"BIG BOOMERS"



Rifle Power Designed Into Handguns



The Violence Policy Center (VPC) is a national non-profit educational organization that conducts research and public education on violence in America and provides information and analysis to policymakers, journalists, advocates, and the general public. This report was authored by VPC Senior Policy Analyst Tom Diaz. This report was funded in part with the support of The Herb Block Foundation and The Joyce Foundation. Past studies released by the VPC include:

- When Men Murder Women: An Analysis of 2006 Homicide Data (September 2008)
- American Roulette: Murder-Suicide in the United States (April 2008)
- Black Homicide Victimization in the United States: An Analysis of 2005 Homicide Data (January 2008)
- When Men Murder Women: An Analysis of 2005 Homicide Data (September 2007)
- An Analysis of the Decline in Gun Dealers: 1994 to 2007 (August 2007)
- Drive-By America (July 2007)
- A Shrinking Minority: The Continuing Decline of Gun Ownership in America (April 2007)
- Black Homicide Victimization in the United States: An Analysis of 2004 Homicide Data (January 2007)
- Clear and Present Danger: National Security Experts Warn About the Danger of Unrestricted Sales of 50 Caliber Anti-Armor Sniper Rifles to Civilians (July 2005)
- Safe At Home: How D.C.'s Gun Laws Save Children's Lives (July 2005)
- The Threat Posed to Helicopters by 50 Caliber Anti-Armor Sniper Rifles (August 2004)
- United States of Assault Weapons: Gunmakers Evading the Federal Assault Weapons Ban (July 2004)
- Vest Buster: The .500 Smith & Wesson Magnum—The Gun Industry's Latest Challenge to Law Enforcement Body Armor (June 2004)
- A Further Examination of Data Contained in the Study "On Target" Regarding Effects of the 1994 Federal Assault Weapons Ban (April 2004)
- Really Big Guns: Even Bigger Lies (March 2004)
- Bullet Hoses Semiautomatic Assault Weapons: What Are They? What's So Bad About Them?
 (May 2003)
- "Officer Down"—Assault Weapons and the War on Law Enforcement (May 2003)
- Firearms Production in America 2002 Edition—A Listing of Firearm Manufacturers in America with Production Histories Broken Out by Firearm Type and Caliber (March 2003)
- "Just Like Bird Hunting"—The Threat to Civil Aviation from 50 Caliber Sniper Rifles (January 2003)
- Sitting Ducks—The Threat to the Chemical and Refinery Industry from 50 Caliber Sniper Rifles (August 2002)
- License to Kill IV: More Guns, More Crime (June 2002)
- The U.S. Gun Industry and Others Unknown—Evidence Debunking the Gun Industry's Claim that Osama bin Laden Got His 50 Caliber Sniper Rifles from the U.S. Afghan-Aid Program (February 2002)
- "A .22 for Christmas"—How the Gun Industry Designs and Markets Firearms for Children and Youth (December 2001)
- Kids in the Line of Fire: Children, Handguns, and Homicide (November 2001)
- Unintended Consequences: Pro-Handgun Experts Prove That Handguns Are a Dangerous Choice For Self-Defense (November 2001)
- Voting from the Rooftops: How the Gun Industry Armed Osama bin Laden, Other Foreign and Domestic Terrorists, and Common Criminals with 50 Caliber Sniper Rifles (October 2001)
- Hispanics and Firearms Violence (May 2001)
- Where'd They Get Their Guns?—An Analysis of the Firearms Used in High-Profile Shootings, 1963 to 2001 (April 2001)
- A Deadly Myth: Women, Handguns, and Self-Defense (January 2001)
- Handgun Licensing and Registration: What it Can and Cannot Do (September 2000)
- Pocket Rockets: The Gun Industry's Sale of Increased Killing Power (July 2000)
- Guns For Felons: How the NRA Works to Rearm Criminals (March 2000)
- One Shot, One Kill: Civilian Sales of Military Sniper Rifles (May 1999)
- Cease Fire: A Comprehensive Strategy to Reduce Firearms Violence (Revised, October 1997)

Summary

- 1. Big boomers are rifle power designed into handguns. During the 1990 to 1999 period, 20 law enforcement officers were killed by gunshot wounds as a result of rounds penetrating their body armor. All of these rounds were fired from rifles. However, the big boomer handguns that are now being designed and marketed by the firearms industry have elevated the power of handguns to the level of rifles. Big boomers have thus become "vest busters" and present a deadly challenge to law enforcement body armor's life-saving record.
- 2. Big boomers a serious new threat to America's public safety officers are the gun industry's latest attempt to stop its steady market decline. The American firearms industry has been sagging for decades. Although the industry enjoys brief periods of resurgence, the long-term trend for civilian gun manufacturers continues to be one of steady decline. In order to expand its customer base, the gun industry has tried to lure women and children into the "shooting sports." For recent example, it has mounted a national campaign to get more children interested in hunting, for the most part by watering down hunter safety laws and regulations so that younger children can hunt. However, the principal means gun manufacturers use to rejuvenate their stagnant markets is design and marketing innovation aimed at introducing greater lethality into the civilian market. Within the last several years, the industry has introduced "big boomers"—handguns that fire ammunition that can penetrate the body armor that has saved the lives of thousands of law enforcement officers over the last three decades. This big boomer market trend is now established as a profit-maker that is "good for business." The number of manufacturers who make big boomers is increasing and the models they manufacture are proliferating.
- **3. Big boomers are "vest busters."** They threaten to make obsolete the body armor that has saved thousands of officers' lives. Body armor can stop handgun rounds, but it cannot stop handgun rounds with the penetration power of higher-powered rifle rounds.
- 4. The Violence Policy Center (VPC) reported in June 2004 on the armor-defeating potential of the first new big boomer, a 50 caliber magnum handgun introduced by Smith & Wesson in February 2003, the Model 500. This handgun was designed around a new cartridge called the .500 Smith & Wesson Magnum. The striking power of the .500 Smith & Wesson Magnum round substantially exceeds the protection level of the highest grade of concealable body armor normally worn by law enforcement officers in the field, known as Type IIIA. The Model 500 thus combines the convenience of a handgun with the vest-busting power of a rifle, a clear danger to law enforcement personnel. In the few short years since their introduction, 50 caliber magnums have already begun to show up in criminal episodes.

- 5. The .500 Smith & Wesson Magnum round, and the Smith & Wesson Model 500 handgun, illustrate how the gun industry's singular freedom from consumer product health and safety regulation allows it to recklessly develop and market increasingly lethal products without consideration for public safety. In its earlier report, the VPC stated: "Following a well-established gun industry pattern of design and price competition, it is likely that other manufacturers will soon develop and market their own versions of handguns chambered for the .500 Smith & Wesson Magnum round....[T]he 500 Smith & Wesson Magnum will proliferate as other manufacturers market copies of the round and handguns chambered for it. Prices will fall and the threat to law enforcement officers will rise."
- 6. The current study documents that the predicted proliferation has indeed occurred. Smith & Wesson and now other firearm manufacturers continue their reckless pattern of designing and introducing into the civilian market handguns that are almost certainly capable of defeating law enforcement body armor. In addition to introducing a more easily concealable model of its Model 500, Smith & Wesson has designed and begun marketing yet another handgun with vest-busting rifle power, the Model 460 XVR (X-treme Velocity Revolver). Other manufacturers have introduced their own version of handguns chambered for the .500 Smith & Wesson Magnum round.
- 7. Meanwhile, another variety of vest-busting handgun has appeared on the U.S. civilian handgun market, exemplified by the FN Herstal Five-seveN. This handgun is chambered for a very high velocity 5.7mm round that was originally developed specifically as an armor-piercing round designed for use by law enforcement and counter-terrorism teams. After an initial outcry from law enforcement agencies about the availability of this combination of gun and armor-piercing ammunition, the manufacturer agreed not to import into the United States the variety of its 5.7mm ammunition specifically designed to penetrate body armor. Nevertheless, questions remain about the viability of the current federal definition of what constitutes banned "armor-piercing ammunition," the capabilities of the ammunition the manufacturer continues to import, and the availability of its armor-piercing variety through channels in informal markets such as gun shows.

Section One "Big Boomers" Are Money Makers

"These new guns generate the incentive for the consumer to be the first among his buddies to own the 'biggest and the baddest' handgun on the market, which computes into sales....The consumer who buys the big boomers will continue to purchase the new big calibers as long as manufacturers keep building them. This is good for business!"

-Jim Reed, owner of Reed's Sporting Goods, San Jose, California¹

The firearms industry in the United States has been in decline for several decades. Although the industry has enjoyed periods of temporary resurgence, the long-term trend for the manufacturers of guns for civilians has been in steady decline. The industry's latest attempt to stem this tide directly threatens America's public safety officers.

A Stagnant Industry. The firearms industry's long-term stagnation is illustrated by Chart One, "Firearms Production 1984-2006," which demonstrates that United States civilian firearms production in 2006 was not much greater than it had been in 1984. The recent up-tick in domestic production may be largely accounted for by "booming" military, law enforcement, and foreign markets (boosted by the weakened dollar), as opposed to civilian consumption.²

6,000,000 5,000,000 4,000,000 3,000,000 2,000,000 — Handguns — Rifles — Shotguns

1,000,000

Chart One: Firearms Production 1984-2006

Source: Shooting Industry, May 2005

The U.S. firearms industry has enjoyed a few peak years but is stagnant overall. Despite a few boom years, production in 2006 was about the same as it was in 1984.

The Importance of Handguns. Simple inspection of Chart One also indicates that handgun production has driven overall American firearms production over the last 20 years. By and large, handgun boom years—caused by such phenomena as the introduction and aggressive marketing of high-capacity semiautomatic pistols in the early 1990s—have also been total gun production boom years.

However, handgun manufacturers share with the broader industry the problem of long-term market stagnation, as illustrated by Chart Two. In 1984, 1,580,551 handguns were manufactured in the United States. In 2006, 1,403,329 handguns were manufactured, an 11 percent decline over the two decades. The plummet in production is more dramatic if one compares the production of 2,655,478 handguns in the peak boom year of 1993 with 2006 production, a 47 percent decline over the decade. The situation would be even worse were it not for a surge in buying by government agencies in the wake of the terrorist attacks of September 11, 2001, which caused an upturn in 2002 and 2003 handgun production. "Driving much of the increase is the high demand for firearms to meet the needs of federal agencies and law enforcement," according to *Shooting Industry* magazine.³

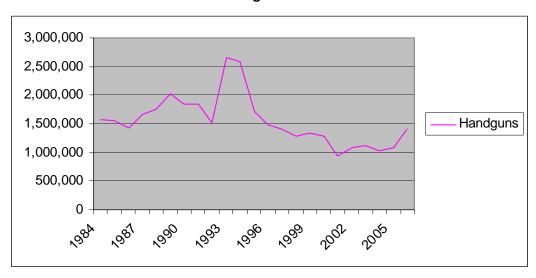


Chart Two: U.S. Handgun Production 1984-2006

U.S. handgun production declined 11 percent over the last two decades. It fell 47 percent in the decade after the boom year of 1993.

The Decline in Hunting. One reason for the gun industry's long-term slump is the steady decline in hunting, a traditional market for rifles and shotguns. "Hunters represent an aging demographic," The Wall Street Journal summed up. In addition to demographic stagnation, absorption of rural land by expanding suburbs has decreased the number of places where hunters can hunt. "Now there are Wal-Marts and shopping centers where I used to hunt," said a Florida hunter. This basic trend has been accelerated by the past decade's real estate boom and by increased oil and gas drilling on public lands—the number of permits issued for such drilling by the U.S. Bureau of Land Management more than tripled from 1999 to 2004. Changes in society's values and alternative recreational activities for young people have also hurt hunting. "Instead of waking up at 4 a.m. and going hunting, it's easier for kids to sleep in until 9 and play video games," a California wildlife official observed.

The net result of these pressures has been that the number of hunting licenses issued nationally declined 10 percent over two decades, from 16.4 million in 1983 to 14.7 million in 2003.8 Key hunting states continue to experience similar losses: the number of general hunting licenses issued in Pennsylvania fell 13 percent from 1996, when about 990,000 licenses were issued, to 2003, when only 857,000 were issued.9 In Michigan, the number of hunting licenses issued dropped from about 2.7 million in 2000 to about 2.5 million in 2004.10 In Florida, licenses issued fell 36 percent from 265,617 in the period 1980 to 1981 to 170,949 in the period 2003 to 2004.11 The toll is likely to continue: the industry's own studies predict that the number of hunters will plummet another 24 percent over the next 20 years.12

The decline in the number of hunters has a longer-term ripple effect on the gun market—hunting has traditionally been a gateway for bringing young people into the gun culture. Exposure to firearms at home during childhood increases by three times the likelihood that an adult will buy a firearm.¹³ Fewer young hunters clearly means fewer children will be turned into future gun buyers.

The Cumulative Drop in Gun-Owning Households. The gun industry's cumulative loss of market ground is reflected in a 2006 study, "Public Attitudes Towards the Regulation of Firearms," released by the National Opinion Research Center (NORC) at the University of Chicago analyzing the prevalence of household firearms. The NORC survey data shows that during the period 1972 to 2006, the percentage of American households that reported having any guns in the home dropped nearly 20 percentage points: from a high of 54 percent in 1977 to 34.5 percent in 2006.^a

[&]quot;Public Attitudes Towards the Regulation of Firearms," Tom W. Smith, NORC/University of Chicago, March 2007. The percentages of gun-owning households cited in the report comes from the General Social Survey, which is conducted by the National Opinion Research Center (NORC).

The Gun Industry's Answers to Market Decline—Babes in the Woods. Given these implacable realities, the firearms industry's persistent challenge over the last several decades has been figuring out how to deal with the chronic problem of moribund markets in which "more and more guns [are] being purchased by fewer and fewer consumers."¹⁴

One means that the industry has employed is trying to expand the pool of gun buyers. This is done principally by marketing guns to children and women. "In keeping with the industry's push for growth, they're working hard to lure women," reports *The Wall Street Journal*. "They also expect that effort to pay future dividends if moms bring their kids along, too, and groom the next generation of Daniel and Danielle Boones." According to other informed observers of the business of guns, "retention and recruitment efforts are being ramped up and range from trying to repeal laws that limit youth hunting to psychology-based campaigns aimed at getting young people familiar with gun use." 16

For example, the industry's trade association, the National Shooting Sports Foundation (NSSF), has mounted a national lobbying campaign to pressure state legislatures to lower the age at which children can hunt and to eliminate safety rules that require adults to accompany child hunters. "We're trying to take down some legal barriers so kids can get involved earlier," according to an NSSF spokesman.¹⁷ These efforts are said to be "built on the research of psychologists like Jean Piaget,^b

According to NORC, "The General Social Survey (GSS) is one of NORC's flagship surveys and our longest running project. The GSS started in 1972 and completed its 26th round in 2006. For the last third of a century the GSS has been monitoring social change and the growing complexity of American society. The GSS is the largest project funded by the Sociology Program of the National Science Foundation. Except for the U.S. Census, the GSS is the most frequently analyzed source of information in the social sciences....It is the only survey that has tracked the opinions of Americans over an extended period of time. The GSS is also a major teaching tool. We know of over 14,000 research uses such as articles in academic journals, books, and Ph.D. dissertations based on the GSS and about 250,000 students annually who use it in their classes." The NORC findings are consistent with other recent surveys on gun ownership in the United States. The study, "Prevalence of Household Firearms and Firearm-Storage Practices in the 50 States and the District of Columbia: Findings From the Behavioral Risk Factor Surveillance System, 2002," published in the September 2005 issue of Pediatrics found, "Nationally, 32.6% of adults reported that firearms were kept in or around their home," according to survey data from the Behavioral Risk Factor Surveillance System (BRFSS). The BRFSS is a "state-based surveillance system operated by state health departments in collaboration with the US Centers for Disease Control and Prevention....In 2002, all 50 states and the District of Columbia participated, and 240,735 persons aged \$18 years completed the interview." Catherine A. Okoro, et al, Pediatrics, Vol. 116, No. 3, September 2005; p. e370, e371, downloaded from www.pediatrics.org on September 8, 2005.

Piaget "has been revered by generations of teachers inspired by the belief that children are not empty vessels to be filled with knowledge (as traditional pedagogical theory had it) but active

who pioneered the study of children's intellectual development [and] focus on the psychological requirements to build an inclination toward hunting starting at an early age."¹⁸





At left, Texas youth hunter proudly displays his kill. Above, potential youth hunter learning to use spotting scope to spot deer during off season.

Since the attacks of September 11, 2001, the gun industry has also attempted to exploit the popular fear of terrorism as an incentive to bring new consumers into the firearms market, ¹⁹ just as in the past it has exploited fear of violent crime as a marketing pitch. ²⁰ These post-9/11 efforts have met with little success. The previously cited NORC study states: "Some have speculated that the 9/11 terrorist attacks undermined support for the regulation of firearms, arguing that fear of terrorism increased the public desire for firearms for self-defense. However, this was not the case." ²¹ Referring to earlier findings published by NORC researchers, the study reported that "except for a small bulge in handgun applications in September-October, 2001 which had already started to subside by November, there was no increase in firearm purchases in response to the 9/11 attacks." ²³

Innovation. The industry's principal avenue of addressing its stagnant markets, however, has been developing innovative gun designs aimed at stimulating repeat purchases of its products.

"I think innovation is critical to the industry," Smith & Wesson's marketing chief said in 2005.²⁴ For the gun industry, innovation has translated into introducing increasingly deadly firearms into the civilian market. The gun industry uses firepower,

builders of knowledge—little scientists who are constantly creating and testing their own theories of the world." "Jean Piaget," *The Time 100: Scientists and Thinkers*, http://www.time.com/time/time100/ scientist/profile/piaget.html.

or lethality, the way the tobacco industry uses nicotine. Firearm lethality is a means to "hook" gun buyers into coming back into the market again and again as more deadly innovations are rolled out. In recent years, these innovations have included the design and mass marketing of semiautomatic assault weapons, highly concealable, high-powered pistols that the industry dubbed "pocket rockets," 50 caliber anti-armor sniper rifles, and—the subject of this report—handguns capable of defeating law enforcement body armor, either because they are as powerful as rifles, or are specifically designed around armor-defeating ammunition.²⁵

"The Muscle Cars of Handguns." The industry's innovative lethality now has become unabashedly sinister, directly threatening the lives of America's first responders. Using advanced technologies and new materials, gun manufacturers are designing and recklessly introducing into the civilian market handguns that are capable of defeating the body armor that has saved the lives of thousands of law enforcement officers over the last three decades. The Violence Policy Center first reported in detail on this development in June 2004 in the study Vest Buster: The .500 Smith & Wesson Magnum—The Gun Industry's Latest Challenge to Law Enforcement Body Armor. The present study updates that report, documenting the industry's increasing marketing of armor-defeating "vest busters."

The title of an article in *Shooting Industry*—the gun industry's premier trade publication—aptly sums up the continuing trend and the industry's view of the profitability of its vest busters: "Big Boomers: Profit From The Muscle Cars Of Handguns." According to the magazine "big boomers have attracted customers and stimulated sales." It quotes a California sporting goods store owner as enthusing about the big new guns that "the consumer who buys the big boomers will continue to purchase the new big calibers as long as manufacturers keep building them. This is good for business!" Summer of the consumer who business!" Summer of the publication of the consumer who business!" The consumer who business!" Summer of the publication of the consumer who business!

Smith & Wesson's marketing director was reported as saying the company's strategy is to rehabilitate the image of handguns among 22- to 41-year-old men and women. "The prime focus is the revolver," he said.²⁹

Unhealthy for Law Enforcement and Other First Responders. The big boomer trend may be good news for the gun industry, but it will certainly be bad news over the long term for law enforcement officers and other first responders. These vest busters—handguns with the power of rifles—are aimed right at the heart of America's first line of defense against crime and terrorism. Moreover, the problem can only get worse. Having enjoyed the profitability of its irresponsible conduct, the gun industry is certain to expand this trend in future years. As more manufacturers enter the high-powered handgun market, models will proliferate and prices will drop.

Section Two Big Boomers Are Vest Busters

Big boomers are "vest busters." There is no such thing as a "bullet proof" vest. Although the standard body armor worn by law enforcement officers can stop handgun rounds, it cannot stop higher powered rifle rounds. Big boomer handguns produce the ballistic equivalent of rifle power and are thus "vest busters." They threaten to make obsolete the body armor that has saved thousands of officers' lives.

Handguns – The Gun Industry Arms the War Against Law Enforcement Officers. The development of law enforcement body armor was spurred by a dramatic rise in officer fatalities in the United States during the 1960s. From 1966 to 1971, the number of law enforcement officers killed each year in the line of duty more than doubled: from 57 to 129.³⁰ This increase in officer fatalities closely tracked the explosion of handguns in America. Law enforcement officers paid with their lives for the gun industry's handgun marketing campaign.

The Development of Body Armor. Law enforcement body armor was developed specifically to meet the handgun threat.³¹ The introduction of body armor dramatically altered the trend in law enforcement officer deaths. Many more officers would almost certainly have died had body armor not been introduced. This is graphically illustrated by Charts Three and Four, simple visual inspection of which demonstrates the sharp decline in officer homicides despite peak handgun production.

Chart Three: Handgun Production in the United States, 1946 to 2000

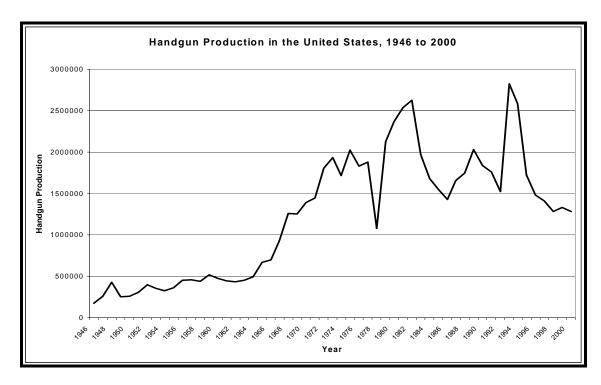
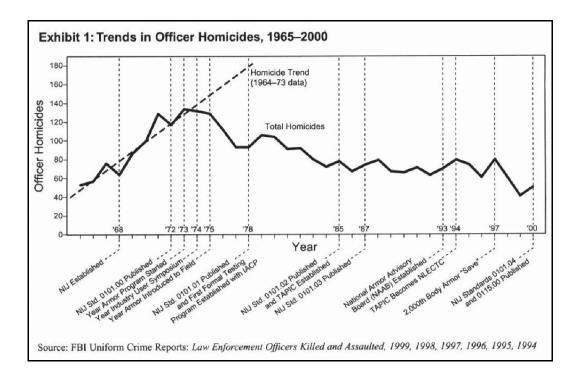


Chart Four: Police Officer Homicides, 1965 to 2000



As the gun industry has rolled out increasingly more lethal products, law enforcement has had to respond with more effective means to defend its members from assault by weapons that inevitably become ubiquitous in American society. Nevertheless, until the recent advent of big boomer handguns, officers wearing ballistic vests were relatively safe from handgun rounds, provided the rounds struck the armor, as opposed to striking vulnerable areas such as armholes, exposed heads, and major arteries in exposed limbs.

How Body Armor Works. Body armor is made of materials woven from very strong fibers. When a bullet strikes the armor, it is caught in a "web" of fibers that absorb and disperse the impact energy, and cause the bullet to flatten or "mushroom." Energy continues to be absorbed by succeeding layers of material until the bullet is stopped.³²

Levels of Body Armor Protection. The National Institute of Justice (NIJ) classifies body armor into seven standard levels of ballistic performance, designated as "types." Soft body armor suitable for full-time wear throughout an entire shift of duty is available in four types—Types I, IIA, II, and IIIA—which provide increasing levels of protection from handgun threats. According to the NIJ, "Type IIIA body armor provides the highest level of protection available in concealable body armor and provides protection from high velocity 9mm and 44 Magnum ammunition."

Blunt Trauma. Even if the ballistic fabric stops the bullet, however, there is another source of potential injury—"blunt trauma" from the force of the impact:

If...the armor that covers the torso deforms from the bullet impact, the surface of the armor against the body at the point of impact will be forced against or into the skin. Unlike a penetrating wound, in which the skin is broken and the bullet tears through the body, the deformation of armor from bullet impact results in blunt trauma. This type of nonpenetrating injury can cause severe contusions (bruises) or internal damage and can even result in death.³⁴

An Objective Measure of the Threat Presented by Vest Busters. Ballistics is the science of a projectile's motion, and terminal ballistics is the study of the penetration of solids by the missile.³⁵ The common unit of measurement in the United States for the energy that a bullet carries is "foot-pounds of energy."³⁶ The relationship among the variables involved is explained as follows:

A moving projectile, by virtue of its movement, possesses kinetic energy. For a bullet, this energy is determined by its weight and velocity:

K.E. =
$$WV^2/2 g$$

where g is gravitational acceleration, W is the weight of the bullet, and V is the velocity.

From this formula, it can be seen that velocity plays a greater role in determining the amount of kinetic energy possessed by a bullet than does weight. Doubling the weight doubles the kinetic energy, but doubling the velocity quadruples the kinetic energy.³⁷

Given this relationship, the striking power of bullets fired from different rounds of ammunition can be objectively compared. If we know the weights and velocity at which different bullets strike their targets, we can compute and compare the kinetic energy that each delivers on impact.^c

Breaking the Vest Barrier—The .500 S&W Magnum. In February 2003, Smith & Wesson Corporation unveiled a new 50 caliber handgun, the Model 500 S&W Magnum, declaring it to fire "the most powerful production revolver cartridge ever developed." The revolver is chambered for the .500 Smith & Wesson Magnum cartridge, a 50 caliber round that Smith & Wesson developed jointly with Cor-Bon, a

Bullet weights are typically expressed in "grains," abbreviated gr., and velocity in feet per second.

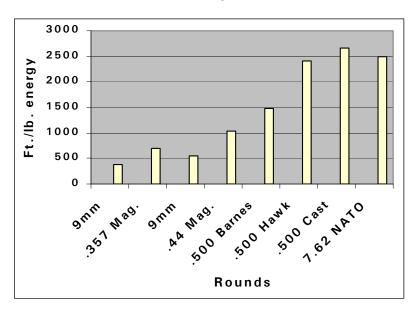
[&]quot;Caliber" is a measure in inches of the cross-sectional dimension of a bullet. Thus, a 50 caliber bullet is half an inch (.50) across. Some ammunition is described in the metric system, such as 9mm, which is .357 inches.

bullet manufacturing subsidiary of Dakota Ammo, Inc. located in Sturgis, South Dakota.³⁹

Using the formula just described, and applying data published by the company, the gun press, and the federal government, VPC demonstrated in its first report on this subject, Vest Buster: The .500 Smith & Wesson Magnum—The Gun Industry's Latest Challenge to Law Enforcement Body Armor, that the .500 Smith & Wesson Magnum is a vest buster, plainly capable of defeating Type III-A, the highest level of police body armor worn in all but SWAT-type situations. Chart Five illustrates the findings that were explained in detail in the earlier VPC report.

The VPC's conclusion that the .500 S&W Magnum is more powerful than some rifle rounds was also confirmed by the opinions of leading gun experts, writing about specific rounds developed for the gun: the "Hawk" and "Cast Performance" rounds. Scott E. Mayer, shooting editor of the National Rifle Association's *American Rifleman* magazine, wrote of the 400 gr. Hawk, "This .50-cal. bullet leaves the muzzle of the 8 3/8" barrel at a cataloged 1675 f.p.s., but the greater bullet weight puts its muzzle energy ahead of even 300-gr. .45-70 Gov't loads *from a rifle*." (Italics in original.)⁴⁰ Mayer also wrote about the 440 gr. Cast Performance bullet, "It has 2580 ft.-lbs. of muzzle energy—more than the 147-gr. 7.62 NATO round...." *Gun Week* Contributing Editor Massad Ayoob similarly wrote of the .500 S&W Magnum that it is "more powerful than a .45/70 rifle with some of its loads."

Chart Five: Comparative Striking Power (Kinetic Energy) of Cor-Bon .500 S&W Magnum Bullets and NIJ Types II (9mm and 357 Mag.), IIIA (9mm and 44 Mag.), and III (NATO 7.62) Body Armor Test Bullets



The .500 Smith & Wesson Magnum round delivers impact energy much greater than the rounds against which law enforcement body armor is tested. The largest .500 Smith & Wesson round strikes with greater kinetic energy at 15 feet than a 7.62 NATO (.308 Winchester) rifle round fired at 50 feet.

The Gun Lobby Defends Smith & Wesson's Vest Buster. The Smith & Wesson 500 Magnum became a "humongous seller" according to a spokesman for the gun company. It was named "Handgun of the Year" in 2003 by a grandiloquent entity calling itself the "Shooting Industry Academy of Excellence"—in reality simply a self-serving appendage of the gun trade magazine Shooting Industry. There was, however, a fly in the rehabilitative ointment of the company, which has historically been close to foundering on financial shoals. Some law enforcement officials raised independently precisely the question posed in the VPC's report on the vest-busting gun.

"My question is why?," a Pinellas County, Florida, sheriff sergeant and firearms instructor was quoted in the *St. Petersburg Times* as asking. "That's way too much firepower, and you'd hate to see it in the wrong hands. When the playing field gets tilted in favor of the streets, law enforcement has to come back with equal firepower and new laws."⁴⁶

Questions like that, and the VPC report, stirred up a flurry of pronouncements from the gun lobby (and its apologists in the gun media) defending Smith & Wesson's 500 Magnum. These responses were intended to rebut the idea that the gun is a vest buster and thus a threat to law enforcement.

The major points articulated by the gun lobby can be summarized as:

- The Smith & Wesson 500 Magnum is so big and unwieldy that its size and weight alone preclude criminal use. Mangling his metaphor, one progun writer opined that the gun is "not very practical for Dirty Harry wannabes." (The Dirty Harry character was actually a law enforcement officer, but it is likely that the writer meant to state that the gun is not practical for criminal use.) Another pro-gun writer dismissed the contention that the gun is a threat to law enforcement as "preposterous," on the grounds that "no criminal would have a hope of concealing such an unwieldy weapon." 48
- The gun is too expensive for criminals. "At a suggested retail price of nearly \$1,000, it seems unlikely that your local methamphetamine addict will buy one to knock off the corner liquor store."⁴⁹
- The manufacturer intends the gun only for the virtuous uses of big-game hunting and prestige ownership. The intended implication of such statements is that design and marketing for virtuous uses through some unexplained mechanism preclude bad use by criminals or others with bad intention. This is a not uncommon line of public relations argument advanced by the industry, who would rather talk about guns killing animals than guns killing people. "It basically raises the bar for handgun

hunting," said Smith & Wesson's director of marketing. "It's for the adventurous hunter looking for a greater challenge." A gun dealer stated the case for esoteric collections, "It will sell just to people who want to say they have it." ⁵¹

• A "see no evil" contention founded on erroneous "curb stone opinion" that the gun is not a vest buster. Such a blindfolded approach is illustrated by the comments of Clearwater Police Department sergeant Joe Young, said to be "in charge of weapons training," who told the St. Petersburg Times that although the bullets fired by the gun are extremely large, they travel at a relatively slow speed. Thus, he stated, "We haven't tested the gun, but our vests should be able to stop it. But the person hit will get knocked back a few feet and will be bruised by the impact." 52

None of these points stand up to close examination, and may fairly be judged as, at best, disingenuous.

Neither the .500 Smith & Wesson Magnum's Size, Intended Purpose, Nor Cost Has in Fact Deterred Criminal Use. There are two branches of rebuttal to the gun industry's phony argument that size deters criminal use. The first is the fact that the gun's size has not in fact prevented its being carried in a concealed manner. The second is that firearms need not be carried concealed on the person in order to be used criminally. Guns kept in homes are often used against law enforcement agents, as are guns carried in motor vehicles.

In September 2005, for example, Giovanni Malito was discovered to be carrying a loaded Model 500 Smith & Wesson Magnum revolver in a holster under his blue and red bathrobe at a Spokane, Washington diner. Malito was a regular at the diner, and it apparently was not unusual for him to show up wearing his bathrobe. What was unusual was for him to be packing a large handgun, the presence of which was revealed when Malito's bathrobe swung open and a customer noticed the gun. Police were called and Malito was arrested and charged with drug possession and being both a felon and an alien in possession of a firearm. He pled guilty to the gun charges. Subsequent federal investigation revealed that Malito had a long criminal record in Oregon, California, and Illinois. His record included convictions for felony possession of marijuana for sale and for an earlier count of being a felon in possession of a firearm. Malito had also been charged at various times and places with second degree sexual abuse, battery, auto theft, possession of marijuana, and theft by deception. Giovanni Malito was deported on January 22, 2008, after serving his sentence.

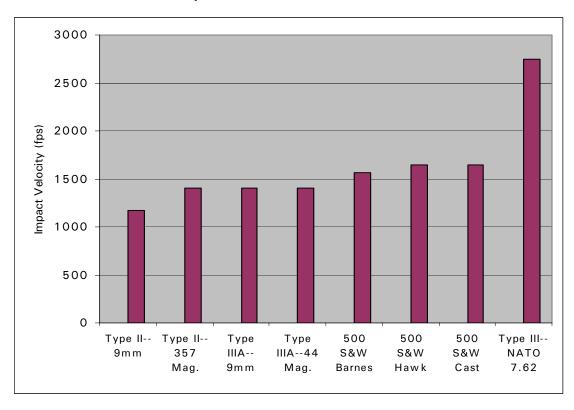
Likewise, neither the gun's cost nor the manufacturer's purported intent that

it be used only for virtuous purposes have deterred criminal use. There have already been several cases of police finding the big gun in the homes of drug traffickers.

In Leavenworth, Kansas, police responded after a man fired four rounds from his Smith & Wesson 500 Magnum into the ceiling of his duplex apartment during a domestic dispute. While investigating the dispute, officers found evidence of drug trafficking, including marijuana, suspected cocaine, and scales. They also found a second firearm and arrested the man on various gun- and drug-related charges.⁵⁶

Low Velocity? The Curb Stone Opinion Unmasked. Observations like those of Sergeant Joe Young display at best, wishful thinking and, at worst, an unwillingness to accept simple rules of physics. The sergeant's observation about the "relatively low" velocity of the .500 Smith & Magnum round is astonishingly misinformed. The following table, reproduced from the original VPC report, demonstrates that in fact the heavy .500 Smith & Wesson Magnum bullets travel at greater velocity than any of the rounds used by NIJ in testing body armor, with the sole exception of NATO 7.62 rounds fired from a rifle. It is precisely the combination of high velocity and heavy weight that gives these bullets their vest-busting capacity.

Chart Six: Comparison of Velocity of Bullets in Cor-Bon .500 S&W Magnum Cartridges and Weights of Bullets Used in NIJ Types II, IIIA, and III Body Armor Protection Level Tests



Simple inspection of Chart Six demonstrates that, at comparable distances, the .500 Smith & Wesson Magnum rounds travel at a greater velocity than all of the rounds tested by NIJ, except the NATO 7.62 rifle round against which Type III external tactical armor is tested.

Finally and conclusively, a manufacturer of ballistics armor has actually tested standard police body armor against the .500 Smith & Wesson round and reports that, just as the VPC predicted, the big boomer's rounds indeed do easily penetrate such vests.

Section Three The Increasing Threat to Law Enforcement

The .500 Smith & Wesson Magnum round, and the Smith & Wesson Model 500 handgun illustrate how the gun industry's singular freedom from consumer product health and safety regulation allows it to recklessly develop and market increasingly lethal products without consideration for public safety. In its earlier report, the VPC stated: "Following a well-established gun industry pattern of design and price competition, it is likely that other manufacturers will soon develop and market their own versions of handguns chambered for the .500 Smith & Wesson Magnum round....[T]he 500 Smith & Wesson Magnum will proliferate as other manufacturers market copies of the round and handguns chambered for it. Prices will fall and the threat to law enforcement officers will rise."

The predicted proliferation has indeed occurred. Smith & Wesson and now other firearm manufacturers continue their reckless pattern of designing and introducing into the civilian market handguns that are almost certainly capable of defeating law enforcement body armor. Smith & Wesson has introduced a more easily concealable version of its Model 500. Other manufacturers have designed and are aggressively marketing their own versions of handguns chambered for the powerful .500 Smith & Wesson Magnum round. And Smith & Wesson has introduced yet another handgun with vest-busting rifle power, the Model 460XVR (X-treme Velocity Revolver).

Proliferation of Manufacturers. Just as the VPC predicted, the manufacture of handguns in the new S&W 500 Magnum round has proliferated. Taurus International Manufacturing, Inc. USA—the American arm of a Brazilian gun company—offers several double action revolver models of its "Raging Bull" series chambered in .500 S&W Magnum.



"Raging Bull" .500 S&W Magnum revolver offered by U.S. subsidiary of Brazilian gun manufacturer Taurus.

Another manufacturer, Magnum Research, markets a single action vest-busting revolver, the BFR (which the company claims stands for "biggest, finest revolver") in .500 S&W Magnum (shown below).



Lethality-Enhancing Design Changes. It was noted in a preceding section that the gun lobby has made much of the size of the original Smith & Wesson Model 500, with its 8 3/8 inch barrel. Within a year, however, Smith & Wesson began marketing a short, five-inch barrel version of its vest-busting muscle gun. The company has also given up any pretense that its Model 500 is too big for the kind of concealed carry that threatens law enforcement officers on the street. On its website, Smith & Wesson describes the five-inch barrel big boomer as the "Ultimate Defensive Carry and Dangerous Game Backup Handgun." 57



Smith & Wesson quickly introduced a short-barreled version of its vest buster. It describes the concealable vest buster as the "ultimate defensive carry."

The company now also offers an even shorter-barreled version of the 500 Magnum, a 2 3/4 inch model included in a package it calls an "emergency survival kit."





Smith & Wesson markets this stubby and even more concealable 2 3/4-inch version of the Model 500 Magnum vest buster.

Taurus also markets short-barreled versions of its "Raging Bull" line in .500 Smith & Wesson, including a four-inch barrel and a 2 1/4 inch barrel.



Brazilian-owned Taurus offers a 2 1/4-inch version of its "Raging Bull"

Holsters being marketed specifically for the Smith & Wesson 500 Magnum handguns facilitate their being carried in a concealed manner. This increases the theat to law enforcement and further gives lie to the industry's assertions that the guns are too big for concealment.





Holsters made for the Smith & Wesson Model 500 vest buster aid concealed carry.

Smith & Wesson's New Vest Buster: The Model 460XVR (X-treme Velocity Revolver). The Model 500 vest buster quickly proved a commercial success for Smith & Wesson, and in 2005 the company introduced a new caliber and a new revolver, the Model 460XVR (X-treme Velocity Revolver). 58

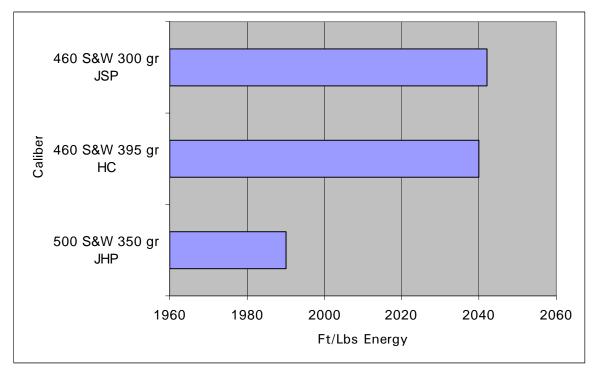


Smith & Wesson's Model 460XVR is another in the company's growing line of vest busters that threaten the lives of law enforcement officers.

Like the Model 500, the Model 460XVR is built around a newly designed cartridge, the .460 Magnum, essentially a .45 Colt-sized cartridge beefed up to handle extreme pressures equivalent to those generated in "high-intensity magnum rifle cartridges." The 2005 Smith & Wesson catalog boasted that this new big boomer produced "the highest muzzle velocity of any production revolver on earth." (Emphasis in original.)⁶⁰

The significance for law enforcement protective armor becomes clear in light of the formula for computing a bullet's striking force, expressed in foot-pounds of energy. Increased velocity is much more important than increased bullet mass for achieving greater striking power: "From this formula, it can be seen that velocity plays a greater role in determining the amount of kinetic energy possessed by a bullet than does weight. Doubling the weight doubles the kinetic energy, but doubling the velocity quadruples the kinetic energy." The net result, according to *Handguns* magazine, is that "the energy of the 200-grain Cor-Bon XPB .460 load is essentially the same as the energy of the .500 Magnum's heaviest Cor-Bon 440-grain cast-bullet load." In other words, the Model 460 is every bit as much a vest buster as the Model 500.

Chart Seven: Comparison of Ballistic Energy at Muzzle of Bullets in Selected Cor-Bon .500 S&W Magnum and .460 S&W Magnum Loads



The .460 S&W Magnum round can in some loadings deliver more ballistic energy than the .500 S&W Magnum round.

As it did in the case of the Model 500, Smith & Wesson quickly introduced a shorter, five-inch barreled version of its new Model 460 muscle gun. The company's website calls the smaller version "An Intimidating Personal Protection Gun," signaling its suitability for concealed carry.



Smith & Wesson describes the shorter barreled, more easily concealable version of its Model 460 as an "intimidating personal protection gun."

Section Four Vest Buster by Design

No marketing phenomenon better captures the gun industry's relentlessly irresponsible search for profits than does the Belgian company FN Herstal's introduction into the civilian market of a pistol and cartridge *specifically* designed to defeat body armor—the Model Five-seveN.^e The issue of the new handgun-ammunition combination's threat to law enforcement, however, has been thoroughly obfuscated by a deliberately misleading campaign mounted by the company and the National Rifle Association.





FN Herstal designed the 5.7X28mm cartridge and the 20-round capacity Model Five-seveN pistol specifically to defeat body armor on the battlefield.

Both Sides of the NRA's Mouth. Reacting to a storm of public criticism about the gun and its armor-piercing ammunition, the NRA claimed in 2005, "There is nothing special about the Five-seveN." However, in 1999, before FN's decision to market the weapon to civilians and the resulting controversy, the NRA's American Rifleman magazine described it as a "new, unusual" handgun with "several extraordinary" features, and observed that "this new cartridge/handgun system...may well be the herald of a new generation of tactical handguns." American Handgunner magazine agreed, calling it a "radically new pistol/cartridge combination." They mark an ominous milepost in the gun industry's history of aggressively selling innovations in military design to the civilian firearms market.

^e The model's designation is apparently an awkward play on the company's name. Note also that the company is often referred to as "FNH" in the gun media.

The Battlefield Armor-Piercing Design Concept. FN Herstal originally created its novel 5.7X28mm cartridge as the ammunition for a submachine gun, the P-90, designed at the invitation of NATO⁶⁷ and in response to military needs for a weapon to be used by "troops who needed both hands for other tasks, such as officers, NCOs and technical troops," and that would be effective against the body armor that has become a standard accounterment on the battlefield:⁶⁸

When FN launched its "Project 9.0" in 1989, they were using the NATO projection of the soldiers of most future armies being equipped with body armor. With this view, the typical NATO 9mm Parabellum pistol cartridge was projected to be obsolete.⁶⁹

Eventually "it became clear that a pistol was needed as an adjunct to the P90 SMG, so in the mid-1990s FNH set out to design a handgun to accompany the 'hightech' P90 SMG." ⁷⁰



FN's 5.7X28mm cartridge was originally designed for the P90 submachine gun.

The 5.7X28mm Ammunition's Armor-Piercing Capability. FN currently markets a variety of types of 5.7X28mm ammunition rounds. The original round, designated the SS190 by FN, contains a bullet with a steel and aluminum core and "was designed to defeat NATO CRISAT body armor that replicated Soviet body armor of the time." While there is some peripheral dispute among gun writers about the round's ballistic characteristics—primarily whether it "tumbles" when it strikes tissue -there is no serious dispute about the SS190's ability to pierce armor. "The 5.7X28mm's battlefield ability to penetrate modern ballistic body armor and ballistic helmet

protection is proven," according to the NRA's *American Rifleman* magazine.⁷³ Other firearm reference sources agree:

The standard ball round, called the SS190...will...penetrate 48 layers of Kevlar, the typical "Flak jacket" (including CRISAT protection, which is a combination of titanium and Kevlar) worn by infantry to protect them from shrapnel produced by exploding devices, or a standard PASGT (U.S. Kevlar) helmet at 150 meters (164 yards).⁷⁴

The SS90 [sic] will penetrate a NATO 3.5mm soft-steel plate at 30 meters....⁷⁵

The SS90 [sic] round was designed to penetrate 24 layers of Kevlar, the U.S. M-1 steel helmet, the currently issued composite helmet and a car windshield at 100 meters.⁷⁶

It is specifically designed to penetrate soft body armor up to level IIIA without the potential for excessive penetration that may exist with the more common .223 rifles....The 5.7 mm cartridge specifically defeats up to level IIIA body armor....It does this by virtue of the bullet design.⁷⁷

In addition to the SS190, FN markets several other armor-piercing variants of the 5.7X28mm round, including the SS191 armor-piercing tracer, and the SS193 subsonic armor-piercing rounds.⁷⁸

Armor Piercing Under Federal Law? The SS190 bullet may very likely be prohibited "armor piercing" handgun ammunition under federal law, 18 US Code Section 921(17)(B). However, little is certain under that loophole-ridden and weakly enforced provision, and there is room for doubt that in spite of the ammunition's proven capability it is actually captured by the law.

The law—which applies only to handgun ammunition—does not define "armor piercing" in the practical terms of a round's actual performance (i.e., whether it in fact pierces ballistic armor). Rather, it employs a two-pronged test. One prong of the test prohibits bullets composed of certain specified materials. The other prohibits a specific ratio of bullet jacket weight to overall bullet weight. A projectile that passes these two tests, such as the bullets used in the S&W .500 Magnum round described in a preceding section, is not legally considered to be prohibited armor-piercing ammunition, even though in terms of actual performance it is in fact fully capable of penetrating the highest levels of soft body armor.

Thus, the subsection governing materials defines armor piercing ammunition as "a projectile or projectile core which may be used in a handgun and which is constructed entirely (excluding the presence of traces of other substances) from one or a combination of tungsten alloys, steel, iron, brass, bronze, beryllium copper or depleted uranium" (18 US Code Section 921(17)(B)(I), emphasis added). However, the SS-190 is apparently not constructed "entirely" of steel, but contains mostly aluminum, which is not among the prohibited substances: "The…projectile has a steel jacket and a two-piece core. The forward third of the core is steel and the balance is aluminum."

The question then is whether the bullet is captured by the construction prong of the law, which applies to "a full jacketed projectile larger than .22 caliber designed and intended for use in a handgun and whose jacket has a weight of more than 25 percent of the total weight of the projectile" (18 US Code Section 921(17)(B)(ii)). Given the steel jacket and largely aluminum core, this subsection would appear to apply, assuming one agrees that 5.7mm is "larger than .22 caliber."

Still, it is not clear what—if anything—the federal Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) has ruled these rounds to be under federal law. The Bureau's only published statement touching on the rounds is a passing and entirely passive reference found in an example of bureaucratic jargon that more resembles an industry press release than a regulatory ruling. The statement from the ATF's Firearms Technology Branch essentially echoes FN's claim that it has voluntarily restricted the sale of these armor-piercing ammunition types. But nowhere does ATF actually rule that any given type of ammunition is or is not armor-piercing under federal law.

On the other hand, FN appears to concede, at least for public relations purposes if not in any legally binding form, that the SS190, SS191, and SS193 are technically armor-piercing based on their steel jacketed construction.⁸¹ In any case, the company has finessed the issue by voluntarily restricting sales of these rounds to law enforcement and military buyers.

This still leaves open other issues, such as whether the rounds might be legally sold through other channels. The VPC has, for example, observed SS191 ammunition being offered for sale at auction over the Internet.⁸²

Is the "Civilian Round" Armor-Piercing or Not? FN markets several civilian versions of its ammunition, which it designates the SS 195LF (lead free), SS 196, and SS 197.

A gun-safety organization, The Brady Campaign to Prevent Gun Violence, contends that its staff bought at retail and tested another civilian version, the SS 192—no longer sold by FN—"and found it easily penetrated typical threat level IIA

Kevlar police body armor."83

For its part, the company claims that it has tested the types of ammunition that it currently sells to civilians—the SS 195LF, SS 196, and SS 197—"against NIJ Level IIIA soft body armor, which is today's benchmark in soft body armor technology"⁸⁴ (emphasis added). FN claims that these civilian rounds "did not penetrate the Level IIIA soft body armor tested by FN Herstal."⁸⁵

The company, however, provides no details of the tests, including what test procedures it followed, whether they were supervised or observed by a neutral party, the condition of the vest, or the particulars of the ammunition it used beyond their generic designation—such as whether it was randomly selected from standard production runs. It is interesting to note that the National Rifle Association criticized the Brady test precisely on the grounds that it was "not conducted according to rigorous test procedures approved by the U.S. Department of Justice, nor supervised or observed by a neutral party," and did not reveal details of vest and ammunition.⁸⁶

Moreover, it is not clear what the company intends to connote by the use of the phrase "today's benchmark" with respect to Type IIIA body armor. Most likely, this is a bit of public relations puffery intended to convey to the careless or uninformed reader that no wearer of body armor need worry about FN's civilian ammunition. In fact, however, Type IIIA is the highest level of law enforcement body armor certified by NIJ short of the plate armor used by high-risk SWAT and entry teams. According to the NIJ, "Type IIIA body armor provides the highest level of protection available in concealable body armor and provides protection from high velocity 9mm and 44 Magnum ammunition.'87 NIJ added Type IIIA in March 1985 "in response to concerns from the law enforcement community about the need for protection from high-velocity and high-energy handgun rounds such as the submachine gun 9mm and .44 Magnum."88 Many officers throughout the United States still wear lower levels of protection—the level the Brady group calls "typical"—about which FN ventures not a word concerning its ammunition's capability to penetrate.

Clear Need for Independent Test and Performance Standard. It is clear from the history of the FN round, the Brady Campaign's findings, and the industry's cynical efforts to confound the issue that two things are needed. The first and most urgent is a federal definition of armor-piercing ammunition that is based on any given round's actual performance against ballistic armor. The second is a test of all types of 5.7X28mm ammunition proposed to be sold on the civilian market to determine whether it is in fact armor-piercing, independent of the claims of FN or any other company, and their gun lobby defenders.

From Special Operations and Law Enforcement to the Civilian Market. None of this would be an issue if FN had stuck to its original profession that it would restrict the sale of its new armor-piercing ammunition and pistol. The company clearly recognized the dangerous genie it was releasing. For example, a spokesman for the company told the Sunday Times in 1996 that the pistol was "too potent" for normal police duties and was designed for anti-terrorist and hostage rescue operations. The NRA's American Rifleman claimed in 1999 that: "Law enforcement and military markets are the target groups of FN's new FiveseveN pistol," and told its readers, "Don't expect to see this cartridge sold over the counter in the United States. In this incarnation, it is strictly a law enforcement or military round." In 2000, American Handgunner magazine assured the public, "For reasons that will become obvious, neither the gun nor the ammunition will ever be sold to civilians or even to individual officers."

In fact, the gun is being freely sold to civilians today, along with clearly problematic ammunition, through a variety of channels. What changed was precisely nothing. FN, like other gun manufacturers, simply followed the well-worn path of hyping its new cartridge and gun combination through widespread publicity in the gun press about "restricted" sales to military and police, and then—having whetted the gunbuying public's appetite—moved into the much bigger and more profitable civilian market.

Section Five An Industry Out of Control

The threats to law enforcement described in this report are the predictable and inevitable result of an industry out of control. The firearms industry is one of only two consumer product industries in America—the other is the tobacco industry—that are free of even the most basic consumer product health and safety regulation. Until Smith & Wesson, Taurus, FN, and every other manufacturer of guns and ammunition in American are subjected to that oversight, the country can only look forward to more rounds of unscrupulous companies seeking, developing, and marketing ever greater firepower in pursuit of profit.

Moreover, the current feeble and weakly enforced federal ban on armor-piercing handgun ammunition does not affect many of these dangerous new innovations in firepower. Although proposals have been made to update the armor-piercing ammo ban to incorporate a performance-based standard (i.e. any round that in fact can penetrate a vest), such efforts have been stymied by gun lobby opposition.

The Future? The ever-increasing threat that law enforcement personnel will face in the future is clearly drawn in the gun industry's own forecast of the likely course of big boomer development:

The combination of really big bullets and very high velocity is changing the bigboomer landscape as competing companies continue to raise the bar of size, velocity and performance. Where will it stop? The .50 is probably the limit in bullet diameter, partly because of practicality, and partly because of legislation. However, we are far from the limit in velocity and bullet performance. Every year ballisticians come up with new propellants and projectiles that are a little better than the year before, and on occasion, they create something truly revolutionary.⁹²

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