. Squatting position

Stability**KNEELING, UNSUPPORTED**

6-41. The kneeling unsupported position does not use artificial support. Figure 6-12 shows the optimum unsupported kneeling position. The firer should be leaning slightly forward into the position to allow for recoil management and quicker follow-up shots. The primary goal of this firing position is to establish the smallest wobble area possible. Key focus areas for kneeling, unsupported are:

- **Nonfiring elbow.** Place the non-firing elbow directly underneath the rifle as much as possible. The elbow should be placed either in front of or behind the kneecap. Placing the elbow directly on the kneecap will cause it to roll and increases the wobble area.
- **Leg position.** The non-firing leg should be bent approximately 90 degrees at the knee and be directly under the rifle. The firing-side leg should be perpendicular to the nonfiring leg. The firer may rest their body weight on the heel. Some firers lack the flexibility to do this and may have a gap between their buttocks and the heel.
- **Aggressive (stretch) kneeling.** All weight on non-firing foot, thigh to calf, upper body leaning forward, nonfiring triceps on non-firing knee, firing leg stretched behind for support. Highly effective for rapid fire and movement.

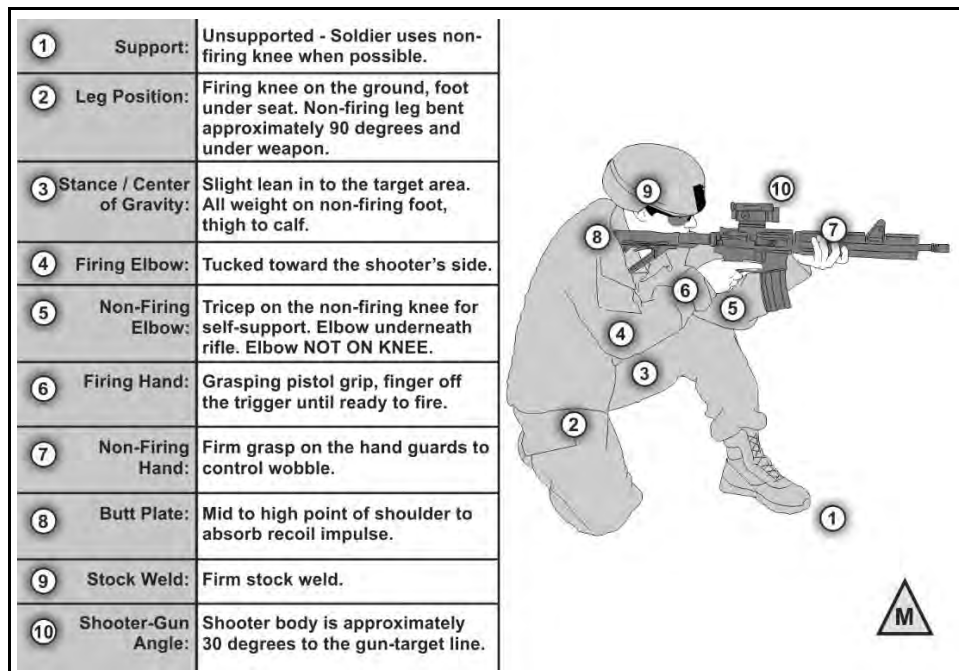


Figure 6-12. Kneeling, unsupported example

Chapter 6

KNEELING, SUPPORTED

6-42. The kneeling supported position uses artificial support to steady the position (see figure 6-13). Contact by the nonfiring hand and elbow with the artificial support is the primary difference between the kneeling supported and unsupported positions since it assists in the stability of the weapon. Body contact is good, but the barrel of the rifle must not touch the artificial support. Forward pressure is applied to aid in recoil management. The key focus areas for the kneeling supported position are applied in the following ways:

- **Nonfiring hand.** The nonfiring hand will hold the hand guards firmly and will also be pushed against the artificial support. Hand positioning will vary depending on the type of support used.
- **Nonfiring elbow.** The nonfiring elbow and forearm may be used to assist with the weapon's stability by pushing against the artificial support. The contact of the nonfiring elbow and forearm with the structure will vary depending on the support used and the angle to the target.

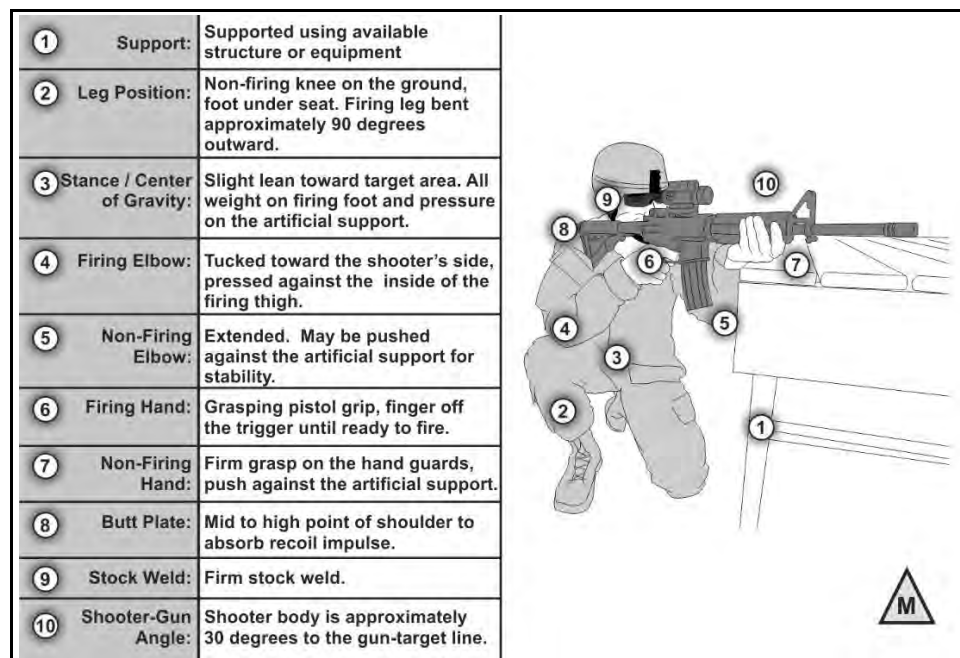


Figure 6-13. Kneeling, supported example

Stability**SITTING, CROSSED-ANKLE**

6-43. The sitting, crossed-ankle position provides a broad base of support and places most of the body weight behind the weapon (see figure 6-14). This allows quick shot recovery and recoil impulse absorption. Perform the following to assume a good crossed-ankle position:

- Face the target at a 10- to 30-degree angle.
- Place the nonfiring hand under the hand guard.
- Bend at knees and break fall with the firing hand.
- Push backward with feet to extend legs and place the buttocks to ground.
- Cross the non-firing ankle over the firing ankle.
- Bend forward at the waist.
- Place the non-firing elbow on the nonfiring leg below knee.
- Grasp the rifle butt with the firing hand and place into the firing shoulder pocket.
- Grasp the pistol grip with the firing hand.
- Lower the firing elbow to the inside of the firing knee.
- Place the cheek firmly against the stock to obtain a firm stock weld.
- Move the nonfiring hand to a location under the hand guard that provides the maximum bone support and stability for the weapon.

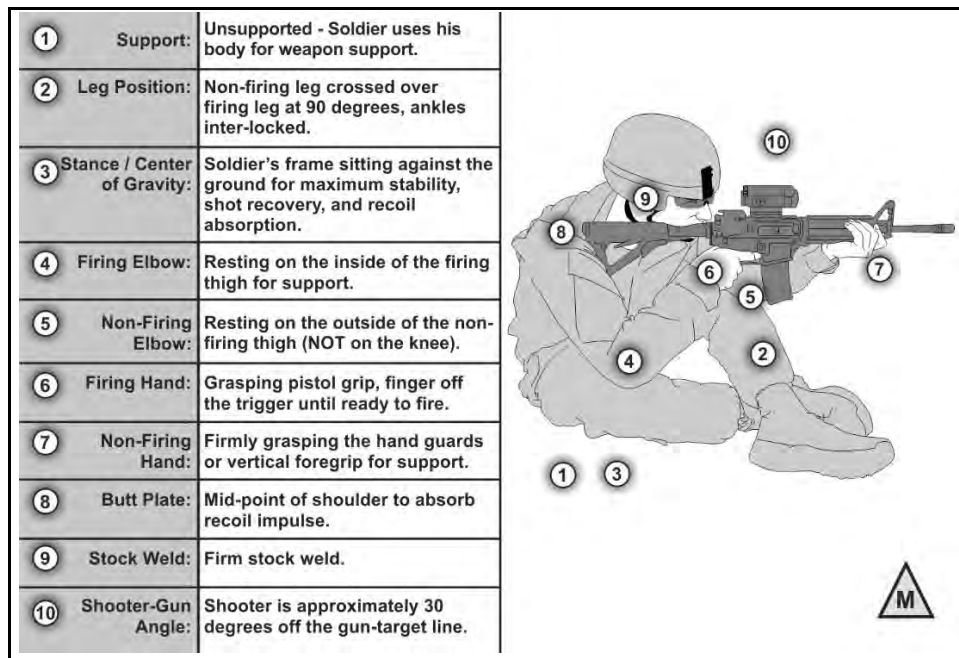


Figure 6-14. Sitting position—crossed ankle

Chapter 6

SITTING, CROSSED-LEG

6-44. The crossed-leg sitting position provides a base of support and places most of the body weight behind the weapon for quick shot recovery (see figure 6-15). Soldiers may experience a strong pulse beat in this position due to restricted blood flow in the legs and abdomen. An increased pulse causes a larger wobble area.

6-45. Perform the following to assume a good crossed-leg position:

- Place the nonfiring hand under the hand guard.
- Cross the nonfiring leg over the firing leg.
- Bend at the knees and break the fall with the firing hand.
- Place the buttocks to the ground close to the crossed legs.
- Bend forward at the waist.
- Place the nonfiring elbow on the nonfiring leg at the bend of the knee.
- Establish solid butt stock position in the firing shoulder pocket.
- Grasp the pistol grip with the firing hand.
- Lower the firing elbow to the inside of the firing knee.
- Place the cheek firmly against the stock to obtain a firm stock weld.
- Place the non-firing hand under the hand guard to provide support.

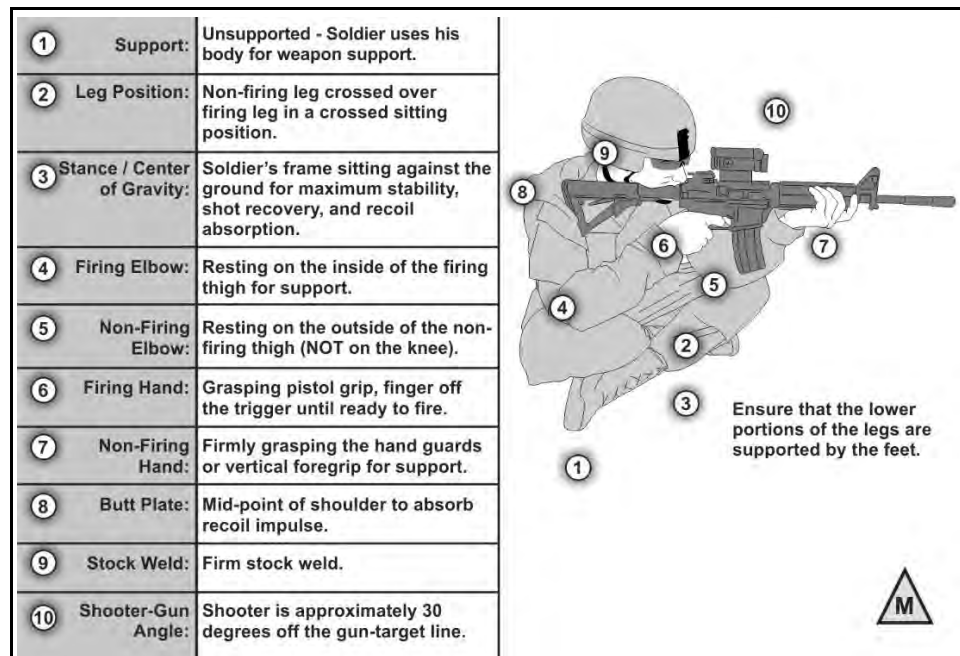


Figure 6-15. Sitting position—crossed-leg

Stability**SITTING, OPEN-LEG**

6-46. The open-leg sitting position is the preferred sitting position when shooting with combat equipment (see figure 6-16). It places less of the body weight behind the weapon than the other sitting positions. Perform the following to assume a good open-leg position:

- Face the target at a 10 to 30 degree angle to the firing of the line of fire.
- Place the feet approximately shoulder width apart.
- Place the nonfiring hand under the hand guard.
- Bend at the knees while breaking the fall with the firing hand. Push backward with the feet to extend the legs and place the buttocks on ground.
- Place the both the firing and non-firing elbow inside the knees.
- Grasp the rifle butt with the firing hand and place into the firing shoulder pocket.
- Grasp the pistol grip with the firing hand.
- Lower the firing elbow to the inside of the firing knee.
- Place the cheek firmly against the stock to obtain a firm stock weld.
- Move nonfiring hand to a location under the hand guard that provides maximum bone support and stability for the weapon.

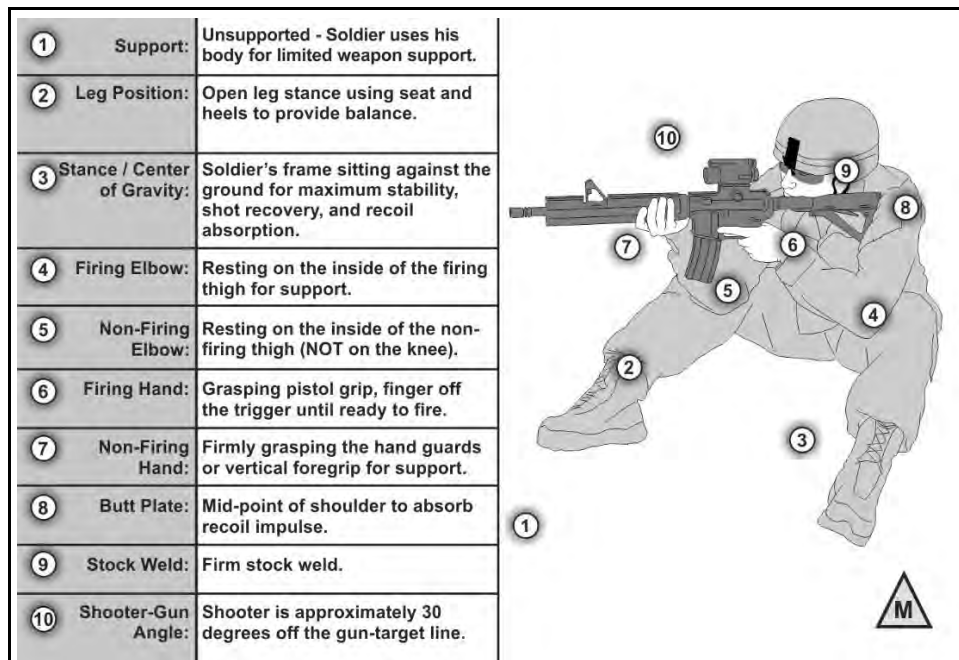


Figure 6-16. Sitting position—open leg

Chapter 6

PRONE, UNSUPPORTED

6-47. The prone unsupported position is not as stable as the prone supported position (see figure 6-17). Soldiers must build a stable, consistent position that focuses on the following key areas:

- **Firing hand.** The firer should have a firm handshake grip on the pistol grip and place their finger on the trigger where it naturally falls.
- **Nonfiring hand.** The nonfiring hand is placed to control the weapon and is comfortable.
- **Leg position.** The firer's legs may be either spread with heels as flat as possible on ground or the firing side leg may be bent at the knee to relieve pressure on the stomach.

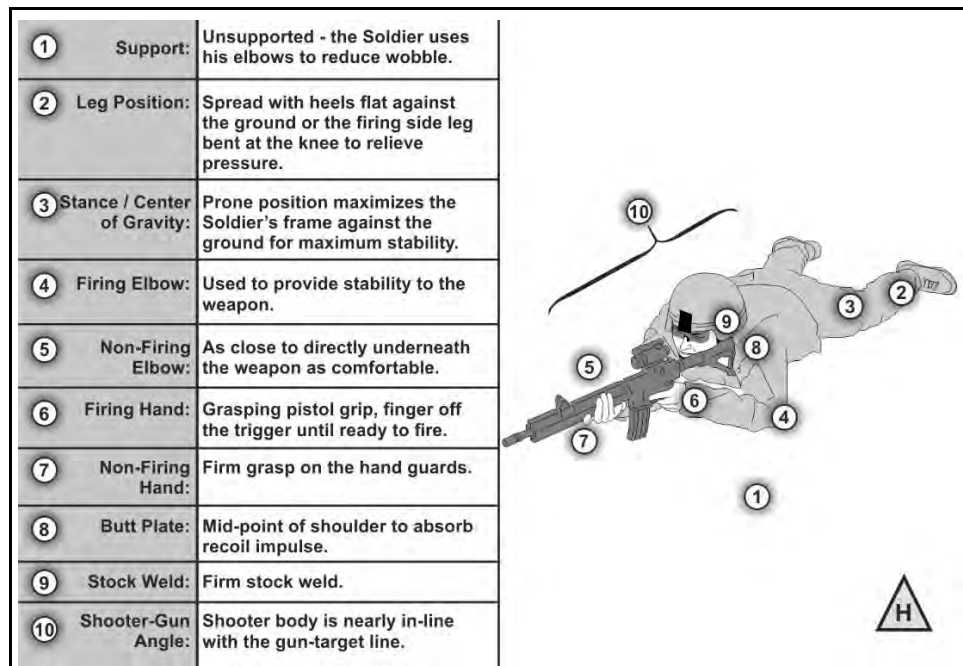


Figure 6-17. Prone, unsupported example

Note. The magazine can be rested on the ground while using the prone unsupported position. Firing with the magazine on the ground will NOT induce a malfunction.

Stability**PRONE, SUPPORTED**

6-48. The prone supported position allows for the use of support, such as sandbags (see figure 6-18). Soldiers must build a stable, consistent position that focuses on the following key areas:

- **Firing hand.** The firer should have a firm handshake grip on the pistol grip and place their finger on the trigger where it naturally falls.
- **Nonfiring hand.** The nonfiring hand is placed to maximize control the weapon and where it is comfortable on the artificial support.
- **Leg position.** The firer's legs may be either spread with heels as flat as possible on ground or the firing side leg may be bent at the knee to relieve pressure on the stomach.
- **Artificial support.** The artificial support should be at a height that allows for stability without interfering with the other elements of the position.

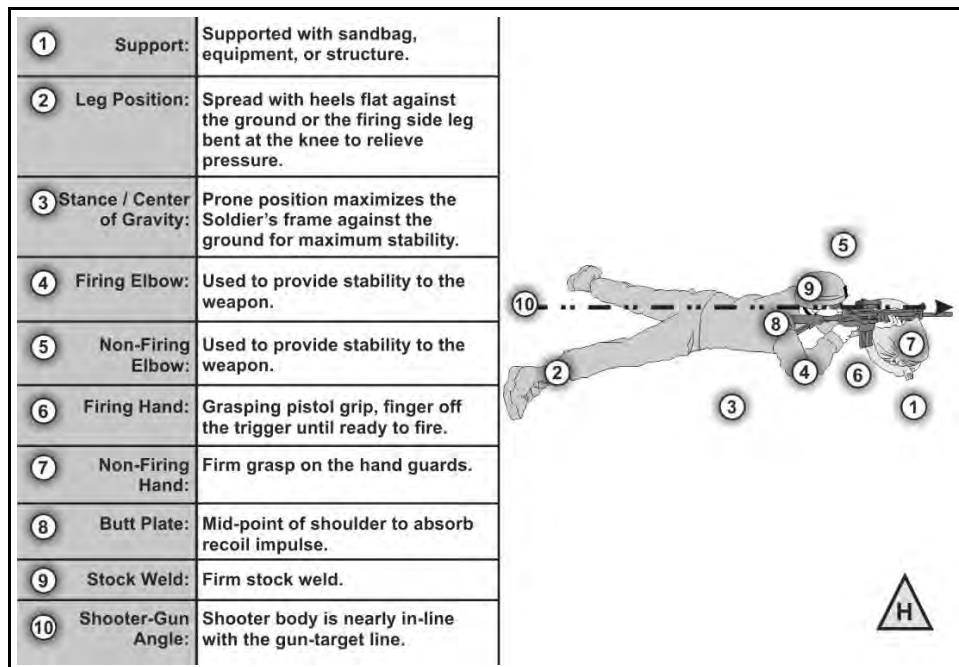


Figure 6-18. Prone, supported example

Chapter 6

PRONE, ROLL-OVER

6-49. This position allows the firer to shoot under obstacles or cover that would not normally be attainable from the standard conventional prone position (see figure 6-19). With this position, the bullet trajectory will be off compared to the line of sight and increase with distance from the firer.

For example, in the figure below the sights are rotated to the right. The trajectory of the bullet will be lower than and to the right of point of aim. This error will increase with range.

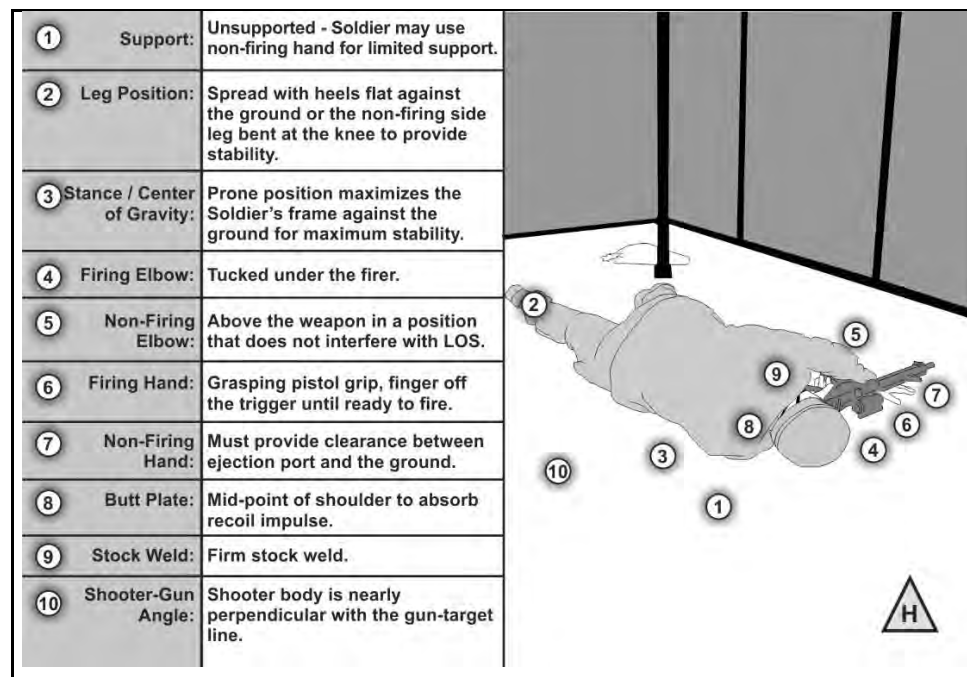


Figure 6-19. Prone, roll-over example

Stability**PRONE, REVERSE ROLL-OVER**

6-50. This position is primarily used when the firer needs to keep behind cover that is too low to use while in a traditional prone position (see figure 6-20). The bullet's trajectory will be off considerably at long distances while in this position.

6-51. This position is the most effective way to support the weapon when the traditional prone is too low to be effective and where a kneeling position is too high to gain cover or a solid base for support.

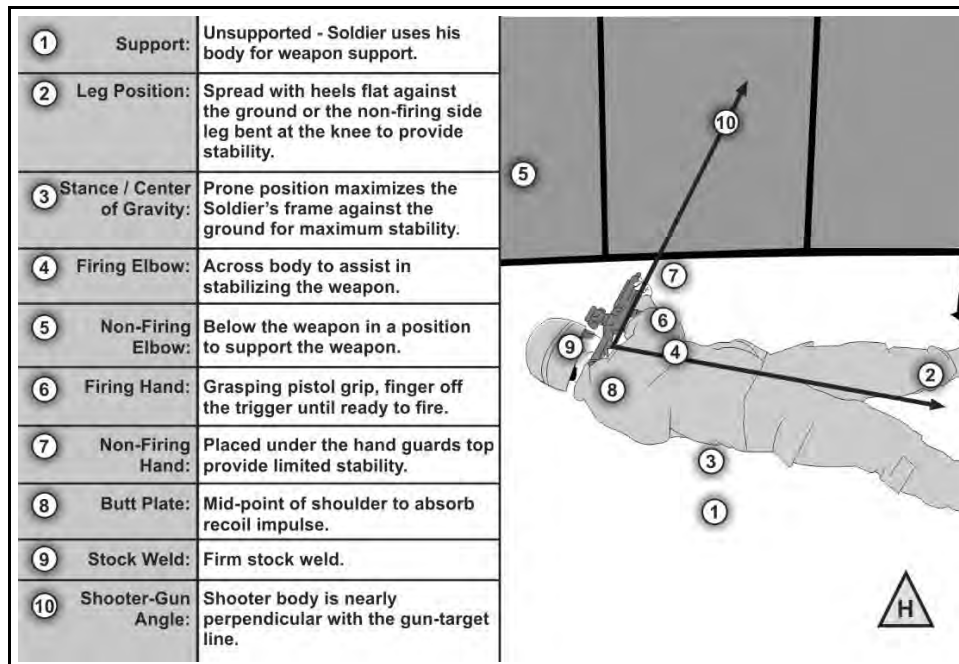


Figure 6-20. Reverse roll-over prone firing position

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Chapter 7

Aim

The functional element aim of the shot process is the continuous process of orienting the weapon correctly, aligning the sights, aligning on the target, and the application of the appropriate lead and elevation during a target engagement. Aiming is a continuous process conducted through pre-shot, shot, and post-shot, to effectively apply lethal fires in a responsible manner with accuracy and precision.

Aiming is the application of perfectly aligned sights on a specific part of a target. Sight alignment is the first and most important part of this process.

COMMON ENGAGEMENTS

7-1. The aiming process for engaging stationary targets consist of the following Soldier actions, regardless of the optic, sight, or magnification used by the aiming device:

- **Weapon orientation** – the direction of the weapon as it is held in a stabilized manner.
- **Sight alignment** – the physical alignment of the aiming device:
 - Iron sight/back-up iron sight and the front sight post.
 - Optic reticle.
 - Ballistic reticle (day or thermal).
- **Sight picture** – the target as viewed through the line of sight.
- **Point of aim (POA)** – the specific location where the line of sight intersects the target.
- **Desired point of impact (POI)** – the desired location of the strike of the round to achieve the desired outcome (incapacitation or lethal strike).

7-2. The aim of the weapon is typically applied to the largest, most lethal area of any target presented. Sights can be placed on target by using battlesight zero (BZ), **center of visible mass (CoVM)**. The center of visible mass is the initial point of aim on a target of what can be seen by the Soldier. It does not include what the target size is expected or anticipated to be. For example, a target located behind a car exposes its head. The center of visible mass is in the center of the head, not the estimated location of the center of the overall target behind the car.

Chapter 7

WEAPON ORIENTATION

7-3. The Soldier orients the weapon in the direction of the detected threat. Weapon orientation includes both the horizontal plane (azimuth) and the vertical plane (elevation). Weapon orientation is complete once the sight and threat are in the Soldier's field of view.

- **Horizontal weapons orientation** covers the frontal arc of the Soldier, spanning the area from the left shoulder, across the Soldier's front, to the area across the right shoulder (see figure 7-1).

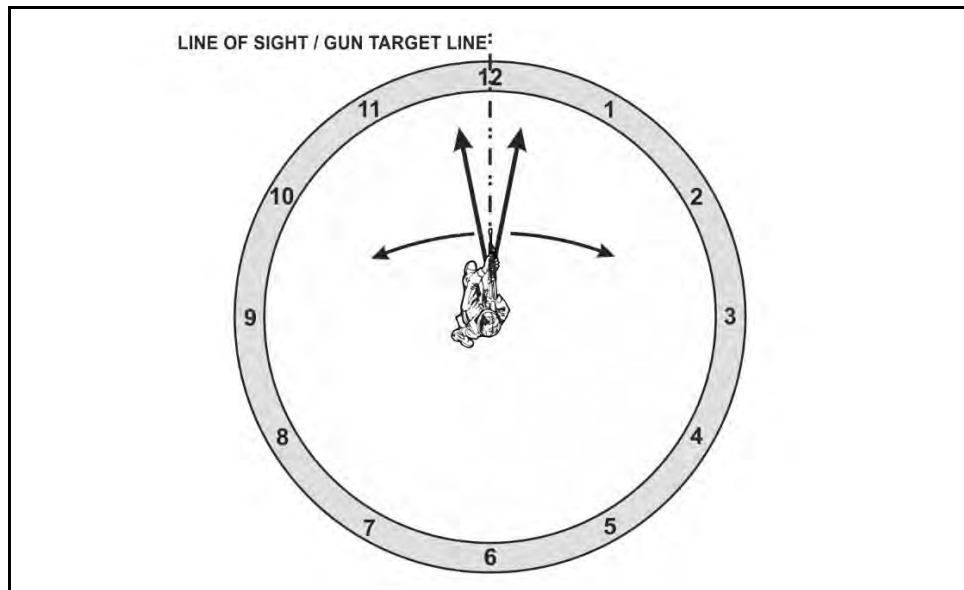


Figure 7-1. Horizontal weapon orientation example

Aim

- **Vertical weapons orientation** includes all the aspects of orienting the weapon at a potential or confirmed threat in elevation. This is most commonly applied in restricted, mountainous, or urban terrain where threats present themselves in elevated or depressed firing positions (see figure 7-2).

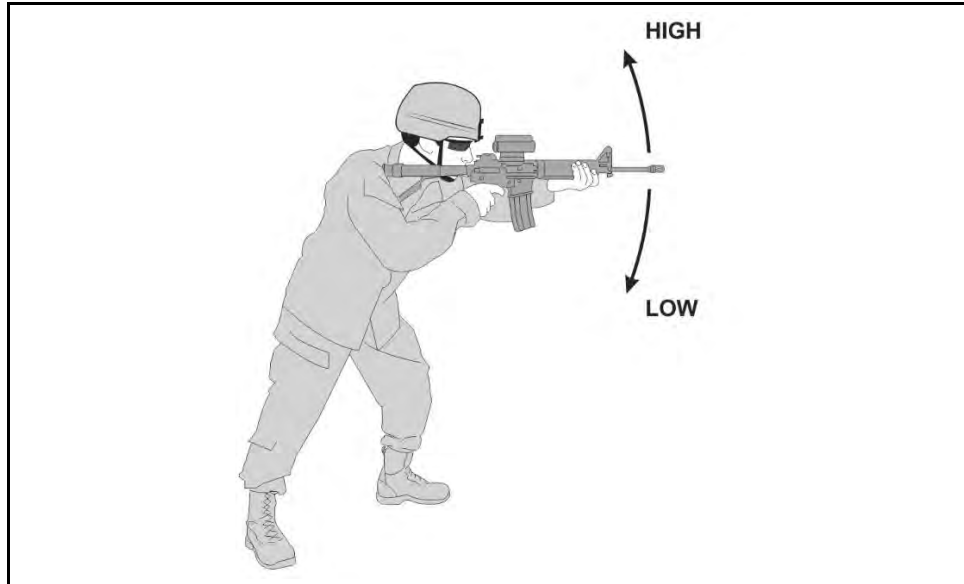


Figure 7-2. Vertical weapons orientation example

SIGHT ALIGNMENT

7-4. Sight alignment is the relationship between the aiming device and the firer's eye. The process used by a Soldier depends on the aiming device employed with the weapon.

- **Iron sight** – the relationship between the front sight post, rear sight aperture, and the firer's eye. The firer aligns the tip of the front sight post in the center of the rear aperture and his/or her eye. The firer will maintain focus on the front sight post, simultaneously centering it in the rear aperture.
- **Optics** – the relationship between the reticle and the firer's eye and includes the appropriate eye relief, or distance of the Soldier's eye from the optic itself. Ensure the red dot is visible in the CCO, or a full centered field of view is achieved with no shadow on magnified optics
- **Thermal** – the relationship between the firer's eye, the eyepiece, and the reticle.
- **Pointers / Illuminators / Lasers** – the relationship between the firer's eye, the night vision device placement and focus, and the laser aiming point on the target.

Chapter 7

Note. Small changes matter - 1/1000 of an inch deviation at the weapon can result in up to an 18 inch deviation at 300 meters.

7-5. The human eye can only focus clearly on one object at a time. To achieve proper and effective aim, the focus of the firer's eye needs to be on the front sight post or reticle (see figure 7-3). This provides the most accurate sight alignment for the shot process.

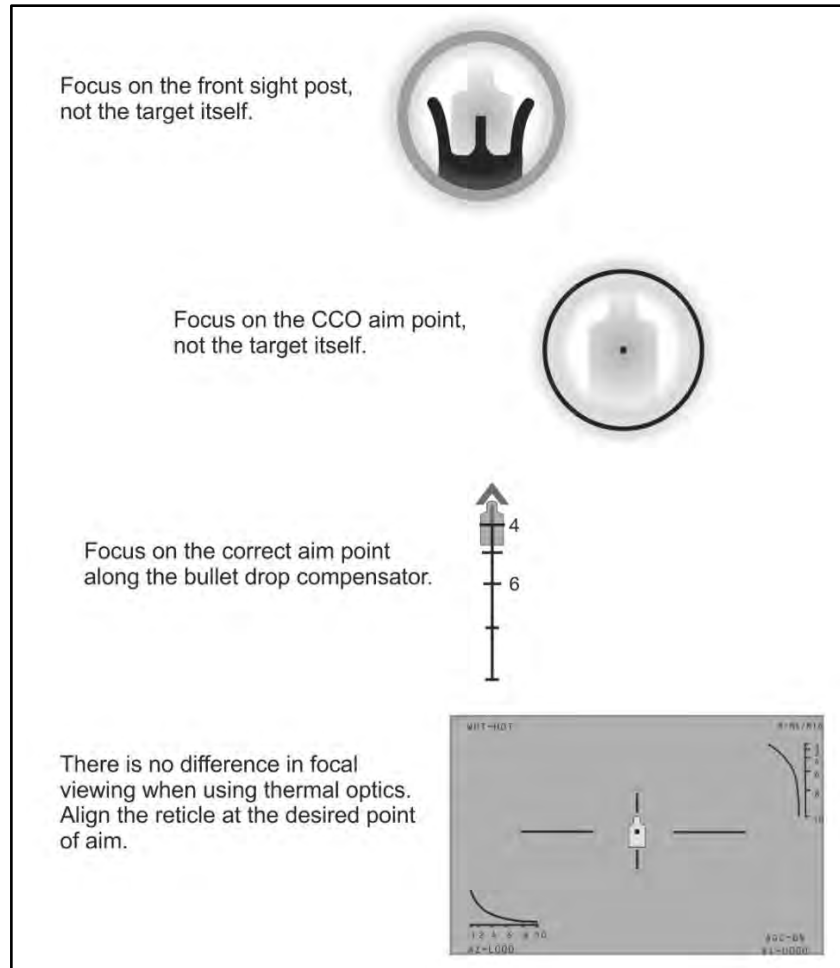


Figure 7-3. Front sight post/reticle aim focus

7-6. Firers achieve consistent sight alignment by resting the full weight of their head on the stock in a manner that allows their dominant eye to look through the center of the aiming or sighting device. If the firer's head placement is subjected to change during the firing process or between shots, the Soldier will experience difficulty achieving accurate shot groups.

Aim

SIGHT PICTURE

7-7. The sight picture is the placement of the aligned sights on the target itself. The Soldier must maintain sight alignment throughout the positioning of the sights. This is not the same as sight alignment.

7-8. There are two sight pictures used during the shot process; pre-shot and post-shot. Soldiers must remember the sight pictures of the shot to complete the overall shot process.

- Pre-shot sight picture – encompasses the original point of aim, sight picture, and any holds for target or environmental conditions.
- Post-shot sight picture – is what the Soldier must use as the point of reference for any sight adjustments for any subsequent shot.

POINT OF AIM

7-9. The point on the target that is the continuation of the line created by sight alignment. The point of aim is a point of reference used to calculate any hold the Soldier deems necessary to achieve the desired results of the round's impact.

7-10. For engagements against stationary targets, under 300 meters, with negligible wind, and a weapon that has a 200 meter or 300 meter confirmed zero, the point of aim should be the center of visible mass of the target. The point of aim does not include ANY hold-off or lead changes necessary.

DESIRED POINT OF IMPACT

7-11. The desired point of impact is the location where the Soldier wants the projectile to strike the target. Typically, this is the center of visible mass. At any range different from the weapon's zero distance, the Soldier's desired point of impact and their point of aim will not align. This requires the Soldier to determine the necessary hold-off to achieve the desired point of impact.

COMMON AIMING ERRORS

7-12. Orienting and aiming a weapon correctly is a practiced skill. Through drills and repetitions, Soldiers build the ability to repeat proper weapons orientation, sight alignment, and sight picture as a function of muscle memory.

7-13. The most common aiming errors include:

- **Non-dominant eye use** – The Soldier gets the greatest amount of visual input from their dominant eye. Eye dominance varies Soldier to Soldier. Some Soldier's dominant eye will be the opposite of the dominant hand. For example, a Soldier who writes with his right hand and learns to shoot rifles right handed might learn that his dominant eye is the left eye. This is called cross-dominant. Soldiers with strong cross-dominant eyes should consider firing using their dominant eye side while firing from their non-dominant hand side. Soldiers can be trained to fire from either side of the weapon, but may not be able to shoot effectively using their nondominant eye.

Chapter 7

- **Incorrect zero** – regardless of how well a Soldier aims, if the zero is incorrect, the round will not travel to the desired point of impact without adjustment with subsequent rounds (see appendix C of this publication).
- **Light conditions** – limited visibility conditions contribute to errors aligning the sight, selecting the correct point of aim, or determining the appropriate hold. Soldiers may offset the effects of low light engagements with image intensifier (I2) optics, use of thermal optics, or the use of laser pointing devices with I2 optics.
- **Battlefield obscurants** – smoke, debris, and haze are common conditions on the battlefield that will disrupt the Soldier's ability to correctly align their sights, select the proper point of aim, or determine the correct hold for a specific target.
- **Incorrect sight alignment** – Soldiers may experience this error when failing to focus on the front sight post or reticle.
- **Incorrect sight picture** – occurs typically when the threat is in a concealed location, is moving, or sufficient winds between the shooter and target exist that are not accounted for during the hold determination process. This failure directly impacts the Soldier's ability to create and sustain the proper sight picture during the shot process.
- **Improper range determination** – will result in an improper hold at ranges greater than the zeroed range for the weapon.

COMPLEX ENGAGEMENTS

7-14. A complex engagement includes any shot that cannot use the **CoVM** as the point of aim to ensure a target hit. Complex engagements require a Soldier to apply various points of aim to successfully defeat the threat.

7-15. These engagements have an increased level of difficulty due to environmental, target, or shooter conditions that create a need for the firer to rapidly determine a ballistic solution and apply that solution to the point of aim. Increased engagement difficulty is typically characterized by one or more of the following conditions:

- **Target conditions:**
 - Range to target.
 - Moving targets.
 - Oblique targets.
 - Evasive targets.
 - Limited exposure targets.
- **Environmental conditions:**
 - Wind.
 - Angled firing.
 - Limited visibility.
- **Shooter conditions:**
 - Moving firing position.

Aim

- Canted weapon engagements.
- CBRN operations engagements.

7-16. Each of these firing conditions may require the Soldier to determine an appropriate aim point that is not the CoVM. This Soldier calculated aim point is called the **hold**. During any complex engagement, the Soldier serves as the ballistic computer during the shot process. The hold represents a refinement or alteration of the center of visible mass point of aim at the target to counteract certain conditions during a complex engagement for—

- Range to target.
- Lead for targets based on their direction and speed of movement.
- Counter-rotation lead required when the Soldier is moving in the opposite direction of the moving target.
- Wind speed, direction, and duration between the shooter and the target at ranges greater than 300 meters.
- Greatest lethal zone presented by the target to provide the most probable point of impact to achieve immediate incapacitation.

7-17. The Soldier will apply the appropriate aim (hold) based on the firing instances presented. Hold determinations will be discussed in two formats; immediate and deliberate.

7-18. All Soldiers must be familiar with the immediate hold determination methods. They should be naturally applied when the engagement conditions require. These determinations are provided in “target form” measurements, based on a standard E-type silhouette dimension, approximately 20 inches wide by 40 inches tall.

IMMEDIATE HOLD DETERMINATION

7-19. Immediate holds are based on the values of a “target form,” where the increments shown *are sufficient* for rapid target hits without ballistic computations. The immediate hold determinations are not as accurate as the deliberate method, and are used for complex target engagements at less than 300 meters.

7-20. Immediate hold locations for azimuth (wind or lead): (See figure 7-4.)

Chapter 7

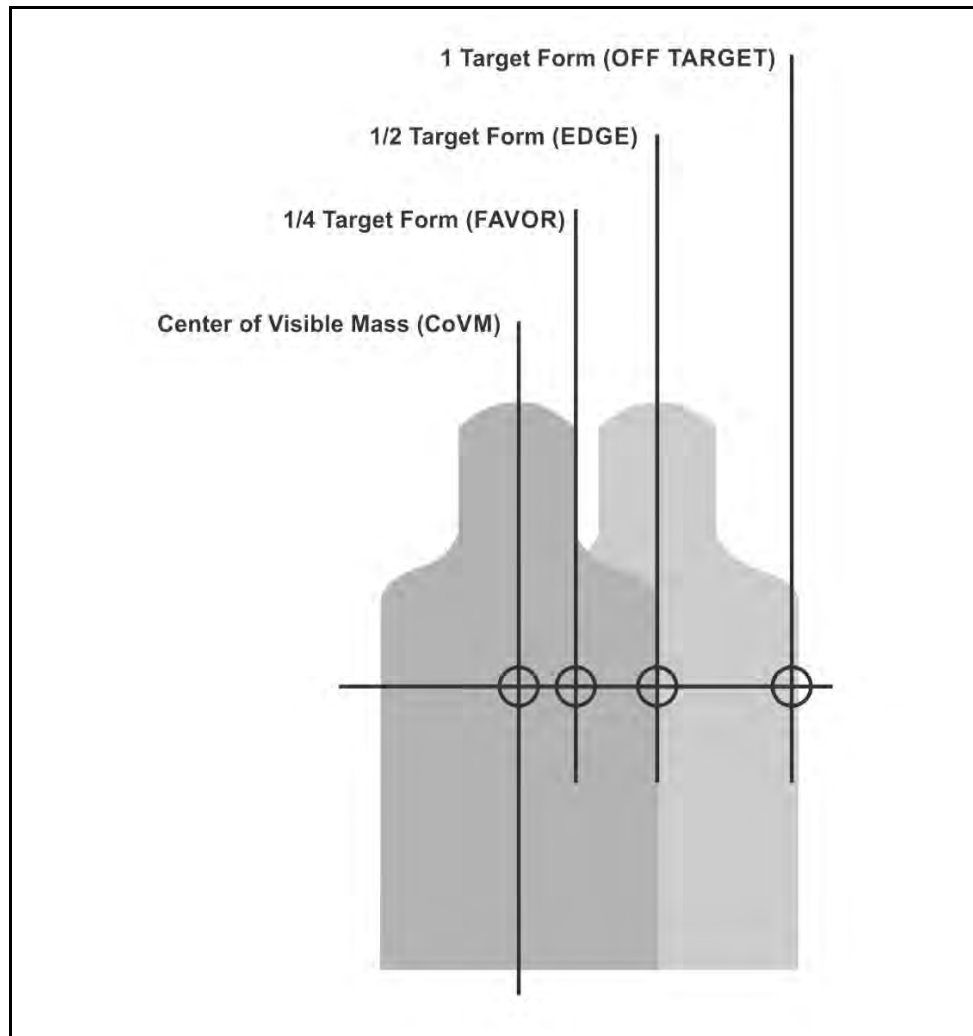


Figure 7-4. Immediate hold locations for windage and lead example

7-21. Immediate hold locations for elevation (range to target): (See figure 7-5.)

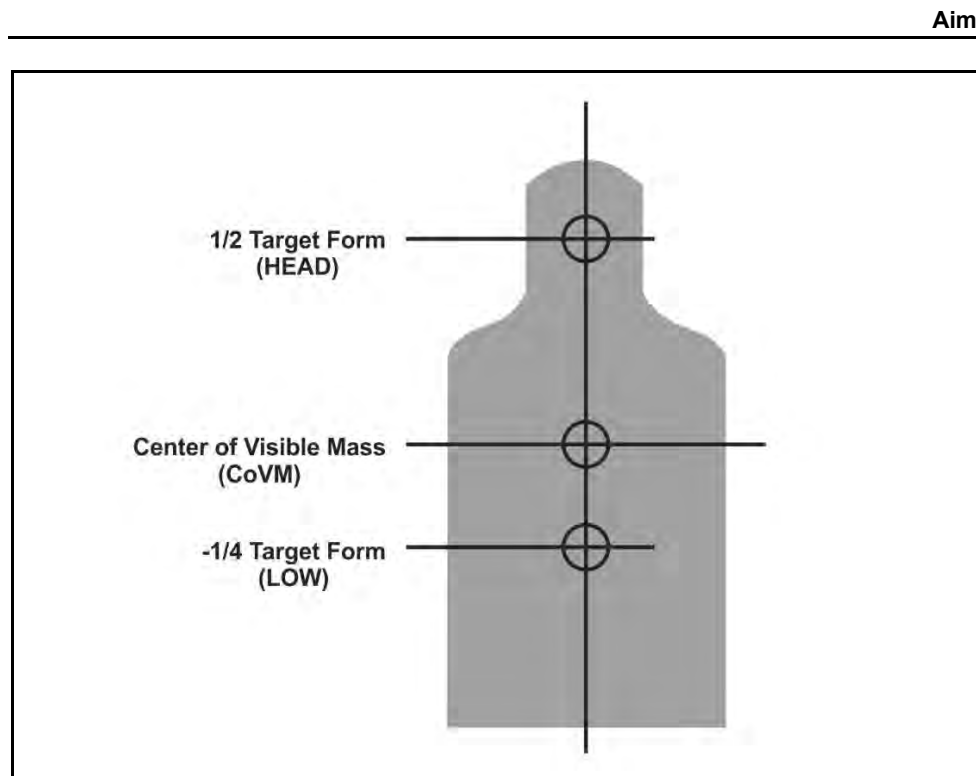


Figure 7-5. Immediate hold locations for elevation (range) example

DELIBERATE HOLD DETERMINATION

7-22. Deliberate hold points of aim are derived from applying the appropriate ballistic math computation. Deliberate hold determinations are required for precise shots beyond 300 meters for wind, extended range, moving, oblique, or evasive targets.

7-23. Deliberate holds for complex engagements are discussed in detail in appendix C, Complex Engagements. The deliberate math calculations are for advanced shooters within the formation and are not discussed within this chapter.

Chapter 7

TARGET CONDITIONS

7-24. Soldiers must consider several aspects of the target to apply the proper point of aim on the target. The target's posture, or how it is presenting itself to the shooter, consists of—

- Range to target.
- Nature of the target.
- Nature of the terrain (surrounding the target).

RANGE TO TARGET

7-25. Rapidly determining an accurate range to target is critical to the success of the Soldier at mid and extended ranges. There are several range determination methods shooters should be confident in applying to determine the proper hold-off for pending engagements. There are two types of range determination methods, immediate and deliberate.

Immediate Range Determination

7-26. Immediate methods of range determination afford the shooter the most reliable means of determining the most accurate range to a given target. The immediate methods include—

- Close quarters engagements.
- Laser range finder.
- Front sight post method.
- Recognition method.
- 100-meter unit-of-measure method.

Close Quarters Engagements

7-27. Short-range engagements are probable in close terrain (such as urban or jungle) with engagement ranges typically less than 50 meters. Soldiers must be confident in their equipment, zero, and capabilities to defeat the threats encountered.

7-28. Employment skills include swift presentation and application of the shot process (such as quick acquisition of sight picture) to maintain overmatch. At close ranges, perfect sight alignment is not as critical to the accurate engagement of targets. The weapon is presented rapidly and the shot is fired with the front sight post placed roughly center mass on the desired target area. The front sight post must be in the rear sight aperture.

Note. If using iron sights when this type of engagement is anticipated, the large rear sight aperture (0-2) should be used to provide a wider field of view and detection of targets.

Aim

Laser Range Finder

7-29. Equipment like the AN/PSQ-23, STORM have an on-board laser range finder that is accurate to within +/- 5 meters. Soldiers with the STORM attached can rapidly determine the most accurate range to target and apply the necessary hold-offs to ensure the highest probability of incapacitation, particularly at extended ranges.

Front Sight Post Method

7-30. The area of the target that is covered by the front sight post of the rifle can be used to estimate range to the target. By comparing the appearance of the rifle front sight post on a target at known distances, your shooters can establish a mental reference point for determining range at unknown distances. Because the apparent size of the target changes as the distance to the target changes, the amount of the target that is covered by the front sight post will vary depending upon its range. In addition, your shooter's eye relief and perception of the front sight post will also affect the amount of the target that is visible (see figure 7-6).

- Less Than 300 Meters. If the target is wider than the front sight post, you can assume that the target is less than 300 meters and can be engaged point of aim/point of impact using your battle sight zero (BZO).
- Greater Than 300 Meters. The service rifle front sight post covers the width of a man's chest or body at approximately 300 meters. If the target is less than the width of the front sight post, you should assume the target is in excess of 300 meters. Therefore, your BZO cannot be used effectively.



Figure 7-6. Front sight post method example

Recognition Method

7-31. When observing a target, the amount of detail seen at various ranges gives the shooter a solid indication of the range to target. Shooters should study and remember the appearance of a person when they are standing at 100 meters increments. During

Chapter 7

training, Soldiers should note the details of size and the characteristics of uniform and equipment for targets at those increments.

7-32. Once Soldiers are familiar and memorize the characteristics of standing threats at 100 meter increments out to 500 meters, they should study the targets in a kneeling and then in the prone position. By comparing the appearance of these positions at known ranges from 100 meters to 500 meters, shooters can establish a series of mental images that will help determine range on unfamiliar terrain. They should also study the appearance of other familiar objects such as weapons and vehicles.

- **100 meters** – the target can be clearly observed in detail, and facial features can be distinguished.
- **200 meters** – the target can be clearly observed, although there is a loss of facial detail. The color of the skin and equipment is still identifiable.
- **300 meters** – the target has a clear body outline, face color usually remains accurate, but remaining details are blurred.
- **400 meters** – the body outline is clear, but remaining detail is blurred.
- **500 meters** – the body shape begins to taper at the ends. The head becomes indistinct from the shoulders.

100-meter Unit-of-Measure Method

7-33. To determine the total distance to the target using the 100 meter unit of measure method, shooters must visualize a distance of 100 meters (generally visualizing the length of a football field) on the ground. Soldiers then estimate how many of these units can fit between the shooter and the target.

7-34. The greatest limitation of the unit of measure method is that its accuracy is directly related to how much of the terrain is visible. This is particularly true at greater ranges. If a target appears at a range of 500 meters or more and only a portion of the ground between your shooter and the target can be seen, it becomes difficult to use the unit of measure method of range estimation with accuracy.

7-35. Proficiency in the unit of measure method requires constant practice. Throughout training, comparisons should be continually made between the range estimated by your shooter and the actual range as determined by pacing or other, more accurate measurement.

Immediate hold for Range to Target

7-36. Immediate range determination holds are based on the zero applied to the weapon. The 300 meter zero is the Army standard and works in all tactical situations, including close quarters combat. Figure 7-7, on page 7-13, shows the appropriate immediate holds for range to target based on the weapon's respective zero:

Aim






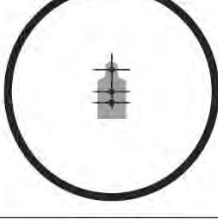

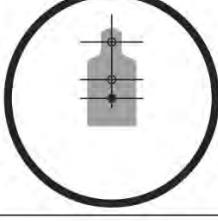
RANGE	HOLD	IRON SIGHT	CCO, M68
500 m	1 FORM OVER	USE BDC	
400 m	1/2 HEAD	USE BDC	
300 m	CoVM		
200 m	-1/4 LOW		
100 m	-1/4 LOW		
BDC - Bullet Drop Compensator			

Figure 7-7. Immediate holds for range to target

13 May 2016

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7-13

Chapter 7

MOVING TARGETS

7-37. Moving targets are those threats that appear to have a consistent pace and direction. Targets on any battlefield will not remain stationary for long periods of time, particularly once a firefight begins. Soldiers must have the ability to deliver lethal fires at a variety of moving target types and be comfortable and confident in the engagement techniques. There are two methods for defeating moving targets; tracking and trapping.

Immediate hold for moving targets.

7-38. The immediate hold for moving targets includes an estimation of the speed of the moving target and an estimation of the range to that target. The immediate holds for all moving targets are shown below. (See figure 7-8.)

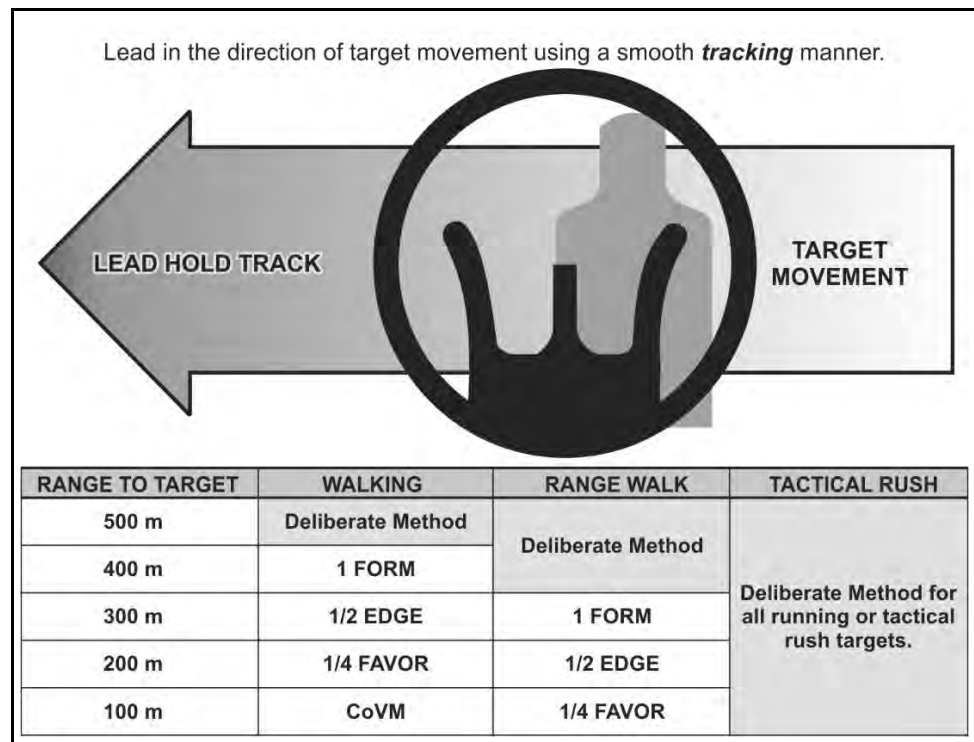


Figure 7-8. Immediate holds for moving targets example

Aim

OBLIQUE TARGETS

7-39. Threats that are moving diagonally toward or away from the shooter are called *oblique targets*. They offer a unique problem set to shooters where the target may be moving at a steady pace and direction; however, their oblique direction of travel makes them appear to move slower.

7-40. Soldiers should adjust their hold based on the angle of the target's movement from the gun-target line. The following guide will help Soldiers determine the appropriate change to the moving target hold to apply to engage the moving oblique threats (see figure 7-9).

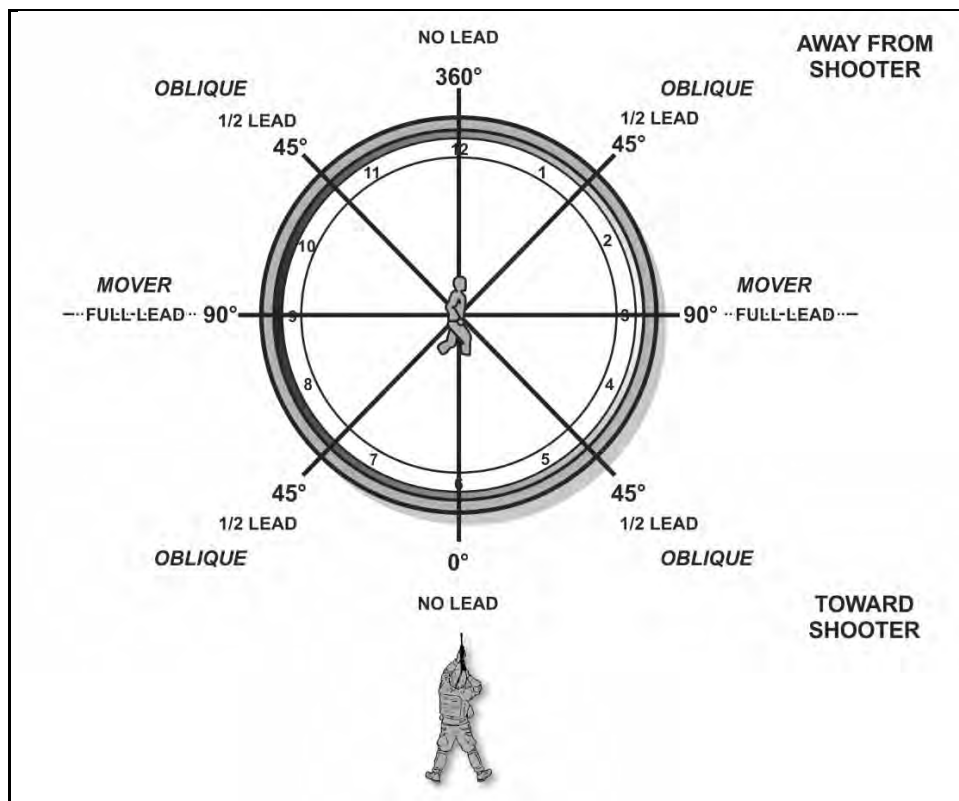


Figure 7-9. Oblique target example

Chapter 7

ENVIRONMENTAL CONDITIONS

7-41. The environment can complicate the shooter's actions during the shot process with excessive wind or requiring angled firing limited visibility conditions. Soldiers must understand the methods to offset or compensate for these firing occasions, and be prepared to apply these skills to the shot process. This includes when multiple complex conditions compound the ballistic solution during the firing occasion.

WIND

7-42. Wind is the most common variable and has the greatest effect on ballistic trajectories, where it physically pushes the projectile during flight off the desired trajectory (see appendix B of this publication). The effects of wind can be compensated for by the shooter provided they understand how wind effects the projectile and the terminal point of impact. The elements of wind effects are—

- The time the projectile is exposed to the wind (range).
- The direction from which the wind is blowing.
- The velocity of the wind on the projectile during flight.

Wind Direction and Value

7-43. Winds from the left blow the projectile to the right, and winds from the right blow the projectile to the left. The amount of the effect depends on the time of (projectile's exposure) the wind speed and direction. To compensate for the wind, the firer must first determine the wind's direction and value.

7-44. The clock system can be used to determine the direction and value of the wind (See figure 7-10 on page 7-17). Picture a clock with the firer oriented downrange towards 12 o'clock.

7-45. Once the direction is determined, the value of the wind is next. The value of the wind is how much effect the wind will have on the projectile. Winds from certain directions have less effect on projectiles. The chart below shows that winds from 2 to 4 o'clock and 8 to 10 o'clock are considered full-value winds and will have the most effect on the projectile. Winds from 1, 5, 7, and 11 o'clock are considered half-value winds and will have roughly half the effect of a full-value wind. Winds from 6 and 12 o'clock are considered no-value winds and little or no effect on the projectile.

EXAMPLE

A 10-mph (miles per hour) wind blowing from the 1 o'clock direction would be a half-value wind and has the same effect as a 5 mph, full-value wind on the projectile.

Aim

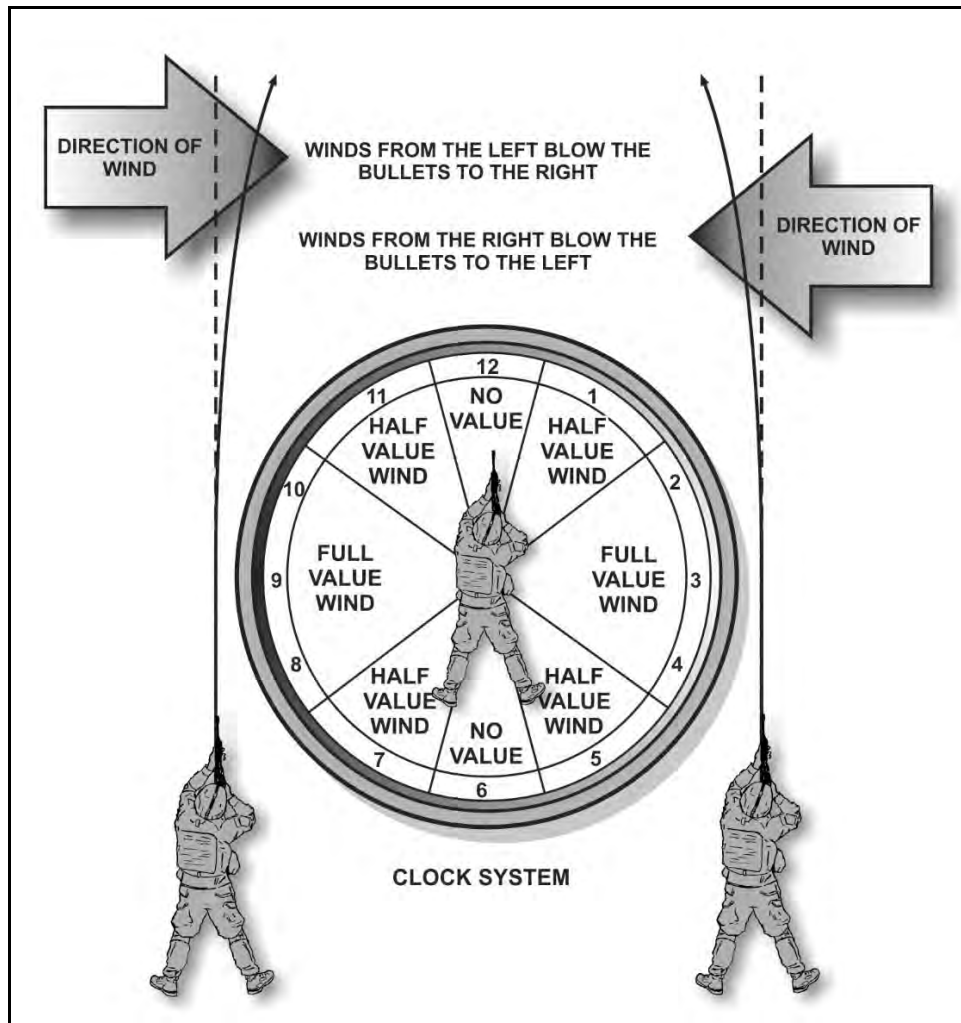


Figure 7-10. Wind value

7-46. The wind will push the projectile in the direction the wind is blowing (see figure 7-11). The amount of effects on the projectile will depend on the time of exposure, direction of the wind, and speed of the wind. To compensate for wind the Soldier uses a hold *in the direction of the wind (into the wind)*.

13 May 2016

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7-17

Chapter 7

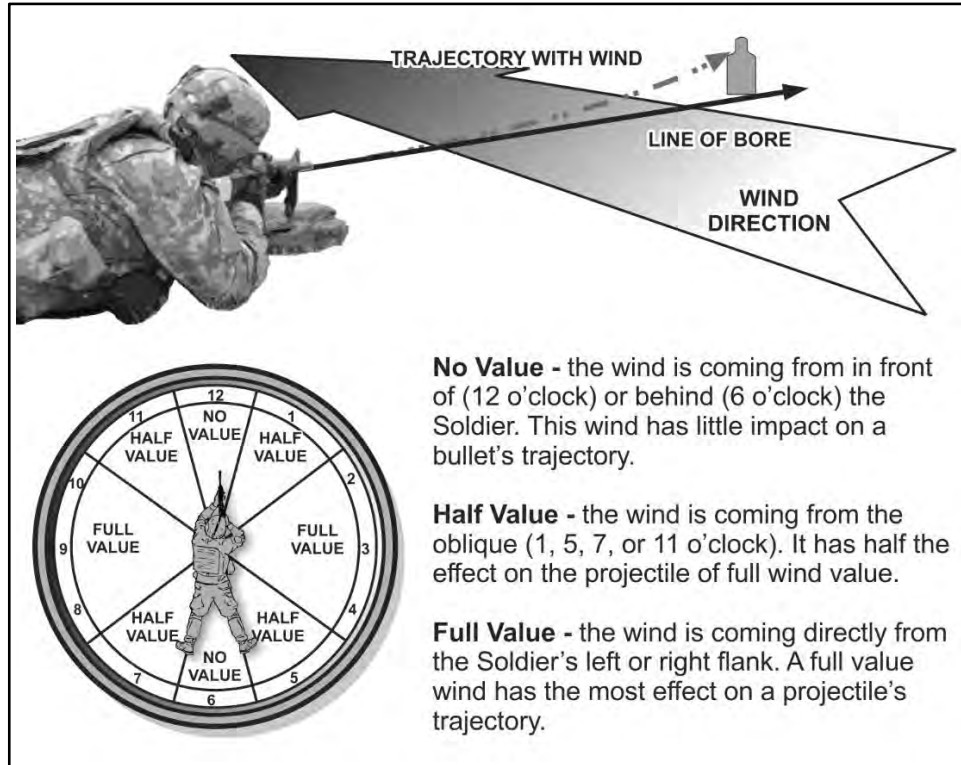


Figure 7-11. Wind effects

Wind Speed

7-47. Wind speeds can vary from the firing line to the target. Wind speed can be determined by taking an average of the winds blowing on the range. The firer's focus should be on the winds between the midrange point and the target. The wind at the one half to two thirds mark will have the most effect on the projectile since that is the point where most projectiles have lost a large portion of their velocity and are beginning to destabilize.

7-48. The Soldier can observe the movement of items in the environment downrange to determine the speed. Each environment will have different vegetation that reacts differently.

7-49. Downrange wind indicators include the following:

- 0 to 3 mph = Hardly felt, but smoke drifts.
- 3 to 5 mph = Felt lightly on the face.
- 5 to 8 mph = Keeps leaves in constant movement.

Chapter 7

- 8 to 12 mph = Raises dust and loose paper.
- 12 to 15 mph = Causes small trees to sway.

7-50. The wind blowing at the Soldiers location may not be the same as the wind blowing on the way to the target.

Wind Estimation

7-51. Soldiers must be comfortable and confident in their ability to judge the effects of the wind to consistently make accurate and precise shots. Soldiers will use wind indicators between the Soldier and the target that provide windage information to develop the proper compensation or hold-off.

7-52. To estimate the effects of the wind on the shot, Soldiers need to determine three windage factors:

- Velocity (speed).
- Direction.
- Value.

Immediate Wind Hold

7-53. Using a hold involves changing the point of aim to compensate for the wind drift. For example, if wind causes the bullet to drift 1/2 form to the left, the aiming point must be moved 1/2 form to the right. (See figure 7-12, page 7-20.)

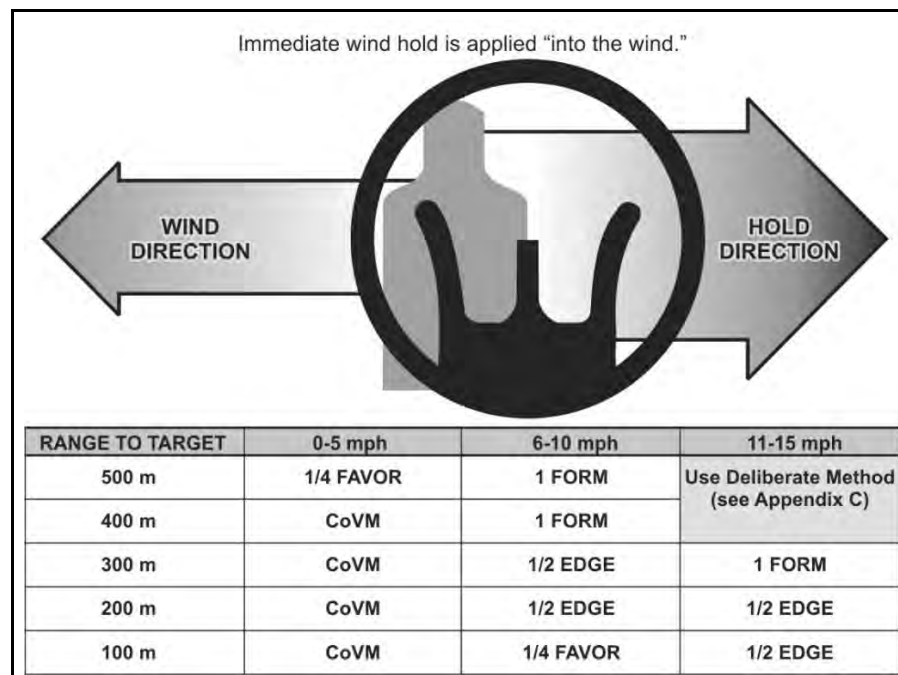


Figure 7-12. Wind hold example

Chapter 7

7-54. Firers must adjust their points of aim into the wind to compensate for its effects. If they miss a distant target and wind is blowing from the right, they should aim to the right for the next shot. A guide for the initial adjustment is to split the front sight post on the edge of the target facing the wind.

7-55. Newly assigned Soldiers should aim at the target's center of visible mass for the first shot, and then adjust for wind when they are confident that wind caused the miss. Experienced firers should apply the appropriate hold for the first shot, but should follow the basic rule—when in doubt, aim at the center of mass.

LIMITED VISIBILITY

7-56. Soldiers must be lethal at night and in limited visibility conditions, as well as during the day. That lethality depends largely on whether Soldier can fire effectively with today's technology: night vision devices (NVDs), IR aiming devices, and TWSs.

7-57. Limited visibility conditions may limit the viewable size of a threat, or cause targets to be lost after acquisition. In these situations, Soldiers may choose to apply a hold for where a target is *expected* to be rather than wait for the target to present itself for a more refined reticle lay or sight picture.

7-58. Soldiers may switch between optics, thermals, and pointers to refine their point of aim. To rapidly switch between aiming devices during operations in limited visibility, the Soldier must ensure accurate alignment, boresighting, and zeroing of all associated equipment. Confidence in the equipment is achieved through drills related to changing the aiming device during engagements, executing repetitions with multiple pieces of equipment, and practicing nonstandard engagement techniques using multiple aiming devices in tandem (IR pointer with NVDs, for example).

Chapter 8

Control

The control element of employment considers all the conscious actions of the Soldier before, during, and after the shot process that the Soldier's specifically in control of. It incorporates the Soldier as a function of safety, as well as the ultimate responsibility of firing the weapon.

Proper trigger control, without disturbing the sights, is the most important aspect of control and the most difficult to master.

Combat is the ultimate test of a Soldier's ability to apply the functional elements of the shot process and firing skills. Soldiers must apply the employment skills mastered during training to all combat situations (for example, attack, assault, ambush, or urban operations). Although these tactical situations present problems, the application of the functional elements of the shot process require two additions: changes to the rate of fire and alterations in weapon/target alignment. This chapter discusses the engagement techniques Soldiers must adapt to the continuously changing combat engagements.

8-1. When firing individual weapons, the Soldier is the weapon's fire control system, ballistic computer, stabilization system, and means of mobility. Control refers to the Soldier's ability to regulate these functions and maintain the discipline to execute the shot process at the appropriate time.

8-2. Regardless of how well trained or physically strong a Soldier is, a wobble area (or arc of movement) is present, even when sufficient physical support of the weapon is provided. The arc of movement (AM) may be observed as the sights moving in a W shape, vertical (up and down) pulses, circular, or horizontal arcs depending on the individual Soldier, regardless of their proficiency in applying the functional elements. The wobble area or arc of movement is the extent of lateral horizontal and front-to-back variance in the movement that occurs in the sight picture (see figure 8-1).

Chapter 8

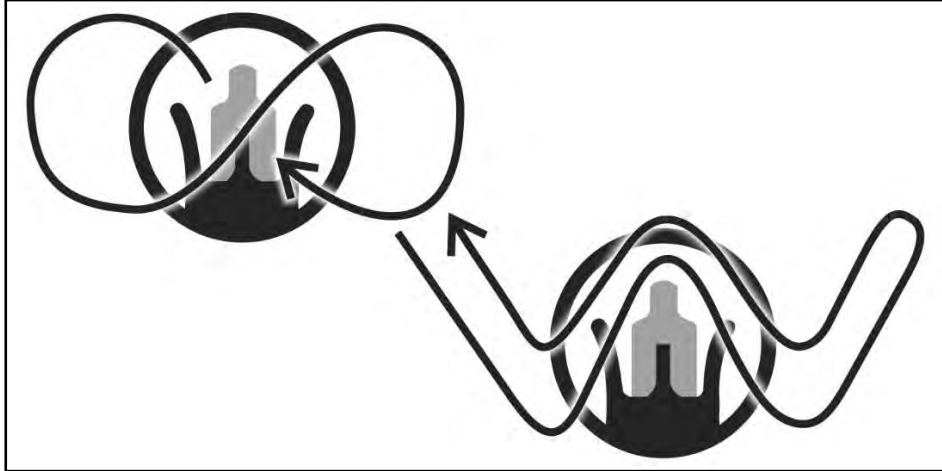


Figure 8-1. Arc of movement example

8-3. The control element consists of several supporting Soldier functions, and include all the actions to minimize the Soldier's induced arc of movement. Executed correctly, it provides for the best engagement window of opportunity to the firer. The Soldier physically maintains positive control of the shot process by managing—

- Trigger control.
- Breathing control.
- Workspace.
- Calling the shot (firing or shot execution).
- Follow-through.

TRIGGER CONTROL

8-4. Trigger control is the act of firing the weapon while maintaining proper aim and adequate stabilization until the bullet leaves the muzzle. Trigger control and the shooter's position work together to allow the sights to stay on the target long enough for the shooter to fire the weapon and bullet to exit the barrel.

8-5. Stability and trigger control complement each other and are integrated during the shot process. A stable position assists in aiming and reduces unwanted movements during trigger squeeze without inducing unnecessary movement or disturbing the sight picture. A smooth, consistent trigger squeeze, regardless of speed, allows the shot to fire at the Soldier's moment of choosing. When both a solid position and a good trigger squeeze are achieved, any induced shooting errors can be attributed to the aiming process for refinement.

8-6. Smooth trigger control is facilitated by placing the finger where it naturally lays on the trigger. Natural placement of the finger on the trigger will allow for the best mechanical advantage when applying rearward pressure to the trigger.

Control

- **Trigger finger placement** – the trigger finger will lay naturally across the trigger after achieving proper grip (see figure 8-2). There is no specified point on the trigger finger that must be used. It will not be the same for all Soldiers due to different size hands. This allows the Soldier to engage the trigger in the most effective manner
- **Trigger squeeze** – The Soldier pulls the trigger in a smooth consistent manner adding pressure until the weapon fires. Regardless of the speed at which the Soldier is firing the trigger control will always be smooth.
- **Trigger reset** – It is important the Soldier retains focus on the sights while resetting the trigger.

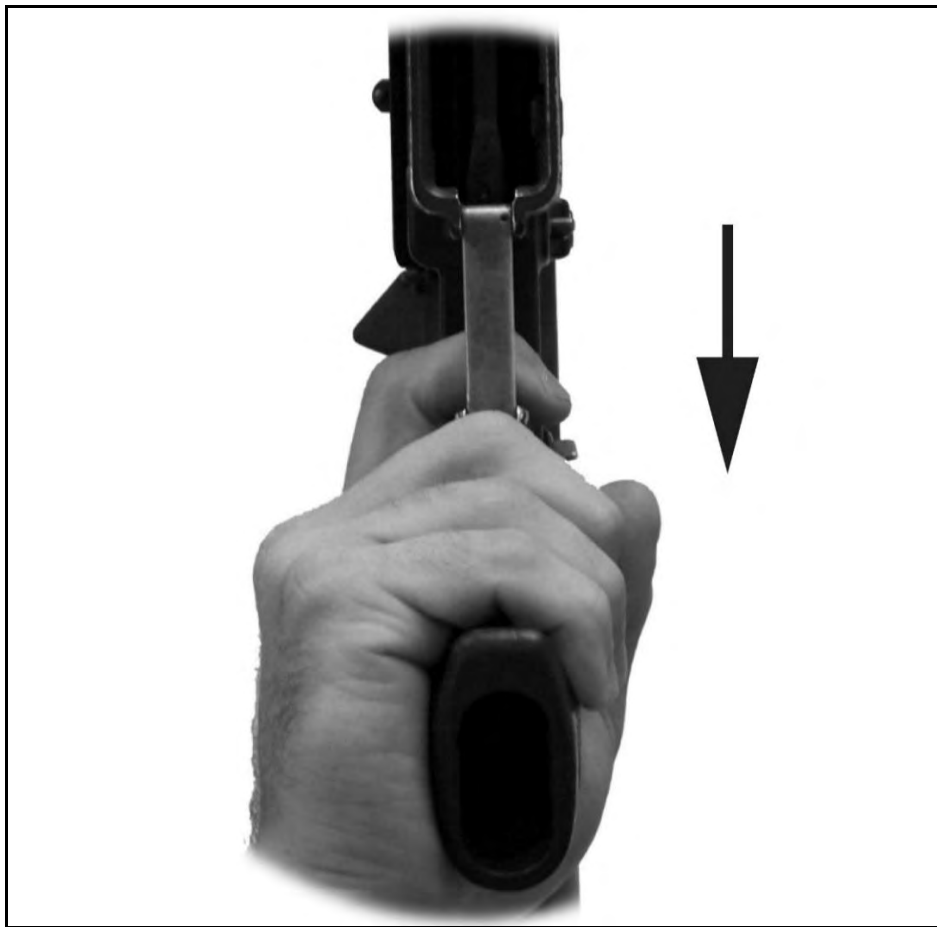


Figure 8-2. Natural trigger finger placement

Chapter 8

BREATHING CONTROL

8-7. During the shot process, the shooter controls their breathing to reduce the amount of movement of the weapon. During training, the Soldier will learn a method of breathing control that best suits their shooting style and preference. Breathing control is the relationship of the respiratory process (free or under stress) and the decision to execute the shot with trigger squeeze.

8-8. Breathing induces unavoidable body movement that contribute to wobble or the arc of movement (AM) during the shot process. Soldiers cannot completely eliminate all motion during the shot process, but they can significantly reduce its effects through practice and technique. Firing on the natural pause is a common technique used during grouping and zeroing.

8-9. Vertical dispersion during grouping is most likely not caused by breathing but by failure to maintain proper aiming and trigger control. Refer to appendix E of this publication for proper target analysis techniques.

WORKSPACE MANAGEMENT

8-10. The workspace is a spherical area, 12 to 18 inches in diameter centered on the Soldier's chin and approximately 12 inches in front of their chin. The workspace is where the majority of weapons manipulations take place. (See figure 8-3 on page 8-5.)

8-11. Conducting manipulations in the workspace allows the Soldier to keep his eyes oriented towards a threat or his individual sector of fire while conducting critical weapons tasks that require hand and eye coordination. Use of the workspace creates efficiency of motion by minimizing the distance the weapon has to move between the firing position to the workspace and return to the firing position.

8-12. Location of the workspace will change slightly in different firing positions. There are various techniques to use the workspace. Some examples are leaving the butt stock in the shoulder, tucking the butt stock under the armpit for added control of the weapon, or placing the butt stock in the crook of the elbow.

8-13. Workspace management includes the Soldier's ability to perform the following functions:

- **Selector lever** – to change the weapon's status from safe to semiautomatic, to burst/automatic from any position.

Note. Some models will have ambidextrous selectors.

- **Charging handle** – to smoothly use the charging handle during operation. This includes any corrective actions to overcome malfunctions, loading, unloading, or clearing procedures.
- **Bolt catch** – to operate the bolt catch mechanism on the weapon during operations.
- **Ejection port** – closing the ejection port cover to protect the bolt carrier assembly, ammunition, and chamber from external debris upon completion

Control

of an engagement. This includes observation of the ejection port area during malfunctions and clearing procedures.

- **Magazine catch** – the smooth functioning of the magazine catch during reloading procedures, clearing procedures, or malfunction corrective actions.
- **Chamber check** – the sequence used to verify the status of the weapon's chamber.
- **Forward assist** – the routine use of the forward assist assembly of the weapon during loading procedures or when correcting malfunctions.

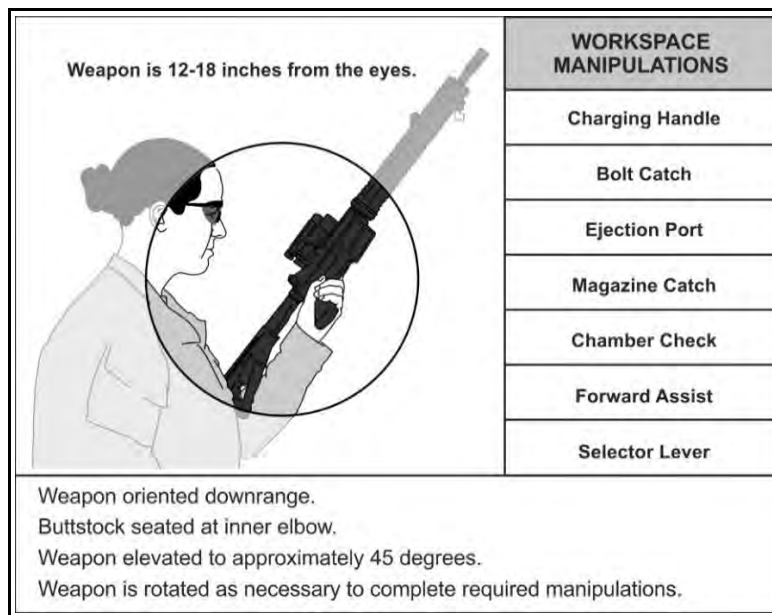


Figure 8-3. Workspace example

CALLING THE SHOT

8-14. Knowing precisely where the sights are when the weapon discharges is critical for shot analysis. Errors such as flinching or jerking of the trigger can be seen in the sights before discharge.

8-15. Calling a shot refers to a firer stating exactly where he thinks a single shot strikes by recalling the sights relationship to the target when the weapon fired. This is normally expressed in clock direction and inches from the desired point of aim.

8-16. The shooter is responsible for the point of impact of every round fired from their weapon. This requires the Soldier to ensure the target area is clear of friendly and neutral actors, in front of and behind the target. Soldiers must also be aware of the environment the target is positioned in, particularly in urban settings—friendly or neutral actors may be present in other areas of a structure that the projectile can pass through.

Chapter 8

RATE OF FIRE

8-17. The shooter must determine *how* to engage the threat with the weapon, on the current shot as well as subsequent shots. Following the direction of the team leader, the Soldier controls the rate of fire to deliver consistent, lethal, and precise fires against the threat.

SLOW SEMIAUTOMATIC FIRE

8-18. Slow semiautomatic fire is moderately paced at the discretion of the Soldier, typically used in a training environment or a secure defensive position at approximately 12 to 15 rounds per minute. All Soldiers learn the techniques of slow semiautomatic fire during their introduction to the service rifle during initial entry training. This type of firing provides the Soldier the most time to focus on the functional elements in the shot process and reinforces all previous training.

RAPID SEMIAUTOMATIC FIRE

8-19. Rapid semiautomatic fire is approximately 45 rounds per minute and is typically used for multiple targets or combat scenarios where the Soldier does not have overmatch of the threat. Soldiers should be well-trained in all aspects of slow semiautomatic firing before attempting any rapid semiautomatic fire training.

8-20. Those who display a lack of knowledge of employment skills should not advance to rapid semiautomatic fire training until these skills are learned and mastered.

AUTOMATIC OR BURST FIRE

8-21. Automatic or burst fire is when the Soldier is required to provide suppressive fires with accuracy, and the need for precise fires, although desired, is not as important. Automatic or burst fires drastically decrease the probability of hit due to the rapid succession of recoil impulses and the inability of the Soldier to maintain proper sight alignment and sight picture on the target.

8-22. Soldiers should be well-trained in all aspects of slow semiautomatic firing before attempting any automatic training.

Control

FOLLOW-THROUGH

8-23. Follow-through is the continued mental and physical application of the functional elements of the shot process after the shot has been fired. The firer's head stays in contact with the stock, the firing eye remains open, the trigger finger holds the trigger back through recoil and then lets off enough to reset the trigger, and the body position and breathing remain steady.

8-24. Follow-through consists of all actions controlled by the shooter after the bullet leaves the muzzle. It is required to complete the shot process. These actions are executed in a general sequence:

- **Recoil management.** This includes the bolt carrier group recoiling completely and returning to battery.
- **Recoil recovery.** Returning to the same pre-shot position and reacquiring the sight picture. The shooter should have a good sight picture before and after the shot.
- **Trigger/Sear reset.** Once the ejection phase of the cycle of function is complete, the weapon initiates and completes the cocking phase. As part of the cocking phase, all mechanical components associated with the trigger, disconnect, and sear are reset. Any failures in the cocking phase indicate a weapon malfunction and require the shooter to take the appropriate action. The shooter maintains trigger finger placement and releases pressure on the trigger until the sear is reset, demonstrated by a metallic click. At this point the sear is reset and the trigger pre-staged for a subsequent or supplemental engagement if needed.
- **Sight picture adjustment.** Counteracting the physical changes in the sight picture caused by recoil impulses and returning the sight picture onto the target aiming point.
- **Engagement assessment.** Once the sight picture returns to the original point of aim, the firer confirms the strike of the round, assesses the target's state, and immediately selects one of the following courses of action:
 - **Subsequent engagement.** The target requires additional (subsequent) rounds to achieve the desired target effect. The shooter starts the pre-shot process.
 - **Supplemental engagement.** The shooter determines the desired target effect is achieved and another target may require servicing. The shooter starts the pre-shot process.
 - **Sector check.** All threats have been adequately serviced to the desired effect. The shooter then checks his sector of responsibility for additional threats as the tactical situation dictates. The unit's SOP will dictate any vocal announcements required during the post-shot sequence.
 - **Correct Malfunction.** If the firer determines during the follow-through that the weapon failed during one of the phases of the cycle of function, they make the appropriate announcement to their team and immediately execute corrective action.

Chapter 8

MALFUNCTIONS

8-25. When any weapon fails to complete any phase of the cycle of function correctly, a malfunction has occurred. When a malfunction occurs, the Soldier's priority remains to defeat the target as quickly as possible. The malfunction, Soldier capability, and secondary weapon capability determine if, when, and how to transition to a secondary weapon system.

8-26. The Soldier controls which actions must be taken to ensure the target is defeated as quickly as possible based on secondary weapon availability and capability, and the level of threat presented by the range to target and its capability:

- **Secondary weapon can defeat the threat.** Soldier transitions to secondary weapon for the engagement. If no secondary weapon is available, announce their status to the small team, and move to a covered position to correct the malfunction.
- **Secondary weapon cannot defeat the threat.** Soldiers quickly move to a covered position, announce their status to the small team, and execute corrective action.
- **No secondary weapon.** Soldiers quickly move to a covered position, announce their status to the small team, and execute corrective action.

8-27. The end state of any of corrective action is a properly functioning weapon. Typically, the phase where the malfunction occurred within the cycle of function identifies the general problem that must be corrected. From a practical, combat perspective, malfunctions are recognized by their symptoms. Although some symptoms do not specifically identify a single point of failure, they provide the best indication on which corrective action to apply.

8-28. To overcome the malfunction, the Soldier must first avoid over analyzing the issue. The Soldier must train to execute corrective actions immediately without hesitation or investigation during combat conditions.

8-29. There are two general types of corrective action:

- **Immediate action** – simple, rapid actions or motions taken by the Soldier to correct basic disruptions in the cycle of function of the weapon. Immediate action is taken when a malfunction occurs such that the trigger is squeeze and the hammer falls with an audible “click.”
- **Remedial action** – a skilled, technique that must be applied to a specific problem or issue with the weapon that will not be corrected by taking immediate action. Remedial action is taken when the cycle of function is interrupted where the trigger is squeezed and either has little resistance during the squeeze (“mush”) or the trigger cannot be squeezed.

8-30. No single corrective action solution will resolve *all* or *every* malfunction. Soldiers need to understand what failed to occur, as well as any specific sounds or actions of the weapon in order to apply the appropriate correction measures.

Control

8-31. Immediate action can correct rudimentary failures during the cycle of function:

- **Failure to fire** – is when a round is locked into the chamber, the weapon is ready to fire, the select switch is placed on SEMI or BURST / AUTO, and the trigger is squeezed, the hammer falls (audible click), and the weapon does not fire.
- **Failure to feed** – is when the bolt carrier assembly is expected to move return back into battery but *is prevented from moving all the way forward*. A clear gap can be seen between the bolt carrier assembly and the forward edge of the ejection port. This failure may cause a stove pipe or a double feed (see below).
- **Failure to chamber** – when the round is being fed into the chamber, but the bolt carrier assembly does not fully seat forward, failing to chamber the round and lock the bolt locking lugs with the barrel extension's corresponding lugs.
- **Failure to extract** – when either automatically or manually, the extractor loses its grip on the cartridge case or the bolt seizes movement rearward during extraction that leaves the cartridge case partially removed or fully seated.
- **Failure to eject** – occurs when, either automatically or manually, a cartridge case is extracted from the chamber fully, but does not leave the upper receiver through the ejection port.

8-32. Remedial action requires the Soldier to quickly identify one of four issues and apply a specific technique to correct the malfunction. Remedial action is required to correct the following types of malfunctions or symptoms:

- **Immediate action fails to correct symptom** – when a malfunction occurred that initiated the Soldier to execute immediate action and multiple attempts failed to correct the malfunction. A minimum of two cycles of immediate action should have been completed; first, without a magazine change, and the second with a magazine change.
- **Stove pipe** – can occur when either a feeding cartridge or an expended cartridge case is pushed sideways during the cycle of function causing that casing to stop the forward movement of the bolt carrier assembly and lodge itself between the face of the bolt and the ejection port.
- **Double feed** – occurs when a round is chambered and not fired and a subsequent round is being fed without the chamber being clear.
- **Bolt override** – is when the bolt fails to push a new cartridge out of the magazine during feeding or chambering, causing the bolt to ride on top of the cartridge.
- **Charging handle impingement** – when a round becomes stuck between the bolt assembly and the charging handle where the charging handle is not in the forward, locked position.

8-33. Although there are other types of malfunctions or disruptions to the cycle of function, those listed above are the most common. Any other malfunction will require additional time to determine the true point of failure and an appropriate remedy.

Chapter 8

Note. When malfunctions occur in combat, the Soldier must announce STOPPAGE or another similar term to their small unit, quickly move to a covered location, and correct the malfunction as rapidly as possible. If the threat is too close to the Soldier or friendly forces, and the Soldier has a secondary weapon, the Soldier should immediately transition to secondary to defeat the target prior to correcting the malfunction.

RULES FOR CORRECTING A MALFUNCTION

8-34. To clear a malfunction, the Soldier must—

- **Apply Rule #1.** Soldiers must remain coherent of their weapon and continue to treat their weapon as if it is loaded when correcting malfunctions.
- **Apply Rule #2.** Soldiers must ensure the weapon's orientation is appropriate for the tactical situation and not flag other friendly forces when correcting malfunctions.
- **Apply Rule #3.** Take the trigger finger off the trigger, keep it straight along the lower receiver placed outside of the trigger guard.
- **Do not attempt to place the weapon on SAFE** (unless otherwise noted). Most stoppages will not allow the weapon to be placed on safe because the sear has been released or the weapon is out of battery. Attempting to place the weapon on SAFE will waste time and potentially damage the weapon.
- **Treat the symptom.** Each problem will have its own specific symptoms. By reacting to what the weapon is “telling” the Soldier, they will be able to quickly correct the malfunction.
- **Maintain focus on the threat.** The Soldier must keep their head and eyes looking downrange at the threat, not at the weapon. If the initial corrective action fails to correct the malfunction, the Soldier must be able to quickly move to the next most probable corrective action.
- **Look last.** Do not look and analyze the weapon to determine the cause of the malfunction. Execute the drill that has the highest probability of correcting the malfunction.
- **Check the weapon.** Once the malfunction is clear and the threat is eliminated, deliberately check the weapon when in a covered location for any potential issues or contributing factors that caused the malfunction and correct them.

Control

Perform Immediate Action

8-35. To perform immediate action, the Soldier instinctively:

- Hears the hammer fall with an audible “click.”
- Taps the bottom of the magazine firmly.
- Rapidly pulls the charging handle and releases to extract / eject the previous cartridge and feed, chamber, and lock a new round.
- Reassess by continuing the shot process.

Note. If a malfunction continues to occur with the same symptoms, the Soldier will remove the magazine and insert a new loaded magazine, then repeat the steps above.

Perform Remedial Action

8-36. To perform remedial action, the Soldier must have a clear understanding of where the weapon failed during the cycle of function. Remedial action executed when one of the following conditions exist:

- Immediate action does not work after two attempts.
- The trigger refuses to be squeezed.
- The trigger feels like “mush” when squeezed.

8-37. When one of these three symptoms exist, the Soldier looks into the chamber area through the ejection port to quickly assess the type of malfunction. Once identified, the Soldier executes actions to “reduce” the symptom by removing the magazine and attempting to clear the weapon. Once complete, visually inspect the chamber area, bolt face, and charging handle. Then, complete the actions for the identified symptom:

- **Stove pipe** – Grasp case and attempt to remove, cycle weapon and attempt to fire. If this fails, pull charging handle to the rear while holding case.
- **Double-feed** - the Soldier must remove the magazine, clear the weapon, confirm the chamber area is clear, secure a new loaded magazine into the magazine well, and chamber and lock a round.
- **Bolt override** – Remove magazine. Pull charging handle as far rearward as possible. Strike charging handle forward. If this fails, pull charging handle to the rear a second time, use tool or finger to hold the bolt to the rear, sharply send charging handle forward.

Chapter 8

CORRECTING MALFUNCTIONS

8-38. Figure 8-4 below provides a simple mental flow chart to rapidly overcome malfunctions experienced during the shot process.

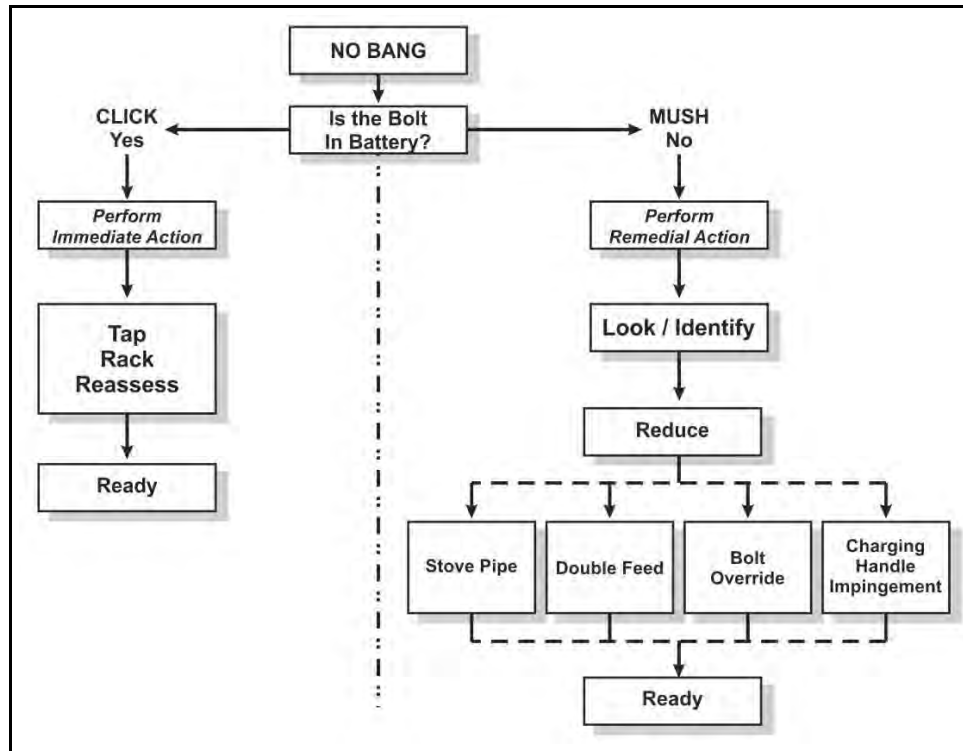


Figure 8-4. Malfunction corrective action flow chart

Control

COOK-OFF

8-39. Rapid and continuous firing of several magazines in sequence without cooling, will severely elevate chamber temperatures. While unlikely this elevated temperature may cause a malfunction known as a "cook-off". A "cook-off" may occur while the round is locked in the chamber, due to excessive heating of the ammunition. Or the rapid exposure to the cooler air outside of the chamber, due in part to the change in pressure.

8-40. If the Soldier determines that he has a potential "cook-off" situation he should leave the weapon directed at the target, or in a known safe direction, and follow proper weapons handling procedures, until the barrel of the weapon has had time to cool. If the chambered round has not been locked in the chamber for 10 seconds, it should be ejected as quickly as possible. If the length of time is questionable or known to be longer than 10 seconds and it is tactically sound, the Soldier should follow the above procedures until the weapon is cooled. If it is necessary to remove the round before the weapon has time to cool, the Soldier should do so with care as the ejected round may detonate due to rapid cooling in open air.

WARNING

Ammunition "cook-off" is not likely in well maintained weapons used within normal training and combat parameters.

Soldiers and unit leadership need to consider the dangers of keeping rounds chambered in weapons that have elevated temperatures due to excessive firing. Or clearing ammunition that has the potential to cook-off when exposed to the cooler air outside of the chamber.

Exposure to the colder air outside of the chamber has the potential to cause the "cook-off" of ammunition. Keeping ammunition chambered in severely elevated temperatures also has the potential to cause the "cook-off" of ammunition.

Note. For more information about troubleshooting malfunctions and replacing components, see organizational and direct support maintenance publications and manuals.

Chapter 8

TRANSITION TO SECONDARY WEAPON

8-41. A secondary weapon, such as a pistol, is the most efficient way to engage a target at close quarters when the primary weapon has malfunctioned. The Soldier controls which actions must be taken to ensure the target is defeated as quickly as possible based on the threat presented.

8-42. The firer transitions by taking the secondary weapon from the HANG or HOLSTERED position to the READY UP position, reacquiring the target, and resuming the shot process as appropriate.

8-43. Refer to the appropriate secondary weapon's training publications for the specific procedures to complete the transition process.

Chapter 9

Movement

The movement functional element is the process of the Soldier moving tactically during the engagement process. It includes the Soldier's ability to move laterally, forward, diagonally, and in a retrograde manner while maintaining stabilization, appropriate aim, and control of the weapon.

Proper application of the shot process during movement is vital to combat operations. The most complex engagements involve movement of both Soldier and the adversary. The importance of sight alignment and trigger control are at their highest during movement. The movement of the Soldier degrades stability, the ability to aim, and creates challenges to proper trigger control.

MOVEMENT TECHNIQUES

9-1. Tactical movement of the Soldier is classified in two ways: vertical and horizontal. Each require specific considerations to maintain and adequately apply the other functional elements during the shot process.

9-2. **Vertical movements** are those actions taken to change their firing posture or negotiate terrain or obstacles while actively seeking, orienting on, or engaging threats. Vertical movements include actions taken to—

- Change between any of the primary firing positions; standing, crouched, kneeling, sitting, or prone.
- Negotiate stairwells in urban environments.
- Travel across inclined or descending surfaces, obstacles, or terrain.

9-3. **Horizontal movements** are actions taken to negotiate the battlefield while actively seeking, orienting on, or engaging threats. There are eight horizontal movement techniques while maintaining weapon orientation on the threat—

- **Forward** – movement in a direction directly toward the adversary.
- **Retrograde** – movement rearward, in a direction away from the threat while maintaining weapon orientation on the threat.
- **Lateral right/left** – lateral, diagonal, forward, or retrograde movement to the right or left.
- **Turning left/right/about** – actions taken by the Soldier to change the weapon orientation left/right or to the rear, followed by the Soldier's direction of travel turning to the same orientation.

Chapter 9

FORWARD MOVEMENT

9-4. Forward movement is continued progress in a direction toward the adversary or route of march. This is the most basic form of movement during an engagement.

TECHNIQUE

9-5. During forward movement,—

- Roll the foot heel to toe to best provide a stable firing platform.
- Shooting while moving should be very close to the natural walking gait and come directly from the position obtained while stationary.
- Keep the weapon at the ready position. Always maintain awareness of the surroundings, both to your left and right, at all times during movement.
- Maintain an aggressive position.
- The feet should almost fall in line during movement. This straight-line movement will reduce the arc of movement and visible “bouncing” of the sight picture.
- Keep the muzzle of the weapon facing down range toward the expected or detected threat.
- Keep the hips as stationary as possible. Use the upper body as a turret, twisting at the waist, maintaining proper platform with the upper body.

RETROGRADE MOVEMENT

9-6. Retrograde movement is where the orientation of the weapon remains to the Soldier’s front while the Soldier methodically moves rearward.

TECHNIQUE

9-7. During retrograde movement, the Soldier should—

- Take only one or two steps that will open the distance or reposition the feet.
- Place the feet in a toe to heel manner and drop the center body mass by consciously bending the knees, using a reverse combat glide.
- Maintain situational awareness of team members, debris, and terrain.
- Use the knees as a shock absorber to steady the body movement to maintain the stability of the upper body, stabilizing the rifle sight(s) on the target.
- Ensure all movement is smooth and steady to maintain stability.
- Bend forward at the waist to put as much mass as possible behind the weapon for recoil management.
- Keep the muzzle oriented downrange toward the expected or detected threat.
- Keep the hips as stationary as possible. Use the upper body as a turret, twisting at the waist, maintaining proper platform with the upper body.

Movement

LATERAL MOVEMENT

9-8. Lateral movement is where the Soldier maintains weapon orientation downrange at the expected or detected threat while moving to the left or right. In the most extreme cases, the target will be offset 90 degrees or more from the direction of movement.

TECHNIQUE

9-9. During lateral movement, Soldiers should—

- Place their feet heel to toe and drop their center mass by consciously bending the knees.
- Use the knees as a shock absorber to steady the body movement to maintain the stability of the upper body, stabilizing the rifle sight(s) on the target.
- Ensure all movement is smooth and steady to maintain stability.
- Bend forward at the waist to put as much mass as possible behind the weapon for recoil management.
- Roll the foot, heel to toe, as you place the foot on the ground and lift it up again to provide for the smoothest motion possible.
- Keep the weapon at the alert or ready carry. Do not aim in on the target until ready to engage.
- Maintain awareness of the surroundings, both to the left and right, at all times during movement.
- Trigger control when moving is based on the wobble area. The Soldier shoots when the sights are most stable, not based on foot position.
- Keep the muzzle of the weapon facing down range toward the threat.
- When moving, the placement of the feet should be heel to toe.
- Do not overstep or cross the feet, because this can decrease the Soldier's balance and center of gravity.
- Keep the hips as stationary as possible. Use the upper body as a turret, twisting at the waist, maintaining proper platform with the upper body.

Note. It is more difficult to engage adversaries to the firing side while moving laterally. The twist required to achieve a full 90-degree offset requires proper repetitive training. The basic concept of movement must be maintained, from foot placement to platform.

Twisting at the waist will not allow the weapon to be brought to a full 90 degrees off the direction of travel, especially with nonadjustable butt stocks. The Soldier will need to drop the non-firing shoulder and roll the upper body toward the nonfiring side. This will cause the weapon and upper body to cant at approximately a 45-degree angle, relieving some tension in the abdominal region, allowing the Soldier to gain a few more degrees of offset.

Chapter 9

TURNING MOVEMENT

9-10. Turning movement are used to engage widely dispersed targets in the oblique and on the flanks. Turning skills are just as valuable in a rapidly changing combat environment as firing on the move (such as lateral movement) skills are and should only be used with the alert carry.

9-11. It does not matter which direction the Soldier is turning or which side is the Soldier's strong side. The Soldier must maintain the weapon at an exaggerated low-alert carry for the duration of the turn.

9-12. Muzzle awareness must be maintained at all times. Ensure that the muzzle does not begin to come up on target the body is completely turned toward the threat.

9-13. When executing a turn to either side, the Soldier will—

- **Look first.** Turn head to the direction of the turn first.
- **Weapon follows the eyes.** The Soldier moves the weapon smoothly to where the eyes go.
- **Follow with the body.** The body will begin movement with the movement of the weapon. Soldiers finish the body movement smoothly to maintain the best possible stability for the weapon.
- **Maintain situational awareness.** The Soldier must be completely aware of the surrounding terrain, particularly for tripping hazards. When necessary, Soldiers should visually check their surroundings during the turning action and return their vision to the target area as quickly as possible.

Appendix A

Ammunition

Appendix A discusses the characteristics and capabilities of the different ammunition available for the M4- and M16-series weapons. It also includes general ammunition information such as packaging, standard and North Atlantic Treaty Organization (NATO) marking conventions, the components of ammunition, and general principles of operation. The information within this appendix is 5.56mm for the M4- and M16-series weapons only.

SMALL ARMS AMMUNITION CARTRIDGES

A-1. Ammunition for use in rifles and carbines is described as a cartridge. A small arms cartridge (see figure A-1) is an assembly consisting of a cartridge case, a primer, a quantity of propellant, and a bullet. The following terminology describe the general components of all small arms ammunition (SAA) cartridges:

- **Cartridge case.** The cartridge case is a brass, rimless, center-fire case that provides a means to hold the other components of the cartridge.
- **Propellant.** The propellant (or powder) provides the energy to propel the projectile through the barrel and downrange towards a target through combustion.
- **Primer.** The primer is a small explosive charge that provides an ignition source for the propellant.
- **Bullet.** The bullet or projectile is the only component that travels to the target.

Note. Dummy cartridges are composed of a cartridge case and bullet, with no primer or propellant. Some dummy cartridges contain inert granular materials to simulate the weight and balance of live cartridges.

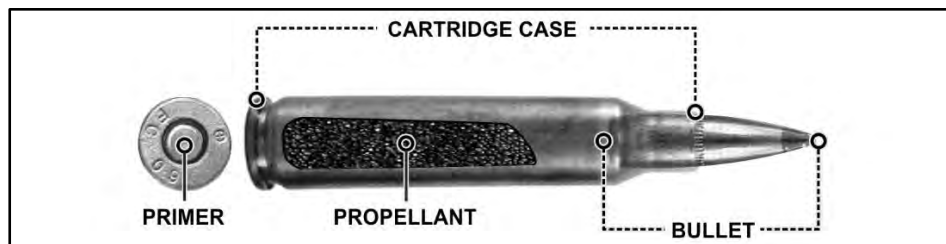


Figure A-1. Small arms ammunition cartridges

Appendix A

A-2. There are multiple types of bullets used for various purposes. These include ball, tracer, armor-piercing, blank, special ball long range (LR), dummy, and short range training.

A-3. The cartridge case is made of steel, aluminum, or a brass combination (70 percent copper and 30 percent zinc) for military use. The M4- and M16-series weapons is a rimless cartridge case that provides an extraction groove (shown in figure A-2). These cartridge cases are designed to support center-fire operation.

A-4. Center-fire cases have a centrally located primer well/pocket in the base of the case, which separates the primer from the propellant in the cartridge case. These cases are designed to withstand pressures generated during firing and are used for most small arms.

A-5. All 5.56mm ammunition uses the rimless cartridge case. A rimless cartridge is where the rim diameter is the same as the case body, and uses an extractor groove to facilitate the cycle of functioning. This design allows for the stacking of multiple cartridges in a magazine.

A-6. When the round is fired, the cartridge case assists in containing the burning propellant by expanding the cartridge case tightly to the chamber walls to provide rear obturation.

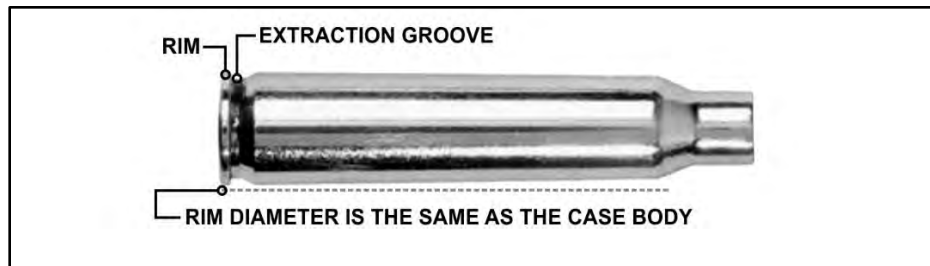


Figure A-2. Cartridge case

Ammunition

PROPELLANT

A-7. Cartridges are loaded with various propellant weights that impart sufficient velocity, within safe pressure, to obtain the required ballistic projectile performance. The propellants are either a single-base (nitrocellulose) or double-base (nitrocellulose and nitroglycerine) composition.

A-8. The propellant (see figure A-3) may be a single-cylindrical or multiple-perforation, a ball, or a flake design to facilitate rapid burning. Most propellants are coated to assist the control of the combustion rate. A final graphite coating facilitates propellant flow and eliminates static electricity in loading the cartridge.

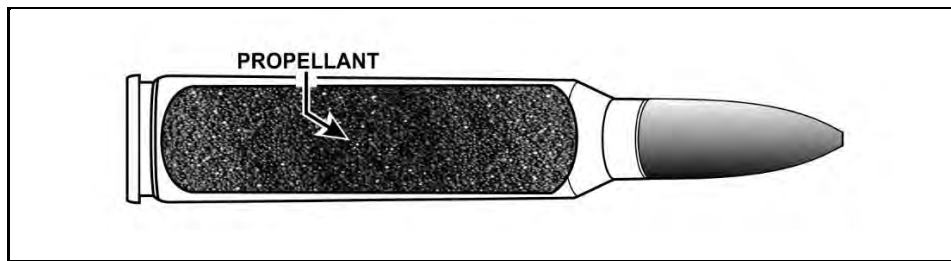


Figure A-3. Propellant

Appendix A

PRIMER

A-9. Center-fire small arms cartridges contain a percussion primer assembly. The assembly consists of a brass or gilding metal cup (see figure A-4). The cup contains a pellet of sensitive explosive material secured by a paper disk and a brass anvil.

A-10. The weapon firing pin striking the center of the primer cup base compresses the primer composition between the cup and the anvil. This causes the composition to explode. Holes or vents located in the anvil or closure cup allow the flame to pass through the primer vent, igniting the propellant.

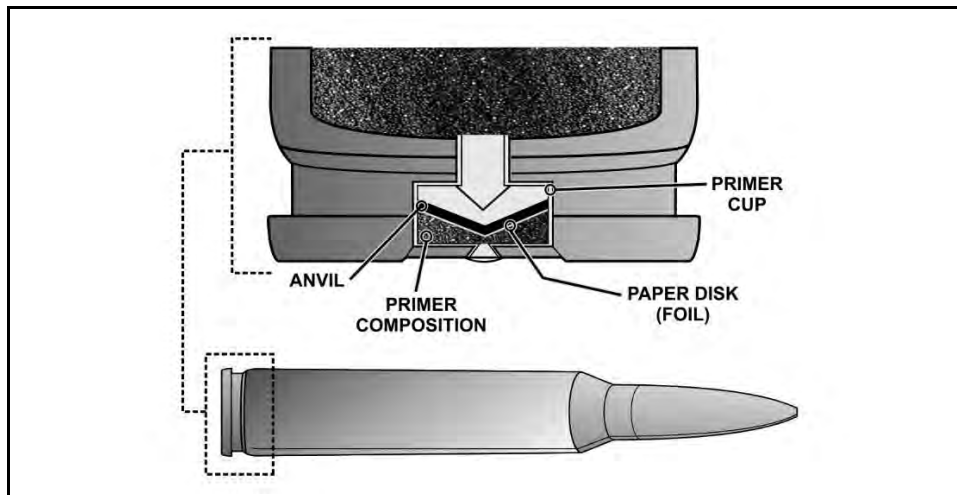


Figure A-4. 5.56mm primer detail

Ammunition

BULLET

A-11. The bullet is a cylindrically shaped lead or alloy projectile that engages with the rifling of the barrel. Newer projectiles consist of a copper slug with exposed steel penetrator, as with the M855A1. The bullets used today are either lead (lead alloy), or assemblies of a jacket and a lead or steel core penetrator. The lead used in lead-alloy bullets is combined with tin, antimony or both for bullet hardness. The alloying reduces barrel leading and helps prevent the bullet from striping (jumping) the rifling during firing.

A-12. Jacketed bullets (see figure A-5) are used to obtain high velocities and are better suited for semiautomatic and automatic weapons. A bullet jacket may be either gilding metal, gilding metal-clad steel, or copper plated steel. In addition to a lead or steel core, they may contain other components or chemicals that provide a terminal ballistic characteristic for the bullet type.

A-13. Some projectiles may be manufactured from plastic, wax, or plastic binder and metal powder, two or more metal powders, or various combinations based on the cartridge's use.

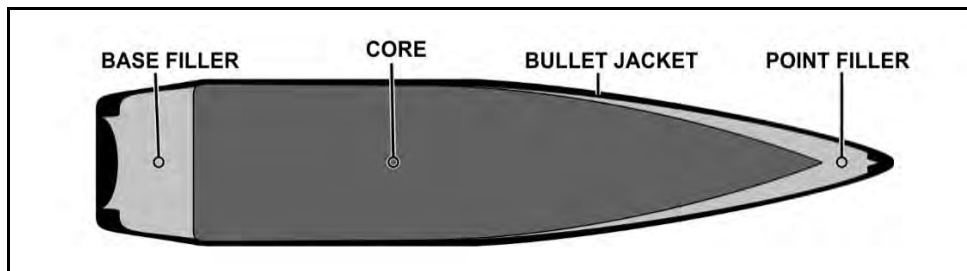


Figure A-5. Bullet example, Armor-piercing cartridge

Appendix A

SMALL ARMS AMMUNITION TYPES

A-14. There are seven types of SAA for the M4- and M16-series weapons that are used for training and combat. Each of these ammunition types provides a different capability and have specific characteristics. The following are the most common types of ammunition for the rifle and carbine:

BALL

A-15. The ball cartridge (see figure A-6) is intended for use in rifles and carbines against personnel and unarmored targets. The bullet, as designed for general purpose combat and training requirements, normally consists of a metal jacket and a lead slug.

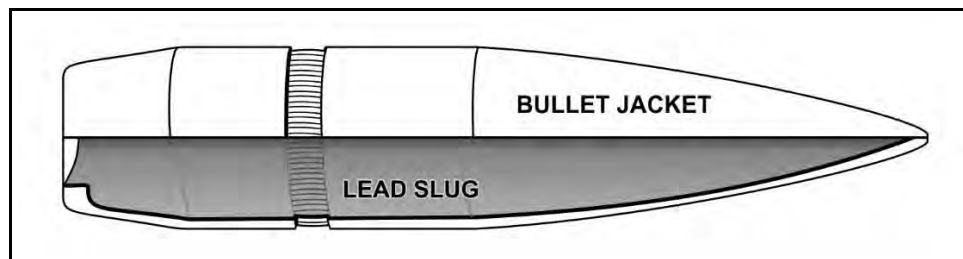


Figure A-6. Ball cartridge

TRACER (TCR OR T)

A-16. A tracer round contains a pyrotechnic composition in the base of the bullet to permit visible observation of the bullet's in-flight path or trajectory and point of impact. (See figure A-7) The pyrotechnic composition is ignited by the propellant when the round is fired, emitting a bright flame visible by the firer. Tracer rounds may also be used to pinpoint enemy targets to ignite flammable materials and for signaling purposes.

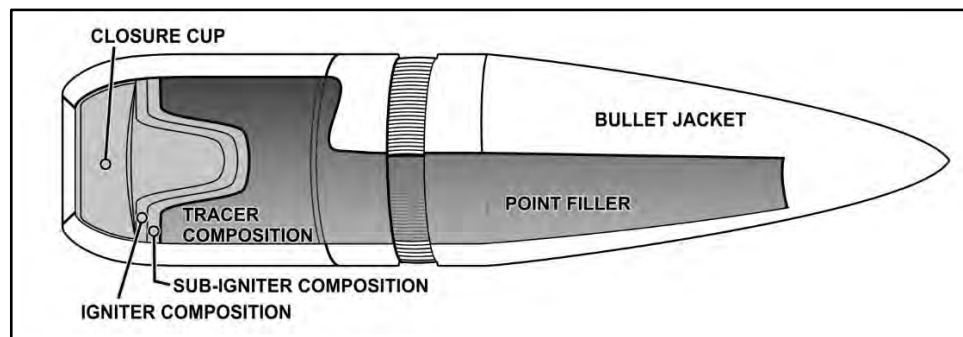


Figure A-7. Ball with tracer cartridge

Ammunition

ARMOR PIERCING (AP)

A-17. The armor-piercing cartridge (see figure A-8) is intended for use against personnel and light armored and unarmored targets, concrete shelters, and similar bullet-resistant targets. The bullet consists of a metal jacket and a hardened steel-alloy core. In addition, it may have a lead base filler and/or a lead point filler.

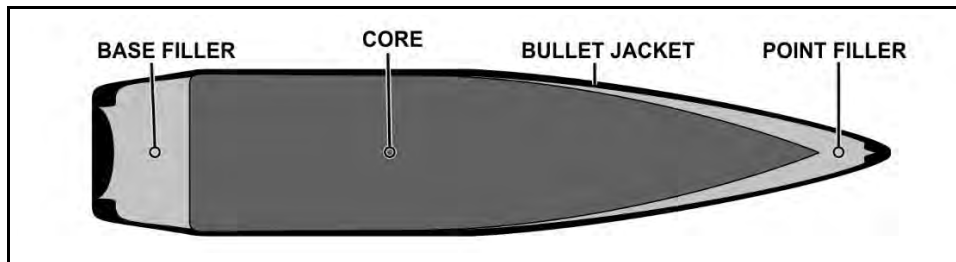


Figure A-8. Armor-piercing cartridge

SHORT RANGE TRAINING AMMUNITION

A-18. The short range training ammunition (SRTA) (see figure A-9) cartridges are designed for target practice where the maximum range is reduced for training purposes. This cartridge ballistically matches the ball cartridge out to 300 meters, and rapidly drops in velocity and accuracy. This allows for installations with restricted training range facilities to continue to operate with accurate munitions. This cartridge is also a preferred round when conducting training in a close quarters environment, like a shoot house or other enclosed training facility.

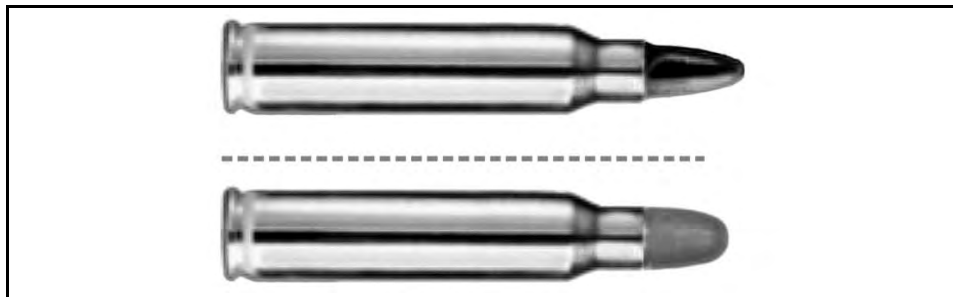


Figure A-9. Short range training ammunition cartridge

Appendix A

BLANK (BLK)

A-19. The blank cartridge (see figure A-10) is distinguished by the absence of a bullet or projectile. It is used for simulated fire, in training maneuvers, and for ceremonial purposes. These rounds consist of a roll crimp (knurl) or cannelure on the body of the case, which holds a paper wad in place instead of a projectile. Newer cartridges have rosette crimp (7 petals) and an identification knurl on the cartridge case.

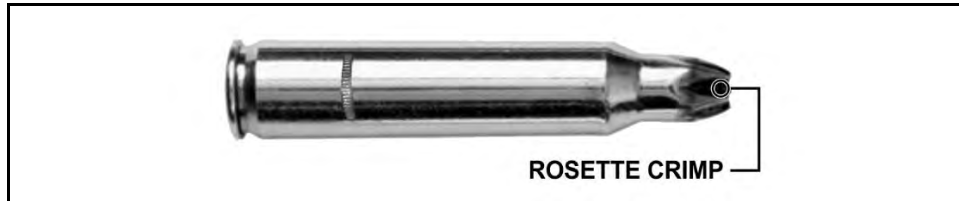


Figure A-10. Blank cartridge

CLOSE COMBAT MISSION CAPABILITY KIT

A-20. The close combat mission capability kit (CCMCK) cartridge (see figure A-11) is used for training purposes only.

A-21. The M4 carbine/M16 rifle conversion adapter kit provides utmost safety, in-service reliability and maintainability. The kit is easy to install with a simple exchange of the bolt. It adapts the host weapon to fire unlinked 5.56mm M1042 man-marking ammunition with the feel and function of live ammunition. The kit includes fail-safe measures to prevent the discharge of a standard "live" round.



Figure A-11. Close combat mission capability kit cartridge

Ammunition

DUMMY

A-22. The dummy cartridge (see figure A-12) is used for practice in loading weapons and simulated firing to detect errors in employment skills when firing weapons. This round is completely inert and consists only of an empty cartridge case and ball bullet. Cartridge identification is by means of holes through the side of the case or longitudinal corrugations in the case and by the empty primer pocket.

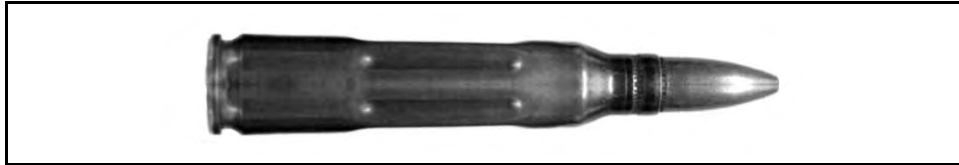


Figure A-12. Dummy cartridge

COLORS, MARKINGS, AND SYMBOLS

A-23. Small arms ammunition is identifiable by color coding specification per type and intended use. Table A-1 describes the general color codes for all types of 5.56mm small arms ammunition. Table A-2 identifies the color code specifications that are applied to the tip of 5.56mm ammunition.

A-24. Markings stenciled or stamped on munitions or their containers include all information needed for complete identification.

A-25. Packaging and containers for small arms ammunition are clearly marked with standard NATO symbols identifying the contents of the package by type of ammunition, primary use, and packaging information. The most common NATO symbols are described according to Standardization Agreement (STANAG) (see table A-2 on page A-11).









A-26. Small arms ammunition (less than 20mm) is not color-coded under MIL-STD-709D. Marking standards for small arms ammunition are outlined in—

- TM 9-1305-201-20&P.
- TM 9-1300-200.

A-27. These publications describe the color coding system for small arms projectiles. The bullet tips are painted a distinctive color as a ready means of identification for the user. (Refer to TM 9-1300-200 for more information.)

Appendix A

Table A-1. Small Arms Color Coding and Packaging Markings





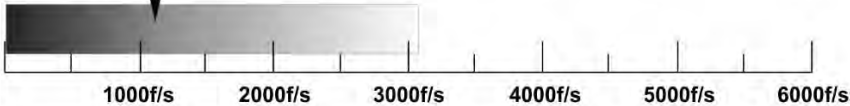
Ammunition Type	Color Coding	Package Marking
Ball	No Color or Green (M855)	
Tracer (TCR or T)	Orange Tip	
Armor Piercing (AP)	Black Tip	
Short Range Training Ammunition (STRA)	Blue	
Blank (BLK)	Crimped or Capped End	
Close Combat Mission Capabilities Kit (CCMCK) Dummy	Black Cartridge and Tip, or Perforated Cartridge	None
Special Markings	Color Code	Package Marking
NATO Standard		
Interchangeable - suitable for use in similar caliber NATO weapons		
Bandoleers - ammunition is packaged in bandoleers		
Clipped - ammunition is packaged in clips for use with a speed loader		

5.56-MM AMMUNITION

A-28. The following tables A-2 through A-10 on pages A-10 through A-18, will provide a brief description of the ten different types of commonly used 5.56mm ammunition for training and combat. Some types of 5.56mm ammunition will have more than one applicable Department of Defense Identification Code (DODIC); those DODICs are provided for the clarity and ease of the unit's ammunition resource manager.

Ammunition

Table A-2. 5-56mm, M855, Ball

Cartridge, 5.56mm, M855, Ball			
DODIC:	A059	AA33	Green Tip
Model:	M855		
Type:	Ball		
Weight:	190 grain		
Length:	57.4 mm	2.26 in	
Color Code:		Green Tip	
Markings:			
Case			
Type:	Center Fire	Description:	5.56 x 45 mm
Propellant			
Type:	WC844	Double Base	Nitrocellulose,
Weight:	26.1 gr	0.06 oz	Nitroglycerine
Primer			
Type:	Center Fire, Percussion		
Bullet			
Type:	Ball, Copper Alloy Jacket		
Design:	Conical steel insert and lead antimony alloy cylindrical core copper alloy jacket.		
Weight:	62 gr	0.14 oz	
Length:	23 mm	0.906 in	
Tracer:	None		
Characteristics			
Chamber Pressure:	3792 bars	55000 psi	
Velocity:	922 m/sec	3025 ft/sec	2.69 mach
Kinetic Energy (Ek)	1708 J	1260 FtLbsF	
Velocity to Speed of Sound			
			
Special Features			
<p>The M16A2 Rifle was designed to fire M855 Ball to achieve commonality of ammunition at the small unit level. Chamber pressures generated by the M855 and the required barrel twist (1:7 or 32 calibers) make it unsuitable in the obsolete M16 and M16A1 weapons. The M855's steel insert is effective against most types of fabric body armor while its three-piece construction achieve good effects against unprotected personnel targets.</p>			





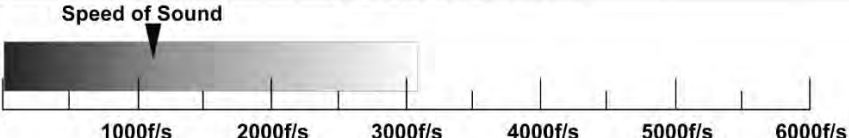
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Appendix A

Table A-3. 5.56mm, M855A1, Enhanced Performance Round (EPR), Ball

Cartridge, 5.56mm, M855A1, Ball, EPR			
DODIC:	AB57	AB58	Bronze Tip
Model:	M855A1		
Type:	Ball, EPR		
Weight:	190 grain		
Length:	57.4 mm		
Color Code:		2.26 in Bronze Tip	
Markings:			
Case			
Type:	Center Fire	Description:	5.56 x 45 mm
Propellant			
Type:	WC844	Double Base	Nitrocellulouse,
Weight:	28.1 gr	0.06 oz	Nitroglycerine
Primer			
Type:	Center Fire, Percussion		
Bullet			
Type:	Ball, EPR, Lead free slug (or core)		
Design:	Steel Penetrator encapsulated in a reverse gilded metal jacket.		
Weight:	62 gr	0.14 oz	
Length:	23 mm	0.906 in	
Tracer:	None		
Characteristics			
Chamber Pressure:	3792 bars	55000 psi	
Velocity:	960 m/sec	3150 ft/sec	2.8 mach
Kinetic Energy (Ek)	1851 J	1366 FtLbsF	
Velocity to Speed of Sound			
			
Special Features			
The M855A1's steel penetrator is effective against light armored targets while its three-piece construction maintains operational capabilities against unprotected personnel targets. The M855A1 enhances performance on hard targets/barriers. Improved propellant reduces muzzle flash. Optimized for use with the M4 series carbine for close quarters engagements.			




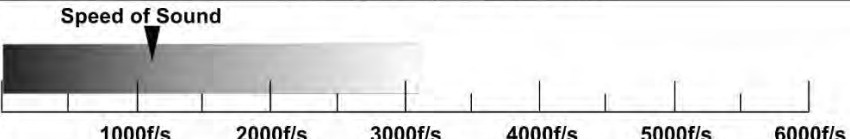
Ammunition

Table A-4. 5.56mm, M856A1, Tracer

Cartridge, 5.56mm, M856A1, Tracer				
DODIC:	A063	 Orange Tip		
Model:	M856A1			
Type:	Tracer			
Weight:	190 grain			
Length:	57.4 mm			
Color Code:		2.26 in Orange Tip		
Markings:				
Case				
Type:	Center Fire	Description:	5.56 x 45 mm	
Propellant				
Type:	Wc844	Double Base	Nitrocellulouse, Nitroglycerine	
Weight:	24.7 gr	0.06 oz		
Primer				
Type:	Center Fire, Percussion			
Bullet				
Type:	Tracer			
Design:	Lead alloy core in copper alloy jacket with incendiary compound fill in hollow base.			
Weight:	63.7 gr	0.15 oz		
Length:	29.3 mm	1.154 in		
Tracer:	None			
Characteristics				
Chamber Pressure:	3792 bars	55000 psi		
Velocity:	875 m/sec	2870 ft/sec	2.55 mach	
Kinetic Energy (Ek)	1580 J	1165 FtLbsF		
Velocity to Speed of Sound				
 Speed of Sound				
Special Features				
Because the M856 loses mass as it travels, it necessitates a 1:7 barrel twist to keep it stable in flight.				





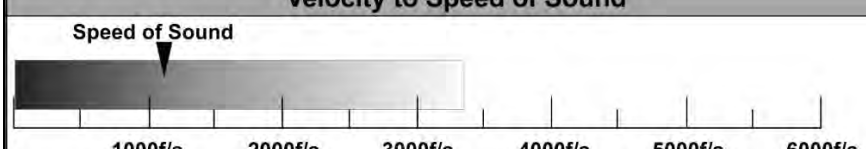
Appendix A

Table A-5. 5.56mm, Mk301, MOD 0, DIM Tracer

Cartridge, 5.56mm, Mk301 Mod 0, Dim Tracer			
DODIC:	AB03	0	Violet Tip
Model:	Mk301 Mod 0		
Type:	Dim Tracer		
Weight:	190 grain		
Length:	57.4 mm		
Color Code:		2.26 in Violet Tip	
Markings:			
Case			
Type:	Center Fire	Description:	5.56 x 45 mm
Propellant			
Type:	WC844	Double Base	Nitrocellulouse,
Weight:	26.1 gr	0.06 oz	Nitroglycerine
Primer			
Type:	Center Fire, Percussion		
Bullet			
Type:	Dim Tracer, Copper Alloy Jacket		
Design:	Lead alloy core in copper alloy jacket with incendiary compound fill in a hollow case.		
Weight:	62 gr	0.14 oz	
Length:	23 mm	0.906 in	
Tracer:	Dim Tracer element		
Characteristics			
Chamber Pressure:	4047 bars	55000 psi	
Velocity:	922 m/sec	3025 ft/sec	2.69 mach
Kinetic Energy (Ek)	1708 J	1260 FtLbsF	
Velocity to Speed of Sound			
			
Special Features			
Low burning temperature of tracer mix produces IR light spectrum tracer effects, visible with use of night vision devices. Dim Tracer element consists of a barium nitrate composition, with tracer effective range to 900m. WC845S propellant provides flash suppression.			


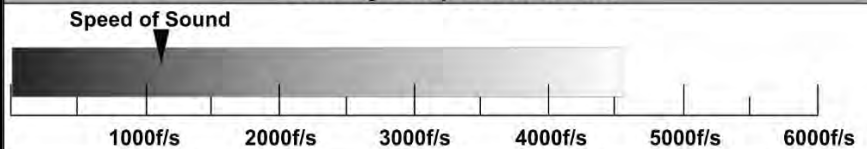
Ammunition

Table A-6. 5.56mm, M995, Armor Piercing

Cartridge, 5.56mm, M995, Armor Piercing			
DODIC:	AA69		
Model:	M995		
Type:	Armor Piercing		
Weight:	180 grain		
Length:	57.4 mm		
Color Code:			
Markings:			
Case			
Type:	Center Fire	Description:	5.56 x 45 mm
Propellant			
Type:	WCR845	Double Base	Nitrocellulouse, Nitroglycerine
Weight:	27.5 gr	0.06 oz	
Primer			
Type:	Center Fire, Berdan		
Bullet			
Type:	Armor Piercing, Tungsten-Cobalt core		
Design:	Tungsten-Cobalt core located by aluminum cup in copper alloy jacket		
Weight:	52 gr	0.12 oz	
Length:	29.3 mm	1.154 in	
Tracer:	None		
Characteristics			
Chamber Pressure:	3465 bars	55000 psi	
Velocity:	1013 m/sec	3324 ft/sec	2.95 mach
Kinetic Energy (Ek)	1729 J	1276 FtLbsF	
Velocity to Speed of Sound			
			
Special Features			
The M995 was designed for use in all U.S. 5.56mm weapons, it will penetrate 12mm of steel at 100m to defeat light armored vehicles and other barrier materials on the battlefield.			

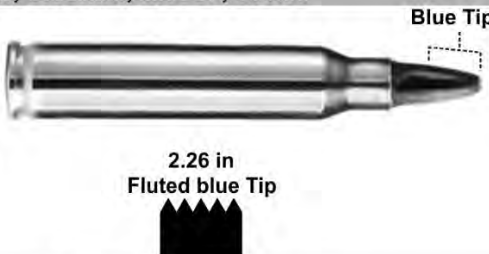
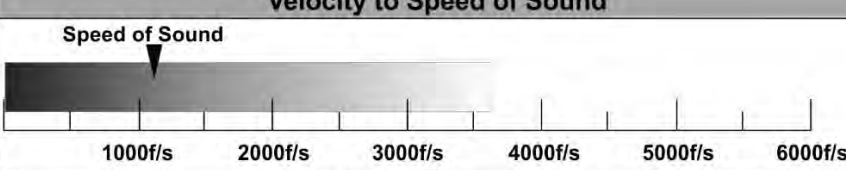
Appendix A

Table A-7. 5.56mm, M862, Short Range Training Ammunition

Cartridge, 5.56mm, M862, SRTA			
DODIC	AA68		
Model:	M862		
Type:	SRTA		
Weight:	108 grain		
Length:	57.4 mm		
Color Code:			
Markings:		2.26 in Fluted blue Tip	
Case			
Type:	Center Fire	Description:	5.56 x 45 mm
Propellant			
Type:	0	Double Base	Nitrocellulouse,
Weight:	gr	0 oz	Nitroglycerine
Primer			
Type:	Center Fire		
Bullet			
Type:	SRTA		
Design:	Plastic projectile		
Weight:	6.9 gr	0.02 oz	
Length:	29.3 mm	1.154 in	
Tracer:	None		
Characteristics			
Chamber Pressure:	2758 bars	40000 psi	
Velocity:	1379 m/sec	4525 ft/sec	4.02 mach
Kinetic Energy (Ek)	425 J	314 FtLbsF	
Velocity to Speed of Sound			
			
Special Features			
The M862 is ballistically matched to standard M855 ball ammunition out to 25m, with a maximum range of 250m. M862 ammunition MUST be used with the M2 training bolt. This provides units the capability to conduct training on installations that have limited range facilities which require the use of reduced/decreased Surface Danger Zones.			


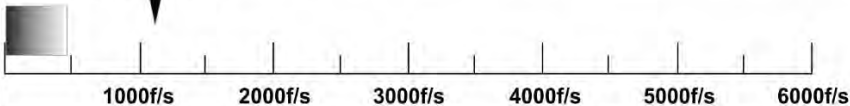
Ammunition

Table A-8. 5.56mm, M1037, Short Range Training Ammunition

Cartridge, 5.56mm, M1037, SRTA			
DODIC	AB67		
Model:	M1037		
Type:	SRTA		
Weight:	165 grain		
Length:	57.4 mm		
Color Code:			
Markings:			
Case			
Type:	Center Fire	Description:	5.56 x 45 mm
Propellant			
Type:	0	Double Base	Nitrocellulouse,
Weight:	gr	0 oz	Nitroglycerine
Primer			
Type:	Center Fire		
Bullet			
Type:	SRTA, Frangible		
Design:	Copper, nylon and carbon fiber projectile		
Weight:	33 gr	0.08 oz	
Length:	29.3 mm	1.154 in	
Tracer:	None		
Characteristics			
Chamber Pressure:	2758 bars	40000 psi	
Velocity:	1097 m/sec	3600ft/sec	3.2 mach
Kinetic Energy (Ek)	1287J	950 FtLbsF	
Velocity to Speed of Sound			
			
Special Features			
The M1037 is ballistically matched to standard M855 ball ammunition out to 100m, with a maximum range of less than 600m. M1037 ammunition DOES NOT require the use of the M2 training bolt. This provides units the capability to conduct training on installations that have limited range facilities which require the use of reduced/decreased Surface Danger Zones.			




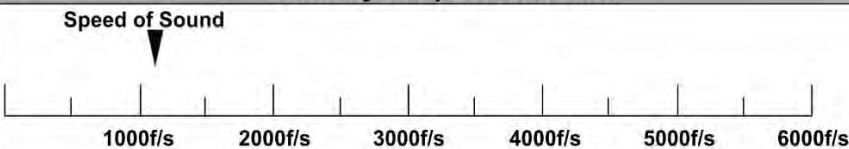
Appendix A

Table A-9. 5.56mm, M1042 Close Combat Mission Capability Kit

Cartridge, 5.56mm, M1042, Close Combat Mission Capability Kit			
DODIC:	AB09 (blue tip)	AB10 (red tip)	AB11 (yellow tip)
Model:	M1042		
Type:	CCMCK		
Weight:	94.86 grain		
Length:	57.4 mm		
Color Code:	2.26 in Blue, red, or yellow plastic tip		
Markings:			
Case			
Type:	Rim Fire	Description:	5.56 x 45 mm
Propellant			
Type:	0	Double Base	Nitrocellulouse,
Weight:	gr	0 oz	Nitroglycerine
Primer			
Type:	Rim Fire		
Bullet			
Type:	CCMCK		
Design:	0		
Weight:	6.9 gr	0.02 oz	
Length:	29.3 mm	1.154 in	
Tracer:	None		
Characteristics			
Chamber Pressure:	0 bars	0 psi	
Velocity:	149 m/sec	488 ft/sec	0.43 mach
Kinetic Energy (Ek)	5 J	4 FtLbsF	
Velocity to Speed of Sound			
			
Special Features			
The CCMCK is a user installed weapons modification system used for short range force on force training. The M1042 is a low velocity marking ammunition that prevents the weapon from firing service ammunition. Fail-safe is achieved by utilizing a 3mm offset firing pin which will only work with the M1042 rim fire primer. In the event that a "Live" 5.56mm cartridge is chambered and the trigger is pulled, the conversion will offset.			

Ammunition

Table A-10. 5.56mm, M200, Blank

Cartridge, 5.56mm, M200, Blank			
DODIC:	A080		
Model:	M200		
Type:	Blank		
Weight:	107 grain		
Length:	48.3 mm		
Color Code:			
Markings:			1.902in Rosette Crimp
Case			
Type:	Center Fire	Description:	5.56 x 45 mm
Propellant			
Type:	HPC 13	Double Base	Nitrocellulouse,
Weight:	7 gr	0.02 oz	Nitroglycerine
Primer			
Type:	Center Fire, Berdan		
Bullet			
Type:	Blank, NA		
Design:	NA		
Weight:	NONE		
Length:	NA	0 in	
Tracer:	NA		
Characteristics			
Chamber Pressure:	0 bars	psi	
Velocity:	m/sec	ft/sec	0 mach
Kinetic Energy (Ek)	0	0	
Velocity to Speed of Sound			
			
Special Features			
The M200 cartridge is designed for simulated firing in training exercises and for saluting purposes. The cartridge is identified by a rosette-crimp closure of the case mouth.			

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Appendix B

Ballistics

Ballistics is the science of the processes that occur from the time a firearm is fired to the time when the bullet impacts its target. Soldiers must be familiar with the principles of ballistics as they are critical in understanding how the projectiles function, perform during flight, and the actions of the bullet when it strikes the intended target. The profession of arms requires Soldiers to understand their weapons, how they operate, their functioning, and their employment.

B-1. The flight path of a bullet includes three stages: the travel down the barrel, the path through the air to the target, and the actions the bullet takes upon impact with the target. These stages are defined in separate categories of ballistics; internal, external, and terminal ballistics.

INTERNAL BALLISTICS

B-2. **Internal ballistics** – is the study of the propulsion of a projectile. Internal ballistics begin from the time the firing pin strikes the primer to the time the bullet leaves the muzzle. Once the primer is struck the priming charge ignites the propellant. The expanding gases caused by the burning propellant create pressures which push the bullet down the barrel. The bullet engages the lands and grooves (rifling) imparting a spin on the bullet that facilitates stabilization of the projectile during flight. Internal ballistics ends at shot exit, where the bullet leaves the muzzle. (See figure B-1.)

Appendix B

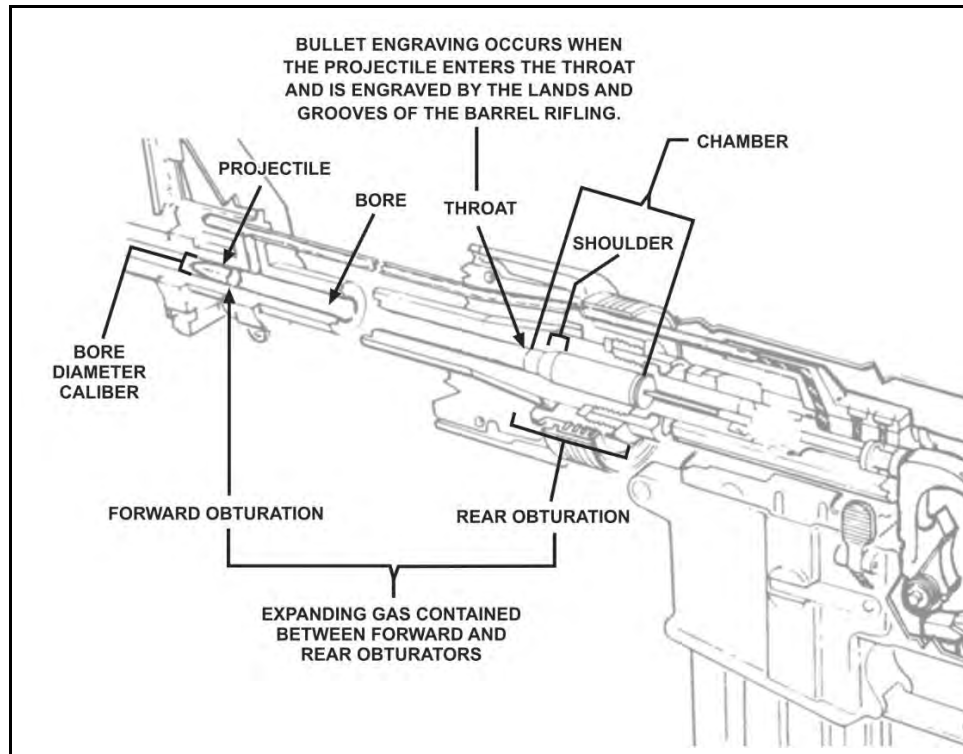


Figure B-1. Internal ballistic terms

B-3. Several key terms are used when discussing the physical actions of internal ballistics —

- **Bore** – the interior portion of the barrel forward of the chamber.
- **Chamber** – the part of the barrel that accepts the ammunition for firing.
- **Grain (gr)** – a unit of measurement of either a bullet or a projectile. There are 7000 grains in a pound, or 437.5 grains per ounce.
- **Pressure** – the force developed by the expanding gasses generated by the combustion (burning) of the propellant. Pressure is measure in pounds per square inch (psi).
- **Shoulder** – the area of the chamber that contains the shoulder, forcing the cartridge and projectile into the entrance of the bore at the throat of the barrel.
- **Muzzle** – the end of the barrel.
- **Throat** – the entrance to the barrel from the chamber. Where the projectile is introduced to the lands and grooves within the barrel.

Ballistics**EXTERNAL BALLISTICS**

B-4. **External ballistics** is the study of the physical actions and effects of gravity, drag, and wind along the projectile's flight to the target. It includes only those general physical actions that cause the greatest change to the flight of a projectile. (See figure B-2.) External ballistics begins at shot exit and continues through the moment the projectile strikes the target.

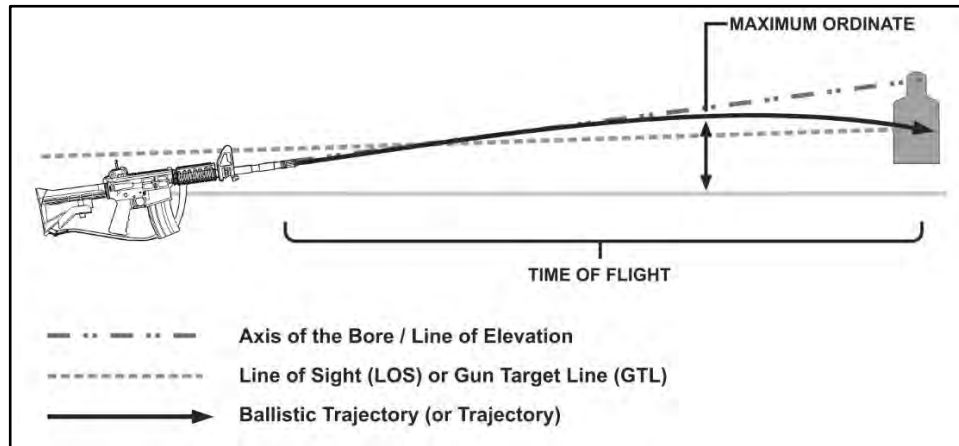


Figure B-2. External ballistic terms

B-5. The following terms and definitions are used to describe the actions or reactions of the projectile during flight. This terminology is standard when dealing with any weapon or weapon system, regardless of caliber. (See figure B-3.)

- **Axis of the bore** (Line of Bore) – the line passing through the center of the bore or barrel.
- **Line of sight (LOS) or gun target line (GTL)** – a straight line between the sights or optics and the target. This is never the same as the axis of the bore. The LOS is what the Soldier sees through the sights and can be illustrated by drawing an imaginary line from the firer's eye through the rear and front sights out to infinity. The LOS is synonymous with the GTL when viewing the relationship of the sights to a target.
- **Line of elevation (LE)** – the angle represented from the ground to the axis of the bore.
- **Ballistic trajectory** – the path of a projectile when influenced only by external forces, such as gravity and atmospheric friction.
- **Maximum ordinate** – the maximum height the projectile will travel above the line of sight on its path to the point of impact.
- **Time of flight** – the time taken for a specific projectile to reach a given distance after firing.

Appendix B

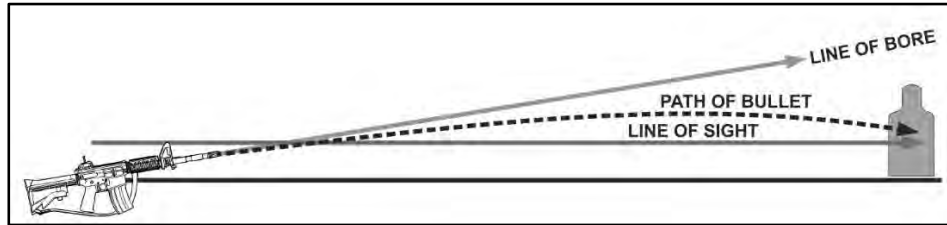


Figure B-3. Trajectory

- **Jump** – vertical jump in an upward and rearward direction caused by recoil. Typically, it is the angle, measured in mils, between the line of departure and the line of elevation.
- **Line of departure (LD)** – the line the projectile is on at shot exit.
- **Muzzle** – the end of the barrel.
- **Muzzle velocity or velocity** – the velocity of the projectile measured at shot exit. Muzzle velocity decreases over time due to air resistance. For small arms ammunition, velocity (V) is represented in feet per second (f/s).
- **Twist rate** – the rotation of the projectile within the barrel of a rifled weapon based on the distance to complete one revolution. The twist rate relates to the ability to gyroscopically spin-stabilize a projectile on rifled barrels, improving its aerodynamic stability and accuracy. The twist rate of the M4- or M16-series weapon is a right hand, one revolution in every seven inches of barrel length (or R 1:7 inches).
- **Shot exit** – the moment the projectile clears the muzzle of the barrel, where the bullet is not supported by the barrel.
- **Oscillation** – the movement of the projectile in a circular pattern around its axis during flight.
- **Drift** – the lateral movement of a projectile during its flight caused by its rotation or spin.
- **Yaw** – a deviation from stable flight by oscillation. This can be caused by cross wind or destabilization when the projectile enters or exits a transonic stage.
- **Grain (gr)** – a unit of measurement of either a bullet or a propellant charge. There are 7000 grains in a pound, or 437.5 grains per ounce.
- **Pressure** – the force developed by the expanding gases generated by the combustion (burning) of the propellant. For small arms, pressure is measured in pounds per square inch (psi).
- **Gravity** – the constant pressure of the earth on a projectile at a rate of about 9.8 meters per second squared, regardless of the projectile's weight, shape or velocity. Commonly referred to as bullet drop, gravity causes the projectile to drop from the line of departure. Soldiers must understand the effects of gravity on the projectile when zeroing as well as how it applies to determining the appropriate hold-off at ranges beyond the zero distance.

Ballistics

- **Drag (air resistance)** – the friction that slows the projectile down while moving through the air. Drag begins immediately upon the projectile exiting the barrel (shot exit). It slows the projectile's velocity over time, and is most pronounced at extended ranges. Each round has a ballistic coefficient (BC) that is a measurement of the projectile's ability to minimize the effects of air resistance (drag) during flight.
- **Trajectory** – the path of flight that the projectile takes upon shot exit over time. For the purposes of this manual, the trajectory ends at the point of impact.
- **Wind** – has the greatest variable effect on ballistic trajectories. The effects of wind on a projectile are most noticeable in three key areas between half and two-thirds the distance to the target:
 - **Time (T)** – the amount of time the projectile is exposed to the wind along the trajectory. The greater the range to target, the greater time the projectile is exposed to the wind's effects.
 - **Direction** – the direction of the wind in relation to the axis of the bore. This determines the direction of drift of the projectile that should be compensated.
 - **Velocity (V)** – the speed of the wind during the projectile's trajectory to the target. Variables in the overall wind velocity affecting a change to the ballistic trajectory include sustained rate of the wind and gust spikes in velocity.

TERMINAL BALLISTICS

B-6. Terminal ballistics is the science of the actions of a projectile from the time it strikes an object until it comes to rest (called terminal rest). This includes the terminal effects that take place against the target.

- **Kinetic Energy (E_K)** – a unit of measurement of the delivered force of a projectile. Kinetic energy is the delivered energy that a projectile possesses due to its mass and velocity at the time of impact. Kinetic energy is directly related to the *penetration capability* of a projectile against the target.
- **Penetration** – the ability or act of a projectile to enter a target's mass based on its delivered kinetic energy. When a projectile strikes a target, the level of penetration into the target is termed the impact depth. The impact depth is the distance from the point of impact to the moment the projectile stops at its terminal resting place. Ultimately, the projectile stops when it has transferred its momentum to an equal mass of the medium (or arresting medium).

B-7. Against any target, penetration is the most important terminal ballistic consideration. Soldiers must be aware of the penetration capabilities of their ammunition against their target, and the most probable results of the terminal ballistics.

B-8. The 5.56mm projectile's purpose is to focus the largest amount of momentum (energy) on the smallest possible area of the target to achieve the greatest penetration. They are designed to resist deformation on impact to enter the target's mass. The steel

Appendix B

tip of the penetrator allows for reduced deformation through light skin armor or body armor, and the heavier steel penetrator allows for increased soft tissue damage.

ACTIONS AFTER THE TRIGGER SQUEEZE

B-9. Once the trigger is squeezed, the ballistic actions begin. Although not all ammunition and weapons operate in the same manner, the following list describes the general events that occur on the M4- and M16-series weapons when the trigger is squeezed.

- The hammer strikes the rear of the firing pin.
- The firing pin is pushed forward, striking the cartridge percussion primer assembly.
- The primer is crushed, pushing the primer composition through the paper disk, and on to the anvil, detonating the primer composition.
- The burning primer composition is focused evenly through the primer cup vent hole, igniting the propellant.
- The propellant burns evenly within the cartridge case.
- The cartridge case wall expand from the pressure of the burning propellant, firmly locking the case to the chamber walls.
- The expanded cartridge case, held firmly in place by the chamber walls and the face of the bolt provide rear obturation, keeping the burning propellant and created expanding gasses in front of the cartridge case.
- The projectile is forced by the expanding gasses firmly into the lands and grooves at the throat of the bore, causing engraving.
- Engraving causes the scoring of the softer outer jacket of the projectile with the lands and grooves of the bore. This allows the projectile to spin at the twist rate of the lands and grooves, and provides a forward obturation seal. The forward obturation keeps the expanding gasses behind the projectile in order to push it down the length of the barrel.
- As the propellant continues to burn, the gasses created continue to seek the path of least resistance. As the cartridge case is firmly seated and the projectile is moveable, the gas continues to exert its force on the projectile.
- Once the projectile passes the gas port on the top of the barrel, a small amount of gas is permitted to escape from propelling the projectile. This escaping gas is directed up through the gas port and rearward through the gas tube, following the path of least resistance. The diameter of the gas port limits the amount of gas allowed to escape.
- As the end of the projectile leaves the muzzle, it is no longer supported by the barrel itself. Shot exit occurs.
- Upon shot exit, most of the expanding and burning gasses move outward and around the projectile, causing the muzzle flash.
- At shot exit, the projectile achieves its maximum muzzle velocity. From shot exit until the projectile impacts an object, the projectile loses velocity at a steady rate due to air resistance.

Ballistics

- As the round travels along its trajectory, the bullet drops consistently by the effects of gravity.
- As the actual line of departure is an elevated angle from the line of sight, the projectile appears to rise and then descend. This rise and fall of the projectile is the trajectory.
- The round achieves the highest point of its trajectory typically over half way to the target, depending on the range to target. The high point is called the round's maximum ordinate or *max ord*.
- From the max ord, the projectile descends into the target.
- The round strikes the target at the point of impact, which, depending on the firing event, may or may not be the desired point of impact, and is seldom the point of aim.

Note. The point of aim and point of impact only occur twice during the bullet's path to the target at distance; once when the trajectory crosses the line of sight approximately 25 meters from the muzzle, and again at the zero distance (300 meters for the Army standard zero).

- Once the projectile strikes a target or object, it delivers its kinetic energy (force) at the point of impact.
- Terminal ballistics begin.

B-10. Once terminal ballistics begin, no bullets follow the same path or function. Generally speaking, the projectile will penetrate objects where the delivered energy (mass times velocity squared, divided by 2) is greater than the mass, density, and area of the target at the point of the delivered force. There are other contributing factors, such as the angle of attack, yaw, oscillation, and other physical considerations that are not included in this ballistic discussion.

STRUCTURE PENETRATION

B-11. The following common barriers in built-up areas can prevent penetration by a 5.56-mm round fired at less than 50 meters (M855) including:

- Single row sandbags.
- A 2-inch thick concrete wall (not reinforced with rebar or similar item).
- A 55-gallon drum filled with water or sand.
- A metal ammunition can filled with sand.
- A cinder block filled with sand (the block may shatter).
- A plate glass windowpane at a 45-degree angle (glass fragments will be thrown behind the glass).
- A brick veneer.

Note. The M855A1 enhanced performance round (EPR) has increased capabilities for barrier penetration compared with M855 as shown above.

Appendix B

B-12. Although most structural materials repel single 5.56-mm rounds, continued and concentrated firing can breach (penetrate through) some typical urban structures.

B-13. The best method for breaching a masonry wall is by firing short bursts in a U-shaped pattern. The distance from the firer to the wall should be minimized for best results—ranges as close as 25 meters are relatively safe from ricochet.

B-14. Ball ammunition and armor-piercing rounds produce almost the same results, but are more likely to ricochet to the sides and rearward back at the firer (called spit-back).

Note. Soldiers must ensure the appropriate level of personal protective equipment is worn when conducting tactical and collective tasks, particularly at ranges less than 50 meters.

B-15. The 5.56-mm round can be used to create either a loophole (about 7 inches in diameter) or a breach hole (large enough for a man to enter). When used against reinforced concrete, the M16 rifle and M249 cannot cut the reinforcing bars.

SOFT TISSUE PENETRATION

B-16. A gunshot wound, or ballistic trauma, is a form of physical damage sustained from the entry of a projectile. The degree of tissue disruption caused by a projectile is related to the size of the cavities created by the projectile as it passes through the target's tissue. When striking a personnel target, there are two types of cavities created by the projectile; permanent and temporary wound cavities.

Permanent Wound Cavity

B-17. The permanent cavity refers specifically to the physical hole left in the tissues of soft targets by the pass-through of a projectile. It is the total volume of tissue crushed or destroyed along the path of the projectile within the soft target.

B-18. Depending on the soft tissue composition and density, the tissues are either elastic or rigid. Elastic organs stretch when penetrated, leaving a smaller wound cavity. Organs that contain dense tissue, water, or blood are rigid, and can shatter from the force of the projectile. When a rigid organ shatters from a penetrating bullet, it causes massive blood loss within a larger permanent wound cavity. Although typically fatal, striking these organs may not immediately incapacitate the target.

Temporary Wound Cavity

B-19. The temporary wound cavity is an area that surrounds the permanent wound cavity. It is created by soft, elastic tissues as the projectile passes through the tissue at greater than 2000 feet per second. The tissue around the permanent cavity is propelled outward (stretched) in an almost explosive manner from the path of the bullet. This forms a temporary recess or cavity 10 to 12 times the bullet's diameter.

B-20. Tissue such as muscle, some organs, and blood vessels are very elastic and can be stretched by the temporary cavity with little or no damage and have a tendency to absorb the projectile's energy. The temporary cavity created will slowly reduce in size

Ballistics

over time, although typically not returning completely to the original position or location.

Note. Projectiles that do not exceed 2000 feet per second velocity on impact do not provide sufficient force to cause a temporary cavity capable of incapacitating a threat.

B-21. The extent of the cavitation (the bullet's creation of the permanent and temporary cavities) is related to the characteristics of the projectile:

- **Kinetic energy (E_k)** – the delivered mass at a given velocity. Higher delivered kinetic energy produces greater penetration and tissue damage.
- **Yaw** – any yaw at the point of impact increases the projectile's surface area that strikes the target, decreasing kinetic energy, but increasing the penetration and cavity size.
- **Deformation** – the physical changes of the projectile's original shape and design due to the impact of the target. This increases the projectile's surface area and the size of the cavity created after penetration.
- **Fragmentation** – the fracturing of a projectile into multiple pieces or sub-projectiles. The multiple paths of the fragmented sub-projectiles are unpredictable in size, velocity, and direction. The bullet jacket, and for some types of projectiles, the lead core, fracture creating small, jagged, sharp edged pieces that are propelled outward with the temporary cavity. Fragments can sever tissue, causing large, seemingly explosive-type. Bone fragments caused by the bullet's strike can have the same effect.
- **Tumbling** – the inadvertent end-over-end rotation of the projectile. As a projectile tumbles as it strikes the target, the bullet travels through the tissues with a larger diameter. This causes a more severe permanent cavity as it passes through the soft tissue. A tumbling projectile can change direction erratically within the body due to its velocity and tendency to strike dense material with a larger surface area.

B-22. Once inside the target, the projectile's purpose is to destroy soft tissues with fragmentation. The ball ammunition is designed to not flatten or expand on impact, which would decrease velocity and delivered energy. For the M855-series cartridge, the penetrator tends to bend at the steel-core junction, fracture the weaker jacketed layer, and fragment into pieces when striking an object.

Appendix B

Incapacitation

B-23. Incapacitation with direct fire is the act of ballistically depriving a target of the ability, strength, or capability to continue its tactical mission. To assist in achieving the highest probability of incapacitation with a single shot, the projectile is designed with the ability to tumble, ricochet, or fragment after impact.

B-24. The projectile or its fragments then must hit a vital, blood-bearing organ or the central nervous system to effectively incapacitate the threat. The projectile's limited fragmentation potential after entry maximizes the soft tissue damage and increases the potential for rapid incapacitation.

Lethal Zones

B-25. The Soldier's primary point of aim at any target by default is center of visible mass. This allows for a tolerance that includes the greatest margin of error with the highest probability of a first round hit. The combat conditions may require more precise fires at partially exposed targets or targets that require immediate incapacitation.

B-26. Ideally, the point of aim is anywhere within a primary switch area. This point will maximize the possibility of striking major organs and vessels, rendering a clean, one-shot kill (see figure B-4.)

Ballistics

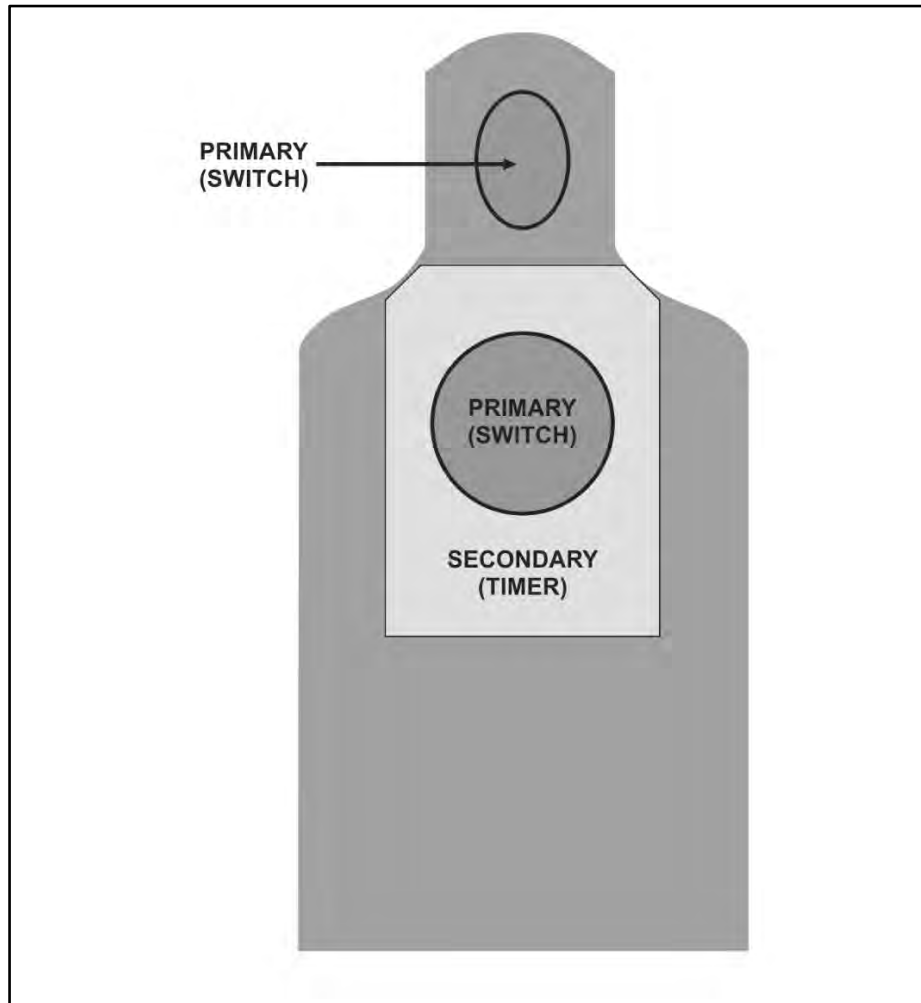


Figure B-4. Lethal zone example

B-27. Shots to the head should be weighed with caution. The head is the most frequently moved body part and are the most difficult to hit with precision. Shots to other exposed body parts, such as the pelvic area, should be considered for the shot.

B-28. Shots to the pelvic area are used when the target is not completely visible or when the target is wearing body armor that prevents the Soldier from engaging the primary zone. This area is rich in large blood vessels and a shot here has a good possibility of impeding enemy movement by destroying the pelvic or hitting the lower spine.

- Circuitry shots (switches).
- Hydraulic shots (timers).

13 May 2016

TC 3-22.9

B-11

Appendix B

Circuitry Shots (Switches)

B-29. Circuitry shots, or “switches,” are strikes to a target that deliver its immediate incapacitation. Immediate incapacitation is the sudden physical or mental inability to initiate or complete any physical task. To accomplish this, the central nervous system must be destroyed by hitting the brain or spinal column. All bodily functions and voluntary actions cease when the brain is destroyed and if the spinal column is broken, all functions cease below the break.

Hydraulic Shots (Timer)

B-30. Hydraulic shots, or “timers,” are impacts on a target where immediate incapacitation is not guaranteed. These types of ballistic trauma are termed “timers” as that after the strike of the bullet, the damage caused requires time for the threat to have sufficient blood loss to render it incapacitated. Hydraulic shots, although ultimately lethal, allow for the threat to function in a reduced capacity for a period of time.

B-31. For hydraulic shots to eliminate the threat, they must cause a 40 percent loss of blood within the circulatory system. If the shots do not disrupt that flow at a rapid pace, the target will be able to continue its mission. Once two (2) liters of blood are lost, the target will transition into hypovolemic shock and become incapacitated.

Appendix C

Complex Engagements

This appendix provides detailed information on the calculations for determining *deliberate* holds for complex engagements and various engagement techniques. It is designed for the advanced shooter; however, all Soldiers should be familiar with the contents of the appendix in order to build their mastery and proficiency with their individual weapon.

C-1. A complex engagement includes any shot that cannot use the *CoVM* as the point of aim to ensure a target hit. Complex engagements require a Soldier to apply various points of aim (called hold, hold-off, or holds) to successfully defeat the threat.

C-2. This appendix builds upon the concepts discussed in Chapter 7, Aim, and only include topics specific to deliberate hold determinations. These topics are:

- **Target conditions:**
 - Range to target.
 - Moving targets.
 - Oblique targets.
- **Environmental conditions:**
 - Wind.
 - Angled firing.
- **Compound conditions:**

C-3. Each of these firing conditions may require the Soldier to determine an appropriate aim point that is not the CoVM. During any complex engagement, the Soldier serves as the ballistic computer during the shot process. The hold represents a refinement or alteration of the center of visible mass point of aim at the target to counteract certain conditions during a complex engagement for—

- Range to target.
- Lead for targets based on their direction and speed of movement.
- Counter-rotation lead required when the Soldier is moving in the opposite direction of the moving target.
- Wind speed, direction, and duration between the shooter and the target at ranges greater than 300 meters.
- Greatest lethal zone presented by the target to provide the most probable point of impact to achieve immediate incapacitation.

C-4. The Soldier will apply the appropriate aim (hold) based on the firing instances presented. Hold determinations will be discussed in two formats; immediate and deliberate.

Appendix C

TARGET CONDITIONS

C-5. Soldiers must consider several aspects of the target to apply the proper point of aim on the target. The target's posture, or how it is presenting itself to the shooter, consists of—

- Range to target.
- Nature of the target.
- Nature of the terrain (surrounding the target).

RANGE TO TARGET

C-6. Rapidly determining an accurate range to target is critical to the success of the Soldier at mid and extended ranges. There are several range determination methods shooters should be confident in applying to determine the proper hold-off for pending engagements.

Deliberate Range Determination

C-7. The deliberate methods afford the shooter a reliable means of determining the range to a given target; however, these methods require additional time. (See figure C-1.) With practice and experience, the time to determine the range with these methods is reduced significantly. The various methods of deliberate range determination are:

- Reticle relationship (mil or MOA).
- Recognition method.
- Bracketing method.
- Halving method.

RANGE ESTIMATION	MIL RELATION FORMULA
<p>SIZE OF OBJ <u>IN INCHES</u> X 25.4 = Constant.</p> <p>Divide the Constant by SIZE OF OBJ <u>IN MILS</u> to determine the range to target.</p> <p style="text-align: center;">EXAMPLE</p> <p><u>67 inches</u> X 25.4 = 1701.8 rounded to the nearest whole number - 1702.</p> <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-left: 200px;">This is the constant.</div> <p><u>Constant</u> (1702) divided by 2.5 Mils = 681, or 681 meters to the target.</p> <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-left: 100px;"> <p>This number comes from your own perception of an object measured with a mil scale from an optic, or a pair of binoculars. The number is whatever you observe it to be.</p> </div>	

Figure C-1. Mil Relation Formula example

Complex Engagements

Reticle Relationship Method

C-8. With this method, shooters use their aiming device's reticle to determine the range to target based on standard target information. To use the appearance of objects method based on how they align to an aiming device's reticle, shooters must be familiar with the sizes and details of personnel and equipment at known distances as shown in figure C-2.

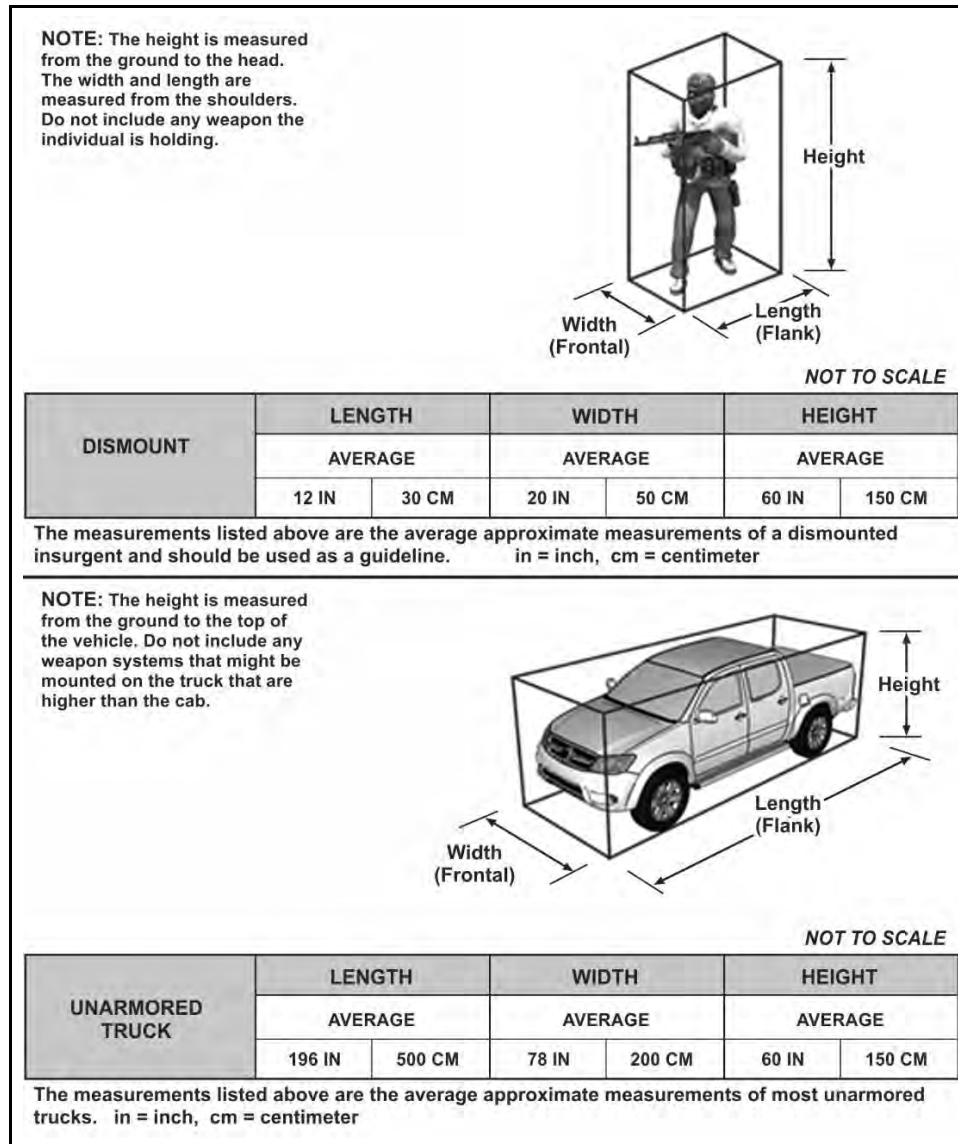


Figure C-2. Standard dismount threat dimensions example

13 May 2016

TC 3-22.9

C-3

Appendix C

C-9. Knowing the standard dimensions to potential targets allows for the Soldier to assess those dimensions using the aiming device's reticle. The Soldier will apply the mil or MOA relationship as they pertain to the aiming device and the target. Figure C-3 and figure C-4 on page C-5, show various reticle relationship examples.

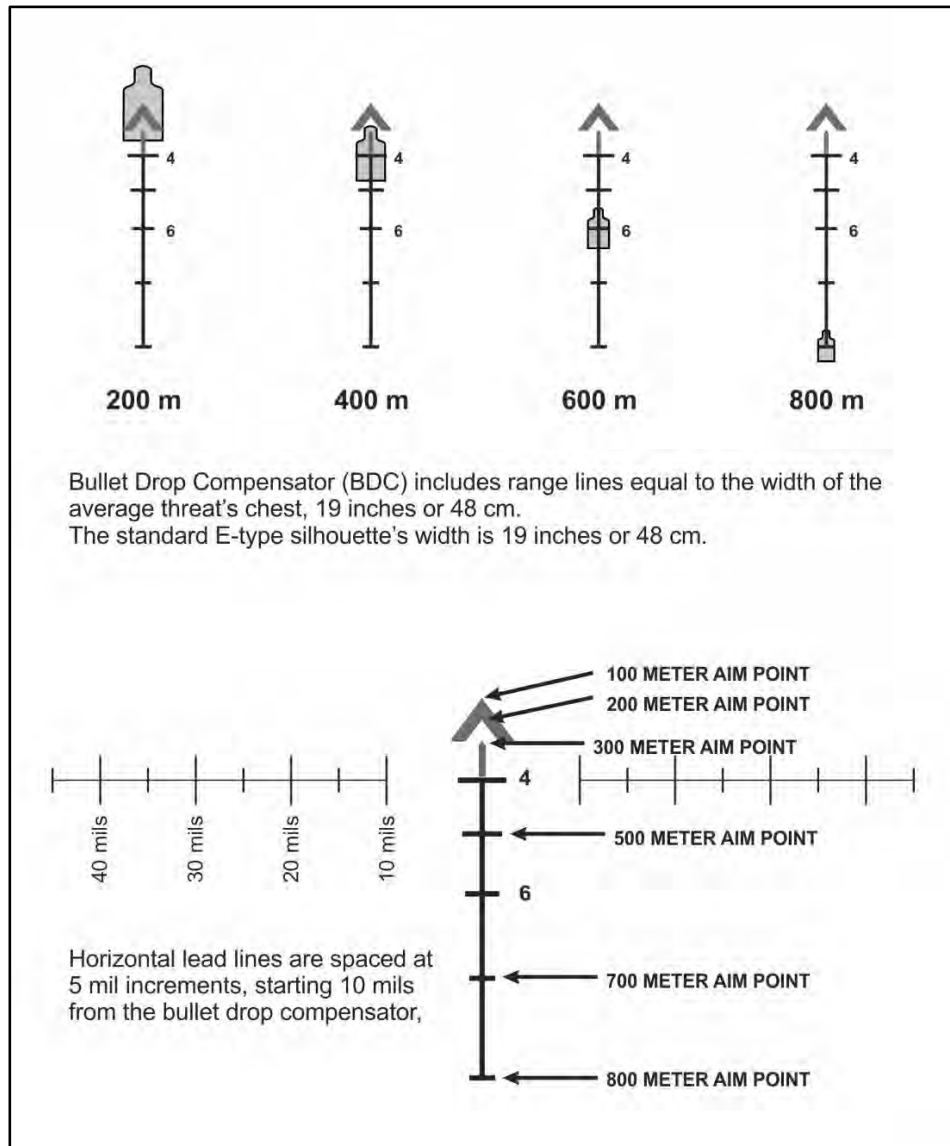


Figure C-3. RCO range determination using the bullet drop compensator reticle

Complex Engagements

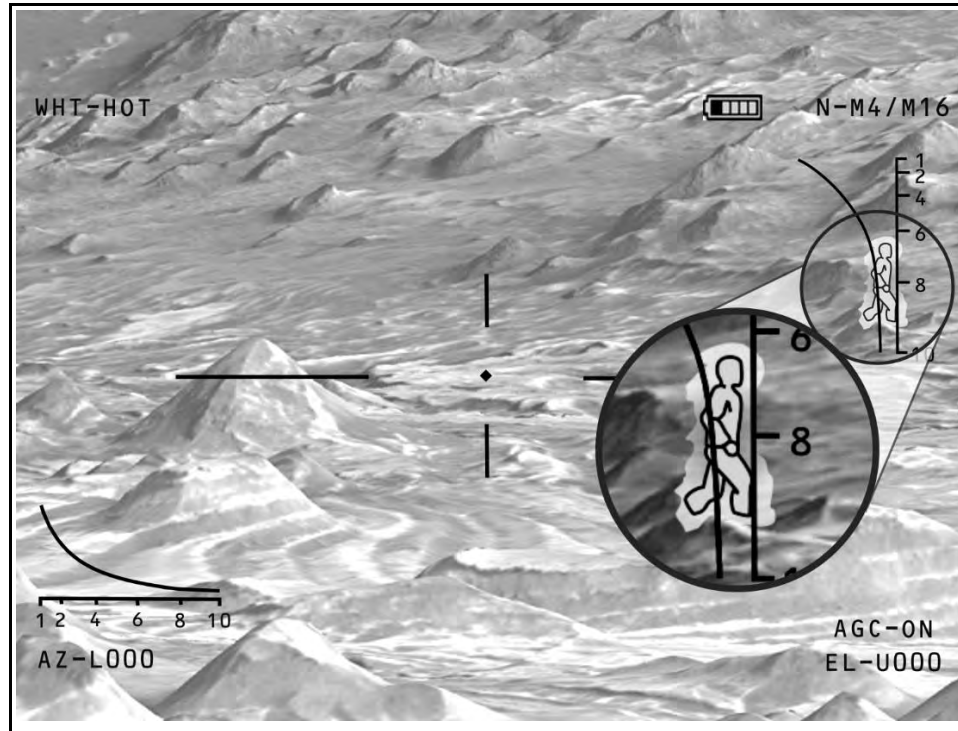


Figure C-4. Reticle relationship using a stadiametric reticle example

C-10. Anything that limits the visibility (such as weather, smoke, or darkness) will also limit the effectiveness of this method. To become proficient in using the appearance of objects method with accuracy, shooters must be familiar with the characteristic details of objects as they appear at various ranges.

Appendix C

MOVING TARGETS

C-11. Moving targets are those threats that appear to have a consistent pace and direction. Targets on any battlefield will not remain stationary for long periods of time, particularly once a firefight begins. Soldiers must have the ability to deliver lethal fires at a variety of moving target types and be comfortable and confident in the engagement techniques. There are two methods for defeating moving targets; tracking and trapping.

Tracking Method

C-12. The tracking method is used for a moving target that is progressing at a steady pace over a well-determined route. If a Soldier uses the tracking method, he tracks the target with the rifle's sight while maintaining sight alignment and a point of aim on or ahead of (leading) the target until the shot is fired.

C-13. When establishing a lead on a moving target, the rifle sights will not be centered on the target and instead will be held on a lead in front of the target. The basic lead formula for moving targets that are generally perpendicular to the shooter (moving across the sector of observation), is—

$$\frac{1}{100} R(7) = L$$

or

$$\frac{1}{100} \text{Range to Target} \times 7 = \text{Lead in Inches}$$

C-14. This formula is used to determine the baseline lead in the direction of travel of the target when its pace is approximately 3 mph or 4.5 feet per second (fps). Figure°C-5, on page C-7, shows the application of this formula at a notional moving target:

Complex Engagements

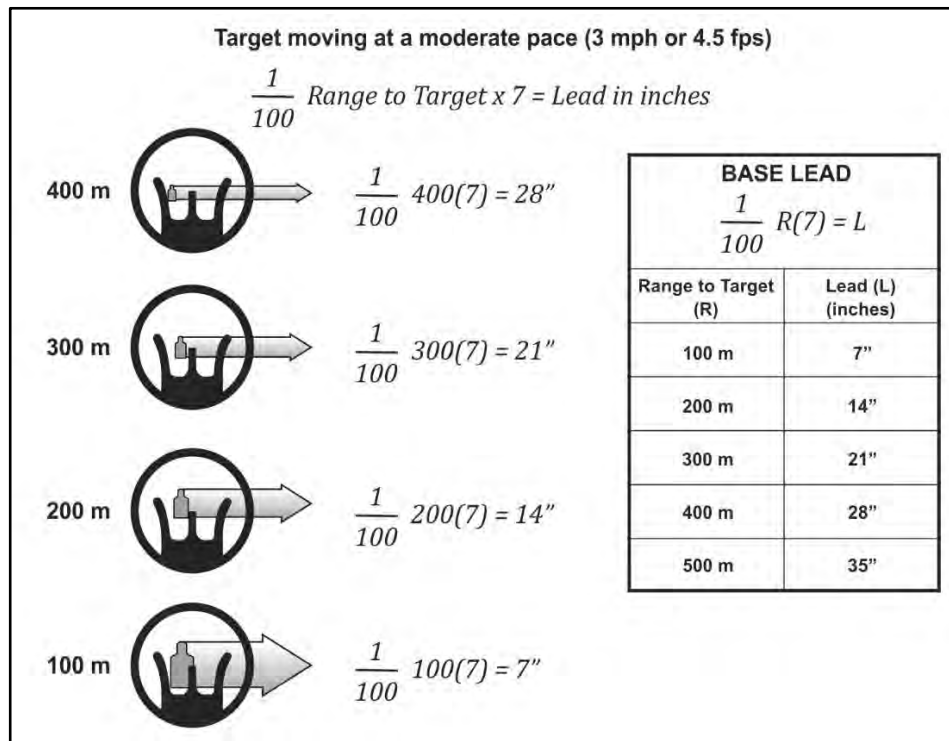


Figure C-5. Deliberate lead formula example

C-15. To execute the tracking method, a Soldier performs the following steps:

- Swing the muzzle of the rifle through the target (from the rear of the target to the front) to the desired lead (point of aim). The point of aim may be on the target or some point in front of the target depending upon the target's range, speed, and angle of movement.
- Track and maintain focus on the rifle's sight while acquiring the desired sight picture. It may be necessary to shift the focus between the rifle's sight and the target while acquiring the sight picture, but the focus must be on the rifle's sight when the shot is fired. Engage the target once the sight picture is acquired. While maintaining the proper lead,—
 - Follow-through so the lead is maintained as the bullet exits the muzzle.
 - Continue to track in case a second shot needs to be fired on the target.

Trapping Method

C-16. The trapping method (see figure C-6) is used when it is difficult to track the target with the aiming device, as in the prone or sitting position. The lead required to effectively engage the target determines the engagement point and the appropriate hold-off.

Appendix C

C-17. With the sights settled, the target moves into the predetermined engagement point and creates the desired sight picture. The trigger is pulled simultaneously with the establishment of sight picture. To execute the trapping method, a Soldier performs the following steps:

- Select an aiming point ahead of the target – where to set the trap.
- Obtain sight alignment on the aiming point.
- Hold sight alignment until the target moves into vision and the desired sight picture is established.
- Engage the target once sight picture is acquired.
- Follow-through so the rifle sights are not disturbed as the bullet exits the muzzle.

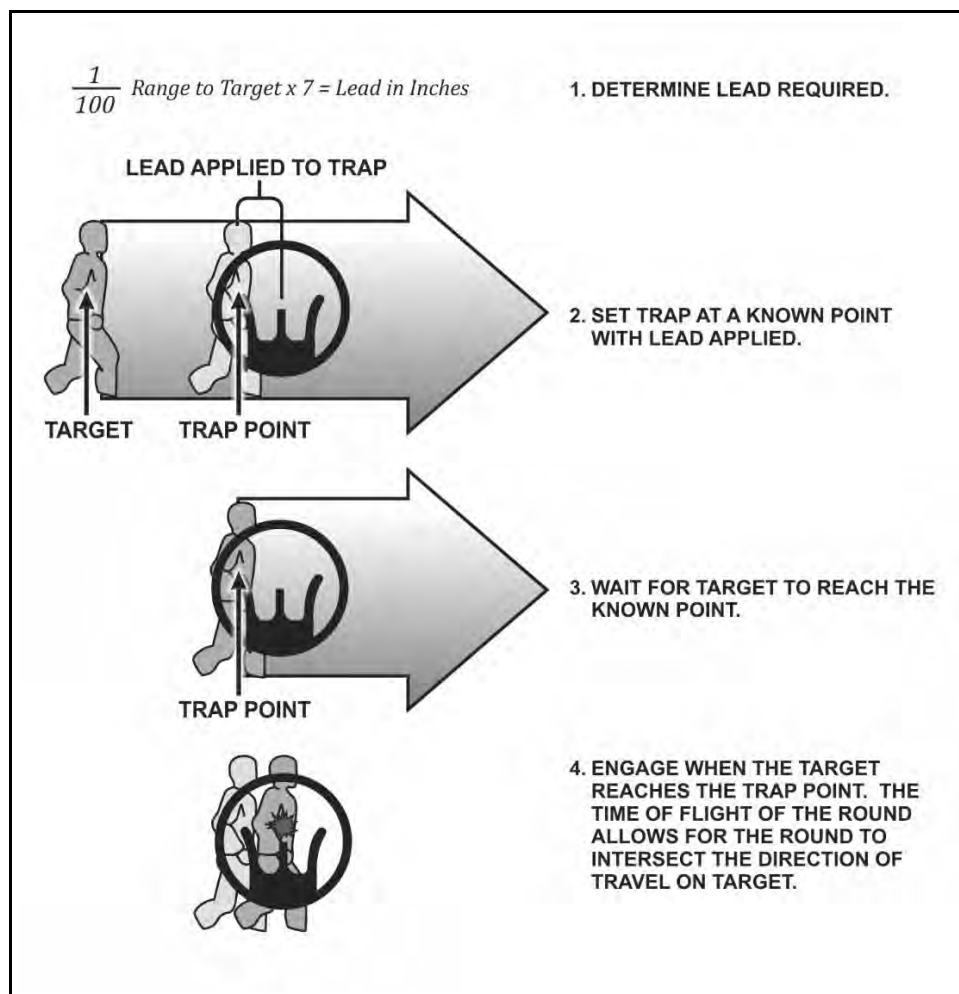


Figure C-6. Deliberate trapping method example

Complex Engagements

OBLIQUE TARGETS

C-18. Threats that are moving diagonally toward or away from the shooter are oblique targets. They offer a unique problem set to shooters where the target may be moving at a steady pace and direction; however, their oblique posture makes them appear to move slower.

C-19. Soldiers should adjust their hold-off based on the angle of the target's movement from the gun-target line. The following guide (see figure C-7) will help Soldiers determine the appropriate percentage of hold-off to apply to engage the oblique threats as they move.

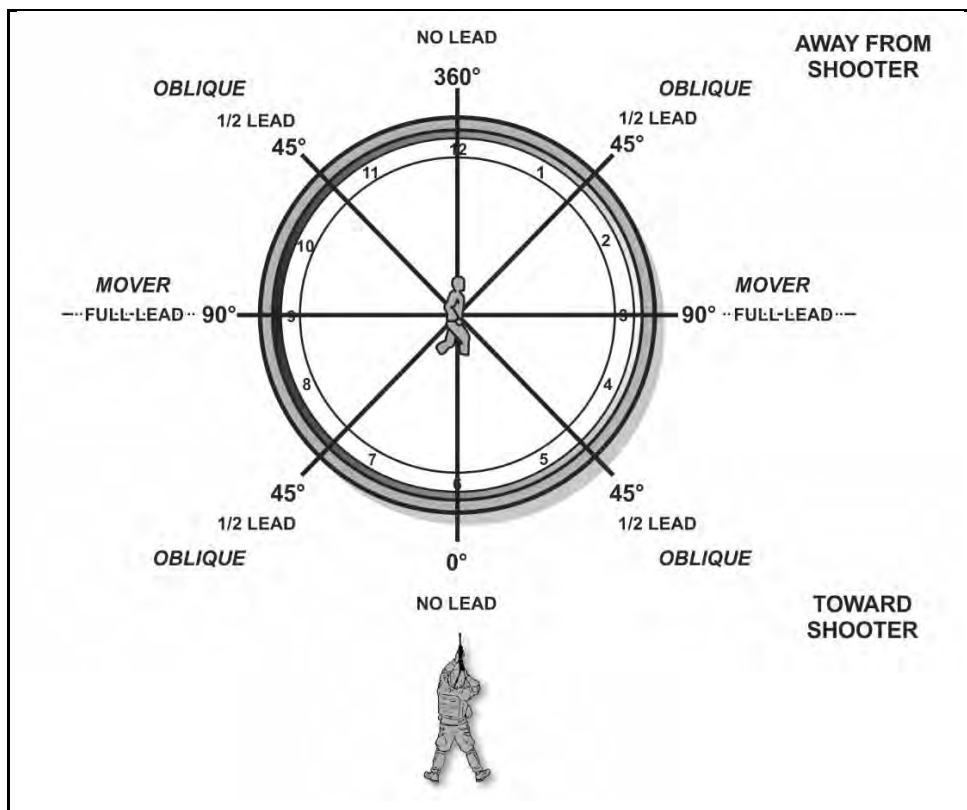


Figure C-7. Oblique target example

Appendix C

ENVIRONMENTAL CONDITIONS

C-20. The environment can complicate the shooter's actions during the shot process with excessive wind or requiring angled firing limited visibility conditions. Soldiers must understand the methods to offset or compensate for these firing occasions, and be prepared to apply these skills to the shot process. This includes when multiple complex conditions compound the ballistic solution during the firing occasion.

WIND

C-21. Wind deflection is the most influential element in exterior ballistics. Wind does not push the projectile causing the actual deflection. The bullet's tip is influenced in the direction of the wind slightly, resulting in a gradual drift of the bullet in the direction of the wind. The effects of wind can be compensated for by the shooter provided they understand how wind effects the projectile and the terminal point of impact. The elements of wind effects are—

- The **time** the projectile is exposed to the wind (range).
- The **direction** from which the wind is blowing.
- The **velocity** of the wind on the projectile during flight.

Wind Direction and Value

C-22. Winds from the left cause an effect on the projectile to drift to the right, and winds from the right cause an effect on the projectile to drift to the left. The amount of the effect depends on the time of (projectile's exposure) the wind speed and direction. To compensate for the wind, the firer must first determine the wind's direction and value. (See figure C-8 on page C-11.)

C-23. The clock system can be used to determine the direction and value of the wind. Picture a clock with the firer oriented downrange towards 12 o'clock.

C-24. Once the direction is determined, the value of the wind is next. The value of the wind is how much effect the wind will have on the projectile. Winds from certain directions have less effect on projectiles. The chart below shows that winds from 2 to 4 o'clock and 8 to 10 o'clock are considered full-value winds and will have the most effect on the projectile. Winds from 1, 5, 7, and 11 o'clock are considered half-value winds and will have roughly half the effect of a full-value wind. Winds from 6 and 12 o'clock are considered no-value winds and little or no effect on the projectile.

Complex Engagements

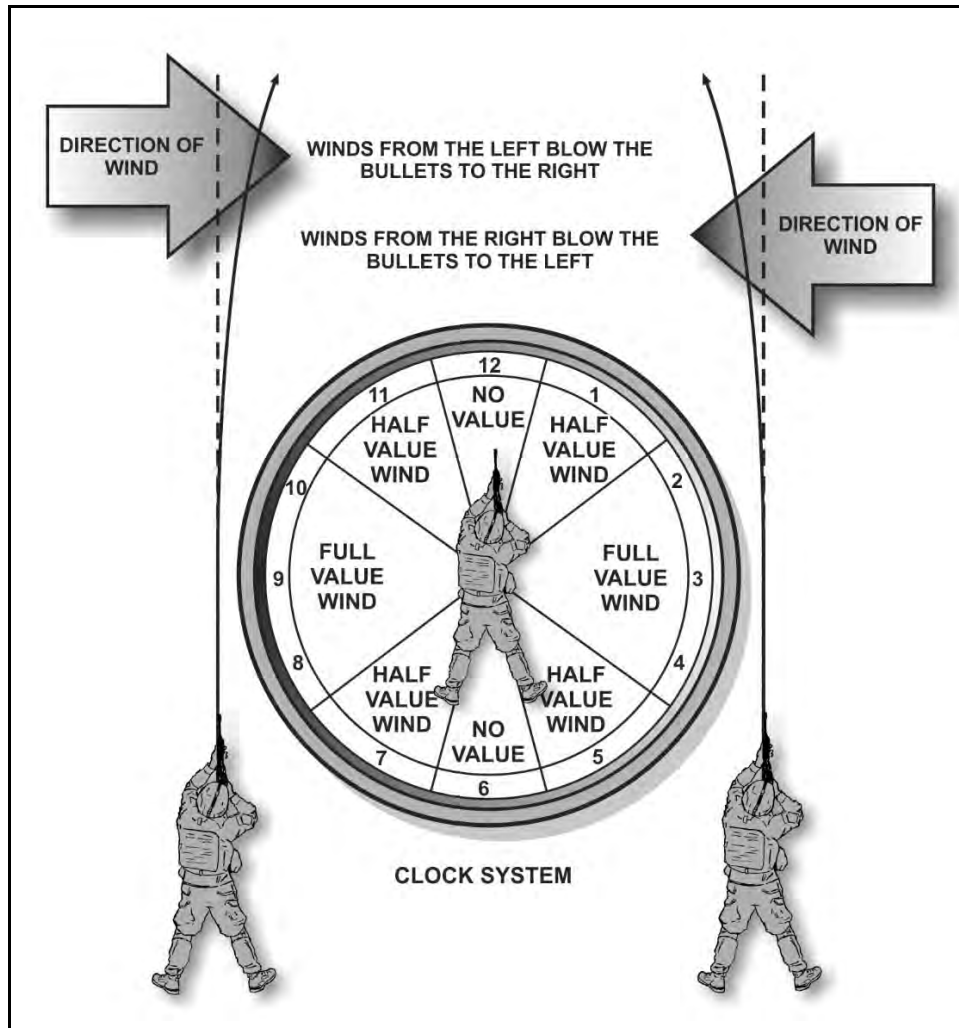


Figure C-8. Wind value

C-25. The wind will push the projectile in the direction the wind is blowing (see figure C-9). The amount of effects on the projectile will depend on the time of exposure, direction of the wind, and speed of the wind. To compensate for wind the Soldier uses a hold in the direction of the wind.

Appendix C

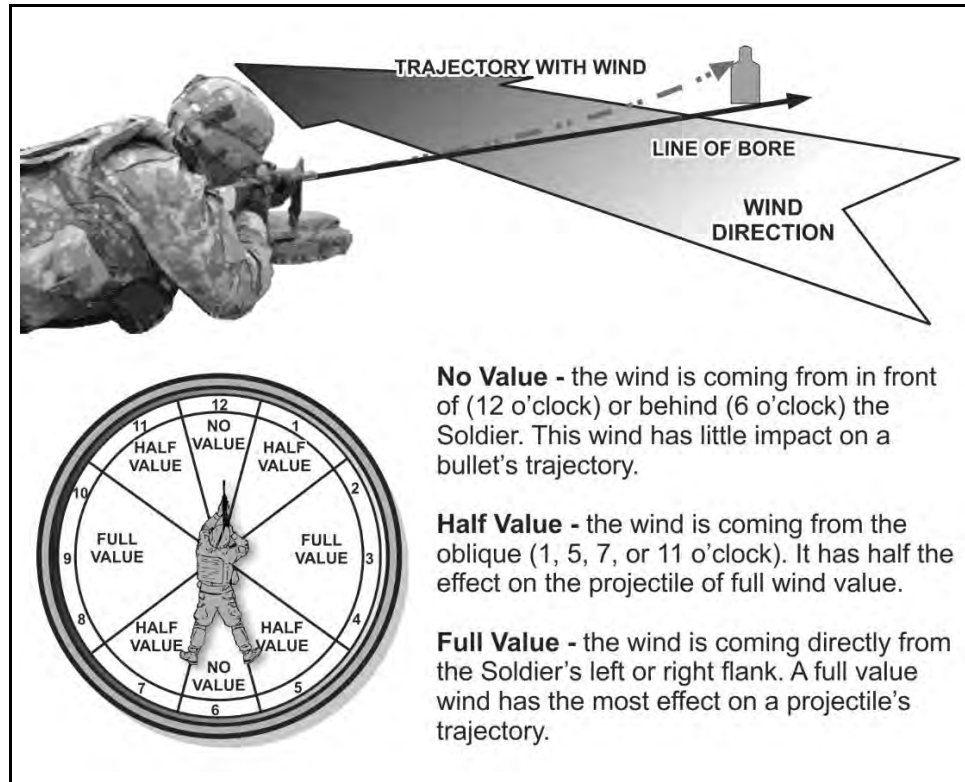


Figure C-9. Wind effects

Complex Engagements

Wind Speed

C-26. Wind speeds can vary from the firing line to the target. Wind speed can be determined by taking an average of the winds blowing on the range. The firer's focus should be on the winds between the firer and the target. The front 1/3 of the trajectory plays the most significant role in determining the bullet's wind drift deflection, but with increasing range, the firer must consider the wind speed at midpoint and the target area to make the best overall assessment.

C-27. The Soldier can observe the movement of items in the environment downrange to determine the speed. Each environment will have different vegetation that reacts differently.

C-28. Downrange wind indicators include the following:

- 0 to 3 mph = Hardly felt, but smoke drifts.
- 3 to 5 mph = Felt lightly on the face.
- 5 to 8 mph = Keeps leaves in constant movement.
- 8 to 12 mph = Raises dust and loose paper.
- 12 to 15 mph = Causes small trees to sway.

C-29. The wind blowing at the Soldiers location may not be the same as the wind blowing on the way to the target.

Wind Estimation

C-30. Soldiers must be comfortable and confident in their ability to judge the effects of the wind to consistently make accurate and precise shots. Soldiers will use wind indicators between the Soldier and the target that provide windage information to develop the proper compensation or hold-off.

C-31. To estimate the effects of the wind on the shot, Soldiers need to determine three windage factors:

- Velocity (speed).
- Direction.
- Value.

Determining Wind Drift

C-32. Once wind velocity, direction, and value have been determined, Soldiers determine how to compensate for the effects of wind. For the Soldier, there are three methods of determining the appropriate hold-off to adjust for excessive wind; using the wind formula, wind estimation, or referencing a generalized ballistic windage chart.

C-33. Once the range to target and wind speed are known, the formula below is used to determine drift. The output from the formula is in MOA. The final answer is rounded off to make the calculation quicker to perform. This formula (see figure C-10) will allow the Soldier to adjust for the distance that the wind displaces his projectile.

Appendix C

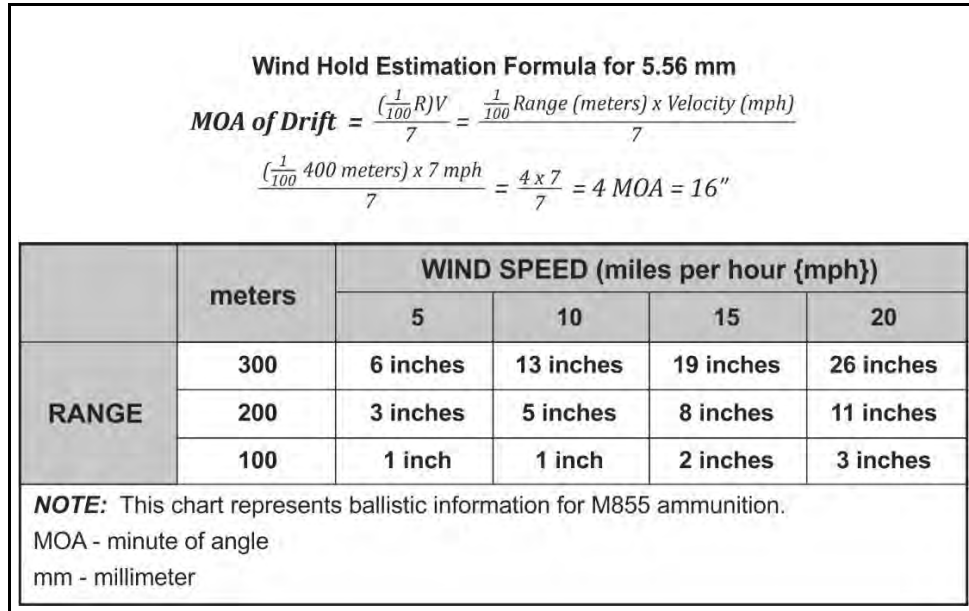


Figure C-10. Wind formula and ballistics chart example

C-34. The ballistics chart shows the wind drift in inches at ranges from 100 meters – 300 meters and wind speeds up to 20 mph. The data from the 100-m (meter) line shows that even in a 20-mph wind there is very little deflection of the round. At 300 meters, it can be seen that the same 20-mph wind will blow the bullet 26 inches. This illustrates the fact that the bullet is effected more by the wind the further it starts out from the target.

Windage Hold

C-35. Using a hold involves changing the point of aim to compensate for the wind drift. For example, if wind causes the bullet to drift 12 inches to the left, the aiming point must be moved 12 inches to the right. (See figure C-11 on page C-15.)

Complex Engagements

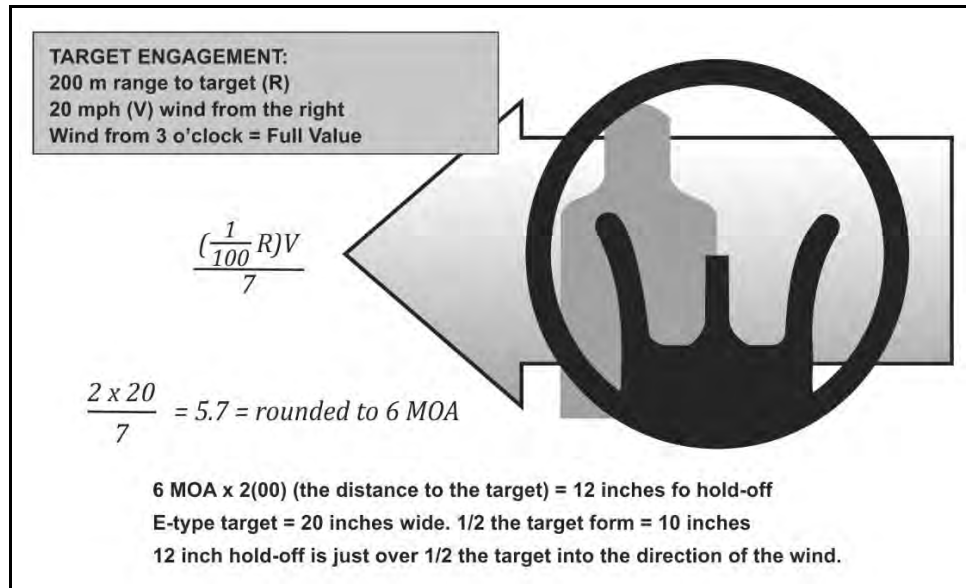


Figure C-11. Hold-off example

Note. The aiming point is center mass of the visual target, allowing for the greatest possibility of impacting the target. The hold off is based on the distance *from* center mass. Soldiers apply the hold-off creating the new point of aim.

C-36. Firers must adjust their points of aim into the wind to compensate for its effects. If they miss a distant target and wind is blowing from the right, they should aim to the right for the next shot. A guide for the initial adjustment is to split the front sight post on the edge of the target facing the wind.

C-37. Newly assigned Soldiers should aim at the target's center of visible mass for the first shot, and then adjust for wind when they are confident that wind caused the miss. Experienced firers should apply the appropriate hold-off for the first shot, but should follow the basic rule—when in doubt, aim at the center of visible mass.

Appendix C**ANGLED FIRE**

C-38. Firing uphill or downhill at angles greater than 30 degrees, the firer must account for the change in the strike of the round from a horizontal trajectory. Rounds fired at excessive angles at extended ranges beyond the weapon's zero distance strike high on the target. To compensate for this, firers can rapidly determine a correct firing solution using the Quick High Angle Formula.

C-39. The first step is to determine the appropriate hold for the range to target beyond zero distance. Table C-1 provides the approximate holds for M855A1, 5.56mm, Ball, Enhanced Performance Round (EPR) at ranges beyond the Army standard 300 meter zero—

Table C-1. Standard holds beyond zero distance example

Range (meters)	Drop from Point of Aim (inches)	MOA Hold	Mil Hold
400	-11.9	2.6	0.7
500	-31.4	5.5	1.6
600	-59.7	8.7	2.5

C-40. Next, the firer estimates the angle of fire to either 30, 45, or 60 degrees. The firer then applies that information to the Quick High Angle Formula to determine the approximate high angle hold. This formula is built to create a rapid hold adjustment that will get the shot on target.

C-41. Figure C-12 shows the quick high angle formula with an example in both MOA and mils. The example is based on a target at 500 meters, and provides effective solutions for the three angle categories; 30, 45, and 60 degrees.

Complex Engagements

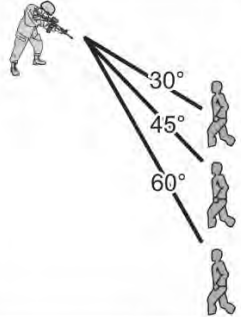
QUICK HIGH ANGLE FORMULA						
	DOWN ANGLE	MOA ADJUSTMENT/ 100 METERS		Mil ADJUSTMENT/ 100 METERS		
	30°	-1/2 MOA		0.15 mils		
	45°	-1 MOA		0.3 mils		
	60°	-2 MOA per 100 meters, then add 1 MOA		0.6 mils per 100 meters, then add 0.3 mils		
MINUTE OF ANGLE (MOA) EXAMPLE at 500 meters						
DEGREES	RANGE HOLD	ANGLE OFFSET (-)		60 DEGREE OFFSET (+)		HIGH ANGLE HOLD
30°	5.5 MOA	-	2.5 MOA	+	=	3 MOA
45°	5.5 MOA	-	5 MOA	+	=	1/2 MOA
60°	5.5 MOA	-	10 MOA	+	1 MOA =	-3 1/2 MOA
MILS EXAMPLE at 500 meters						
DEGREES	RANGE HOLD	ANGLE OFFSET (-)		60 DEGREE OFFSET (+)		HIGH ANGLE HOLD
30°	1.6 mils	-	0.75 mils		=	+0.85 mils
45°	1.6 mils	-	1.5 mils		=	+0.1 mils
60°	1.6 mils	-	3 mils	+	0.3 mils =	-1.1 mils
60° Rule of Thumb is Range Hold -2 MOA / 0.6 mil + High Angle Hold						

Figure C-12. Quick high angle formula example

Appendix C

COMPOUND CONDITIONS

C-42. When combining difficult target firing occasion information, Soldiers can apply the rules specific to the situation together to determine the appropriate amount of hold-off to apply.

C-43. The example below shows the application of different moving target directions with varying speed directions. This is a general example to provide the concept of applying multiple hold-off information to determine complex ballistic solutions for an engagement. (See figure C-13.)

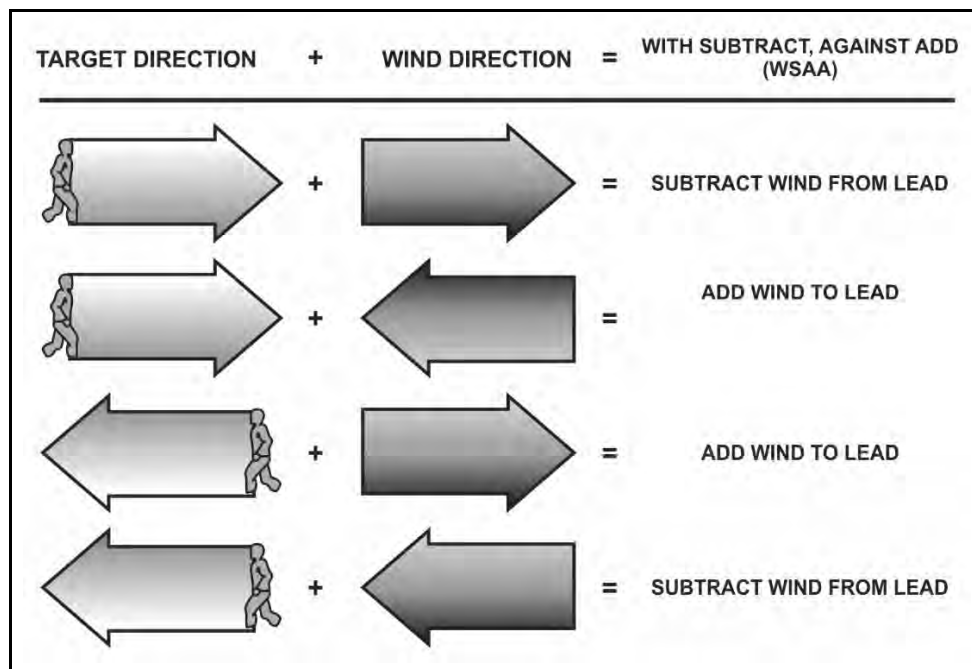


Figure C-13. Compound wind and lead determination example

Appendix D

Drills

This appendix describes the various drills for the rifle and carbine, and their purpose. The drill structure is standardized for all individual and crew served weapons in order to reinforce the most common actions all Soldiers need to routinely execute with their assigned equipment during training and combat.

These drills are used during Table III of the integrated weapons training strategy, as well as during routine maintenance, concurrent training, and during deployments. The drills found within this appendix are used to build and maintain skills needed to achieve proficiency and mastery of the weapon, and are to be ingrained into daily use with the weapon.

D-1. Each drill is designed to develop confidence in the equipment and Soldier actions during training and combat operations. As they are reinforced through repetition, they become second nature to the Soldier, providing smooth, consistent employment during normal and unusual conditions.

D-2. The drills provided are designed to build the Soldier's proficiency with the following principles:

- **Mindset** – the Soldier's ability to perform tasks quickly and effectively under stress.
- **Efficiency** – ensure the drills require the least amount of movement or steps to complete correctly. Make every step count.
- **Individual tactics** – ensure the drills are directly linked to employment in combat.
- **Flexibility** – provide drills that are not rigid in execution. Units may alter the procedural steps depending on their equipment, configuration, or tactical need.

MINDSET

D-3. Continuous combat is inherently stressful. It exhausts Soldiers and causes physiological changes that reduce their ability to perform tasks as quickly or effectively as necessary. The Soldier's ability to function under stress is the key to winning battles, since, without the Soldier, weapons and tactics are useless. Individual and unit military effectiveness depend on the Soldier's ability to think clearly, accurately, quickly, all with initiative, motivation, physical strength, and endurance.

Appendix D

D-4. The impact of physiological changes caused by the stress of combat escalates or de-escalates based on the degree of stimulation, causing Soldiers to attain different levels of awareness as events occur in the continually transitioning operational area around them. Maintaining a tactical mindset involves understanding one's level of awareness and transitioning between the levels of awareness as the situation requires escalation or de-escalation.

Note. Stress can be countered using the principles associated with Soldier resilience and performance enhancement. The Comprehensive Soldier and Family Fitness (CSF2) is designed to increase a Soldier's ability and willingness to perform an assigned task or mission and enhance his performance by assessing and training mental resilience, physical resilience, and performance enhancement techniques and skills. This initiative introduces many resources used to train Soldiers on skills to counter stress. For more information about CSF2, see <http://csf2.army.mil/>.

EFFICIENCY

D-5. Efficiency is defined as the minimization of time or resources to produce a desired outcome. Efficient movements are naturally faster than movements that contain excessive or wasteful actions.

D-6. By reducing the amount of effort, mental, and/or physical, the movement becomes repeatable and the effect becomes predictable. This allows the Soldier to focus on the tactics while still maintaining the ability to produce accurate and precise fires.

INDIVIDUAL TACTICS

D-7. Individual tactics are actions independent of unit standard operating procedures (SOPs) or situations that maximize the Soldier's chance of survival and victory in a small arms, direct fire battle.

D-8. Examples of individual tactics include use of cover and standoff, or the manipulation of time and space between a Soldier and his enemy.

FLEXIBILITY

D-9. The techniques presented in this publication are not meant to be prescriptive, as multiple techniques can be used to achieve the same goal. In fact, there is no singular "one size fits all" solution to rifle fire; different types of enemies and scenarios require the use of different techniques.

D-10. However, the techniques presented are efficient and proven techniques for conducting various rifle-related tasks. Should other techniques be selected, they should meet the following criteria:

Drills

RELIABLE UNDER CONDITIONS OF STRESS

D-11. Techniques should be designed for reliability when it counts; during combat. The technique should produce the intended results without fail, under any conditions and while wearing mission-essential equipment.

D-12. It should also be tested under as high stress conditions as allowed in training.

REPEATABLE UNDER CONDITIONS OF STRESS

D-13. As combat is a stressor, a Soldier's body responds much as it does to any other stressful stimulus; physiological changes begin to occur, igniting a variable scale of controllable and uncontrollable responses based on the degree of stimulation.

D-14. The technique should support or exploit the body's natural reaction to life-threatening stress.

EFFICIENCY IN MOTION

D-15. The technique should be designed to create the greatest degree of efficiency of motion. It should contain only necessary movement. Excessive or unnecessary movement in a fighting technique costs time to execute. In a violent encounter, time can mean the difference between life and death.

D-16. Consider the speed at which violent encounters occur; An unarmed person can cover a distance of 20 feet in approximately 1 second. Efficiency decreases the time necessary to complete a task, which enhances the Soldier's safety.

DEVELOP NATURAL RESPONSES THROUGH REPETITION

D-17. When practiced correctly and in sufficient volume, the technique should build reflexive reactions that a Soldier applies in response to a set of conditions. Only with correct practice will a Soldier create the muscle memory necessary to serve him under conditions of dire stress. The goal is to create automaticity, the ability to perform an action without thinking through the steps associated with the action.

LEVERAGE OVERMATCH CAPABILITIES

D-18. Engagements can occur from 0 to 600 meters and any variance in between. Fast and efficient presentation of the rifle allows more time to stabilize the weapon, refine the aim, and control the shot required to deliver precise fires. This rapidly moves the unit toward the goal of fire superiority and gains/maintains the initiative. Speed should be developed throughout the training cycle and maintained during operations.

D-19. As distance between the Soldier and a threat decreases, so does the time to engage with well-place lethal fires. As distance increase, the Soldier gains time to refine his aim and conduct manipulations.

Appendix D

DRILLS

D-20. To build the skills necessary to master the functional elements of the shot process, certain tasks are integrated into drills. These drills are designed specifically to capture the routine, critical tasks or actions Soldiers must perform fluently and as a second nature to achieve a high level of proficiency.

D-21. Drills focus on the Soldier's ability to apply specific weapons manipulation techniques to engage a threat correctly, overcome malfunctions of the weapon or system, and execute common tasks smoothly and confidently.

DRILL A – WEAPON CHECK

D-22. The weapon check is a visual inspection of the weapon by the Soldier. A weapon check includes at a minimum verifying:

- Weapon is clear.
- Weapon serial number.
- Aiming device(s) serial number.
- Attachment points of all aiming devices, equipment, and accessories.
- Functions check.
- Proper location of all attachments on the adaptive rail system.
- Zero information.
- Serviceability of all magazines.

D-23. The weapon check is initiated when first receiving the weapon from the arms room or storage facility. This includes when recovering the weapon when they are stacked or secured at a grounded location.

D-24. Units may add tasks to Drill A as necessary. Units may direct Soldiers to execute Drill A at any time to support the unit's mission.

DRILL B – SLING/UNSLING OR DRAW/HOLSTER

D-25. This drill exercises the Soldier's ability to change the location of the weapon on demand. It reinforces their ability to maintain situational and muzzle awareness during rapid changes of the weapon's sling posture. It also provides a fitment check between the weapon, the Soldier's load bearing equipment, and the Soldier's ability to move between positions while maintaining effective use of the weapon.

D-26. When conducting this drill, Soldiers should:

- Verify the proper adjustment to the sling.
- Rotate the torso left and right to ensure the sling does not hang up on any equipment.
- Ensure the weapon does not interfere with tactical movement.

DRILL C – EQUIPMENT CHECK

D-27. This drill is a Pre-Combat Check (PCC) that ensures the Soldier's aiming devices, equipment, and accessories are prepared –

Drills

- Batteries.
- Secured correctly.
- Equipment does not interfere with tactical movement.
- Basic load of magazines are stowed properly.

DRILL D – LOAD

D-28. This is predominantly an administrative loading function. This allows the Soldier to develop reliable loading techniques.

DRILL E – CARRY (FIVE/THREE)

D-29. This is a series of five specific methods of carrying the weapon by a Soldier. These five methods are closely linked with range operations in the training environment, but are specifically tailored to combat operations. This drill demonstrates the Soldier's proficiency moving between:

- Hang.
- Safe hang.
- Collapsed low ready.
- Low ready.
- High ready (or ready up).

D-30. A leader will announce the appropriate carry term to initiate the drill. Each carry method should be executed in a random order a minimum of three times.

DRILL F – FIGHT DOWN

D-31. The Fight Down drill builds the Soldier's understanding of how to move effectively and efficiently between firing postures. This drill starts at a standing position, and, on command, the Soldier executes the next lower position or the announced position by the leader. The Fight Down drill exercises the following positions in sequence:

- Standing.
- Kneeling.
- Sitting.
- Prone.

D-32. Each position should be executed a minimum of three times. Leaders will use Drill F in conjunction with Drill G.

DRILL G – FIGHT UP

D-33. The Fight Up drill builds the Soldier's timing and speed while moving from various positions during operations. This drill starts in the prone position, and, on command, the Soldier executes the next higher position or the announced position by the leader. The Fight Up drill exercises the following positions in sequence:

- Prone.
- Sitting.

Appendix D

- Kneeling.
- Standing.

D-34. Each position should be executed a minimum of three times. Leaders will use Drill F, Fight Down, in conjunction with Drill G, Fight Up.

D-35. Leaders may increase the tempo of the drill, increasing the speed the Soldier needs to assume the next directed position. After the minimum three iterations are completed (Drill F, Drill G, Drill G, etc.), the leader may switch between Drill F and G at any time, at varying tempo.

DRILL H – GO-TO-PRONE

D-36. The Go-To-Prone drill develops the Soldier's agility when rapidly transitioning from a standing or crouched position to a prone firing position. Standard time should be below 2 seconds.

D-37. Leaders announce the starting position for the Soldier to assume. Once the Soldier has correctly executed the start position to standard, the leader will announce GO TO PRONE. This drill should be conducted a minimum of five times stationary and five times while walking.

D-38. Leaders should not provide preparatory commands to the drill, and should direct the Soldier to go to prone when it is unexpected or at irregular intervals. Leaders may choose to include a tactical rush with the execution of Drill H.

DRILL I – RELOAD

D-39. The Tactical Reload drill is executed when the Soldier is wearing complete load bearing equipment. It provides exercises to assure fast reliable reloading through repetition at all firing positions or postures.

D-40. The Soldier should perform Drill I from each of the following positions a minimum of seven times each:

- Standing.
- Squatting.
- Kneeling.
- Prone.

D-41. Leaders may include other drills while directing Drill I to the Soldier to reinforce the training as necessary.

DRILL J – CLEAR MALFUNCTION

D-42. This drill includes the three methods to clear the most common malfunctions on a rifle or carbine in a rapid manner, while maintaining muzzle and situational awareness. Soldiers should perform all three variations of clearing a malfunction based on the commands from their leader.

Drills

D-43. Each of the three variations of Drill J should be executed five times. Once complete, leaders should incorporate Drill J with other drills to ensure the Soldier can execute the tasks at all positions fluently.

DRILL K – UNLOAD / SHOW CLEAR

D-44. This is predominantly an administrative unloading function, and allows the Soldier to develop reliable clearing techniques. This drill should be executed in tandem with Drill D, Load. It should be executed a minimum of seven times in order to rotate through the Soldier's magazine pouch capacity, and reinforce the use of a "dump pouch" or pocket, to retain expended magazines during operations.

D-45. This drill can be executed without ammunition in the weapon. Leaders may opt to use dummy ammunition or spent cartridge cases as desired. In garrison environments, Leaders should use Drill K on demand, particularly prior to entering buildings or vehicles to reinforce the Soldier's skills and attention to detail.

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Appendix E

Zeroing

Zeroing a weapon is not a training exercise, nor is it combat skills event. Zeroing is a maintenance procedure that is accomplished to place the weapon in operation, based on the Soldier's skill, capabilities, tactical scenario, aiming device, and ammunition. Its purpose is to achieve the desired relationship between the line of sight and the trajectory of the round at a known distance. The zeroing process ensures the Soldier, weapon, aiming device, and ammunition are performing as expected at a specific range to target with the least amount of induced errors.

For Soldiers to achieve a high level of accuracy and precision, it is critical they zero their aiming device to their weapon correctly. The Soldier must first achieve a consistent grouping of a series of shots, then align the mean point of impact of that grouping to the appropriate point of aim. Soldiers use the process described in this appendix with their weapon and equipment's technical manuals to complete the zeroing task.

BATTLESIGHT ZERO

E-1. The term battlesight zero means the combination of sight settings and trajectory that greatly reduces or eliminates the need for precise range estimation, further eliminating sight adjustment, holdover or hold-under for the most likely engagements. The battlesight zero is the default sight setting for a weapon, ammunition, and aiming device combination.

E-2. An appropriate battlesight zero allows the firer to accurately engage targets out to a set distance without an adjusted aiming point. For aiming devices that are not designed to be adjusted in combat, or do not have a bullet drop compensator, such as the M68, the selection of the appropriate battlesight zero distance is critical.

ZEROING PROCESS

E-3. A specific process should be followed when zeroing. The process is designed to be time-efficient and will produce the most accurate zero possible.

E-4. The zero process includes mechanical zero, laser borelight, 25-m grouping and zeroing, and zero confirmation out to 300 meters.

Appendix E

Note. Although wind and gravity have the greatest effect on the projectile's trajectory, air density and elevation must also be taken into consideration.

LASER BORELIGHT

E-5. The borelight is an eye-safe laser that is used to boresight optics, iron sights, and aiming lasers. The borelight assists the first shot group hitting the 25-m zeroing target when zeroing the weapon. Using the borelight will save range time and require less rounds for the zeroing process. Borelighting is done with a borelight, which is centered in the bore of the weapon, and with an offset target placed 10 meters from the muzzle of the weapon.

25-M GROUPING AND ZEROING

E-6. After successfully boresighting the weapon, the next step is to perform grouping and zeroing exercises. Grouping and zeroing is done at 25 meters on a 25-m zero target or at known distance range.

25-M GROUPING

E-7. The goal of the grouping exercise is for the shooter to fire tight shot groups and consistently place those groups in the same location. Tight, consistently placed shot groups show that the firer is applying proper aiming and smooth trigger control before starting the zeroing process. The firer should not start the zeroing process until they have demonstrated their ability to group well.

25-M ZEROING

E-8. Once the firer has shown their ability to accurately group, they should begin adjusting the aiming device to move the groups to the center of the target. During the zeroing process, the firer should attempt to center their groups as much as possible. Depending on the aiming device used, there may be a zero offset that needs to be used at 25 meters. During the zeroing process it is important that the firer adjusts their groups as close to the offset mark as possible.

ZERO CONFIRMATION OUT TO 300 METERS

E-9. The most important step in the zeroing process is zero confirmation out to 300 meters. Having a 25 m zero does not guarantee a center hit at 300 meters. The only way to rely on a 300-m hit, is to confirm a 300-m zero.

E-10. Confirmation can be done on any range where Soldiers can see the impacts of their rounds. Groups should be fired and aiming devices should be adjusted. At a minimum, the confirmation should be done at 300 meters. If rounds are available, groups can be fired at various ranges to show the firers where their impact will be.

E-11. When confirming zero at ranges past 100 meters, the effects of the wind needs to be considered and acted upon, if necessary. If a zero is confirmed at 300 meters on a windy day, and then the weapon is fired at a later date in different wind conditions or no wind at all, the impact will change. (See figure E-1 on page E-3.)

Zeroing

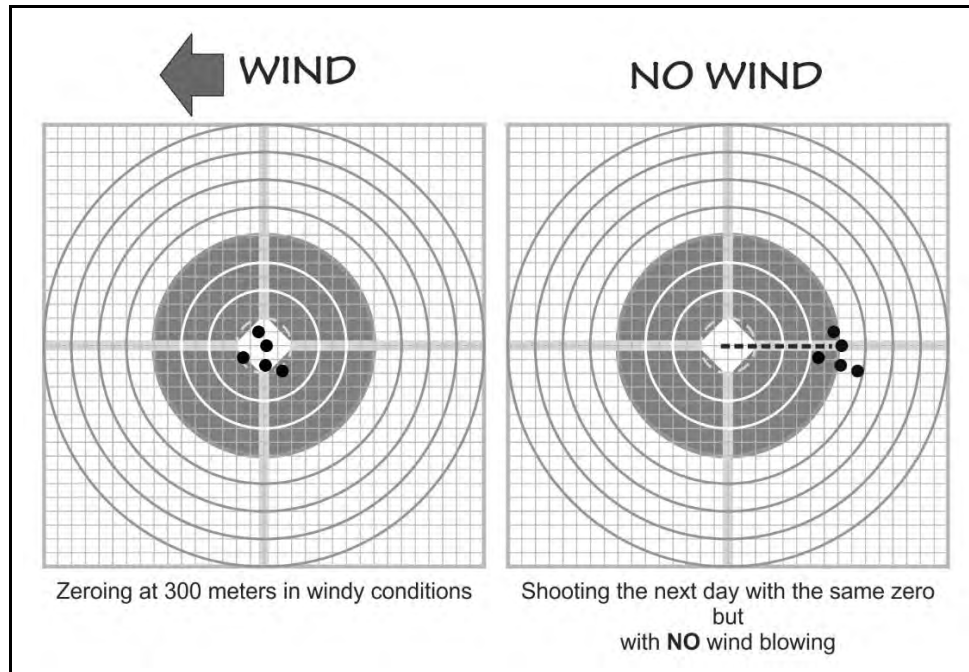


Figure E-1. Wind effects on zero at 300 meters

DOWNRANGE FEEDBACK

E-12. Feedback must be included in all live-fire training. Soldiers must have precise knowledge of a bullet strike; feedback is not adequate when bullets from previous firings cannot be identified. To provide accurate feedback, trainers ensure that Soldiers triangulate and clearly mark previous shot groups on a zeroing target or receive a hard copy from the tower on an automated range.

E-13. After zeroing, downrange feedback should be conducted. If modified field fire or known distance ranges are not available, a series of scaled silhouette targets can be used for training on the 25-m range.

E-14. With the M4- and M16-series of weapons, this range is 25 to 300 meters. This means, that with a properly zeroed rifle, the firer can aim center mass of a target between 25 meters and 300 meters and effectively engage it. A properly trained rifleman should be able to engage targets out to 600 meters in the right circumstances.

Appendix E

Note. A common misconception is that wearing combat gear will cause the zero to change. Adding combat gear to the Soldier's body does not cause the sights or the reticle to move. The straight line between the center of the rear sight aperture and the tip of the front sight post either intersects with the trajectory at the desired point, or it does not. Soldiers should be aware of their own performance, to include a tendency to pull their shots in a certain direction, across various positions, and with or without combat gear. A shift in point of impact in one shooting position may not correspond to a shift in the point of impact from a different shooting position.

E-15. Figure E-2, on page E-5, shows the zeroing target for use for the M16A2/M16A4. Figure E-3, on page E-6, M4-/M16-series weapons.

Zeroing

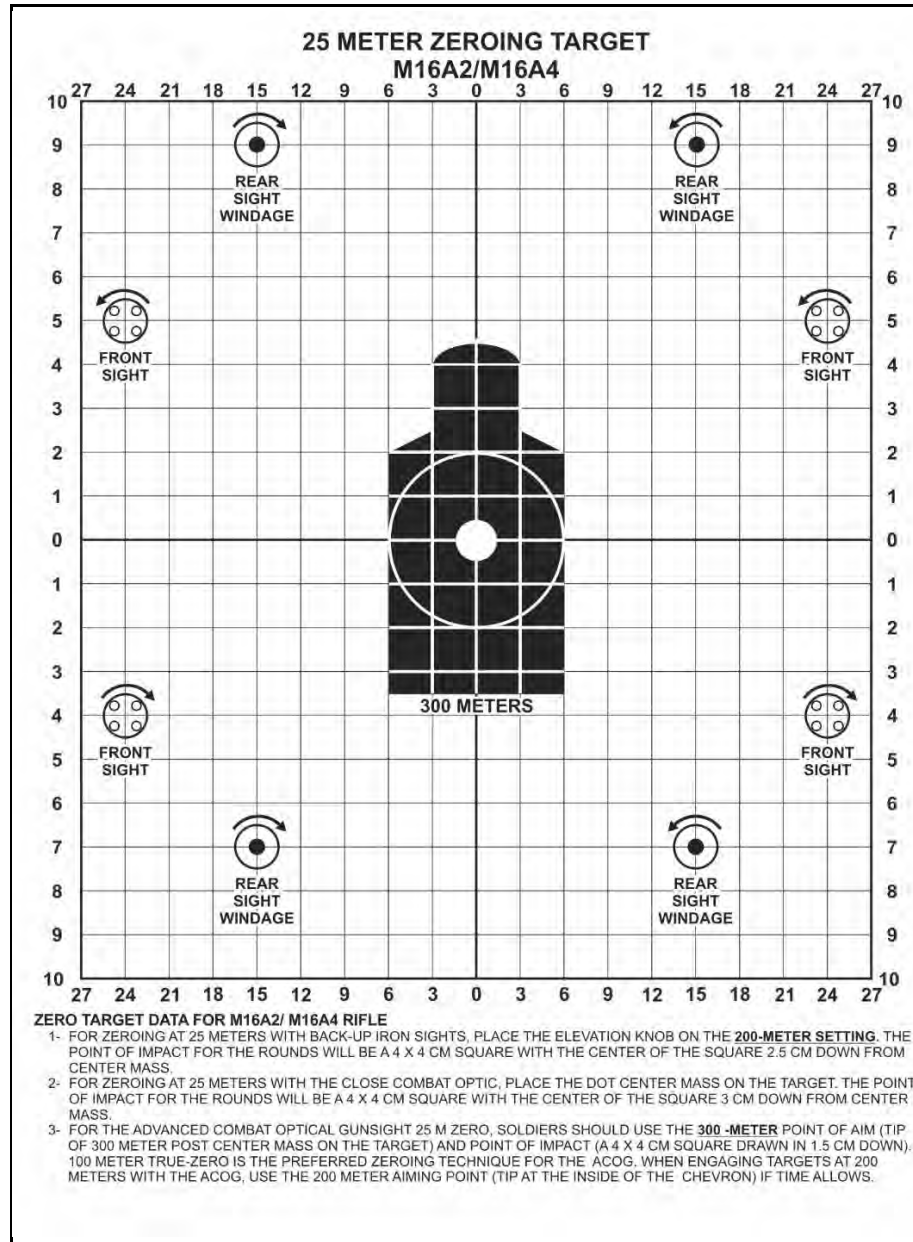


Figure E-2. M16A2 / M16A4 weapons 25m zero target

Appendix E

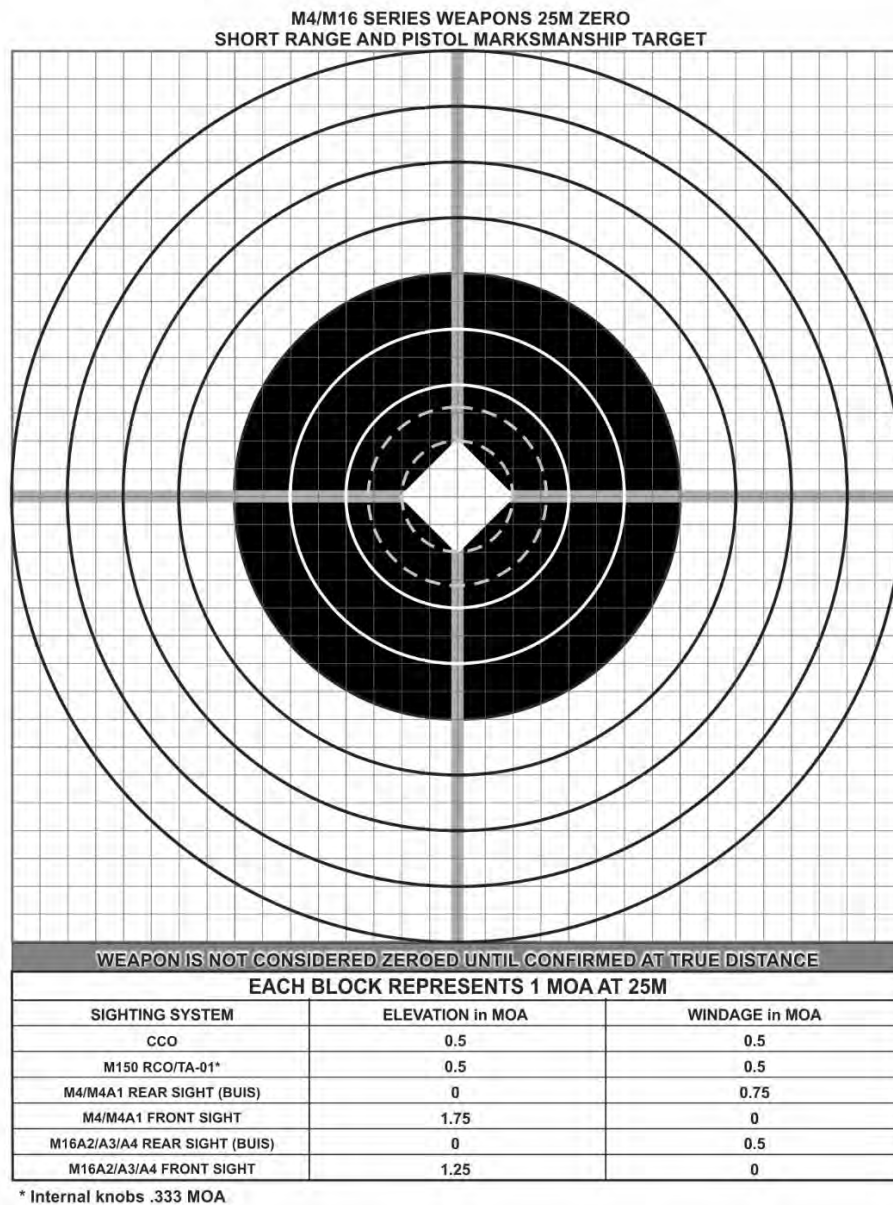


Figure E-3. M4-/M16-series weapons 25m zero short range and pistol marksmanship target

Zeroing

E-16. A good zero is necessary to be able to engage targets accurately. Whenever the Soldier deploys or does training in a new location, they should confirm the zero on their rifle if possible, as elevation, barometric pressure, and other factors will affect the trajectory of a round. There are multitudes of factors that can affect a zero, and the only sure way to know where the rounds are going, is to fire the rifle to confirm.

E-17. The zero on each assigned rifle WILL NOT transfer to another rifle. For example, if the windage zero on the Soldier's iron sights was three minutes (3MOA) left of center, putting that same setting on another rifle does not make it zeroed. This is due to the manufacturing difference between the weapons.

E-18. It is recommended that Soldiers setup their equipment and dry practice in position with gear on before coming to the range.

E-19. Standard in Training Commission (STRAC) Department of the Army Pamphlet (DA PAM) 350-38 allocates ammunition to conduct zeroing procedures using three-shot groups. The preferred method is to use a five-shot grouping, allowing the firer to more accurately analyze their shot group. Figure E-4 shows similar three-shot and five-shot groups with one shot on the right edge of the group. If all the shots were taken into account in the three-shot group, the firer would probably adjust their zero from the right edge of the four-cm circle. It is possible that the shot on the right was a poor shot and should not be counted in the group. The five-shot group on right is in the same place as the one on the left with the exception of the one shot out to the right. With four out of five shots in a tight group, the wide shot can be discounted and little or no change to the windage is necessary.

E-20. Part of the grouping and zeroing process is the marking and analysis of shot groups.

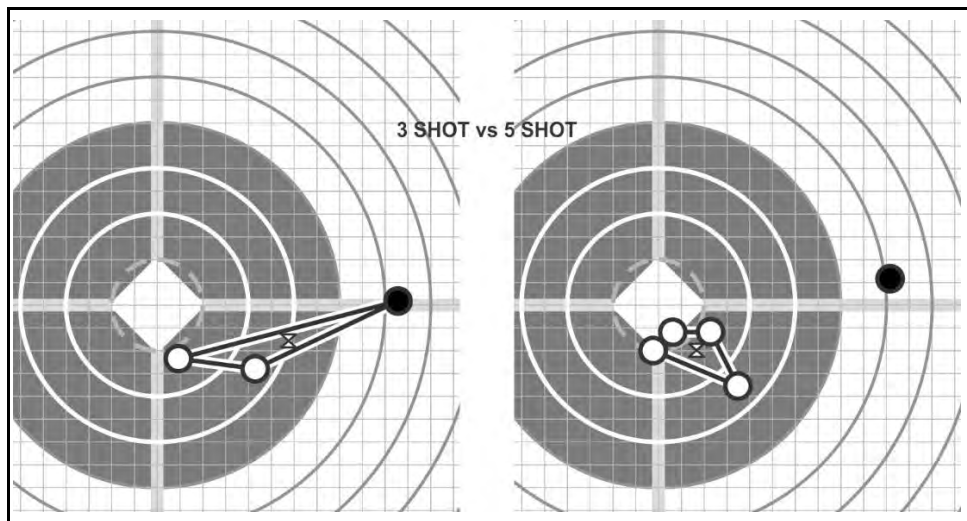


Figure E-4. Grouping

Appendix E

MARKING THE SHOT GROUP

E-21. If possible, shot groups should be marked using different colored markers so the firer can track their progress. Figure E-5 shows a technique for marking shot groups on a zero target. This technique allows the firer and coach to track their progress throughout the grouping and zeroing phase.

E-22. All sight adjustments are from the center of the group, called the *mean point of impact (MPI)*, and not from the location of a single shot. When using five-shot group, a single shot that is outside of the rest of the group should not be counted in the group for sight adjustment purposes.

Note. This figure depicts the color variations in shades of gray.

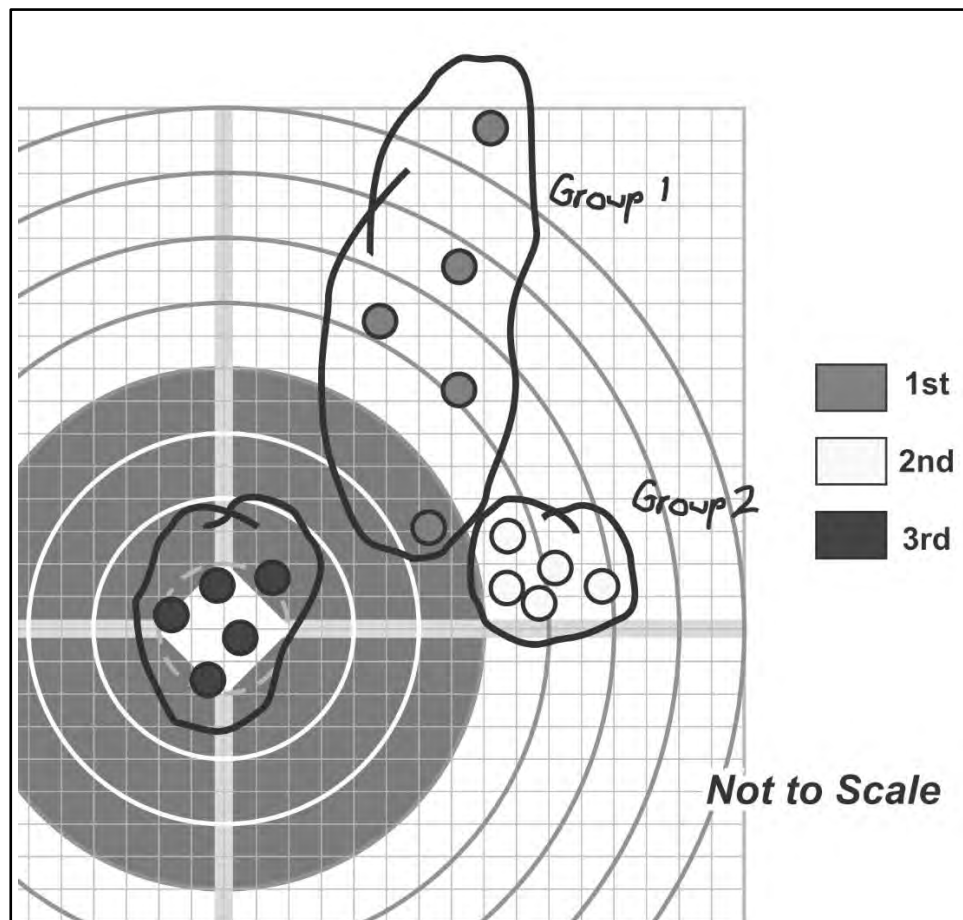


Figure E-5. Marking shot groups

Zeroing

E-23. The firer shoots and marks their first shot group with a colored marker. The color of the first group is noted by placing a line with that marker next to the 1 on the right side of the zero target. Groups are fired and marked until they are consistently in the same location.

E-24. Each sight adjustment is annotated in the same color as the group that was just fired.

COACHING

E-25. Coaching is the process of having another Soldier observe the firer during the firing process to look for shooting errors that the firer themselves may not consciously know they are making.

TYPES OF COACHES

E-26. Firing a rifle properly requires the consistent and proper application of the elements of employment. It is about doing the right thing, the same way, every shot. The small arms trainer is also the validation point for any questions during employment training. In most cases, once group training is completed, it will be the firer's responsibility to realize and correct his own firing errors but this process can be made easier through the use of a coach.

E-27. Two types of coaches exist, the experienced coach and the peer coach. Although each should execute coaching the same way, experienced coaches have a more thorough understanding of employment and should have more knowledge and practice in firing than the Soldiers they are coaching. Knowledge and skill does not necessarily come with rank therefore Soldiers serving as experienced coaches should be carefully selected for their demonstrated firing ability and their ability to convey information to firers of varying experience levels.

EXPERIENCED COACHES

E-28. Experienced coaches are generally in shorter supply throughout the Army and are generally outnumbered by less skilled firers. This lack of experienced coaches usually leads to one experienced coach watching multiple firers dependent upon the table or period of employment being fired. It often helps the experienced coach to make notes of errors they observe in shooters and discuss them after firing that group. It is often difficult for the coach to remember the errors that they observe in each and every firer.

PEER COACHES

E-29. Using a peer coach, although generally not as effective as using an experienced coach, is still a very useful technique. The advantage of using a peer coach is two-fold: a peer coach may use their limited knowledge of employment to observe the firer when an experienced coach is not available or is occupied with another firer and can either talk the firer through the shooting errors that they have observed or bring any observed shooting errors to the attention of the experienced coach. The other advantage of using a peer coach is that the peer coach themselves, through the act of coaching, may be able to observe mistakes made by the firer and learn from them before making the mistakes

Appendix E

themselves. Many people grasp instruction more deeply when they are coaching others than when they are simply told to do something.

Note. Peer coaches can be limited by their level of training.

E-30. Except for aiming, the coach can observe most of the important aspects of the elements of employment. To determine the unobservable errors of shooting the coach and the firer must have an open dialog and there must be a relaxed environment for learning. The firer cannot be hesitant to ask questions of the coach and the coach must not become a stressor during firing. The coach must have the ability to safely move around the firer to properly observe. There is no one ideal coaching position. The following section will discuss the elements of shooting and how best to observe them as a coach.

STABILIZE

E-31. For the coach to observe how stable the shooter is, they may have to move to different sides of the shooter. To observe the shooter's non-firing elbow (to ensure it makes contact with the ground), the coach will need to be on the shooter's non-firing side. To observe the cant of the weapon (the sights on the weapon should be pointing towards 12 o'clock position, not 11 or 1 o'clock positions), the coach will need to watch the relationship of the front sight to the barrel from behind the shooter. The coach should look for all the other aspects of good positions as outlined in chapter 6 of this publication. The coach should also observe the total amount of weapon movement on recoil. A good stable position will have minimal movement under recoil.

AIMING

E-32. Determining the aspects of the firer's aiming (sight picture, sight alignment, point of focus) requires dialogue between the firer and the coach. Often, a shooter will not realize his aiming errors until he discovers them on his own. The only method a coach has to observe aiming errors is to use of an M16 sighting device (A2, left and right, DVC-T 7-84), but this device can only be used on rifles with carrying handle sights. Without the use of a sighting device, the coach must rely on drawings, discussions, or the use of an M15A1 aiming card (DVC-T 07-26) to determine where the firer is aiming on the target, his focus point during firing (which should be the front sight), and where his front sight was at the moment of firing in relation to the rear sight aperture and the point of aim on the target. The technique of having the firer call his shots should also be used. This technique involves calling the point on the target where the sights were located at the moment of firing and matching the point called with the impact locations on the target. Calling the shot helps the firer learn to focus on the front sight during the entire firing process.

E-33. When optics are being used, the shooter can tell the coach where he was holding. This is of particular importance with the RCO. Coaches must insure the 300m aim point is used when zeroing at 25-m.

Zeroing

CONTROL

E-34. The ideal position to observe trigger squeeze is from the non-firing side because the coach will have a better view of the speed of pull, finger position on the trigger, and release or pressure on the trigger after firing. The coach can look from behind the shooter to observe the barrel for lateral movement caused by slapping the trigger during firing.

COACHING FACTORS

E-35. All firing happens at the weapon. This means that the coach should be focused solely on the shooter during firing and not on what is happening down range.

E-36. There is no way for a coach to observe only the bullets impact on target and know what errors the firer made. The coach must watch the shooter during firing to determine errors and use the impacts to confirm their assumptions.

E-37. For a coach to properly observe all aspects of firing they must be able to observe the shooter, safely, from both sides and the back. There is no prescribed coaching position.

E-38. Coaching requires a relaxed atmosphere with open communication between the firer and the coach.

SHOT GROUP ANALYSIS

E-39. Shot group analysis involves the firer correlating the shots on paper with the mental image of how the shots looked when fired. An accurate analysis of the shot group cannot be made by merely looking at the holes in the paper. It is more important to observe the firer than to try and analyze the target. All firing takes place at the weapon, and the holes in the paper are only an indicator of where the barrel was pointed when the rifle was fired. When coaches are analyzing groups, they must question the firer about the group to make a determination of what caused the placement of the shots.

E-40. For example, if the firer has a tight group – minus one shot that is well outside of the group, the firer should have observed the outlying shot while firing. The firer would discount this shot when marking their group. (See figure E-6a and figure E-6b.) If a coach is analyzing the group, the firer would tell them that they performed poorly on the one shot that is out of the group.

Appendix E

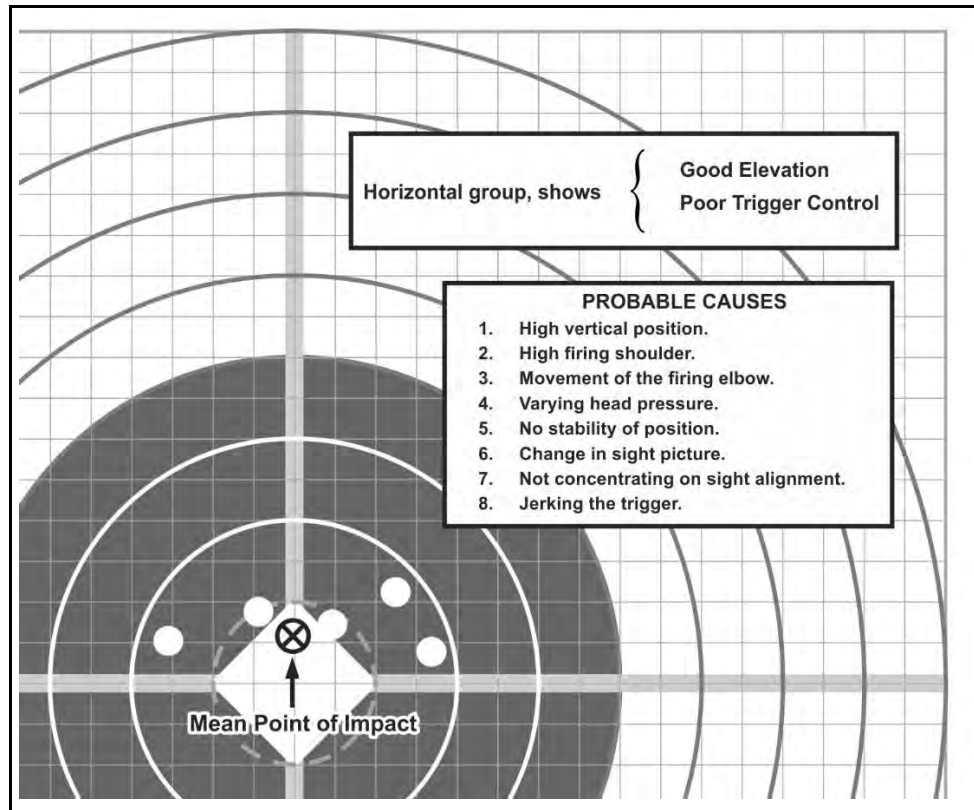


Figure E-6a. Horizontal diagnostic shots

Zeroing

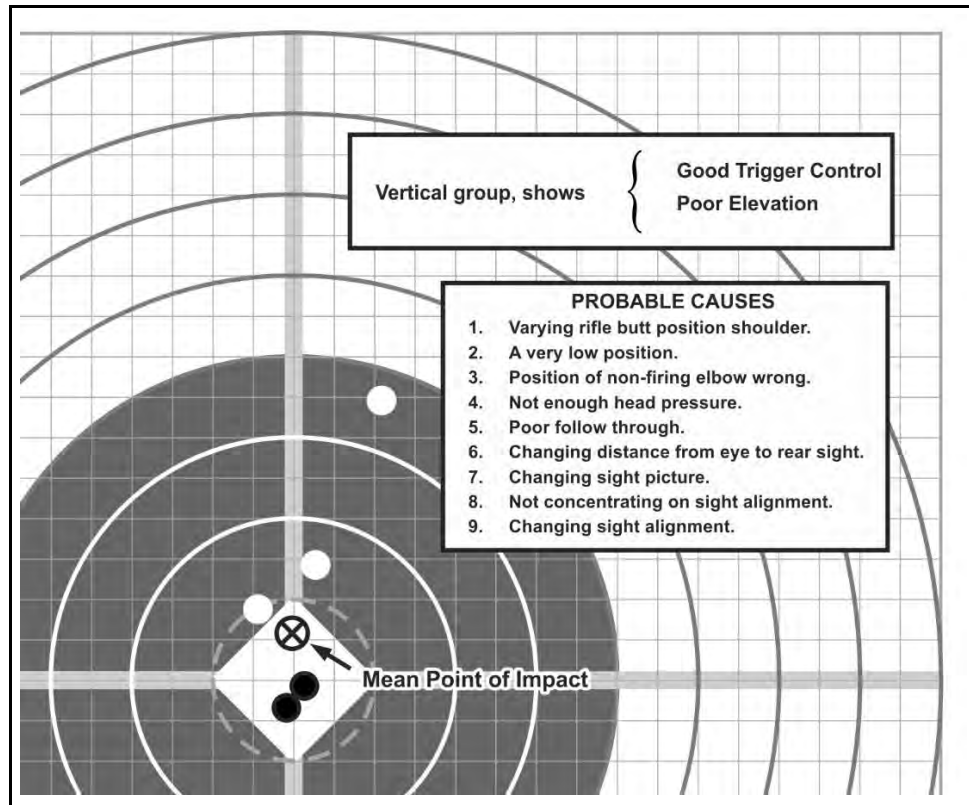


Figure E-6b. Vertical diagnostic shots

E-41. Novice shooters may benefit from not marking their own shot group. When marking a shot group an inexperienced or stressed Soldier may unintentionally make mental corrections. These mental corrections along with the mechanical corrections to their weapon will cause further issues during follow on shot groups. The experienced Soldier is less likely to make adjustments to their sight placement along with the mechanical changes to the weapon, knowing the zero process is aligning the sights to the location of the impact of the rounds. Having a coach or the employment instructor simply inform the Soldier of mechanical changes needed to the aiming device is an effective way to accomplish this method.

E-42. Observing the shooter must be accomplished before analyzing the target can become effective. Bullets strung vertically do not necessarily mean a breathing issue, nor do bullets strung horizontally absolutely indicate a trigger squeeze problem. Coaches must learn to identify shooter errors during firing and use the bullet's impacts on target to confirm their observations. There are often several firing errors that can be the cause of certain misplacements of impacts. The coach has to realize that bullets only go where

Appendix E

the barrel is pointed, so he has to determine what happened that caused the barrel to be pointed in those directions, and those causes can be many.

E-43. The key to proper coaching is becoming a shooting DETECTIVE. The coach needs to observe the shooter, question the shooter, look at the evidence down range, question the shooter again, make assumptions based upon the evidence available, and then act upon his assumptions. The coach and shooter must have a free and open dialog with each other in a relaxed atmosphere. Remember if a Soldier learns to shoot poorly they will only be capable of shooting poorly.

Displacement of Shots Within a Group (Flyers)

E-44. The capability of the weapon to shoot groups varies dependent on the number of rounds fired through the barrel over its lifetime. The average expected group size is 1 inch (approximately 2.5 centimeters) at 25 meters; some guns may shoot slightly larger than this. If a shooter is firing groups larger than a normal group size the next step should be to have a known skilled shooter attempt to fire and group with the shooter's weapon. If a proven skilled shooter is able to fire groups of the normal size it is most likely an issue with the original shooter. If however the skilled shooter cannot fire within the accepted group size there may be something wrong with the gun or barrel.

E-45. When looking at groups where there are one to two shots away from the group body (one shot away for a three round group, one or two shots away for a five round group), the coach must look objectively at the overall consistency of group placement. A bad shot or group might not indicate a poor grasp of the elements; every shooter will have a bad shot now and again, and some shooters may even have a bad group now and again. Coaches need to use their experience and determine whether or not the firer had a bad shot, a bad group, or doesn't have a clear grasp of the elements and take the necessary steps to get the shooter to the end-state. The coach may have the firer shoot again and ignore the bad group or bad shot, instead hoping that the new group matches up with the previous shot groups or the coach may need to pull the shooter off the line and cover the basic elements. Contrary to popular belief, having a firer shoot over and over again in one sitting, until the firer GETS IT RIGHT is not a highly effective technique.

Bullets Dispersed Laterally on Target

E-46. Bullets displaced in this manner could be caused by a lateral movement of the barrel due to an unnatural placement of the trigger finger on the trigger. Reasons for this could include—

- The shooter may be slightly misaligning the sights to the left and right.
- The shooter may have the sights aligned properly but may have trouble keeping the target itself perfectly centered on the tip of the front sight.
- Shooter may be closing eyes at the moment of firing or flinching.

Bullets Dispersed Vertically on Target

E-47. Bullets displaced in a vertical manner could be caused by the following:

Zeroing

- Shooter may be misaligning the front sight in the rear sight aperture vertically. May be caused by the shooter watching the target instead of the front sight. Happens more frequently from less stable positions (kneeling, unsupported positions) due to the natural movement of the weapon.
- Shooter may have trouble seeing the target and keeping the tip of the front sight exactly centered vertically on the target. Coach may consider using a larger target or a non-standard aiming point such as a 5-inch circle. Many shooters find it easier to find the center of a circle than a man shaped target.
- Shooter may not have good support, which causes him to readjust their position every shot and settle with the sights slightly misaligned.
- Shooter may be flinching or closing eyes at the moment of firing.
- Shooter may be breathing while firing the rifle. (This is not normally the case, most shooters instinctively hold their breath just before the moment of firing).

Large Groups

E-48. Large groups are most commonly caused by the shooter looking at the target instead of the front sight. This causes the shooter to place the front sight in the center of the target without regard for its location in the rear sight aperture. A small misalignment of the sights will result in a large misplacement of shots downrange.

E-49. Most likely it is not a point of aim issue; most shooters will not fire when their properly aligned sights are pointed all over the target.

Good Groups That Change Position on the Target

E-50. When the shooter has good groups but they are located at different positions on the target, there can be a number of reasons. These include the following:

- May be caused by the shooter properly aligning sights during shooting but picking up a different point of aim on the target each time.
- May be caused by the shooter settling into a position with the front sight on target but the sights misaligned. The shooter maintains the incorrect sight picture throughout the group but aligns the sights incorrectly and in a different manner during the next group. Tell the firer to focus on the front sight and have them check natural point of aim before each group.

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Appendix F



10-Meter Boresight Offsets and 25-Meter Zero Offsets

This appendix provides the 10-meter target offsets and the 25-meter zero offsets for M16- and M4-series weapons mounted with iron sights, optics, MILES, TWSs, or aiming lasers.

“The general purpose of the 10 meter borelight offset targets and the 25m live-fire zero offset targets is to ensure the firer has properly borelighted their rifle.”

Note. The borelight is a visible laser. The purpose of boresighting is to obtain an initial setting on the firer’s sights, optics, and/or night equipment (aiming lights and TWS) to enable the firer to hit the 25m zero live-fire target when starting the zero process, resulting in efficient use of range time. Borelighting is conducted prior to live-fire zeroing. It is not a substitute for live-fire zeroing.



F-1. The boresight target shows the desired relationship between the bore of the weapon and the firer’s aiming point, which varies with the weapon/sight system combination. Different symbols are used for designating different sights/optics, and so forth. All borelighting is done at 10 meters. This is a dry-fire exercise. Sight settings based on borelight procedures must be verified with live-fire zero at 25 meters.



F-2. A blank, reproducible 10-meter target offset (figure F-2 on page F-3) and an example of each weapon configuration (figure F-3 on page F-4, figure F-4 on page F-9, and figure F-5 on page F-10) are provided. The M16A2 300-meter zeroing target is used for 25-meter zeroing with all weapon configurations, except when zeroing with iron sights.

MARKING 10-METER TARGET OFFSETS



F-3. To mark the proper 10-meter target offsets—

- Find the correct template for the weapon configuration.
- Starting from the center of the borelight circle on the offset, count the number of squares to the desired point of aim.

Appendix F



EXAMPLE

L2.0, U2.4

Starting from the center of the borelight circle (0.0, 0.0), move left 2 squares and up 2.4 squares.

Note. Each template also provides a number formula for the proper offset.

- Place the appropriate symbol or mark. (See figure F-1.)

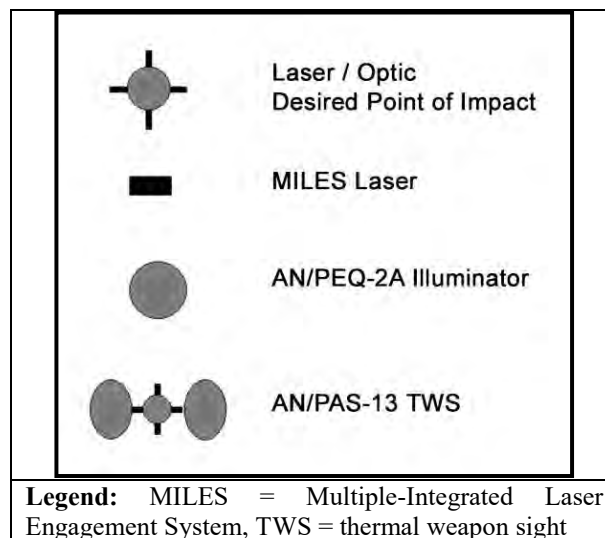


Figure F-1. 10-meter target offset symbols

- Notes.**
- To reproduce the 10-meter target offset, obtain a copy of the blank 10-meter target offset and place the example of the weapon being used on the back. This reproducible copy can be laminated and used repeatedly.
 - Table F-1 on page F-5 provides offset mounting information for various weapon configurations.

10-Meter Boresight Offsets and 25-Meter Zero Offsets

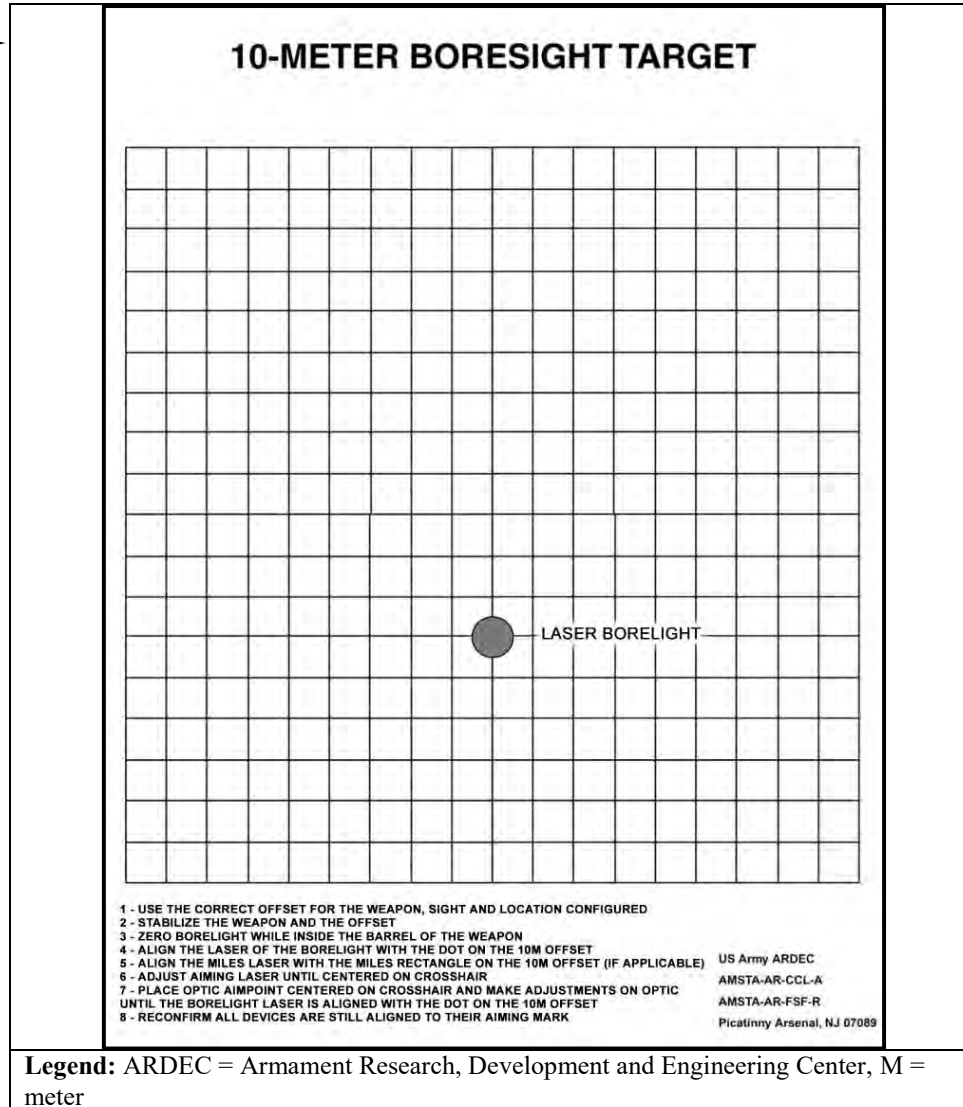


Figure F-2. Blank 10-meter target offset

Appendix F

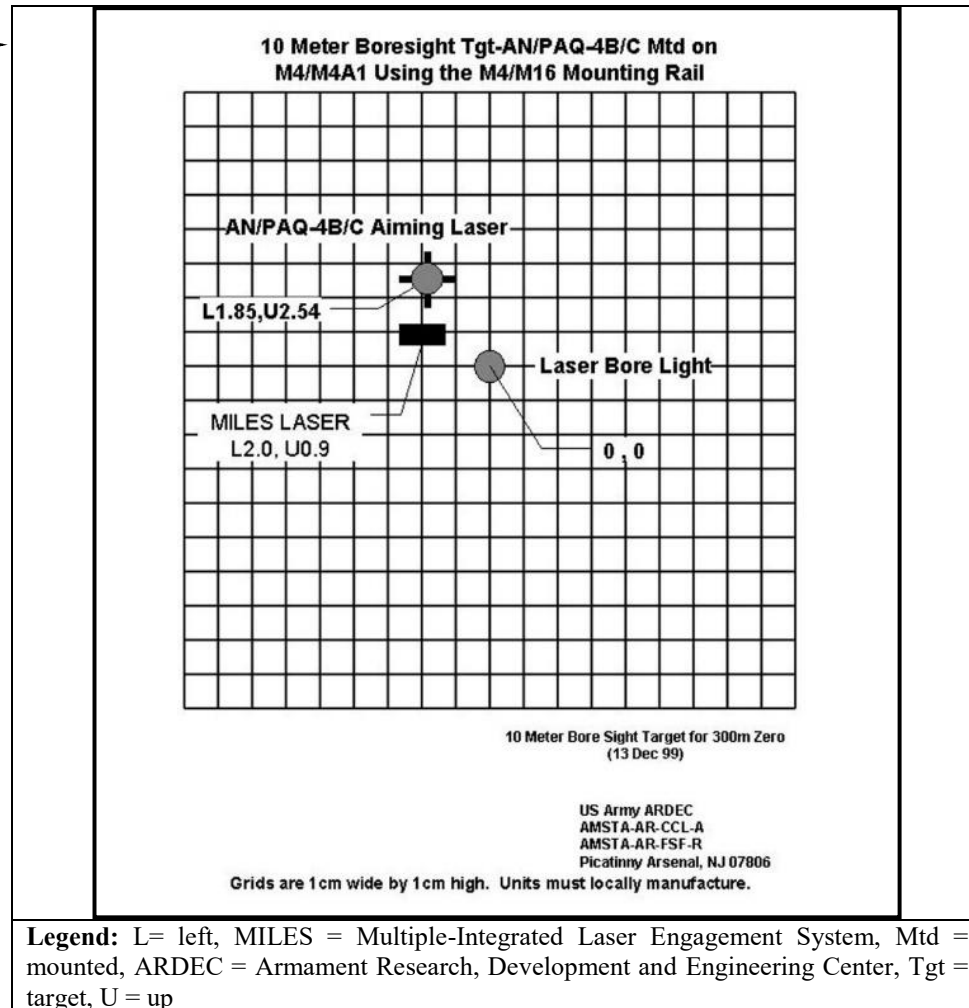
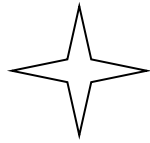



Figure F-3. M16A2 10-meter boresighting target

10-Meter Boresight Offsets and 25-Meter Zero Offsets



Table F-1. Offset mounting



WEAPON	ACCESSORY	RAIL GRABBER	MOUNT	LOCATION	RANGE TO ZERO	ZERO OFFSET	BORESIGHT TARGET	MILES OFFSET
M16A2	Iron sight	N/A	N/A	N/A	300 m	0.0 0.0	0.0 4.2U	2.0L 0.9U
M16A2	M68	N/A	M68 goose-neck bracket	Carrying handle	300 m	0.0 1.4 cm DN	0.0 5.2U	2.0L 2.4U
M16A2	LTWS	TWS	TWS bracket assembly	Carrying handle	300 m	0.0 10D	0.0 13.4U	2.0L 2.4U
M16A2	TWS	N/A	TWS bracket assembly	Carrying handle	300 m	0.0 8.1D	0.0 11.5U	2.0L 2.4U
M16A2	AN/PA Q-4B/C	N/A	M4/M16 bracket	Hand guards	300 m	1.5R 0.5U	1.85L 2.54U	2.0L 0.9U
M16A2	AN/PE Q-2A/B	N/A	M4/M16 bracket	Hand guards	300 m	1.5L 0.5U	1.8R 2.4U	2.0L 0.9U
M16/M203	AN/PA Q-4B/C	N/A	Spacer	Carrying handle	300 m	1.85R 2.6D	1.85L 8.6U	2.0L 3.9U
M4/M4A1	BUIS	N/A	N/A	Upper receiver	300 m	0.0 0.0	0.0 4.01U	2.0L 0.9U
M4/M4A1	AN/PA Q-4B/C	N/A	M4/M16 bracket	Hand guards	300 m	1.5R 2.5U	1.85L 2.54U	2.0L 0.9U
M4/M4A1	LTWS	TWS	N/A	Upper receiver	300 m	0.0 4.5D	0.0 7.9U	TBD
M4/M4A1	TWS	Picatinny	TWS spacer and rail grabber	Upper receiver	300 m	0.0 5.7D	0.0 9.4U	2.0L 2.4U
M4/M4A1	AN/PE Q-2A/B	N/A	M4/M16 bracket	Hand guards	300 m	1.0L 0.3U	1.8R 2.4U	2.0L 0.9U
M4/M4A1	M68	M68	Half-moon spacer	Upper receiver	300 m	0.0 1.4 cm DN	0.0 5.63U	2.0L 2.4U
M4/M203	BUIS	N/A	N/A	Upper receiver	300 m	0.0 0.0	0.0 6.01U	2.0L 0.9U
M4/M203	AN/PA Q-4B/C	N/A	Spacer	Carrying handle	300 m	1.3R 1.9D	1.85L 8.6U	2.0L 0.9U

Note. Target offsets not yet developed are indicated by TBD.

Legend: BUIS = back up iron sight, cm = centimeters, D or DN = down, L = left, LTWS = light thermal weapon sight, m = meter, R = right, N/A = not applicable, TBD = to be developed, TWS = thermal weapon sight, U = up


20 November 2019

TC 3-22.9, C3

F-5


Appendix F

Table F-1. Offset mounting (continued)



WEAPON	ACCESSORY	RAIL GRABBER	MOUNT	LOCATION	RANGE TO ZERO	ZERO OFFSET	BORE-SIGHT TARGET	MILES OFFSET
M4 MWS	BUIS	N/A	N/A	Upper receiver	300 m	0.0 0.0	0.0 4.01U	2.0L 0.9U
M4 MWS	M68	M68	Rail grabber	Upper receiver	300 m	0.0 1.4 cm DN	0.0 5.63U	2.0L 2.4U
M4 MWS	LTWS	TWS	N/A	Upper receiver	300 m	0.0 4.5D	0.0 7.9U	2.0L 2.4U
M4 MWS	TWS	TWS	Spacer	Upper receiver	300 m	0.0 5.7D	0.0 9.4U	2.0L 2.4U
M4 MWS	ANPEQ -2A	Insight	N/A	Left	300 m	TBD	4.5L 1.0D	2.0L 0.9U
M4 MWS	AN/PEQ -2A/B	Insight	N/A	Right	300 m	N/A	5.5R 5.4D	2.0L 0.9U
M4 MWS	AN/PEQ -2A/B	Insight	N/A	Top	300 m	1.5L 0.5D	2.9R 2.3U	2.0L 0.9U
M4 MWS	AN/PEQ -2A/B	Picatinny	Spacer	Top	300 m	N/A	1.95R 4.1U	2.0L 0.9U
M4 MWS	AN/PEQ -2A/B	Picatinny	Spacer	Right	300 m	N/A	6.35R 4.4D	2.0L 0.9U
M4 MWS	AN/PEQ -2A/B	Picatinny	Spacer	Left	300 m	6.9R 2.0U	6.2L 0.60D	2.0L 0.9U
M4MWS	AN/PEQ -2A/B	Insight	Training adapter	Top	300 m	2.0L 1.5D	N/A	2.0L 0.9U
M4 MWS	AN/PAQ -4B/C	Picatinny	AN/PA Q-4B/C bracket adapter	Top	300 m	4.9R 6.1U	1.75L 3.9U	2.0L 0.9U
M4 MWS	AN/PAQ -4B/C	Picatinny	AN/PA Q-4B/C bracket adapter (spacer)	Right	300 m	N/A	6.9R 0.9D	2.0L 0.9U
M4 MWS	AN/PAQ -4B/C	Insight	N/A	Top	300 m	N/A	1.75L 2.15U	2.0L 0.9U
M4MWS	AN/PAQ -4B/C	Insight	N/A	Right	300 m	N/A	4.35R 0.65D	2.0L 0.9U
M4MWS	AN/PAQ -4B/C	Insight	N/A	Left	300 m	N/A	4.30L 4.25D	2.0L 0.9U

Legend: BUIS = back up iron sight, cm = centimeters, D or DN = down, L = left, LTWS = light thermal weapon sight, m = meter, MWS = modular weapon system, R = right, N/A = not applicable, TBD = to be developed, TWS = thermal weapon sight, U = up

10-Meter Boresight Offsets and 25-Meter Zero Offsets**Table F-1. Offset mounting (continued)**


WEAPON	ACCES-SORY	RAIL GRAB-BER	MOUNT	LOCA-TION	RANGE TO ZERO	ZERO OFFSET	BORE-SIGHT TARGET	MILES OFFSET
M4 MWS M203	BUIS	N/A	N/A	Upper receiver	300 m	0.0 0.0	0.0 6.01U	2.0L 0.9U
M4 MWS M203	AN/PAQ -4B/C	Picatinny	Bracket adapter (spacer)	Left	300 m	4.9R 6.1U	6.0L 4.0D	2.0L 3.9U
M16A4 MWS	BUIS	N/A	N/A	Upper receiver	300 m	0.0 0.0	0.0 4.01U	2.0L 0.9U
M16A4 MWS	AN/PAQ -4B/C	Picatinny	AN/PA Q-4B/C bracket adapter (spacer)	Left	300 m	6.5R 8.1U	6.03L 4.25D	2.0L 0.9U
M16A4 MWS	TWS	TWS	Spacer	Upper receiver	300 m	0.0 6.0D	0.0 9.4U	2.0L 2.4U
M16A4 MWS	M68	M68	N/A	Upper receiver	300 m	0.0 1.4 cm DN	0.0 5.63U	2.0L 2.4U
M16A4 MWS	AN/PEQ -2A/B	Insight	N/A	Left	300 m	3.0R 3.0U	4.5L 1.0D	2.0L 0.9U
M16A4 MWS M203	BUIS	N/A	N/A	Upper receiver	300 m	0.0 0.0	0.0 6.01U	2.0L 0.9U
M16A4 MWS M203	AN/PAQ -4B/C	Picatinny	AN/PA Q-4B/C bracket adapter (spacer)	Left	300 m	6.5R 8.1U	6.0L 4.0D	2.0L 3.9U
M16A4 MWS	AN/PEQ -2A/B	Picatinny	Spacer	Left	300 m	6.0R 2.0U	6.2L 0.60D	2.0L 0.9U
M16A4 MWS	AN/PEQ -2A/B	Picatinny	Spacer	Right	300 m	TBD	6.35R 4.4D	2.0L 0.9U
M16A4 MWS	AN/PEQ -2A/B	Picatinny	Spacer	Top	300 m	TBD	1.95R 4.1U	2.0L 0.9U
M16A4 MWS	AN/PEQ -2A/B	Insight	N/A	Right	300 m	TBD	5.5R 5.4D	2.0L 0.9U
M16A4 MWS	AN/PEQ -2A/B	Insight	N/A	Top	300 m	1.5L 0.5D	2.0R 2.3U	2.0L 0.9U

Note. Target offsets not yet developed are indicated by TBD.

Legend: BUIS = back up iron sight, cm = centimeter, D or DN = down, m = meter, L = left, MWS = modular weapon system, R = right, N/A = not applicable, TBD = to be developed, TWS = thermal weapon sight, U = up

20 November 2019

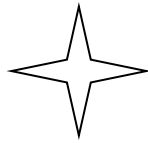
TC 3-22.9, C3

F-7

Appendix F

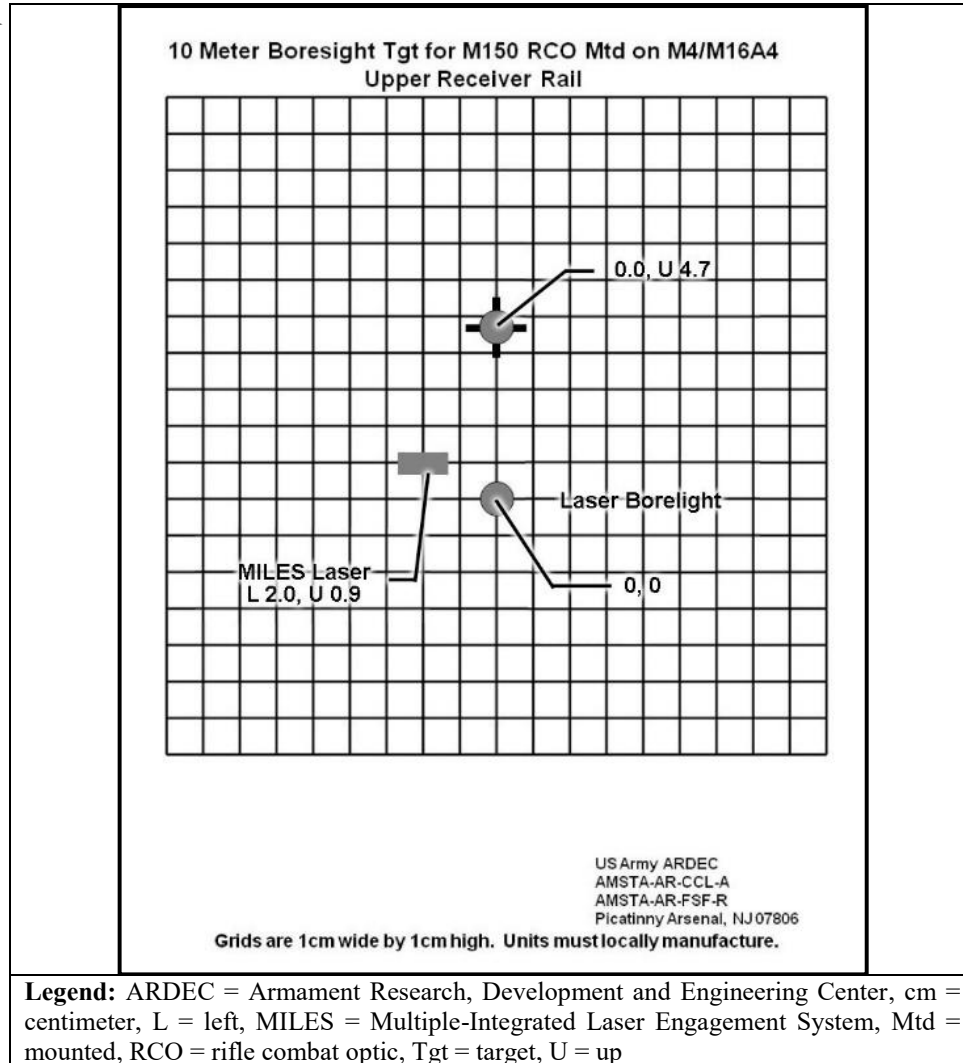


Table F-1. Offset mounting (continued)



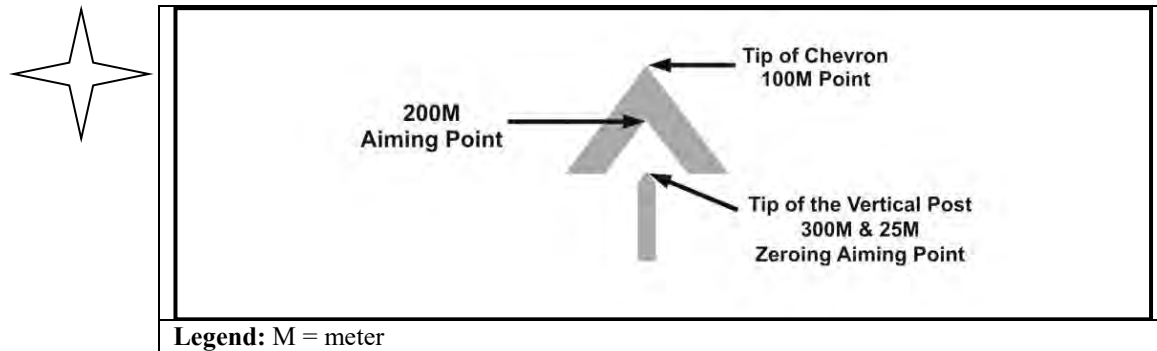
WEAPON	ACCES-SORY	RAIL GRAB-BER	MOUNT	LOCA-TION	RANGE TO ZERO	ZERO OFFSET	BORE-SIGHT TARGET	MILES OFFSET
M16A4 MWS	AN/PEQ -2A/B	Insight	Training adapter	Top	300 m	2.0L 1.5D	TBD	2.0L 0.9D
M16A4 MWS	AN/PAQ -4B/C	Picatinny	AN/PA Q-4B/C bracket adapter	Top	300 m	4.9R 6.1U	1.75L 3.9U	2.0L 0.9U
M16A4 MWS	AN/PAQ -4B/C	Picatinny	AN/PA C-4B/C bracket adapter	Right	300 m	N/A	6.0R 0.9D	2.0L 0.9U
M16A4 MWS	AN/PAQ -4B/C	Insight	N/A	Top	300 m	N/A	1.75L 2.15U	2.0L 0.9U
M16A4 MWS	AN/PAQ -4B/C	Insight	N/A	Right	300 m	N/A	4.35R 0.65D	2.0L 0.9U
M16A4 MWS	AN/PAQ -4B/C	Insight	N/A	Left	300 m	N/A	4.30L 4.25D	2.0L 0.9U
<i>Note.</i> Target offsets not yet developed are indicated by TBD).								
Legend: D = down, L = left, m = meter, MWS = modular weapon system, N/A = not applicable, R = right, TBD = to be developed, TWS = thermal weapon sight, U = up								

10-Meter Boresight Offsets and 25-Meter Zero Offsets



△ Figure F-4. 300-meter zero of the advanced combat optical gunsight

Appendix F



△ Figure F-5. Advanced combat optical gunsight points of aim (100 to 300 meters)

Glossary

The glossary lists acronyms and terms with Army or joint definitions. Where Army and joint definitions differ, (Army) precedes the definition. Terms for which TC 3-22.9 is the proponent are marked with an asterisk. The proponent manual for other terms is listed in parentheses after the definition.

SECTION I – ACRONYM/ABBREVIATIONS

AM	arc of movemet
ARNG	Army National Guard
ARNGUS	Army National Guard of the United States
ARS	adapter rail system
ATPIAL	advanced target pointer illuminator aiming light
BC	ballistic coefficient
BDC	bullet drop compensater
BUIS	back up iron sight
BZO	battle sight zero
CBRN	chemical, biological, radiological, and nuclear
CCO	close combat optic
CSF2	Comprehensive Soldier and Family Fitness
CoVM	center of visible mass
DA	Department of the Army
DBAL-A2	dual beam aiming laser-advanced2
DMC	digital magnetic compass
DOTD	Directorate of Training and Doctrine
DODIC	Department of Defense Identification Code
EENT	end evening nautical twilight
Ek	kinectic energy
fps	feet per second
FOV	field of view
GTL	gun target line
HTWS	heavy thermal weapons sight
I2	image intensifier
IR	infrared
LASER	light amplified stimulated emitted radiation
LCD	liquid crystal display
LRF	laser range finder
LWTS	light weapons thermal sight
MASS	modular accessory shotgun system

Glossary

MCoE	United States Army Maneuver Center of Excellence
METT-TC	mission, enemy, terrain and weather, troops and support-time available, and civil considerations
MIL STD	military standard
m	meter
mm	millimeter
mph	mile per hour
MOA	minutes of angle
MTBF	mean time between failures
MWO	modified word order
MWS	modular weapon system
MWTS	medium weapon thermal sight
NATO	North Atlantic Treaty Organization
NOD	night observation device
PAM	pamphlet
PMCS	preventative maintenance checks and services
POA	point of aim
POI	point of impact
NSN	National Stock Number
RCO	rifle combat optic
SAA	small arms ammunition
SOP	standard operating procedure
STANAG	Standardized Agreement
STRAC	Standard in Training Commission
STORM	illuminator, integrated, small arms
TACSOP	tactical standard operating procedure
TC	Training Circular
TES	tactical engagement simulation
TM	Technical Manual
T	time
TWS	thermal weapon sight
μm	micrometer
USAR	United States Army Reserve
U.S.	United States
VAL	visible aim laser
VFG	vertical foregrip
V	velocity
WCS	weapon control status
WTS	weapons thermal sights

Glossary

SECTION II – TERMS

**employment*

The application of the functional elements of the shot process and skills to accurately and precisely fire a weapon at stationary or moving targets.



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20 November 2019

TC 3-22.9, C3

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10 January 2017

TC 3-22.9, C1

References-3

This page intentionally left blank.

Index

Entries are listed by paragraph numbers unless mentioned otherwise.



C

carry positions

six. 6-12

coaching

elements of
shooting. E-30

aiming. E-32

control. E-34

stabilize. E-31

two types. E-27

F

firing positions

twelve. 6-34

M

movement techniques

horizontal

eight. 9-3

S

small arms ammunition.
A-14

T

targets

three threat levels,
5-7

thermal weapon sight

five functional
groups. 3-42

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TC 3-22.9
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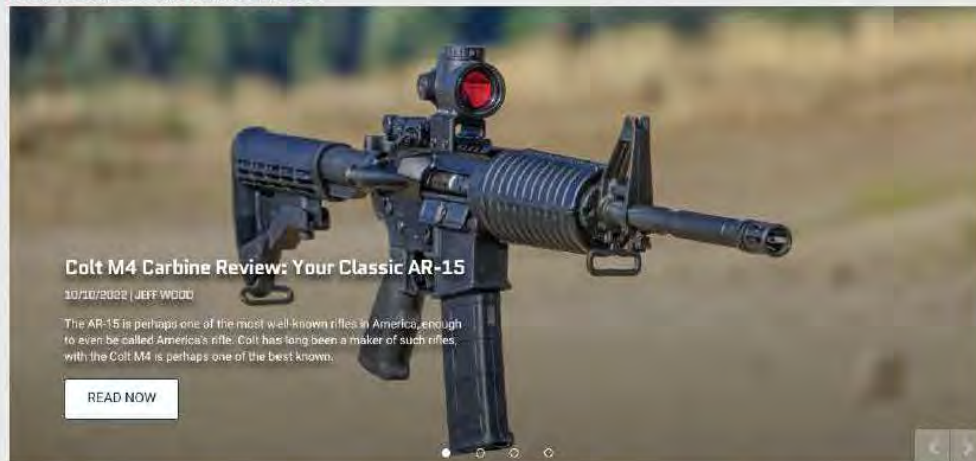
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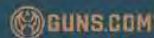
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- ☐ 22 Long Rifle (7)
- ☐ 22 Nosler (1)
- ☐ 223 Remington (146)
- ☐ 224 Valkyrie (4)
- ☐ 300 AAC Blackout (40)

Capacity

- ☐ 4-Round (1)
- ☐ 5-Round (26)
- ☐ 7-Round (1)
- ☐ 9-Round (1)
- ☐ 10-Round (53)
- ☐ 15-Round (14)









Material

- ☐ Aluminum (36)
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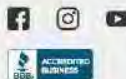
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 <p>ProMag AR-15 / M16 .223 & 5.56 10-Round Magazine</p> <p>★★★★★ (47)</p> <p>\$14.99</p>	 <p>5 PACK Magpul PMAG GEN M2 MOE AR-15 .223 / 5.56 30-Round Magazine</p> <p>★★★★★ (5)</p> <p>\$69.99</p>	 <p>Ruger SR-556 6.8mm SPC 25-Round Steel Magazine</p> <p>★★★★★ (3)</p> <p>\$32.99</p>	 <p>Duramag AR-15 .223 / 5.56mm Stainless Steel 5-Round Magazine</p> <p>★★★★★ (6)</p> <p>\$16.99 \$14.99 SAVE \$2.00</p>
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 <p>HK AR-15 .223 / 5.56 20-Round Magazine</p> <p>★★★★★ (5)</p> <p>\$64.99</p>	 <p>Smith & Wesson M&P15 .223 / 5.56 5-Round Aluminum Magazine</p> <p>★★★★★ (10)</p> <p>\$30.99</p>	 <p>CMMG 5.7x28mm AR-15 10-Round Conversion Magazine 3-Pack</p> <p>\$99.95</p>	 <p>HK AR-15 .223 / 5.56 10-Round Magazine</p> <p>\$69.99</p>
 <p>ProMag AR-15 9mm Colt/SMG Type 32-Round Hybrid Steel/Polymer Magazine</p> <p>\$32.99 \$22.99 SAVE \$10.00</p>	 <p>Okay Surefeed AR-15 .223 Rem / 5.56 10-Round Magazine 10-Pack</p> <p>★★★★★ (6)</p> <p>\$139.99</p>	 <p>ProMag for Glock-Compatible AR-15 9mm 30-Round Polymer Drum Magazine</p> <p>\$64.99</p>	 <p>Strike Industries AR-15 32-Round .223 / 5.56 Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (11)</p> <p>\$16.95</p>
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 <p>Hexmag Series 2 AR-15 .223 / 5.56 30-Round Carbon Fiber Magazine 6-Pack</p> <p>★★★★★ (3)</p> <p>\$74.99</p>	 <p>ProMag AR-15 5.56mm 65-Round Polymer Drum Mag</p> <p>★★★★★ (3)</p> <p>\$89.99</p>	 <p>ASC 6.8mm 15/25-Round Stainless Steel Magazine</p> <p>OUT OF STOCK</p> <p>\$17.99</p>	 <p>ProMag AR-15 6.8mm SPC 27-round Blued Steel Magazine</p> <p>★★★★★ (10)</p> <p>\$20.99</p>
 <p>Okay Surefeed AR-15 .223 Rem / 5.56 20-Round Magazine 10-Pack</p> <p>OUT OF STOCK</p> <p>★★★★★ (26)</p> <p>\$139.99</p>	 <p>CPD AR-15 .204 Ruger 10-Round Stainless Steel Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (8)</p> <p>\$14.99</p>	 <p>TAPCO Intrafuse AR-15 223/5.56 30-Round Polymer Magazine</p> <p>OUT OF STOCK</p> <p>\$13.99</p>	 <p>CPD AR-15 5.45X39 30-Round Stainless Steel Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (2)</p> <p>\$14.99</p>
 <p>D&H AR-15 300 AAC Blackout 10-Round Aluminum Magazine</p> <p>OUT OF STOCK</p> <p>\$18.99</p>	 <p>ProMag AR-15 9mm Colt / SMG Carbine 10-round Blued Steel Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (49)</p> <p>\$19.99</p>	 <p>CMMG AR-15 6.5 Grendel 10-Round Magazine</p> <p>OUT OF STOCK</p> <p>\$19.99</p>	 <p>Duramag AR-15 .450 Bushmaster 5-Round Stainless Steel Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (32)</p> <p>\$24.99</p>
			

 <p>Bushmaster AR-15 .223 / 5.56 20-Round Aluminum Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (2)</p> <p>\$7.99</p>	 <p>Duramag AR-15 .223 / 5.56 10-Round Stainless Steel Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (120)</p> <p>\$12.99 \$9.99 <small>SAVE \$3.00</small></p>	 <p>D&H AR-15 .300 AAC Blackout 20-Round Aluminum Magazine</p> <p>OUT OF STOCK</p> <p>\$18.99</p>	 <p>CMMG AR-15 .350 Legend 20-Round Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (4)</p> <p>\$24.99</p>
 <p>ProMag AR-15 .223 / 5.56 20-Round Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (58)</p> <p>\$11.99</p>	 <p>CMMG Bravo .22LR AR-15 Conversion Kit with 10-Round Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (15)</p> <p>\$229.99 \$144.99 <small>SAVE \$85.00</small></p>	 <p>Duramag AR-15 .223 / 5.56mm 5/30-Round Aluminum Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (12)</p> <p>\$12.99</p>	 <p>Magpul Emag AR-15 HK 416, 5A-80 .223 / 5.56 30-Round Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (2)</p> <p>\$16.95</p>
 <p>D&H AR-15 .223 / 5.56 30-Round Aluminum Magazine</p> <p>OUT OF STOCK</p>	 <p>Ruger AR-556 MSR .450 Bushmaster 5-Round Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (6)</p>	 <p>ASC AR-15 9mm 10-Round Stainless Steel Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (73)</p>	 <p>ASC 7.62X39 AR-15 30-Round Stainless Steel Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (568)</p>

 <p>D&H AR-15 .223 / 5.56 30-Round Aluminum Magazine</p> <p>OUT OF STOCK</p> <p>\$9.99</p>	 <p>Ruger AR-556 MSR .450 Bushmaster 5-Round Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (1)</p> <p>\$34.99</p>	 <p>ASC AR-15 9mm 10-Round Stainless Steel Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (73)</p> <p>\$15.99</p>	 <p>ASC 7.62X39 AR-15 30-Round Stainless Steel Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (968)</p> <p>\$17.99</p>
 <p>CPD AR-15 .223 / 5.56 20-Round Aluminum Magazine w/ Orange Follower</p> <p>OUT OF STOCK</p> <p>\$11.99</p>	 <p>Duramag AR-15 6.8mm SPC 28-Round Stainless Steel Magazine</p> <p>★★★★★ (9)</p> <p>\$18.99</p>	 <p>CMMG Bravo .22LR AR-15 Conversion Kit with 25-Round Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (32)</p> <p>\$229.99 \$144.99 SAVE \$85.00</p>	 <p>Duramag AR-15 .450 Bushmaster 7-Round Stainless Steel Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (118)</p> <p>\$23.99</p>
 <p>ProMag AR-15 .223 / 5.56 10-round Blued Steel Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (21)</p> <p>\$19.99</p>	 <p>D&H AR-15 .223 / 5.56 20-Round Aluminum Magazine</p> <p>OUT OF STOCK</p> <p>\$13.99</p>	 <p>Beretta AR-15, ARX100 .223 Remington 30-Round Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (27)</p> <p>\$36.99 \$23.99 SAVE \$13.00</p>	<p>DISCONTINUED</p> <p>CPD AR-15 6.8mm SPC 15/25-Round Stainless Steel Magazine</p> <p>OUT OF STOCK</p> <p>\$18.99</p>

 <p>ProMag AR-15 .223 / 5.56 10-round Blued Steel Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (23)</p> <p>\$19.99</p>	 <p>D&H AR-15 .223 / 5.56 20-Round Aluminum Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (2)</p> <p>\$13.99</p>	 <p>Beretta AR-15, ARX100 .223 Remington 30-Round Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (2)</p> <p>\$36.99 \$23.99 <small>Save \$13.00</small></p>	<p>DISCONTINUED</p> <p>CPD AR-15 6.8mm SPC 15/25-Round Stainless Steel Magazine</p> <p>OUT OF STOCK</p> <p>\$18.99</p>
 <p>ProMag AR-15 5.56mm 30-Round Steel Lined Polymer Magazine with Roller Follower</p> <p>★★★★★ (72)</p> <p>\$14.99</p>	 <p>ASC 5.45X39 AR-15 30-Round Stainless Steel Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (30)</p> <p>\$13.99</p>	 <p>ASC 7.62X39 AR-15 20-Round Stainless Steel Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (840)</p> <p>\$24.99 \$18.99 <small>Save \$3.00</small></p>	 <p>Metalform SMG AR-15 9mm Conversion Cold Rolled Steel 20-round Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (16)</p> <p>\$28.99</p>
 <p>Duramag AR-15 .223 / 5.56mm Stainless Steel 10/30-Round Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (27)</p> <p>\$14.99</p>	 <p>ASC 6.8mm 10/25-Round Stainless Steel Magazine</p> <p>★★★★★ (2)</p> <p>\$17.99</p>	 <p>Duramag AR-15 6.5 Grendel 5-Round Stainless Steel Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (31)</p> <p>\$14.99</p>	<p>DISCONTINUED</p> <p>CPD AR-15 .223 / 5.56mm 15/20-Round Aluminum Magazine</p> <p>OUT OF STOCK</p> <p>\$12.99</p>

<p>Duramag AR-15 .223 / 5.56mm Stainless Steel 10/30-Round Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (27)</p> <p>\$14.99</p>	<p>ASC 6.8mm 10/25-Round Stainless Steel Magazine</p> <p>★★★★★ (2)</p> <p>\$17.99</p>	<p>Duramag AR-15 6.5 Grendel 5-Round Stainless Steel Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (1)</p> <p>\$14.99</p>	<p>CPD AR-15 .223 / 5.56mm 15/20-Round Aluminum Magazine</p> <p>OUT OF STOCK</p> <p>\$12.99</p>
			
<p>CMMG 5.7x28mm AR-15 40-Round Conversion Magazine (3 Pack)</p> <p>OUT OF STOCK</p> <p>★★★★★ (3)</p> <p>\$99.95</p>	<p>Case of 100 Magpul PMAG GEN M3 AR-15 .223 / 5.56 10-Round Magazine</p> <p>\$1,149.99</p>	<p>SGM Tactical AR-15 .223 / 5.56 30-Round Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (0)</p> <p>\$12.95</p>	<p>Duramag AR-15 .223 / 5.56mm 10/30-Round Aluminum Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (10)</p> <p>\$12.99</p>

Navigation: 1 2 3 4 5

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Wishlist
Order Status
FAQs
Shipping Restrictions
Shipping Policy
Return Policy
Privacy Policy
Terms of Service
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Home > All Magazines > Rifle Magazines > AR-15 Magazines

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Brand

- ☐ American Tactical Imports (2)
- ☐ ASC Magazines (34)
- ☐ Beretta Magazines (1)
- ☐ Bulgarian Magazines (1)
- ☐ Bushmaster Magazines (3)
- ☐ C Products Defense (47)

Platform

- ☐ PCC (12)
- ☐ Rimfire (5)
- ☐ Ruger (1)
- ☐ AR-15 (5)
- ☐ AR-15 Magazines (243)
- ☐ California Compliant & 10rds (88)

Caliber

- ☐ 204 Ruger (2)
- ☐ 22 Long Rifle (7)
- ☐ 22 Nosler (1)
- ☐ 223 Remington (48)
- ☐ 224 Valkyrie (4)
- ☐ 300 AAC Blackout (19)

Capacity

- ☐ 4-Round (1)
- ☐ 5-Round (28)
- ☐ 7-Round (1)
- ☐ 9-Round (1)
- ☐ 10-Round (85)
- ☐ 15-Round (14)

Material









- ☐ Aluminum (36)
- ☐ Steel (55)
- ☐ Polymer (90)
- ☐ Stainless Steel (15)
- ☐ Carbon Fiber (4)

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Color













- ☒ Black (22)
- ☐ Flat Dark Earth (56)
- ☐ Olive Drab Green (16)
- ☐ Gray (34)
- ☐ Pink (3)
- ☐ Smoke (10)










Availability

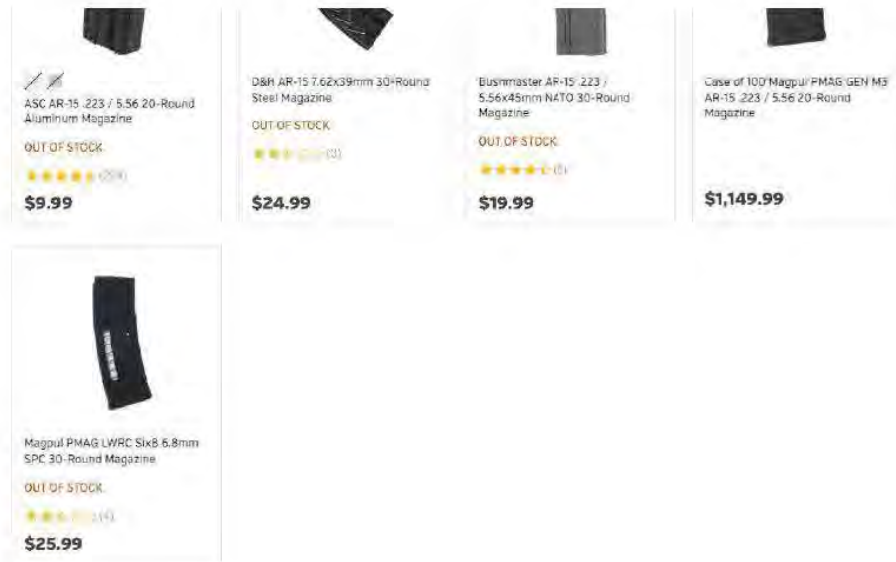
- ☐ In Stock (153)
- ☐ Out of Stock (96)

 <p>Surefire AR-15 .223 / 5.56 60-Round Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (39)</p> <p>\$149.99 \$134.99 SAVE \$15.00</p>	 <p>Bulgarian AR-15 .223 Remington 10-Round Polymer Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (3)</p> <p>\$9.99 \$8.99 SAVE \$1.00</p>	 <p>Troy Industries Battlemag AR-15 .223 / 5.56 30-Round Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (17)</p> <p>\$10.99 - \$17.99</p>	 <p>D&H AR-15 6.8 SPC 25-Round Steel Magazine</p> <p>OUT OF STOCK</p> <p>\$14.99</p>
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 <p>D&H AR-15 300 AAC Blackout 30-Round Aluminum Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (12)</p> <p>\$18.99</p>	 <p>Duramag AR-15 .350 Legend 20-Round Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (53)</p> <p>\$19.99</p>	 <p>CMMG AR-15 .22 Nosler 10-Round Magazine</p> <p>OUT OF STOCK</p> <p>\$20.99</p>	 <p>ASC AR-15 .223 / 5.56 30-Round Stainless Steel Pink Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (12)</p> <p>\$14.99</p>

 <p>D&H AR-15 .223 / 5.56 10-Round Aluminum Magazine</p> <p>OUT OF STOCK</p> <p>\$9.99</p>	 <p>ASC AR-15 9mm 32-Round Stainless Steel Magazine (Blemished)</p> <p>OUT OF STOCK</p> <p>★★★★★ (24)</p> <p>\$15.99 \$13.99 SAVE \$2.00</p>	 <p>ProMag AR-15 M16 .223 / 5.56 10-Round Desert Tan Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (19)</p> <p>\$14.99</p>	 <p>CMMG Bravo .22LR AR-15 Conversion Kit with Three 25-Round Magazines</p> <p>OUT OF STOCK</p> <p>\$259.99 \$169.99 SAVE \$90.00</p>
 <p>Duramag AR-15 .223 / 5.56mm / .300BLK 10/30-Round Aluminum Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (18)</p> <p>\$12.99</p>	 <p>Duramag 7.62x39 AR-15 20-Round Stainless Steel Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (26)</p> <p>\$20.99</p>	 <p>CMMG DEM .22LR AR-15 Conversion Kit</p> <p>OUT OF STOCK</p> <p>★★★★★ (11)</p> <p>\$209.99 \$129.99 SAVE \$80.00</p>	 <p>Metalform SMG AR-15 9mm Conversion Cold Rolled Steel 10-Round Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (7)</p> <p>\$22.99</p>
<p>DISCONTINUED</p> <p>CPD AR-15 6.5mm Grendel 15/25-Round Stainless Steel Magazine</p> <p>OUT OF STOCK</p>	 <p>Two Magpul PMAG Gen M3 AR-15 30-Round Magazines and Maglink Promo</p> <p>OUT OF STOCK</p> <p>★★★★★ (32)</p> <p>\$45.45 \$39.99</p>	<p>DISCONTINUED</p> <p>CPD AR-15 .223 / 5.56mm 15/30-Round Stainless Steel Magazine</p> <p>OUT OF STOCK</p>	 <p>Bushmaster AR-15 .450 Bushmaster 5-Round Magazine</p> <p>OUT OF STOCK</p>

 <p>DISCONTINUED</p> <p>CPD AR-15 6.5mm Grendel 15/25-Round Stainless Steel Magazine</p> <p>OUT OF STOCK</p> <p>\$18.99</p>	 <p>Two Magpul PMAG Gen M3 AR-15 30-Round Magazines and Maglink Promo</p> <p>OUT OF STOCK</p> <p>★★★★★ (12)</p> <p>\$45.45 \$39.99 SAVE 13%</p>	 <p>DISCONTINUED</p> <p>CPD AR-15 .223 / 5.56mm 15/30-Round Stainless Steel Magazine</p> <p>OUT OF STOCK</p> <p>\$14.99</p>	 <p>Bushmaster AR-15 .450 Bushmaster 5-Round Magazine</p> <p>OUT OF STOCK</p> <p>\$27.99</p>
 <p>CMMG 5.7x28mm AR-15 10-Round Conversion Magazine</p> <p>OUT OF STOCK</p> <p>\$39.95</p>	 <p>MILITARY SURPLUS Bren .303 30-Round Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (3)</p> <p>\$9.99</p>	 <p>Duramag AR-15 .223 / 5.56mm 5/30-Round Aluminum Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (2)</p> <p>\$12.99</p>	 <p>CMMG 9mm AR-15 Conversion PMAG 10-Round Magazine</p> <p>OUT OF STOCK</p> <p>★★★★★ (3)</p> <p>\$44.99</p>
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2011 Tucson shooting

On January 8, 2011, U.S. Representative Gabby Giffords and 18 others were shot during a constituent meeting held in a supermarket parking lot in Casas Adobes, Arizona, in the Tucson metropolitan area. Six people were killed, including federal District Court Chief Judge John Roll; Gabe Zimmerman, one of Giffords's staffers; and a 9-year-old girl, Christina-Taylor Green.^{[7][8][9][10][11]} Giffords was holding the meeting, called "Congress on Your Corner", in the parking lot of a Safeway store when Jared Lee Loughner drew a pistol and shot her in the head before proceeding to fire on other people.^{[8][9]} One additional person was injured in the immediate aftermath of the shooting.^[12] News reports identified the target of the attack to be Giffords, a Democrat representing Arizona's 8th congressional district.^[8] She was shot through the head at point-blank range, and her medical condition was initially described as "critical".^{[8][9]}

Loughner, a 22-year-old Tucson man who was fixated on Giffords, was arrested at the scene.^[13] Federal prosecutors filed five charges against him, including the attempted assassination of a member of Congress and the assassination of a federal judge.^{[10][14][15]} Loughner previously had been arrested once (but not convicted) on a minor drug charge^[16] and had been suspended by his college for disruptive behavior. Court filings include notes handwritten by Loughner indicating he planned to assassinate Giffords.^[14] Loughner did not cooperate with authorities, invoking his right to remain silent.^[9] He was held without bail and indicted on 49 counts. In January 2012, Loughner was found by a federal judge to be incompetent to stand trial based on two medical evaluations, which diagnosed him with paranoid schizophrenia.^[17] On August 7, Loughner had a hearing in which he was judged competent. He pleaded guilty to 19 counts, and in November 2012 was sentenced to life in prison.

Following the shooting, American and international politicians expressed grief and condemnations. Gun control advocates pushed for increased restrictions on the sale of firearms and ammunition, specifically high-capacity magazines.^[18] Some commentators criticized the use of harsh political rhetoric in the United States, with a number blaming the political right wing for the shooting. In particular, Sarah Palin was criticized for a poster by her political action committee that featured stylized crosshairs on an electoral map which included Giffords. Palin rejected claims that she bore any responsibility for the shooting.^{[19][20]} President Barack Obama led a nationally televised memorial service on January 12, and other memorials took place.

2011 Tucson shooting	
Part of <u>mass shootings in the United States</u>	
<div><div><div><div></div></div><div><div></div></div></div><div><div><div></div></div><div><div></div></div></div><div><div><div></div></div><div><div></div></div></div></div>	
First responders at the crime scene outside the <u>Casas Adobes Safeway</u>	
Location	<u>Casas Adobes, Arizona, near Tucson</u>
Coordinates	<u>32°20′9.5″N 110°58′30.5″W﻿ / ﻿32.33600°N 110.97500°W﻿ / 32.33600; -110.97500</u>
Date	January 8, 2011 <div>10:10 a.m. <u>MST</u> (UTC−07:00)</div>
Target	<u>U.S. Representative Gabby Giffords</u>
Attack type	<u>Mass shooting</u> , <u>mass murder</u> , <u>assassination attempt</u>
Weapons	<u>Glock 19 semi-automatic pistol</u> with a 33-round magazine ^{[1][2][3][4][5][6]}
Deaths	6 (including federal judge <u>John Roll</u>)
Injured	15 (including the perpetrator; 13 by gunfire, including Giffords)
Perpetrator	<u>Jared Lee Loughner</u>

First responders at the crime scene outside the Casas Adobes Safeway

Contents

Shooting

Investigation

Perpetrator

Legal proceedings

Victims

Gabby Giffords

Reaction

Political

Media

Memorials

Others

See also

References

External links

Shooting



Roadside sign for the "Congress on Your Corner" constituent meeting

The shooting took place on January 8, 2011, at 10:10 A.M. MST (17:10 UTC).^{[21][22]} A United States Representative from Arizona, Gabrielle Giffords, was holding a constituent meeting called "Congress on Your Corner"^{[15][23]} at the Safeway supermarket in La Toscana Village mall, which is in Casas Adobes, a census-designated place north of Tucson.^[24] Giffords had set up a table outside the store and about 20 to 30 people were gathered around her when a 22-year-old man by the name of Jared Lee Loughner suddenly drew a pistol and shot Giffords in the head.^{[25][26]} The shooting was caught on video by a store security camera, but was not released to the public.^{[22][27]}

holding 33 rounds.^{[29][30][5][6]} A nearby store employee said he heard "15 to 20 gunshots".^[31] Loughner stopped to reload, but dropped the loaded magazine from his pocket to the sidewalk, from where bystander Patricia Maisch grabbed it.^[32] Another bystander (Roger Salzgeber) clubbed the back of the assailant's head with a folding chair, injuring his elbow in the process, representing the 14th injury.^[33] Loughner was tackled to the ground by Bill Badger, a 74-year-old retired United States Army Colonel^[34] who had also been shot himself. Loughner was further subdued by Maisch and bystanders Roger Salzgeber and Joseph Zamudio.

Loughner proceeded to fire apparently randomly at other members of the crowd.^{[7][28]} He was armed with a Glock 19 semi-automatic pistol with four magazines, two of which were capable of



Weapons recovered from perpetrator; knife, four magazines, Glock 19

Zamudio, a concealed weapon (CCW) permit holder, had a weapon on his person, but arrived after the shooting had stopped and did not draw his firearm.^[35] Thirty-one shell casings were found at the scene by investigators.^[36]

The first call from the scene to emergency services was received at 10:11 A.M.^[21] While waiting for help to arrive, Giffords's intern Daniel Hernández Jr. applied pressure to the gunshot wound on her forehead, and made sure she did not choke on her blood. Hernández, and local paramedic Aaron Rogers are credited with saving Giffords's life.^{[37][38]} David and Nancy Bowman, a married doctor and nurse who were shopping in the store, immediately set up triage and attended to nine-year-old Christina-Taylor Green.^[11] Police arrived on the scene at 10:15 A.M., with paramedics arriving at 10:16 A.M.^[39] Badger observed the assailant attempting to discard a small bag containing money and identification, which was recovered by the officers.^[40] Following the shooting, the police shut down roads surrounding the shopping center until late in the day. The intersection was cordoned off and most of the businesses in the shopping center were closed throughout the weekend during the initial investigation.^[41] The Safeway store reopened a week later, with a makeshift memorial erected near the front of the store.^[42]

Five people died at the scene,^[43] including Chief Judge John Roll and Giffords's community outreach director Gabe Zimmerman.^{[7][10]} Several of the injured were taken to University Medical Center in Tucson.^[44] Christina-Taylor Green was later pronounced dead on arrival at the hospital.^{[9][45]}

When Loughner's parents arrived at their home, unaware of the shootings, they found police tape and police cars around their house. Their neighbor Wayne Smith said Loughner's mother "almost passed out right there", while his father sat in the road and cried. Smith described the family as "devastated", feeling guilty, and wondering "where did they fail?"^[46] Loughner's parents released a statement three days later expressing remorse for the victims and saying, "We don't understand why this happened."^[47]



La Toscana Village mall. The attack occurred near the Safeway main entrance, which is below the gable-end.^[48]

Investigation

Jared Lee Loughner, the suspect, was described as a white male in his mid-20s with short hair and "dressed in a shabby manner". He was arrested after being detained by bystanders,^{[8][49][50]} and police later released his name and details.^[49] The FBI attempted to question Loughner, but he reportedly refused to cooperate with authorities and invoked his Fifth Amendment rights.^{[8][9][51]} Authorities said that Loughner's motive was unknown.^[9] They said that evidence seized from a safe in Loughner's home included an envelope marked with notes reading "I planned ahead", "My assassination", and "Giffords", as well as a letter from Giffords's office thanking him for attending a similar event in 2007.^{[14][52]}

Federal officials charged Loughner the next day with killing federal government employees, attempting to assassinate a member of Congress and attempting to kill federal employees.^{[53][54][55]} Police reports reveal he had purchased a Glock pistol at a Sportsman's Warehouse store, after passing the required FBI background check,^[56] less than six weeks before and attempted to buy additional ammunition for the pistol at a Walmart on the morning of the shooting,^[57] but the clerk refused to sell it to him based on his appearance and demeanor.^{[58][59]}



Police investigate the crime scene, seen here around two hours after the attack

As the shooting occurred outside the Tucson city limits in unincorporated Casas Adobes, the Pima County Sheriff's Department started the initial investigation with assistance from the Tucson Police Department and the Arizona Department of Public Safety.^[60] The Federal Bureau of Investigation director Robert Mueller was ordered to the location by President Obama, and the FBI took over the investigation.^[61] The United States Capitol Police also conducted an investigation.^[8]

Perpetrator



Photograph of Loughner taken by U.S. Marshals

Jared Lee Loughner, then age 22, lived with his parents Randy and Amy Loughner in Tucson,^[62] about 5 miles (8.0 km) from the site of the shooting.^{[49][62]} His mother worked for the City Parks Department; his father's work was not known.^[63] Loughner had been attending Pima Community College. Former classmates stated Loughner (at the time) cared about his education due to his appreciation of knowledge.^[63] Because of teacher and student complaints about Loughner's increasingly disruptive behavior in classes, the college suspended him on September 29, 2010, and he dropped out of the school in October.^{[62][63]} Loughner chose not to return, as the college required him to have a mental health evaluation and clearance to be readmitted.^{[62][63]}

Before the shooting, Loughner had two previous offenses, one of which was for drug possession.^[64] He had become obsessed with Giffords,^[65] and had previously met her at a "Congress on your Corner" event in a Tucson mall in August 2007.^[66]

U.S. Army officials said that Loughner had attempted to enlist in 2008, but his application had been rejected as "unqualified" for service.^[63] They declined further disclosure due to confidentiality rules.^{[49][62][67]} An administration official indicated to the media that Loughner had failed a drug test.^[68]

Loughner had been posting material online for some time via his Myspace account and on YouTube under the name "Classitup10".^{[62][69][70]} He gave his views on terrorism, federal laws, and his belief that the government was brainwashing the citizenry with language.^{[62][64][70][71]} Hours before the incident, Loughner's Myspace page was updated with posts from his account stating, "Goodbye", and said to friends: "Please don't be mad at me."^{[62][72][73]}

On November 30, 2010, Loughner purchased a Glock 19 semi-automatic pistol at a Sportsman's Warehouse store in Tucson, passing a background check.^[1]

Earlier on the day of the shooting, Loughner reportedly had an altercation with his father regarding a black bag the younger man took from a car trunk.^[74] A bag matching the description was later found in a nearby desert area containing 9mm ammunition, and it is believed to belong to Loughner.^[75] Later that morning, at approximately 7:30 A.M., Loughner was stopped by an Arizona Game and Fish Department officer after running a red light, but was released with a reminder when it was determined that he did not have any outstanding warrants.^[74]

Legal proceedings

Loughner was held in the Federal Correctional Institution at Phoenix without bail.^{[76][77]} All Arizona-based federal judges recused themselves from the case because of their ties to Judge Roll, who was killed in the attack.^{[78][79]} The federal case was assigned to a San Diego-based jurist, federal Judge Larry Alan Burns from the United States District Court for the Southern District of California.^[80] The public defender Judy Clarke, also based in San Diego, was appointed to represent Loughner in federal court.^{[81][82]}



Federal Correctional Institution, Phoenix, where Loughner was being held^[76]

On January 19, 2011, a federal grand jury handed down an indictment for three counts against Loughner for the attempt to assassinate Representative Giffords, and attempting to kill two federal employees, her aides Ron Barber and Pamela Simon.^[83] Loughner was indicted on additional charges of murder and attempted murder on March 3, for a total of 49 counts.^[84]

Prosecutors representing the state of Arizona filed murder and attempted murder charges on behalf of the victims who were not federal employees. Under Arizona's speedy trial statutes, Arizona state prosecutors normally have ten days from the time a suspect is taken into custody to file charges, but time spent in federal custody does not count toward this limitation.^[85] Conviction in either federal or state court meant that Loughner could face the death penalty.

On May 25, 2011, Judge Burns found Loughner incompetent to stand trial based on two medical evaluations. These evaluations had diagnosed him with paranoid schizophrenia.^[17] Loughner was ordered to be forcibly medicated following his diagnosis of schizophrenia.^[86] A new evaluation was ordered for January 25, 2012.^[87]

On February 6, 2012, his stay at the Springfield, Missouri facility was extended by four months.^[88] A request by Loughner's lawyers to end forced medication was denied.^[89] Another competency hearing was set for June 27, 2012, but later rescheduled.^{[90][91]}

On August 7, 2012, Loughner's competency hearing began with testimony from Dr. Christina Pietz, Loughner's forensic psychologist, who testified that she believed Loughner was competent to stand trial. After hearing the evidence, Judge Burns ruled that Loughner was competent to stand trial, whereupon Loughner pleaded guilty to 19 counts, sparing himself the death penalty.^[92]

On November 8, 2012, Loughner appeared for sentencing, with several of his victims as well as relatives of those he killed in attendance. Judge Burns sentenced Loughner to seven consecutive life terms plus 140 years in prison without parole.^{[93][94][95]}

After his sentencing in federal court, Pima County Attorney Barbara LaWall announced that she would not prosecute Loughner on behalf of the state of Arizona. LaWall explained that her decision would afford the victims and their families, as well as the community in Tucson and Pima County, an opportunity to move forward with their lives. She said that, after speaking and consulting personally with each of the surviving victims and with the family members of those killed, it was clear that they would not be benefitted by a state prosecution. Surviving victims and family members told LaWall that they are "completely satisfied with the federal prosecution", that "justice has been served", and that the federal sentence is "suitably severe".^[96]

Victims

Six people were killed in the attack;^[97] all but Christina-Taylor Green died at the scene of the shooting.^[98]



Chief Judge John Roll

Gabe Zimmerman

- Christina-Taylor Green, 9, of Tucson.^[99] Green was accompanied to the meeting by neighbor Susan Hileman.^{[45][100]} As her date of birth was September 11, 2001, she had appeared in the book *Faces of Hope: Babies Born on 9/11* (page 41).^{[101][102][103]} She was the granddaughter of former Major League Baseball player and manager Dallas Green and the second cousin of actress Sophia Bush.^{[102][104]}
- Dorothy "Dot" Morris, 76, a retired secretary from Oro Valley; wife of George, who was wounded.^{[97][105]}
- John Roll, 63, chief judge of the U.S. District Court for Arizona, named to the federal bench by President George H. W. Bush in 1991.^{[45][106]}
- Phyllis Schneck, 79, homemaker from Tucson.^{[97][107]}
- Dorwan Stoddard, 76, retired construction worker, died from a gunshot wound to the head; his wife Mavy was wounded.^{[97][108]}
- Gabriel "Gabe" Zimmerman, 30, community outreach director for Giffords,^{[8][45]} and a member of Giffords's staff since 2006. Zimmerman was the first Congressional staffer killed in the line of duty.^{[109][110]}

In addition to the six dead, thirteen other people were wounded by gunshot in the attack, while a fourteenth person was injured subduing Loughner. Gabrielle Giffords and two other members of her staff were among the surviving gunshot victims.^[12] Staffer Ron Barber, shot in the thigh and face, would later succeed Giffords in her House seat.^[111]

Gabby Giffords

Gabby Giffords was reported to be the target of the shootings.^[8] Some news organizations initially reported she had been killed, but these statements were quickly revised to reflect that she had survived with a gunshot wound to the head.^{[112][113]} Daniel Hernández Jr., one of Giffords's interns, assisted her after she was wounded and is credited with saving her life.^{[114][115][116]}

Giffords was taken to University Medical Center in critical condition,^{[7][117]} although she was still conscious. Within 38 minutes,^[118] Giffords underwent emergency surgery,^[119] and part of her skull was removed to prevent further brain damage caused by swelling.^[118] She was placed into a medically induced coma to allow her brain to rest.^[120] During a memorial ceremony on January 12, President Obama

announced that earlier that day Giffords had opened her eyes for the first time since the attack.^[121]

As Giffords's status improved, she began simple physical therapy and music therapy.^[122] On January 21, 2011, less than two weeks after the attack, her condition was deemed sufficiently stable for her to be released to Houston's Memorial Hermann Medical Center. A few days later she was moved to the center's Institute for Rehabilitation and Research to undergo a program of physical therapy and rehabilitation.^{[123][124]} After examination, her Houston doctors were optimistic, saying she has "great rehabilitation potential".^[125]



Giffords in 2010, official portrait

On August 1, 2011, she made her first public appearance on the House floor to vote in favor of raising the debt limit ceiling. She was met with a standing ovation and accolades from her fellow members of Congress.^[126] Giffords engaged in intensive rehabilitation treatments in Asheville, North Carolina, from October 25 through November 4.^[127] In 2011, Mark Kelly, Giffords's husband, published a memoir, *Gabby: A Story of Courage and Hope*, crediting her with joint authorship. He wrote that Giffords vows to return to Congress, although she continues to struggle with language and has lost 50 percent of her vision in both eyes.^[128] Kelly himself was elected U.S. Senator from Arizona in 2020.

On January 22, 2012, Giffords announced that she would resign from her congressional seat in order to concentrate on her recovery, but promised to return to public service in the future.^[129] She submitted her resignation on January 25 on the floor of the House in an emotional appearance; colleagues and the House leadership offered their tributes to her courage and strength.^[130]

Reaction

Political

In the wake of the shooting, Democrats and Republicans both called for a cooling of political rhetoric and a return to bipartisanship.^[19] On the eve of the shooting, Giffords had written to a Republican friend, Trey Grayson, Secretary of State of Kentucky, saying, "we need to figure out how to tone our rhetoric and partisanship down."^[131] In March 2010, Giffords had expressed concern about the use of crosshairs on a national midterm election map on Sarah Palin's campaign webpage denoting targeted congressional seats, including Giffords', in Arizona's 8th district. Shortly after the map's posting and the subsequent vandalizing of her office that month, Giffords said, "We're in Sarah Palin's 'targeted' list, but the thing is that the way she has it depicted, we're in the crosshairs of a gun sight over our district. When people do that, they've got to realize that there are consequences to that action." At that point in the interview, however, the interviewer said, "campaign rhetoric and war rhetoric have been interchangeable for years."^{[28][132]} The image was removed from Palin's "takebackthe20" website following the January shootings.^{[132][133][134]} Palin responded to her critics in a January 12 video, rejecting the notion that anyone other than the gunman could bear any responsibility for the Tucson shooting, and accusing the press of manufacturing a "blood libel" to blame her and the right wing for the attacks.^{[20][135][136]} No link was proven between the crosshairs map and the shooting, and it is unclear whether Loughner ever saw the map.^[137]

The political climate in the United States and in Arizona in particular was pointed to by some observers as a possible contributing factor for the violent act. For example, Clarence Dupnik, Pima County Sheriff, initially expressed concern that overheated political rhetoric and violence may be related, observing, "When you look at unbalanced people, how they respond to the vitriol that comes out of certain mouths about

tearing down the government. The anger, the hatred, the bigotry that goes on in this country is getting to be outrageous." He believed that Arizona had unfortunately become "the capital" of such feelings. "We have become the mecca for prejudice and bigotry," he said.^{[138][139]} But, Dupnik later said that he had no evidence that the killings were a result of anything particular which Loughner may have read or heard.^[140] International media referred to the political climate in the United States and the Palin map in particular.^{[141][142][143][144][145]} The French newspaper *Le Monde* said that the attack seemed to confirm "an alarming premonition that has been gaining momentum for a long time: that the verbal and symbolic violence that the most radical right-wing opponents have used in their clash with the Obama administration would at some point lead to tragic physical violence."^[146] President Obama called the shooting an "unspeakable tragedy", adding that "such a senseless and terrible act of violence has no place in a free society".^[147] Arizona Governor Jan Brewer called the attack "senseless and cruel violence"^[148] and House Speaker John Boehner said, "An attack on one who serves is an attack on all who serve. Acts and threats of violence against public officials have no place in our society".^[149] Chief Justice John Roberts issued a statement noting, "we in the judiciary have suffered the terrible loss of one of our own", with the death of Chief Judge John Roll.^[150]

Political figures such as Arizona's United States Senators Jon Kyl^[151] and John McCain,^[152] House Majority Leader Eric Cantor, House Minority Leader Nancy Pelosi^[153] issued statements. Numerous foreign politicians additionally commented on the shooting, including Canadian Foreign Affairs Minister Lawrence Cannon,^[154] British Prime Minister David Cameron,^[153] Spanish Prime Minister José Luis Rodríguez Zapatero,^[155] and Cuba's Fidel Castro.^[156] The website GiffordsIsLying.com, run by Giffords's former opponent Jesse Kelly, was replaced with a single page urging support for Giffords and her family.

Senator Chuck Schumer called for a fresh look at gun control laws in the United States, including the possibility of high-capacity magazine ban, and prohibiting a person who has been rejected for military service due to drug use from owning a gun.^[18] Homeland Security Committee chairman Peter T. King announced that he would introduce a bill to ban the carrying of firearms within 1,000 feet (300 m) of certain federal officials.^[157] Representative Carolyn McCarthy announced that she would introduce legislation to ban the sale of high-capacity magazines to civilians.^[158]

Media

Some media commentators, such as Howard Kurtz and Toby Harnden, criticized what they perceived as a rush to judgment about the shooter's motivation, disputing suggestions that the shooting was the result of the Tea Party movement or anything in connection to Palin.^{[159][160][161][162]} Paul Krugman wrote an op-ed piece arguing that political rhetoric had become toxic.^[163] With renewed calls to tone down political rhetoric after the shooting,^{[164][165][166]} Keith Olbermann said, "Violence, or the threat of violence, has no place in our Democracy, and I apologize for and repudiate any act or any thing in my past that may have even inadvertently encouraged violence."^[164] Jon Stewart stated that he did not know whether or not the political environment contributed to the shooting, but, "For all the hyperbole and vitriol that's become a part of our political process—when the reality of that rhetoric, when actions match the disturbing nature of words, we haven't lost our capacity to be horrified. ... Maybe it helps us to remember to match our rhetoric with reality more often."^[166]

Memorials



Memorial at site of shooting

U.S. flags flown by the federal government were displayed at half-staff from January 9, 2011, until sunset on January 15, 2011, in honor of the victims of the Tucson shooting.^[167] A national moment of silence was held at 11:00 a.m. EST on January 10, 2011, on the South Lawn of the White House as well as the steps of the United States Capitol.^[168] President Obama went to Tucson on January 12, where he met with the families of the victims and visited Giffords at her bedside in the medical center before attending the evening's televised memorial ceremony where he delivered a memorial speech.^[169]

Among other memorials: when the Safeway store reopened after the shooting, the staff erected a makeshift memorial;^[142] at the 2011 Major League Baseball All-Star Game, Giffords's intern, Daniel Hernandez Jr., was accompanied onto the field by the families of the shooting victims, and threw the ceremonial first pitch;^[170] and for the 2011 State of the Union Address, Senator Mark Udall of Colorado proposed that members of both houses sit together regardless of party, with one seat left empty in honor of Giffords.^[171]

Christina-Taylor Green, the youngest of the victims, had an interest in politics and said that she had wanted to attend college at Penn State University;^[172] she was born in Pennsylvania and had a connection to the state through her grandfather, Dallas Green.^{[173][174]} The university honored her with a brick on the Alumni Walk on campus, and with a certificate in her memory.^[173]

Others

On the night of January 11, 2011, Governor Brewer signed emergency legislation to prohibit protests within 300 feet (91 m) of any funeral services, in response to an announcement by the Westboro Baptist Church that it planned to picket the funeral of shooting victim Christina-Taylor Green.^{[175][176]} The members of the congregation agreed to appear on talk radio in exchange for dropping their plans to picket the funeral.^[177]

On Sunday, January 16, 2011, eight days after the shooting, Vietnam War veteran James Eric Fuller, who had been shot in the knee during the attack, was arrested for disorderly conduct at a town hall meeting. After Tucson Tea Party figure Trent Humphries, who had faulted Giffords for not having enough security, stated that gun control measures should not be discussed until all those killed in the shooting were buried, Fuller allegedly took a picture of Humphries and shouted, "You're dead." In an interview during the week after the shooting, Fuller had criticized Palin and what he called the "Tea Party crime-syndicate" for promoting a divisive political climate before the attacks.^[23] The police then committed him to an undisclosed medical facility to undergo a psychiatric evaluation. A police spokesman stated that the hospital will determine when he will be released.^[178] Meanwhile, Humphries said he was worried about Fuller's threat, and the dozens of other angry e-mails he received from people blaming right-wing political rhetoric for contributing to the assassination attempt on Giffords.^[179]

See also

- List of United States federal judges killed in office
- List of United States Congress members killed or wounded in office
- List of massacres in Arizona
- Bill Gwatney
- Murder of Jo Cox

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NEW ARMY AND NAVY MODEL 1892

Army trials between 1890 and 1891 revealed the weakness of the Model 1889's locking system. It allowed the cylinder to rotate when the gun was holstered or if the shooter attempted to turn the cylinder as the trigger was being pulled. Combining the trigger with the cylinder-rotating pawl, and adding a double locking bolt, necessitating an extra set of bolt stop notches in the periphery of the cylinder, addressed the problem. The locking bolt dropped clear as soon as the hammer lifted to cock, and the pawl engaged the ratchet on the rear of the cylinder to begin rotation.

Often, the manufacturer's marks will include reference to patent protection granted in 1884, 1888 or 1895, and this helps date individual guns if other indicators, serial numbers, for example, are unclear. The New Army and Navy Models were superseded by the New Service Model in 1908.

CIVILIAN OR COMMERCIAL MODEL

This model is similar in appearance to the 1889 Navy, because the first 4,700 were modified from the 1889 Navy. The main differences are improvements to the lock-work function. It has the double bolt stop notches, a double cylinder locking bolt and shorter flutes on the cylinder mentioned above. The .38 Smith & Wesson and the .32-20 were added to the .38 Colt and .41 Colt chamberings. The checkered hard rubber grips are standard, with plain walnut grips found on some contract series guns. Barrel lengths and finishes are the same as described for the Model 1889, 2 to 6 inches in

one-inch increments. The patent dates 1895 and 1901 appear stamped on later models. Colt manufactured 291,000 of these revolvers between 1892 and 1907, and serial numbers begin with #1. Guns made before 1898 are considered antiques and are more desirable from an investment standpoint. For 3-inch barrel add 20 percent.

EXC.	V.G.	GOOD	FAIR	POOR
2,000	1,200	500	300	100

NOTE: The following advertisement was featured in the Spring of 2007 on *AntiqueGunList.com*:

"Colt DA 1892 U.S. 6" barrel .38 Colt has been re-blued not all of the 2 line address can be seen. Last patent date on the barrel is '88. Barrel crane, cylinder, latch are serialized to the gun. All other markings in excellent shape. On the butt says U.S. Model 1892. It has 2 piece wood grips in excellent working condition Serial number #486. \$795."

MODEL 1892 U.S. NAVY - MARTIAL MODEL: BUTT INCLUDES "U.S.N." AND ANCHOR

EXC.	V.G.	GOOD	FAIR	POOR
3,500	2,750	1,500	1,000	750

MARTIAL MODEL (BUTT INCLUDES "U.S./ARMY")

The initial army purchase was for 8,000 Model 1892 revolvers, almost all of which were altered to add "Model 1894" improvements. Unaltered examples will bring a premium.

EXC.	V.G.	GOOD	FAIR	POOR
3,500	2,000	800	600	400

Model 1892 New Army .38.



Model 1894 US Army.