

The Gun Digest®
Book of

ASSAULT WEAPONS

Jack Lewis

U.S. Marine Lt. Col. USMCR (Ret.)

Robert K. Campbell

David Steele

**7th
Edition**

Test Fire Reports:

- Full-Auto Rifles
- Submachine Guns
- Riot Shotguns
- Sniper Rifles
- Special Ops Guns

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In regard to the mechanical and safety aspects of the guns covered in this book, it is assumed that the guns are in factory original condition with the dimensions of all parts as made by the manufacturer. Since alteration of parts is a simple matter, the reader is advised to have any guns checked by a competent gunsmith.
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INTRODUCTION

This is the Seventh Edition of THE GUN DIGEST BOOK OF ASSAULT WEAPONS. Back in 1986, when I completed the original edition and sent it off to the publisher, I thought that was the end of it. How much more could be written about such weaponry?

Well, a few years later, the publishing powers wanted an update and roughly every three-plus years since, there has been another edition. My hair was brown and my eyes blue and clear when all this started and I didn't shake much when I shot.

Some of that has changed. The hair is white, the eyes are still blue – but faded – and I need glasses to see what I'm putting on the computer screen. I still shoot, but certainly not with the accuracy of which I once tended to boast.

Someone once stated that the more time passes the more things stay the same, and that is true to a degree when it comes to military and law enforcement firearms. The rifle, the handgun and the shotgun, as well as various automatic weapons are still basic to the purpose for which they are manufactured.

The thing that has changed the most is the technology being used to turn out today's weapons and the contrivances added or even subtracted that make them more efficient and to be blunt, more deadly. Until matters boiled over in the Middle East, few people saw a need for 50-caliber shoulder-mounted rifles. These days, they are an important part of an infantry outfit's armament. That's only one example.

Night firing in a combat situation used to be more luck and prayer than talent in opposing an enemy you couldn't see. Now, there are countless night-vision devices to make the darkness less foreboding.

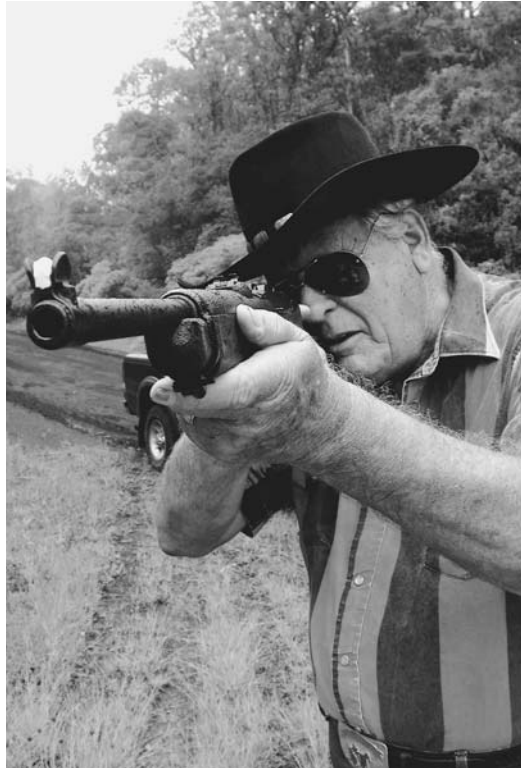
As one who was not brought up in the Electronic Age, I have found some of the demands for efficient use of modern infantry weapons to be a trifle frightening. In the past, I have had some doubts as to the value of some of these devices and history has shown that there are times when older and bigger is better than newer and slicker. I don't think I have

to expand on that observation for those who read this book and take a look at military happenings.

Let it be noted that as has been the case on the last couple of editions of THE GUN DIGEST® BOOK OF ASSAULT WEAPONS, I have not been alone in digging up all of the information you will find between these pages. Again, I have called upon David Steele and Bob Campbell, both seasoned law enforcement types, to aid me in collecting the information and making certain it is correct.

On many of the chapters contained herein, more than one of us – and sometimes all three – have had a part in their development. For this reason, the text of this book is told in the third person. That way, we don't have to worry about individual bylines being misused.

If there are mistakes in these pages, I take full responsibility for the error, since mine was the final viewing of the contents before they went to the publisher. I can only say that I hope you enjoy what is written here and keep in mind that the opinions offered in the text invariably are those of your three authors. We take responsibility for that fact as well. We're the ones on which to vent your ire if there is such.



C. Jack Lewis
Kehena Beach, Pahoehoe, Hawaii

ABOUT THE AUTHORS

C. JACK LEWIS, who created this series of books on assault weapons, is a veteran of three wars and is a retired Marine Corps Reserve lieutenant colonel. He is particularly fascinated still by selective-fire weapons, an interest that goes back to the Late Great Hate and his duty as a machine-gunning private first class.

Lewis long ago lost track of the number and types of weapons he has had the opportunity to fire in a full-auto mode, but the fact that he was editor of *Gun World* magazine for 37 years and has edited more than 30 books on outdoor subjects – primarily firearms – offers credence to his background.

As this book goes to press, Jack Lewis has just entered his 82nd year and continues to write for a number of publications. Over his years of productive existence he authored more than 6,000 magazine articles and short stories not to mention 12 novels, as well as several motion pictures before he quit counting. As he puts it, “Even the fiction I’ve written seemed to be built around firearms. And why not? There’s not much in history that happens without them!”



ROBERT K. CAMPBELL is a life-long resident of the state of South Carolina and became a hunter and shooter in his pre-teens. He holds a degree in criminal justice from Spartansburg Methodist College and served for more than 20 years as a working, hands-on police officer. During these years, he survived what he describes as “incidents and injuries.” An old injury occasionally generates vicious pain in one leg to result in a limp. During his uniformed duty days, he held command posts ranging from sergeant to lieutenant, making hundreds of arrests, including that of a well known neo-Nazi leader. As a result of this and other experiences, he has written extensively on dealing with hate groups as a uniformed officer.

Bob Campbell is a regular contributor to *Police* magazine as well as half a dozen other law enforcement-oriented publications. On the literary scene he has authored several books including *The Handgun in Personal Defense* and *The 1911 Automatic Pistol*.

For the past several years, he has been working in industrial security in his native state.



DAVID STEELE has been a criminal investigator for a California state agency for the past 17 years. An intense student of weapons and martial arts since childhood, he has been a UCLA varsity fencer, a U.S. Army infantryman and a police instructor. He holds a B.A. in sociology and an M.S. in police administration as well as five teaching credentials. His master’s thesis was on SWAT team tactics.

Steele has worked for one county, two state and three federal law enforcement agencies, including U.S. Customs. He was supervisor of the IACP Police Weapons Center project in Washington, D.C., testing police weapons and writing tech manuals. His *Submachine Guns in Police Work* was the first book of its kind. He has authored several other books and had published more than 500 articles on firearms, combat knives and self-defense subjects.



ACKNOWLEDGMENTS

There have been literally hundreds of people involved in one way or another in helping this book to become a reality. You know who you are, and you truly have the thanks of the authors.

There are, however, several individuals who deserve special mention for their part in what we have come to call *The Paper War*. First is Ace Kaminski, Jack Lewis' good right hand these days in almost every firearms endeavor; and Zack J.O. Lewis, who took a majority of the photos and did not allow the little pay to affect his enthusiasm or creativity.

Others who came to the fore in the usual creative crunch include Colonel Michael Mulligan, commanding officer of the Marine Corps' Weapons Training Battalion; Colonel Keith Oliver, USMCR (Retired), who knows where to find things and people—an amazing fund of military info; Lieutenant Colonel Dave Lutz, USMC, (Retired), a respected service shooter in his day and now vice president of Knights Armament Co.; Boge and Jeff Quinn of Gunblast.com for their photo support, and South Carolina National Guardsman Matthew Campbell, serving in Iraq at this writing.



CHAPTER 1

IN TOUCH WITH THE FUTURE

Assault Weapons Are No Longer Dirty Words in This Era of World-wide Uncertainty!

FORTY-ODD YEARS ago, when Jack Lewis was attempting to get a magazine called *Gun World* off the ground, he ran into great difficulty with manufacturers and their advertising agencies, who resented the fact that he often ran photos of what then were considered exotic weapons on the covers of his publication.

Lewis' contention was – and still is – that one has to get a potential buyer to be curious enough to pick up the publication and buy it before said reader can learn about the sporting arms the manufacturers are touting and which are covered on the inner pages.

The names of the firearms companies that refused to advertise even though their wares were featured in the editorial pages need not be listed here, but some of those companies today issue two annual catalogs. One is aimed at the every-day sportsman who limits his shooting to targets and hunting. The other catalog is aimed at the military, law enforcement markets and home defense.

Since the early 1970s, a hippodrama known as the SHOT Show has been conducted early each year—said acronym translating to Shooting, Hunting & Outdoor Trade show. It is here that firearms manufacturers introduce the products they will be attempting to sell in the coming year. At one point, an alleged effort was made to exclude exhibition of all firearms that were not built specifically for the outdoor sports and allowing only sporting arms, such as those designed specifically for downing claybirds, punching holes in paper – or shooting elephants.

That effort did not get far, but the makers of various military/law enforcement weapons maintained a rather

low image until February 2006. That was the year the annual show held that year in Las Vegas suddenly appeared to be two shows, with a special section specifically set aside for the introduction of the weaponry exotica that once had been so frowned upon. Major manufacturers who once served only sportsmen suddenly had two booths; one for standard sporting firearms, the other for weaponry specifically designed for the military, law enforcement officers – and home defense!

In the several decades between this wake-up call, military/law enforcement weaponry that for the most part was also available to everyday shooters was supplied by a group of independent producers. Included were such companies as Springfield, Bushmaster, Knight's Armament, DSA, Inc., Panther Arms and a number of others. In most instances, the semi-automatic products produced by these firms were based upon Gene Stoner's AR-15 rifle that ultimately became the military M-16. Of the major makers, Colt was the only one that initially had a line of exotic rifles and that probably was because they also had the M16 contract at the time and could produce for civilians during slack periods.

However, there have been some major changes!

Remington, of course, has changed hands since the days when Jack Lewis' efforts to get them to advertise in his journal were ignored because of his covers featuring exotic arms, but today, this entity has an entire force assigned to marketing death-dealing armament. A special catalog has even been published covering not only the armament, but the



Remington has reworked the 40X target rifle to become a sniper rifle firing military rounds such as the 7.62 NATO and the 338 Lapua Magnum. Ammunition also has been redeveloped to supply the company's combat arms.

company-manufactured ammunition designed for warfare and law enforcement.

Admittedly, most of the Remington offerings are upgrades of arms that have been in the line for some years. For example, the venerable but updated Model 700 bolt-action rifle listed as the Law Enforcement Standard, now has a composite stock of Aramid fiber and fiberglass instead of walnut; a heavy free-floating 26-inch barrel, an internal magazine with hinged floor plate and aircraft-grade aluminum blocks that run the full length of the receiver. This one is chambered for the buyer's choice of the 223 Remington, 7mm Rem Mag, 300 Winchester or 300 Winchester Magnum cartridges.

Remington's Model 700P LTR – the acronym stands for Light Tactical Rifle – weighs just 7.5 pounds and according to Greg Foster who headed up the manufacturer's Law Enforcement marketing team until recently, this version of the old standard is designed for SWAT operations, "Where there is a need for a highly portable and quick-action bolt rifle." This one has a slimmed down H-S Precision stock and a 20-inch barrel. It's chambered for a choice of 223 Remington, 308 Winchester, and 300 Remington SA Ultra Mag.

Also on display was the tactical rifle version of Remington's Model 40-X target rifle that has been around for eons. Updated for military or law enforcement work, it features a McMillan A3 or A5

stock with adjustable length of pull and comb height, a trigger that is externally adjustable for weight of trigger pull, and a Harris bipod with a quick-adjust swivel lock. Included with this package is a Leupold Vari-X III 3.5-10x49mm long-range scope with a mil dot reticle. The scope is mounted on an all-steel Picatinny scope rail, which is from Badger Ordnance along with the rings.

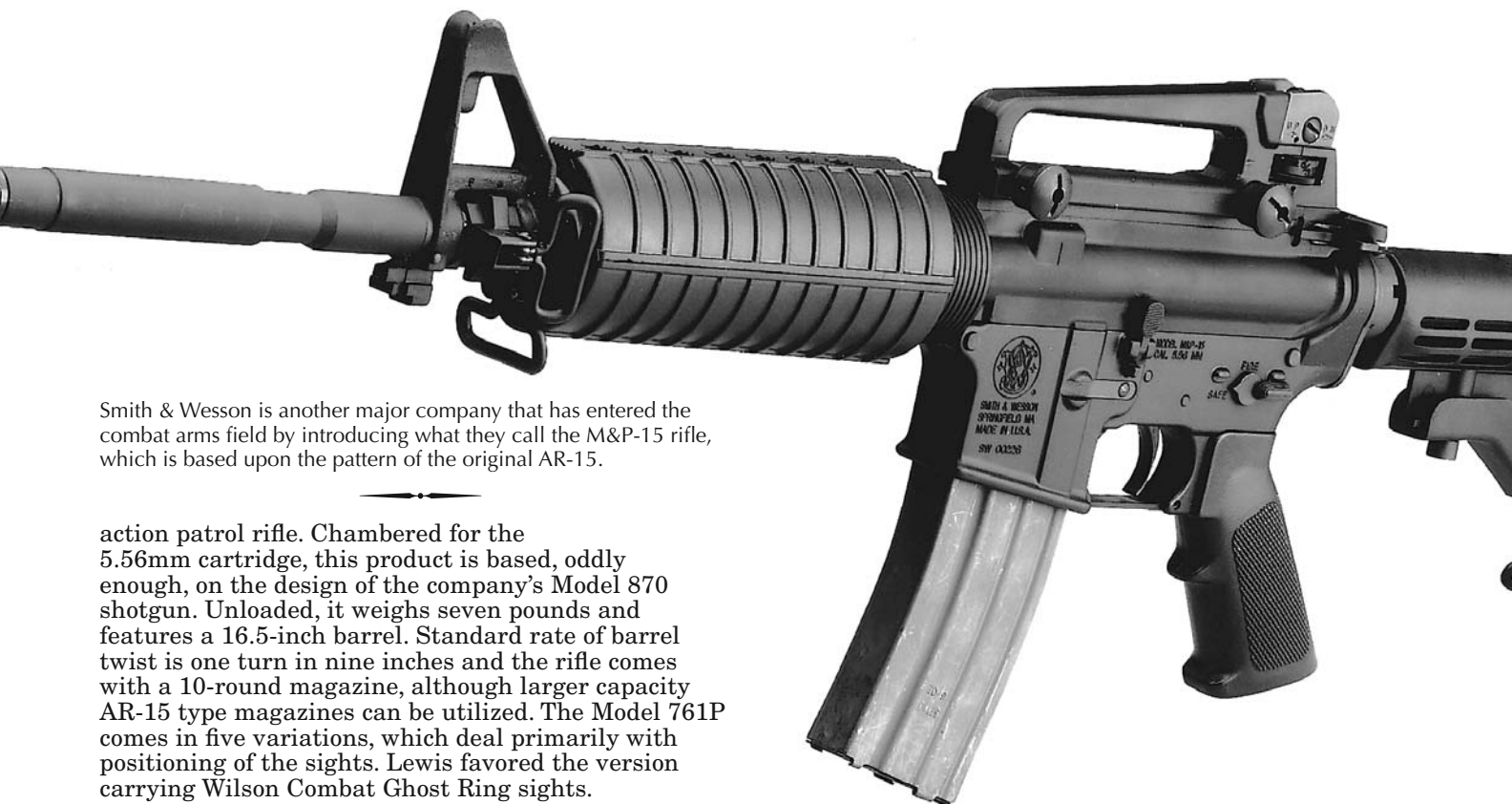
According to Foster, this version of the rifle had been chambered initially for the 308 Winchester cartridge. More recently, however, what is called the 40-XM is being chambered for the 338 Lapua cartridge. The rifle is produced in the Remington Custom Shop with a bore twist of one turn in 12 inches. The unit comes with a test target and verification of the ammo used.

If that isn't enough, Remington also continues to market the rifle that was built originally as the U.S. military's sniper weapon, the M24. This one draws design facets from both the Model 700 and the 40X and is chambered for the 7.62 NATO round.

New in Remington's law enforcement/military lineup, however, was what they call their Model 761P pump-

Such firms as Knight's Armament in Titusville, Florida, have been responsible in the past for developing combat-type arms for military and law enforcement agencies. This is the company's M-110 rifle developed for U.S. Army snipers.





Smith & Wesson is another major company that has entered the combat arms field by introducing what they call the M&P-15 rifle, which is based upon the pattern of the original AR-15.

action patrol rifle. Chambered for the 5.56mm cartridge, this product is based, oddly enough, on the design of the company's Model 870 shotgun. Unloaded, it weighs seven pounds and features a 16.5-inch barrel. Standard rate of barrel twist is one turn in nine inches and the rifle comes with a 10-round magazine, although larger capacity AR-15 type magazines can be utilized. The Model 761P comes in five variations, which deal primarily with positioning of the sights. Lewis favored the version carrying Wilson Combat Ghost Ring sights.

A slight variation that should be noted is the Model 7600 pump-action. It is built along the same lines as the 761P, but is chambered for the 308 Winchester cartridge and features a detachable four-round magazine.

When it comes to shotguns, Remington's new law enforcement line-up is based upon the venerable Model 870 pump action and the Model 11-87 semi-auto. These basic models have been in the inventory for years, but there are cosmetic changes to bring them up to combat performance standards. Either of these shotguns, for example, can be had with 14, 18 and 20-inch barrels to handle the appropriate mission. On the two longer barrels, there are improved cylinder chokes, while the 14-incher has a modified choke. Both feature three-inch chambers and a choice of breed, rifle or Ghost Ring sights.

Shared features for the two models include black, non-reflective synthetic stocks that Greg Foster insisted are "impervious to even the harshest weather." Each boasts a Parkerized finish and magazine extensions can be added to increase capacity for greater firepower. Each shotgun has a large side-ejection port that is meant to stay unobstructed when shooting over or around cover. Each shotgun is equipped with sling swivel studs and an R3 recoil pad. In each model, the trigger plate assembly is easily removed for cleaning or inspection.

Not one to ignore the known facts, Greg Foster points out "These guns have been going through doors with law enforcement agents for more than half a century."

The Model 870 has been further refined to become the maker's "modular combat system." With the 870 MCS, three types of shotguns can be quickly and easily assembled for special missions. The breeching shotgun, for example, has 10-inch barrel, a pistol grip only and a four-round capacity. The close quarters combat (CQB) version features a 14-inch barrel, choke tubes, a pistol grip stock and a six-round capacity. The third

conversion is to a conventional shotgun featuring the 18-inch barrel, choke tubes, a pistol grip stock and a seven-shell magazine.

According to Foster, this system is capable of firing multiple ammo sizes and types to include breaching rounds, hard-hitting and frangible buckshot, slugs and copper sabots.

Sturm/Ruger also had two booths at the 2006 Las Vegas event, one for the standard sporting line, the other for the more deadly variations. The Ruger folks also had a special catalog for mayhem, which included a selective-fire submachine gun. Featured as well in the lineup were four different double-action revolvers and eight different auto-loading pistols.

For serious peace-keeping problems, though, the Ruger Law Enforcement Branch tends to concentrate on rifles. The KMini556CFLE, for example, is an autoloader chambered for the 5.56mm NATO cartridge. This compact little unit is based upon the late Bill Ruger's earlier Mini 14, but more than 18 months were devoted to redesigning the rifle to do away with any sharp edges and thus make it "more user friendly," according to the factory folks.

The little rifle has a collapsible folding stock, and adjustable Ghost Ring rear sight and a protected blade front, although an optical sight rail for a scope can be substituted. The barrel measures 16.5 inches without an optional flash suppressor. Two 20-round magazines are provided with each rifle. This version measures 25.5 inches with the stock folded, 10 inches longer with the stock extended and locked into position. It weighs seven pounds, with the rifle being made of stainless steel and boasting a matte stainless finish.

A companion piece, again chambered for the 5.56 NATO cartridge, is the KMini556CGLE. The greatest

difference between this and the described model is that the rifle carries a synthetic stock. A variation is the 556CFGLE, which features a folding stock and has a flash suppressor. Two other variations are the KMINI556LE, which has a checkered polymer stock and an 18.5-inch barrel. The KMINI556GLE features integral Ruger scope mount bases.

A departure is the rifle listed as the KMini30LE, which fires the 7.62x39mm cartridge. Like the 556 series, this particular rifle also is based upon the semi-obsolete M-14 military rifle. (Every time the M-14 is phased out of the Armed Forces supply system, some are soon brought back for special mission use!)

This 7.62x39mm rifle is marketed with integral scope mounts and one-inch scope rings. It is designed for side ejection of the spent cartridge case in order to clear a low-mounted scope. A rugged non-slip rubber recoil pad protects the shooter's shoulder against recoil of this somewhat heavier cartridge.

Savage Sports Corporation has taken a leaf from the practices of some of the larger gunmakers and has also introduced a law enforcement series of rifles. All are basically the venerable Model 10FP, which has been gussied up to perform well in specialized combat situations.

According to Savage's marketing manager Brian Herrick, "Every heavy barrel is button-rifled for enhanced precision and features a recessed target crown. All rifles in the Law Enforcement Series offer standard features like oversized bolt handles permitting rapid acquisition for follow-up shots."

Built on the company's short action for the most part, the rifle can be ordered with a choice of H-S Tactical, Choate or McMillan stocks. The law enforcement package includes a Leupold 3.5-10x40mm scope with flip-open lens covers and a Mil Dot reticle, an easily adjustable AccuTrigger, a Farrell Picatinny rail base, Burris rings and a Harris bipod.

Smith & Wesson, of course, has been in the law enforcement business pretty much from the time of the company's founding, but virtually all production has been in the handgun field. Back in the 1970s, the company produced a submachine gun for a short period of time, but when it proved unsuccessful sales-wise, the rights were sold to a Southern California firm that eventually disappeared from the scene.

Today, however, Smith's Military & Police line-up includes what they are calling the M&P15 Rifle Series. The rifles admittedly are based upon the semi-automatic AR-15. It is available in three models, but as nearly as we can see, the only differences in the trio are in the sights. The Model 811000 carries an adjustable A2 post front sight and an adjustable dual aperture at the rear. The Model 811002 has the same front sight, with an adjustable folding battle sight behind. The Model 811001 features folding adjustable battle sights at both front and rear.

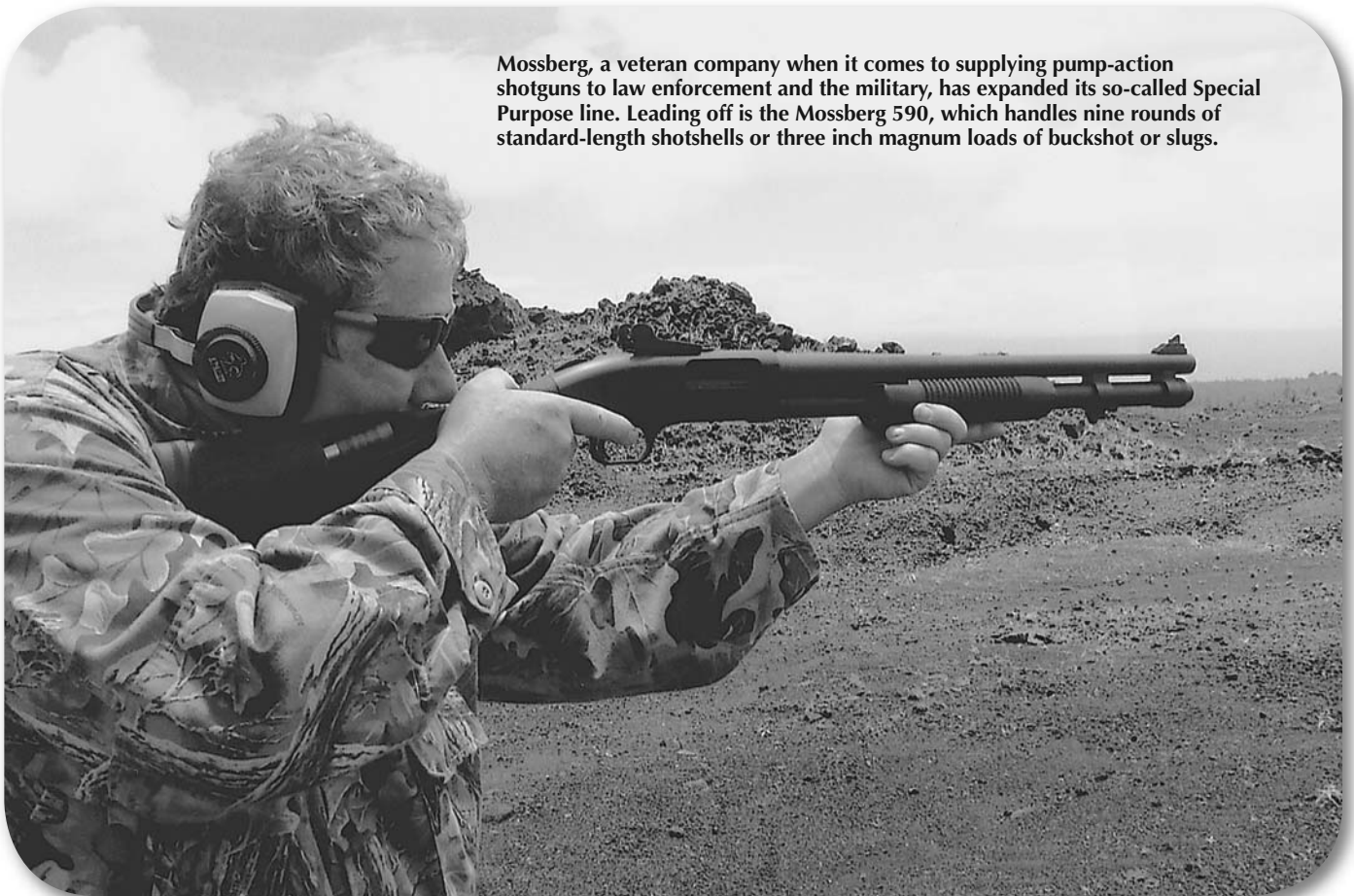
FNH USA is not truly an American company, although it produces some firearms for the U.S. market in a South Carolina factory. It is a subsidiary of a Belgian entity that has been manufacturing guns for more than 500 years. In 1889, gunmakers in the Liege



Since the passing of Bill Ruger, the company he founded has ventured farther into law enforcement products. The original Ruger Ranch Rifle has been updated to status as a rifle fit for serious combat. In Ruger's Law Enforcement catalog, it is listed as the K-Mini-14LE.



Savage Arms developed a highly accurate varmint rifle several years ago. It has been reworked to take its place among the better sniper rifles made today. It is marketed as a law enforcement package, including a variable Leupold scope.



Mossberg, a veteran company when it comes to supplying pump-action shotguns to law enforcement and the military, has expanded its so-called Special Purpose line. Leading off is the Mossberg 590, which handles nine rounds of standard-length shotshells or three inch magnum loads of buckshot or slugs.

area formed an association, *Fabrique Nationale* – the origin of today's FN – to produce 150,000 rifles for the Belgian military. It was this firm that produced some of John M. Browning's early firearms inventions, including his famed Hi-Power handgun that was introduced in 1935.

This company pretty much does it all, when it comes to bullet-launching combat weaponry. Unlike the organizations discussed above, FNH USA is not currently into sporting arms. The organization's lineup includes handguns, shotguns, special police rifles, patrol boat rifles, carbines – even machineguns, and what would seem unexpected – a less-lethal response system!

FNH today is marketing 11 different combat-type rifles, all of them in a choice of 7.62mm NATO or Winchester's 300 Short Magnum chambering. The one we particularly like is listed as the FN A5M. There is a choice of a 20-inch plain or 24-inch fluted barrel. For the longer version, overall length is 45 inches, the piece weighing 12 pounds with its McMillan A5 adjustable stock. This rifle is available as a complete ready-to-deploy shooting system. Included with the package is a Leupold Mark 4 Long Range/Tactical 3.5-10x40mm scope, as well as rings, bipod, sling, drag bag, anti-reflection device and a polarizer ballistic card. Also included in the package are a tool kit, cleaning kit and a hard rifle case.

New to this U.S.-based element of the Belgium firm are the FN PS90 and the FS2000 carbines. Actually, the former shooting machine is a rework of the Space Age-looking P90, a short shoulder-mounted weapon that is manufactured in both selective fire and semi-automatic. It measures only 19.7 inches overall.

The more recent carbine update, the PS90 features a 16.04-inch barrel for an overall length of 26.23 inches. Differing also from its parent device is the fact that it is being manufactured only in the semi-automatic venue. The PS90 cartridge is exclusive for this weapon with measurements of 5.7x28mm. The FS2000 is semi-automatic only and fires the 5.56x45mm NATO cartridge which is identical, of course, to the 223 Remington.

When it comes to machine guns, FNH USA still is turning out copies of the M249 Squad Assault Weapon (SAW) that has been in the U.S. military inventory for several decades. Somewhat more recent is the M249 Para, a compact version of the original, with a collapsible butt stock, reducing length by more than 10 inches to 30.5 inches. Of course, these weapons are available to law enforcement and military forces only.

The M249 was developed in Belgium and adopted by U.S. armed forces following a test in which more than 26,000 rounds were fired before failure. Again, this has been in the hands of U.S. forces for several decades and reports are that the dust and sand of the Middle East create problems for the firearm.

The FN mention would not be complete without adding that the company is producing the venerable 50-caliber machine gun used primarily in helicopters. These guns are built at the company's U.S. production facility. This pintle-mounted gun is not all that far removed from the 50-caliber developed by John M. Browning in the waning days of World War I and which then went on to see use in every war since!

Some of the armament listed in this chapter will be reviewed in depth in later chapters.

CHAPTER 2

BIGGER IS BETTER

Today's Warfare is Calling for Bullets That are Larger and Meaner Than the 5.56mm NATO

A NUMBER OF years ago, when General Paul X. Kelley was Commandant of the Marine Corps, Jack Lewis upset him during an event in Dallas, Texas. The gathering was the annual convention of the Marine Corps Combat Correspondents Association, the Corps' so-called "fighter/writers." The general was the keynote speaker for the event. Lewis has been national president of the World War II-born organization on three different occasions.

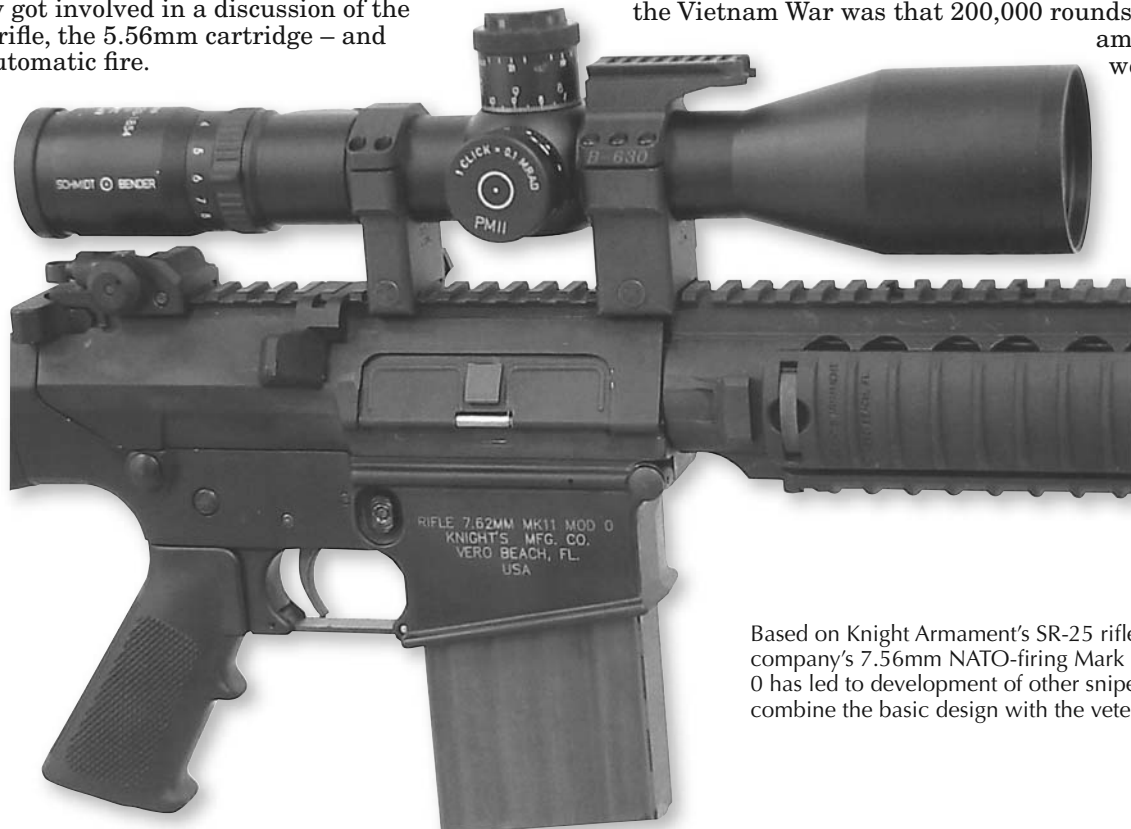
During a discussion at the pre-dinner cocktail reception, Lewis and General Kelley got involved in a discussion of the M-16 rifle, the 5.56mm cartridge – and full-automatic fire.

"Everything seems to be going to hell," Lewis – renowned for his subtlety – ventured. "The United States used to be known as a Nation of Riflemen. Now we've become a Nation of Sprayers."

"The three-round burst feature should take care of that," the general opined. The burst option had recently been incorporated in the M-16s of the era. Then the general added, "If I'd known you were coming, Jack, I'd have stayed home!" He was smiling when he said it, but Lewis and he no longer exchange Christmas cards.

For what it's worth, an official estimate concerning the Vietnam War was that 200,000 rounds of

ammunition were fired for



Based on Knight Armament's SR-25 rifle, the company's 7.56mm NATO-firing Mark 11 Model 0 has led to development of other sniper tools that combine the basic design with the veteran caliber.



Remington's familiar 40X competition rifle has taken on a new look, being chambered now for the 7.62mm cartridge as well as for the larger 338 Lapua. The latter has been described as standing midway between the 5.56mm NATO and the eight-decade-old 50-caliber Browning machinegun round.

every enemy kill. The full-auto fire of a small 5.56mm bullet may have seemed logical in a jungle environment where one wasn't certain where a patrol's attackers were hiding, but looking at current history, in an area of the world where the sand dunes may be a mile or more apart, the need for bigger, more powerful cartridges would seem logical.

Tales of the failure of the 5.56mm bullet to do its job – to slay an enemy – are legion among the veterans of the current Middle East fiasco. One well documented happening was outlined to Lewis by a Special Forces sergeant, who told of entering a house in a search for terrorists. He spotted one, who was aiming at him. He unleashed a blast from his M-16 and the terrorist dropped.

Thinking the man was dead, the soldier stepped over him to move toward the next room in the enclave. Suddenly, he found he was being fired upon from behind. The "dead" man was on his knees, triggering off AK-47 rounds. The soldier sent another blast into the kneeling shooter, putting him down a second time. He turned back to the room he had been about to enter. History repeated itself and the soldier once again found himself being fired upon from the rear. Losing patience, he finally emptied his M-16 magazine into the deadly offender. There have been all sorts of theories advanced for such seeming ineffectiveness of the 5.56mm NATO round, including the fact that many of the terrorists wear heavy woolen

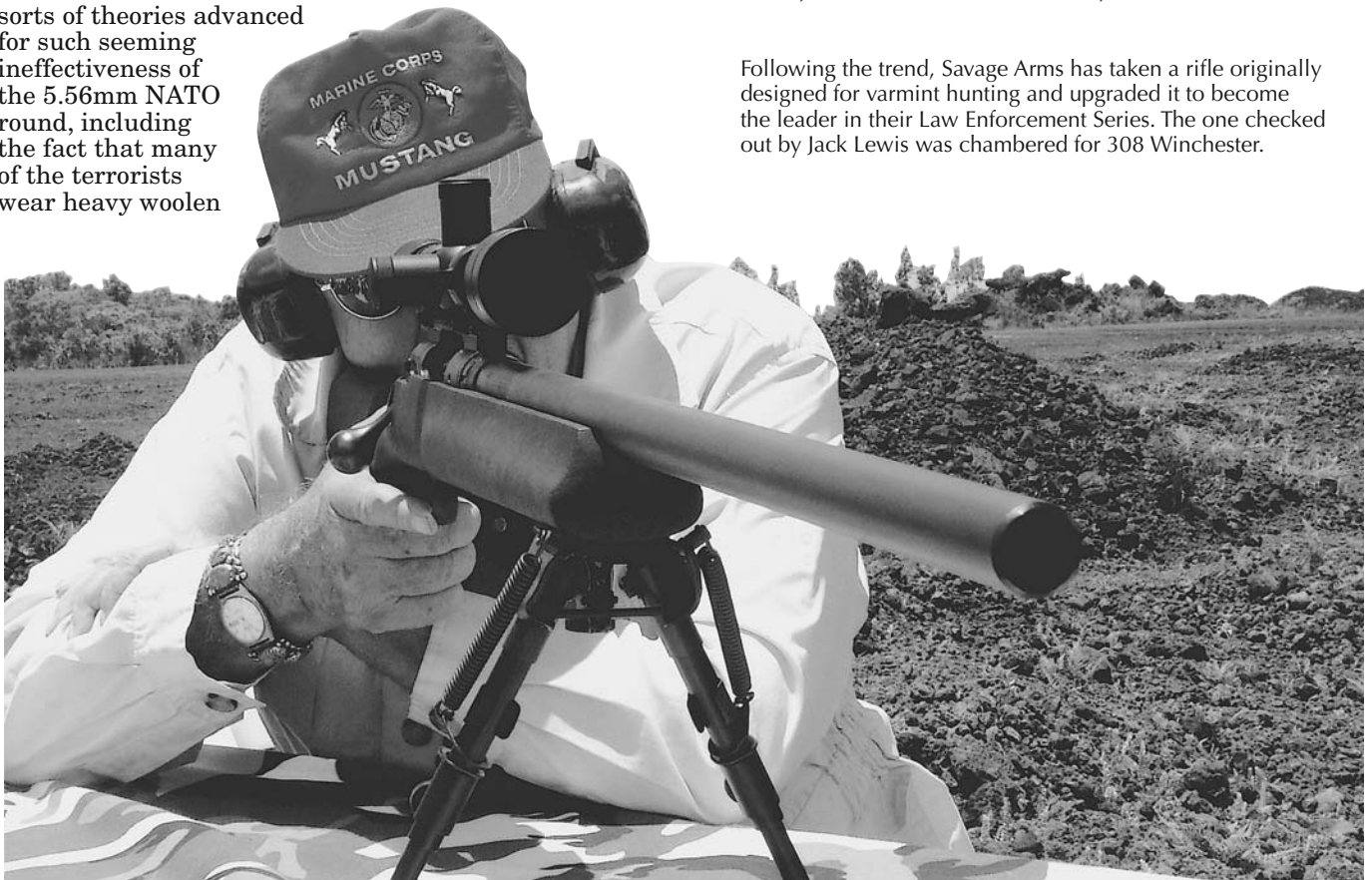
cloaks designed to keep out the desert heat, thus reducing bullet effectiveness.

Another suggestion is that like the Moros at the turn of the 20th century in the Philippines, the Middle East terrorists tend to be fanatics, who may be willing to die if they can take an enemy with them. The list wouldn't be complete without the often-heard charge that these killers are drugged to the eyeballs and are not aware that they have been shot! Take your pick or come up with your own theory, but the situation has led to a call for bigger, heavier bullets!

The late Bill Ruger introduced his Mini-14—also known as the Ranch Rifle—during the era when every maker seemed to be concentrating on producing one or more 5.56mm models. This little autoloader is still manufactured in that caliber as the Ranch Rifle but, in 1987, Ruger introduced a model he called the Mini Thirty. Like the Ranch Rifle, the design was a reduced-size version of the M-14 military rifle but, in his redesign, Bill Ruger saw fit to chamber it for the 7.62x39 Russian military round.

The Berlin Wall was still there and the Cold War was, as usual, at least lukewarm. Thus, there were detractors

Following the trend, Savage Arms has taken a rifle originally designed for varmint hunting and upgraded it to become the leader in their Law Enforcement Series. The one checked out by Jack Lewis was chambered for 308 Winchester.



who accused Bill Ruger of being downright traitorous by adopting the cartridge of a potential battlefield opponent! During one meeting in Arizona, Jack Lewis asked Ruger why he had decided to chamber his Mini Thirty for the Russian cartridge.

"Because it's a damned good cartridge," was Bill Ruger's bluff, but characteristic reply. As of early 2006, the Ruger Mini Thirty is being produced as a part of the maker's law enforcement line.

Reed Knight, Jr., *jefe* of Knight's Armament down in Titusville, Florida, may have been the first manufacturer to realize there was a move away from the M-16/5.56mm combo. He had a lengthy business relationship with the late Gene Stoner, designer of the AR-15, which later became our military rifle. All of Knight's earlier development efforts seemed to center around the 5.56mm cartridge.

In 1995, however, Knight and his crew came up with a firearm called the Stoner SR-25. It was chambered for the 7.62 NATO cartridge and featured a 20-round magazine. Now produced in carbine length with a 16-inch barrel, the SR-25 originally was a full-length rifle that the Florida manufacturer attempted to sell to the Marine Corps as a backup weapon for a sniper team.

The rifle ultimately was rejected. At least one retired Marine officer has told us the reason for such rejection was that the SR-25, a semi-automatic weapon, was more accurate than the Remington-made M24 variation bolt-action that has long been the primary sniper tool. It just wouldn't do to have the spotter packing a more accurate rifle than the designated sniper!

The SR-25 has since gone through other modifications to become Knight's Mark 11/M110. The Marine Corps soon purchased 180 of the rifles for use by sniper teams in Iraq. Official reason was that the Knight product resembled the M-16 and was less likely to be identified by an enemy as a sniper weapon. After that, the U.S. Army ordered a number of the rifles for its own team of "designated marksmen," the now politically correct term for those who try to shoot opponents in the head!

The continuing search for a cartridge/rifle combo that can outperform the 5.56mm has resulted in what amounts to a whole new industry. Several manufacturers are turning out upper receivers that handle much larger bullets and can be attached to the lower receiver of the standard-issue M-16 rifle or M4 carbine.

As one might suspect, a number of arms makers are located in the area around Washington, D.C., most of them in Virginia. One of these is the Leitner-Wise Rifle Co., which is headquartered in Alexandria.

This company manufactures several carbines in 5.56mm chambering, but also has come up with a product they call the LW15.449P. This rifle is patterned

after the familiar M-16, but has an upper receiver that can handle a cartridge packing a 499-caliber bullet! For military and law enforcement agencies, the weapon is available with a 12-, 16- or 18-inch barrel. It utilizes a unique patent-pending gas-piston system.

"This system has no weight penalties over the standard direct gas system, while providing the operator with superior abilities to accomplish any mission required," is the declaration of Chris Evans, a company spokesman. "It is designed for use wherever light-weight, speed of transition, point-and-shoot fire power are required. It can be comfortably carried or stowed, yet be instantly available to provide the firepower, terminal ballistics and accuracy of the 499LWR cartridge."

These weapons are available as complete units or a buyer can purchase just the upper receiver for installation on the M-16/AR-15/M4 lower receiver. Giving law enforcement and military a list of options, the maker can produce the unit in semi-auto, full-auto or three-round burst capabilities.

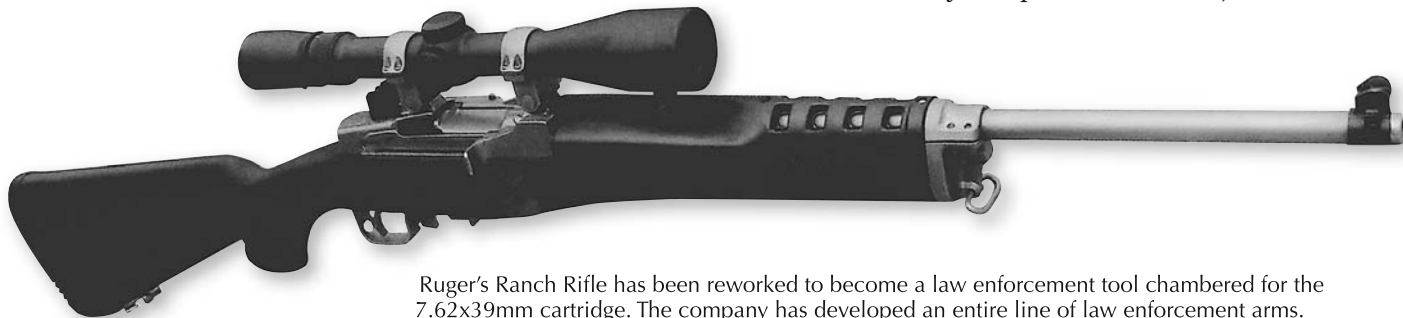
Today, in Iraq, a rifle to be prized is the venerable M-14, which was produced in the 1960s as the "interim rifle" positioned between the phasing out of the 30/06 M-1 Garand and introduction of the Armalite-designed/Colt-produced M-16. The result was that thousands of little-used M-14s ended up in Department of Defense warehouses. Then, during Bill Clinton's term as President, the order came down to destroy all such weaponry.

Somehow, about 40,000 M-14s managed to survive the destruction order. Chambered for the 7.62mm NATO cartridge – also known as the Winchester 308 – at this writing, these shooting machines are being refurbished for issuance to U.S. troops.

FNH USA, of course, had produced its share of diminutive-bore military rifles, but in checking its current line of what the brass calls Special Police Rifles (SPR), one quickly realizes that emphasis is back on larger bullets. The SPR rifles are being produced currently in 20 different configurations, all of them built on the pre-'64 Winchester Model 70 action's design. Of the 20 differing styles, 17 are being chambered for the Winchester 308 cartridge. Three of the rifles are designed to fire the 300 WSM FLP cartridge.

Cobb Manufacturing, a Georgia company, has developed a truly revolutionary rifle that is patterned after the M-16. The maker calls it the Modular Combat Rifle System and uses a modular magazine well that will handle calibers ranging from 9x19mm to the big 50-caliber Browning Machine Gun cartridge. Upper receivers are currently being made to handle the 338 Lapua cartridges, the venerable 30/06, the 7.62mm NATO and, of course, the 5.56mm/223 Remington.

Gary Paul Johnston, one of the more knowledgeable writers on military and police armament, has



Ruger's Ranch Rifle has been reworked to become a law enforcement tool chambered for the 7.62x39mm cartridge. The company has developed an entire line of law enforcement arms.

described the Cobb effort as “Looking much like a radical M4 carbine.”

It has a specially designed upper receiver that allows for quick change to accommodate various calibers. Another feature is a free-floating rail system supplied by Daniel Defense. The upper receiver is designed in such a way that it can quickly be changed to other calibers listed above. The Georgia folks also have incorporated the Vltor ModStock, as well as a Tango Down pistol grip and foregrip.

While not apparently involved in the effort to find a new rifle for our Armed Forces, an Illinois organization, Rock River Arms, has been producing and selling arms based upon the M-16/AR-15 concept for some years. In 2006, however, they ventured away from the world of the 5.56mm to produce what they call “The ultimate combination of firepower and flexibility.” This is the 458 SOCOM CAR A4.

The 458 version weighs 7.6 pounds and measures 36.5 inches in overall length. The upper receiver is of forged A4 steel and the 16-inch chrome-moly bull barrel features one twist in fourteen inches. If one already possesses a rifle featuring a standard AR-15 receiver, it is possible to order just the upper receiver, since it works well with the standard lower unit and unmodified 223 caliber AR magazines.

This weapon, like some of the others listed above, calls for special ammunition that’s not likely to be found on the shelves of your local sporting goods emporium. However, cooperating with Rock River Arms, Peter Pi at Cor-Bon is producing 458 SOCOM ammunition in a

variety of factory loads at his installation in Spearfish, South Dakota.

In Salt Lake City, Alex Robinson of Robinson Arms has developed a new weapons system he calls the XCR. Originally, this design for what hopefully would be the Armed Forces Combat Assault Rifle was built in 5.56x45mm chambering. According to Gary Paul Johnson, who fired the weapon early on, Robinson incorporated some of the best features of the M4 carbine, but then went on to feature the proven long-stroke piston of the AK, a quick-change barrel, an all-new trigger system, a unique three-lug bolt and a folding stock. In more recent days, the weapon is being produced in both 6.8mm SPC and 7.62 x39mm. It is being marketed to military and law enforcement agencies in a selective-fire version and as a semi-auto to civilians.

This report probably wouldn’t be complete without mention that Heckler & Koch has also entered the world of the Remington 6.8mm SPC. The German-based company has demonstrated what they call the HK 416, which utilizes a short-stroke gas piston and a magazine similar to that used in the G3 rifle.

As a follow-up, Heckler & Koch also have introduced their 417, which is chambered for the 7.62mm NATO cartridge.

In our nation’s efforts to settle on a new long arm for military forces, it now is obvious that the ultimate choice is not likely to be the diminutive 5.56mm cartridge that started out with a bad reputation in Vietnam and hasn’t fared much better along the way.

From ArmaLite: The 338 Lapua Magnum

THE FIRST TIME Jack Lewis glanced at ArmaLite’s AR-30 rifle, he thought it was a miniaturized version of the same company’s AR-50. As he learned almost immediately, his guess was close. According to the management element of the Geneseo, Illinois-based company, the ArmaLite AR-30, which fires the 338 Lapua Magnum cartridge, drew much of its design work from the company’s earlier introduced 50 BMG rifle.

At the time of its introduction, it was stated that the same design would be modified ultimately to handle a number of other rounds, including the Winchester 300 Magnum, as well as the 7.62mm NATO.

When the first 338 Lapua Magnum rifle was brought to U.S. shores by Harrington & Richardson a dozen years ago, outdoor editor Steve Comus described the cartridge as the link between the 7.62mm NATO and the 50 BMG. However it was best described, Jack Lewis



The head stamp on the cartridge at left is that of Lapua, developer of the cartridge. Norma began loading the cartridge soon after introduction.

was involved in the testing and found Comus greatly impressed by the potential of the cartridge.

As for the ArmaLite rifle chambered for the round, a

company spokesperson has described it as “a robust, front-locked, manually loaded bolt-action rifle.” When Lewis ordered a rifle in for testing, he found it delivered in two sections: the stock group and the barreled action assembly. He learned in assembling the two that they are joined at a unique machine-rest type of V-block. The manual insisted that “accurate, repeatable bedding is formed by engagement of the octagonal receiver and the deep V channel in the aluminum fore stock.”

The media contacts at ArmaLite were quick to state that the rifle was designed for hunting and long-range target competition. However, it also has been vetted



Black Hills was the first U.S. ammo manufacturer to begin loading the 338 Lapua cartridge for big-bore shooters.



The magazine of the ArmaLite-built gun carries five rounds of 338 Lapua Magnum ammunition. Note the magazine release directly above the trigger, making it easier and faster to change magazines.



The test rifle was equipped with a rail that allowed quick attachment of a scope equipped with the proper rings and mounts.

by several of the Armed Forces as a possible addition to the Department of Defense wish list. There is little doubt in our minds that the rifle could meet special mission needs for both the military and law enforcement agencies.

Taking the rifle's measure, Lewis learned that it was 48 inches in overall length and weighed 12 pounds before the bipod and scope were added. The 26-inch barrel was fashioned from chrome-moly steel, as might be expected, the six bore grooves offering a 1:10-inch twist.

The octagonal-shaped receiver was – and is – drilled and slotted for a scope rail. It should be noted that ArmaLite markets such items. Thus, as well as the rifle, Lewis received the military-standard scope rail, quick detachable scope rings and a Prince bipod. It was noted that the rifle's bolt is built for rugged work and features dual locking lugs that are designed to stand up under the continual pounding from heavy-load magnum cartridges.

The stock came in three sections. First was an extruded forend that had been cast from one of the



There is sufficient back-up from the ArmaLite 338 Lapua Magnum that only the most daring shooters ignore the need for a padded shooting jacket.

heavy-duty man-made plastics. There was a machined grip frame that carried a vertical hand group. The removable butt stock was forged from aluminum, and then machined. Included was a thick heavy-duty recoil pad as a protective aid against the cartridge's recoil factor.

It was noted early on that the owner's manual warns against firing the rifle without ArmaLite's proprietary muzzle brake. In bold-type English, the publication warns, "The muzzle brake is an important safety device. It makes the rifle comfortable to shoot and, more importantly, prevents the rifle from recoiling enough to possibly injure the shooter."

"After reading that passage, I wondered whether my hospitalization insurance was paid up," Lewis commented later.

The shooter is additionally warned to make certain the muzzle brake is undamaged and secured firmly to the barrel. That means one should make certain that all of the brake screws are fully tightened. There is further warning never to fire the rifle if a screw is missing, with a final admonition never to fire without the blast deflector – heavy metal wings positioned behind the brake – in place.

As further preparation as to what was to come, the manual warns against muzzle blast. The AR-30 muzzle brake operates by diverting muzzle gasses to the rear.

The maker warns that "spectators should not stand within 25 yards of the rifle and should be especially careful not to stand in the area 30 to 90 degrees on either side of the rifle. The best place to be is directly behind the rifle, shooting it!"

It had been decided early on to mount Lewis' 10x42 Swarovski scope, since it had been used to fire a 50 BMG rifle some months earlier and had survived the jolting without damage.

Lewis' shooting pard, Ace Kaminski, drives around with a tool kit that can handle almost any problem ranging from those of a wristwatch to an earth-moving tractor. He mounted the scope in short order. Next came the question of what to use as a target. An ordinary paper target certainly wouldn't offer much of a challenge.

Ace Kaminski was in the process of erecting a barn on a piece of his property and was mixing concrete for the foundation. He agreed to pour several 30-by-30 inch blocks that would be four inches thick and reinforced within with heavy-gauge wire netting. It was agreed that such an arrangement should surely check out the cartridge's penetration capabilities.

First, though, was the problem of zeroing the rifle. For this, the pair chose an area on a deserted lava flow that was located on a friend's cattle ranch. The first move was to set up a Kleen-Bore silhouette target at about 25 yards. Kaminski had bore-sighted the rifle when



Ace Kaminski poses with the two three-inch concrete blocks that were punctured by the 338 Laupua Magnum loads during test of the rifle.

installing the scope, but it was felt a further check-out on the paper target would help refine the rifle's potential performance. The result was that even at 25 yards, it took five rounds and in-between adjustment to put a hole in the 5X ring on the target's paper chest.

Satisfied, the pair used a tape measure to mark off 100 yards, then backed a truck up to the spot and off-loaded the two concrete tablets – both heavy. They were maneuvered into position a few feet apart, then Lewis and Kaminski drove back to the spot where they had set up the folding table they use as a crude shooting bench.

"You've done all the work so far," Lewis acknowledged, as they took the AR-30 out of its heavily padded case. "You first."

Kaminski nodded, edged onto the plastic chair that travels with the table. At his elbow were two boxes from Black Hills Ammunition, which carried the Lapua cartridges. A check of the manufacturer's specifications offered assurance that the 250-grain Sierra-produced MatchKing bullet would be flat at 100 yards!

"How many do you want me to shoot," Kaminski asked as, he stuffed rounds into the magazine.

"Try for a nice three-round group," was the suggestion. "But load four rounds."

Leaning into the table, right eye staring through the Swarovski scope, Kaminski fired a round, and then looked through the scope's 10-power setting to look at the concrete target. Satisfied, he shouldered the rifle again to quietly trigger off two more rounds in relatively rapid succession. Without aid of magnification, it was possible to see that the first bullet hole had been enlarged to a single hole through the four-inch thickness of cured concrete.

"How about putting a round a couple of inches lower so we can get an idea of what just one bullet can do," Lewis suggested. Kaminski nodded and leaned into the rifle once again, while Lewis clutched his hearing protectors with both hands. He had been standing behind the shooter as suggested by the manual, but even there the report from the rifle had been rather skull-rattling.

Kaminski fired the round and turned his head to look at Lewis. It was possible to see the smaller hole even at the measured distance.

"My turn," Lewis announced. The magazine was removed from the rifle and he shoved four fresh rounds

ArmaLite's patented recoil-reducing device angles much of the force to the rear. Standing behind the shooter is not a good idea.



The bolt-action rifle, unusual for the ArmaLite line, is designated as the AR-30. It has been tested by branches of the U.S. Armed Services.

into it, replacing his partner at the makeshift bench. With care, he checked the magnification of the scope, and then aimed at the center of this second concrete block that still was unscarred. He squeezed off his first round, then slowly fired two more. A sizeable hole about the size of a baseball resulted in the center of the target. The fourth round he fired several inches below the first hole the same as had been done by Kaminski.

Lewis reached up to massage his right shoulder, offering the other man a baleful look. "You should have warned me," he said to Kaminski, who was grinning. The recoil had been less than he had expected, really, but still heavy enough to hurt!

"Think what it would be without the muzzle brake," Kaminski offered.

They left the rifle on the table and walked the hundred yards to where the two squares of damaged concrete still stood. Lewis expressed surprise that the force of the bullet had not knocked over both of them.

The bullets – all of them – had ploughed their way through the target material. The three-round hole created by Kaminski's shots was perhaps an inch smaller than the one fired by Lewis. The hole in the latter's target showed a piece of wire that had not been broken by passage of the bullet.

ArmaLite had suggested the rifle was made for hunting. As the veteran of a couple of safaris, Lewis stated he would be willing to use the rifle on any of Africa's dangerous game including elephant.

However, for the military, it was felt the AR-30 would make an excellent tool for snipers attempting to take out enemy motor vehicles, combat ration shipments and ammunition dumps. In a law enforcement role, the combination of scope and rifle tested for this chapter would make an excellent tool for going after a barricaded felon.

"I have to admit," Lewis stated, "that the 338 Magnum pierced the reinforced concrete blocks a lot more easily than I would have expected."

A later test was conducted with Lewis' Shooting Chrony Master model chronograph. The average velocity for a five-round group on this test was 2841 feet per second.

Weatherby's Threat Response Rifle

LEGEND HAS IT that the late Roy Weatherby, born in Kansas in 1910, wounded a deer on his first whitetail hunt on the family farm. That reportedly was the basis for his lifelong efforts to develop cartridges that would result in instant death for game animals.

Settling later in California, Weatherby followed several pursuits, but most of his spare time was devoted to that search for the magic cartridge. He came to believe that the velocity of the bullet had much more to do with taking game with clean shots than the size and weight of the bullet. Eventually, the ballistics guru came to favor a 25-caliber bullet that traveled at no less than 4,000 feet per second.

Weatherby's approach was highly controversial at the time, but it was not long before his thoughts and efforts were being heard and considered by other arms experts including such once famous arms writers as Jack O'Conner, Elmer Keith and Colonel Charles Askins. Weatherby quit his job in 1945 to open his own business.

In his development efforts, the ballistician worked with a number of heavy-duty bolt-actions rifles; models that were able to handle his experimental loads. All of this effort, however, ultimately resulted in the design and manufacture of the Weatherby rifle, which was aimed strictly at the well-to-do hunters of major African trophy animals, including elephant, Cape buffalo, lions, et al. John Wayne was an early fan and purchased Weatherby rifles for his own hunts, as did Roy Rogers.

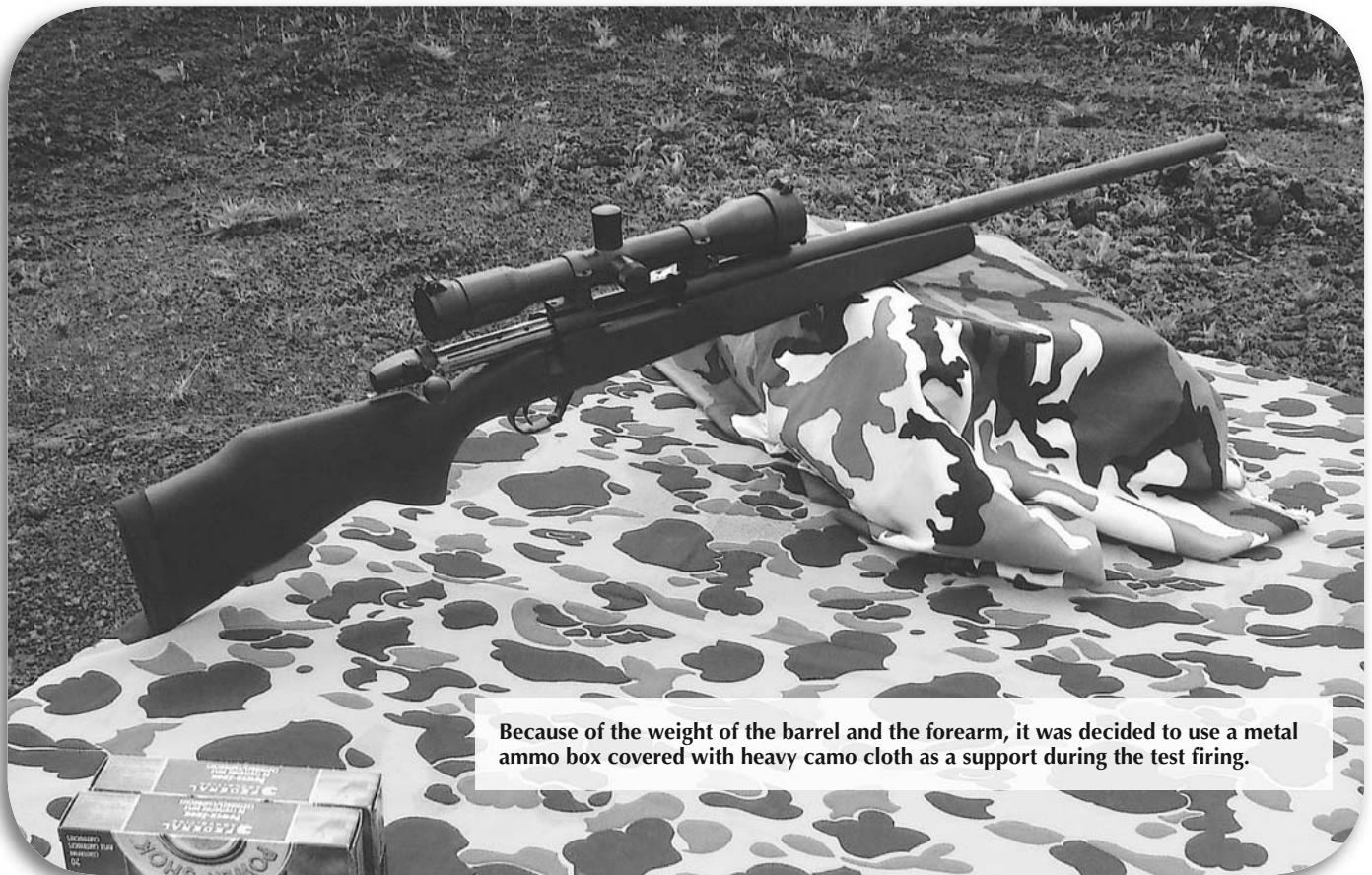
In the 1951 GUN DIGEST, Roy Weatherby wrote, "It doesn't matter whether you shoot a game animal in the ham, the ribs, the paunch or the shoulder. You do not



The maker of the rifle scope is plainly imprinted on the eyepiece. This is a rugged piece of shooting gear that saw hard service for several years before being mounted on the Weatherby TRR.

have to hit the heart, the lungs or the spine in order to kill when using a bullet that disintegrates inside the animal's body. I recommend you try the 25-caliber bullet at 4,000 feet per second to shoot your next game animal whether a deer, moose or African buffalo."

It should be noted, incidentally, that our Department of Defense was experimenting during this same period with small-caliber bullets that boasted muzzle velocities of more than 10,000 feet per second. All of this meant that Roy Weatherby was instrumental in developing faster game-hunting bullets that traveled with flatter trajectories. He was the first to promote high-velocity cartridges effectively with the rifle-hunting public.



Because of the weight of the barrel and the forearm, it was decided to use a metal ammo box covered with heavy camo cloth as a support during the test firing.



At first glance, the Threat Response Rifle bears little relationship to the classic Weatherby hunting rifles that have been the company's chief product for nearly half a century.

Roy Weatherby's efforts in the late 1950s resulted in introduction of such cartridges as the 378 Weatherby Magnum soon followed by the 460 Weatherby Magnum. The latter then was considered the world's most powerful rifle round, producing almost four tons of muzzle energy.

During those early years, Roy Weatherby was building his rifles on FN Mauser actions as well as the Czechoslovakian-made Brevex Magnum Mauser. It was in 1957 that he introduced his own rifle to handle his magnum loads. He originally called this rifle the Model 58 and it later came to be known as the Mark V, which remains the backbone of today's Weatherby rifle line after half a century.

The transplanted farm boy opened a combination sporting goods store and gun shop in a building he had purchased in a Los Angeles suburb, South Gate, and it was here that he operated until his death on early April 1988. At the time of his passing, he had been in poor health for some time and his son, Edward Roy Weatherby had taken over the day-to-day operations.

Over the years that the senior Weatherby worked and lived in South Gate, the area surrounding his shop had deteriorated structurally as well as socially, and young Ed had wanted to move the operation to a "more countrified" area, but his father had refused. Jack Lewis talked with the senior Weatherby during this era. The latter shook his head, "Ed wants to move,



With a 15-knot wind ruffling his hair, Jack Lewis used the covered ammo box as a rest in seeking the humanoid target at 120 yards down the man-made canyon.



Since the piece of quarter-inch steel was rusted to almost the same color as what would be the lava background, Ace Kamniski ran lengths of masking tape over one side so it would be visible to the shooter.



The test crew found that the 150-grain Speer bullets with which the factory ammo was loaded cut neat holes through the duct tape covering, then the quarter-inch of steel plate.

but we own this property and everything we need is here. I don't want to see us go into a lot of debt just to be some place else."

The business of designing and selling guns that others manufactured in Europe and even in Japan to the corporate specifications continued at the South Gate location, until what has come to be known as the Rodney King riots erupted on April 29, 1992.

As the violence and looting was moving ever-closer to the Weatherby property, young Ed Weatherby and some of his employees found themselves forced to barricade themselves in the store at night to keep it from being robbed of the known supply of firearms and ammunition.

Shortly after the riots ended, the Weatherby organization put out a photograph that was meant as a gag. There had been major flooding in the area of their South Gate holdings not long after the riots and the photo showed several Weatherby employees supposedly headed for work in the morning. All were dressed in combat gear and carrying Weatherby arms, as they paddled their rubber boat down the flooded street.

The photo was considered humorous by many; there also were those who thought it was in poor taste. "Most of us who received prints of the picture figured it was not only a sign of the times, but a look at the future," Lewis recalls a quarter of a century later.

It was not long after the riots that the decision was made to move the Weatherby operation to Atascadero, an agriculture-oriented community several hundred miles north of the company's original home. It was there that the corporate powers considered the future and began giving some thought to self-preservation as well as proper armament for the game fields.

Another move – completed in September 2006 – has since been made to Paso Robles, California, but even prior to that relocation, Ed Weatherby and his crew had developed the Weatherby Threat Response model, their entry into the tactical rifle field.

At first glance, there is little about the Threat Response Rifle to indicate it is a Weatherby. It seems obvious that those long nights of guarding against rioters had their effect in the design effort. Instead



What appears to be a small hunk of metal in the bottom of the trigger guard actually is the control that allows the trapdoor to the internal magazine to be opened.



With the internal box magazine holding three rounds, a fourth cartridge can be loaded directly into the chamber of the high-power 300 Winchester Magnum rifle.

of the lovingly handcrafted stock of walnut and the decorative inlays of more exotic woods, there is a black Zytel stock. It is thicker and heavier than the stocks of the classic Weatherby rifles...but it also is more businesslike. Other than the gold inlay in the bottom of the trigger guard that uses a stylized letter W, there is little comparison to the rifles, which the late Elgin Gates used to become the world's best known big game hunter in the 1960s.

Phased into the marketing plan several years ago without a great deal of fanfare, the Threat Response Rifle (TRR) was introduced in a host of calibers that included the 223 Remington, 308 Winchester and 300 Winchester. More recently, the rifle listed as the TRR Magnum Custom 300 is being chambered for primarily Magnum rounds that include the 300 Winchester Magnum, 300 Weatherby Magnum, 30-378 Weatherby Magnum and the 328-378 Weatherby Magnum.

After considering the choices, Jack Lewis contacted Aaron Smith, who now handles promotional efforts for the Weatherby staff, and arrangements were made to ship the writer/shooter a TRR chambered for the 300 Winchester Magnum cartridge. Lewis chose that cartridge rather than one of the proprietary Weatherby rounds because he had had previous experience in Africa with the Winchester Magnum and knew what could be expected of it performance-wise.

The air-shipped rifle arrived and a bit of a ceremony was held as it was unpacked. Lewis' adult son, Zack, and shooting enthusiast Ace Kaminski drooled over the "big, black monster killer," as the younger Lewis termed it.

The TRR is available in three different barrel lengths, with choice depending upon the caliber for which the rifle is chambered. The rifle we had requested was outfitted with a 26-inch Krieger #4 Contour barrel, that being the specific length designated for only two cartridges, the 300 Win. Mag. and the 300 Wby. Mag.

Other available barrel lengths – again, depending upon caliber – are 22 and 28 inches.

The stock appears to be of Zytel, and according to Aaron Smith, it is a hand-laminated composite. All rifles feature the Weatherby-designed raised comb that verges on the Monte Carlo design. Roy Weatherby introduced this stock style early in his career and it since has been adopted by other major arms manufacturers. The TRR stock has an aluminum bedding block that is meant to aid in accuracy. The beavertail forearm is flat-bottomed and broad.

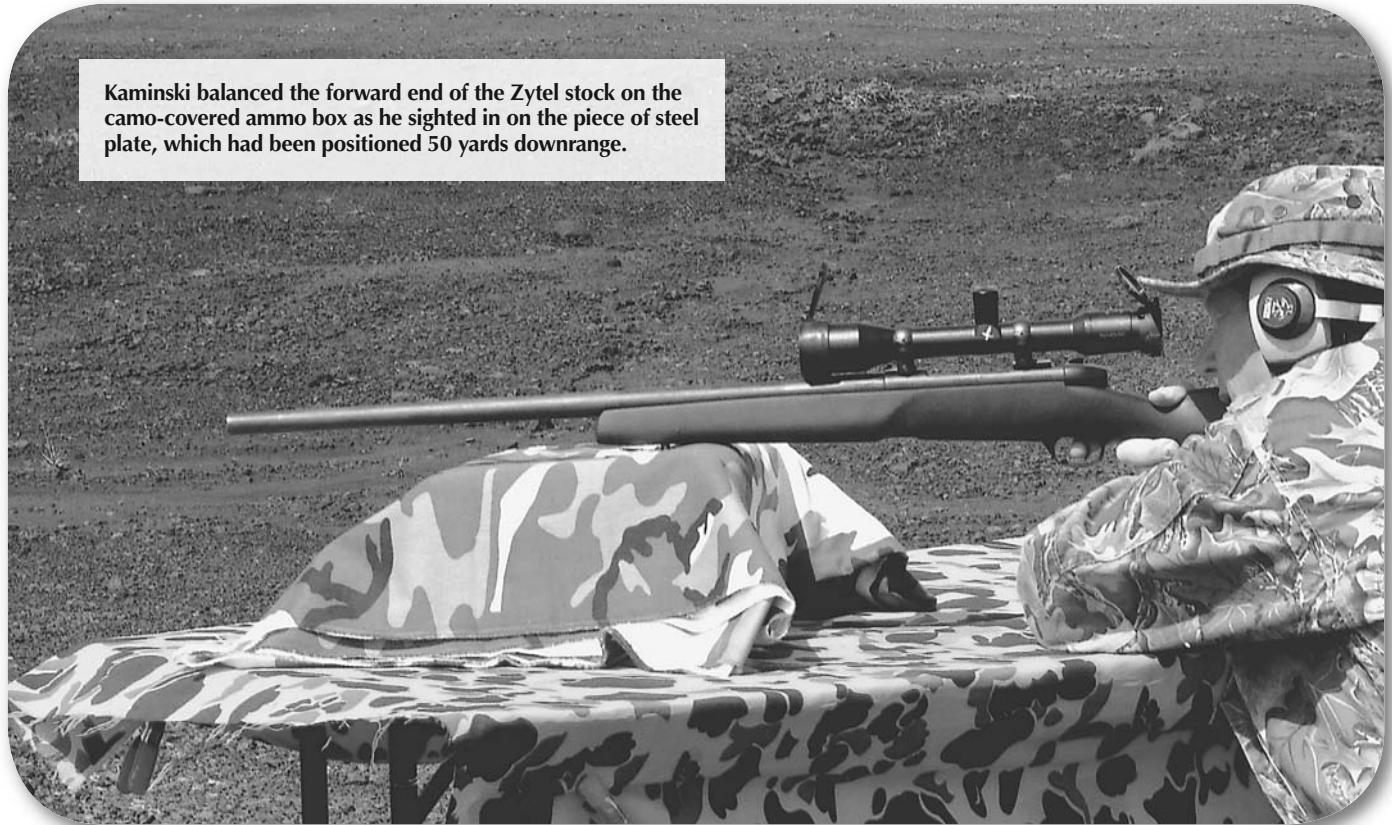
The rifle's internal magazine holds three rounds of 300 Winchester Magnum ammo, with it being possible to load a fourth round into the chamber. The rifle also features the familiar hinged floor plate for easy unloading of the piece. With the aforementioned 26-inch barrel, overall length of the rifle was found to be 46.13 inches.

In the Weatherby tradition, the rifle arrived without iron sights. Roy Weatherby had always insisted a rifle needed a scope and he often sold those carrying his logo as a combination. As a result of this thinking, Ace Kaminski's Swarovski 10x42 scope was installed. Brought into play for the mounting were Warne mounts and Burris' Zee rings, both obtained earlier from Brownell's mail order emporium in Montezuma, Iowa. Prior to the mounting, the rifle was weighed unloaded. It scaled at an ounce or two over 8.5 pounds. When the scope was added, weight went to a bit over 10.5 pounds.

"Well, it's for threat response," Jack Lewis reasoned. "It's not likely any of us will be charging across the desert sands chasing terrorists with it. On the other hand, if the North Koreans should attempt a beachhead on our local shores, we'd be in place no doubt to do a lot of sniping, not running around the terrain. That would fit the name of the gun: responding to a threat."

The TRR also features a fully adjustable trigger, but when the trigger pull was checked on Lewis' aging but

Kaminski balanced the forward end of the Zytel stock on the camo-covered ammo box as he sighted in on the piece of steel plate, which had been positioned 50 yards downrange.



still trustworthy RCBS trigger pull scale, it proved to be set at 4.5 pounds. Lewis and Kaminski agreed the setting was logical and comfortable. There is no creep in the trigger. When you pull it, expect it to shoot! The three-quarter-inch soft rubber recoil pad is a definite plus, when firing magnum loads.

The rifle with which the test crew was working carried the serial number 8W004884 and also stamped into the barrel was the reminder that the piece was chambered to fire 300 Win. Mag. ammo. The action also carried the stamped-in fact that this rifle was made in the USA, a reminder that was repeated in four-inch red letters on the box in which the rifle had been delivered.

In checking out the rifle, the first move was to fire it on a piece of steel plate that measured a full quarter-inch in thickness. Inasmuch as the piece was rusted and roughly the same color as the lava background upon which it would be set, Ace Kaminski applied several strips of silver-colored duct tape to one side of the plate. When set up at 50 yards, the tape was plainly visible.

From an offhand position, Kaminski fired two rounds on the steel plate, and then it was inspected. The two rounds each had burrowed through the metal without problem, making neat 30-caliber holes that were about an inch apart.

The ammo being used with Federal's Power Shock creation featuring a 150-grain soft point bullet from Speer's Hot Cor selection. Reported muzzle velocity of this round is in the neighborhood of 3180 feet per second. At 400 yards, according to the Speer ballistics staff, the velocity still is hitting along at 2830 feet per second. At the muzzle, energy has been measured at 3884 foot/pounds. At the 400-yard marker, energy has been reduced to approximately 1800 foot/pounds. The Federal folks also make the point that at 200 yards, the



The Weatherby TRR model was topped with a Swarovski fixed 10-power scope for the testing of the rifle's capabilities.

150-grain bullet drops 2.3 inches; at 300 yards, the drop is 9.2 inches.

The test crew had a much-used and patched set of life-size plastic dummies that had been obtained from Law Enforcement Targets, an outfit headquartered in St. Paul, Minnesota. The targets were a style that offered the upper torso and head to target shooters. To this, several items of surplus military clothing, such as field jackets, had been added to cover the three plastic figures.

Based upon past shoots, it was known that a pile of lava boulders was situated 120 yards and slightly downhill from the area where a folding table invariably was set up as a crude but useful shooting bench with a plastic lawn chair for the shooter. Under no circumstances could the setup be called a bench rest!

While Zack Lewis and his father set up the table, covered it with orange-hued camouflage cloths, then laid out the rifle and ammunition, Kaminski drove the



The folding table and plastic chair used for firing the Weatherby TRR hardly qualifies as a bench rest, but serves the purpose in the lava pit where the rifle was tested.



Ammunition used in testing the Weatherby Threat Response Rifle was from Federal, carrying 150-grain soft point bullets manufactured by Speer.

clothed dummies down the hill to what would pass as the figures' chosen site for an ambush!

From the shooting site, the faces of the plastic figures appeared to be somewhat camouflaged, since tan tape had been used to cover the bullet holes created during several earlier encounters.

There was no bipod attached to the rifle and the piece did tend to be a bit muzzle heavy. The answer was to wrap a metal 50-caliber ammunition box in another square of camouflage cloth as protection to the rifle where it rested for steady aiming.

With four rounds of the Federal-loaded ammo in the rifle, Kaminski – clad in his favorite camouflage rig – was the first to fire. He fired all four rounds on the center dummy, aiming for head shots through the 10x Swarovski scope.

Instead of trekking down the hill and back up again for the sole purpose of checking the dummy on which Kaminski had fired, Jack Lewis replaced him on the rickety plastic chair that was being used.

"How was the recoil?" Lewis asked, as he pulled the butt into his shoulder and balanced the forearm on the padded ammo box.

"It's there," came Kaminski's reply. "You'll know it's there."

With the rifle's forearm supported by the ammo box, Lewis removed his battered Stetson and laid it on the table out of the way. Surprisingly, a wind of about 15 knots whipped up his ever-whiter hair. He ignored it, as he leaned into the scope, seeking the three dummies.

"I'll shoot on the center guy," he announced and triggered off the first round. As the sound echoed through the man-made canyon, he glanced up at Kaminski. "You were right about the recoil. It's there."

With a great deal more care than Kaminski had shown, Lewis shouldered the rifle and moved his left hand to grip his right forearm in the approved sniper fashion. One after another, he triggered the three rounds, but after each shot, he took the time to reposition himself on the edge of the plastic chair, then settle in once more behind the rifle. When done shooting, he leaned back in the chair, shaking his head.

"The first shot should be good," he announced. "I'm sure I flinched on the other three!"

Zack Lewis, the acting photographer, had never fired anything in the magnum rifle category and wanted an opportunity. There was still one dummy positioned downrange that was awaiting bullet damage.

"Really pull that stock into your shoulder," his father warned, "or it'll rattle your molars!"

The younger Lewis nodded and settled himself on the edge of the chair, assuming the position for benchrest shooting. The young man weighs in the neighborhood of 240 pounds, most of it muscle, but when he fired the first round, it definitely rocked him, as did the next three rounds!

Inspection of the humanoid targets offered some surprises. All of Kaminski's rounds had been head shots, while the senior Lewis – aiming for torso shots – had punctured the fabric of the old field jacket on his dummy, the bullets then going on to take a piece of rock the size of a demitasse cup out of the lava boulder behind the figure. Zack Gilbert showed his talents by scoring on body shots as well.

As stated earlier, the TRR is chambered for the 300 Weatherby Magnum as well as the 300 Win. Mag. Actually, it was the Weatherby round that was developed first. According to Frank C. Barnes, compiler of the *Cartridges of the World* series, "The 300 Weatherby is the most popular and well known cartridge of the Weatherby line. At the same time, it is one of the most controversial."

The late Roy Weatherby introduced the round in 1944. By 1948, he was producing the ammunition commercially, the packaging carrying his own logo. In 1989, Remington and PMC began offering their own ammunition in the Weatherby caliber.

When compared to the 300 Weatherby Magnum, the 300 Winchester Magnum round with which the test crew was working is something of a late-comer, since it was not introduced until 1963. At the time of its introduction, it was meant only for the Winchester Model 70 bolt-action rifle chambered specifically for the new round. These days, almost every maker of sporting long guns has a model for the Winchester round.

Frank Barnes points out that the arrival of the 300 Winchester Magnum actually was somewhat anti-climactic, since most arms enthusiasts had been expecting the rifle to be introduced shortly after the maker introduced the 338 Winchester Magnum as early as 1958.

The 300 Win. Mag. now is loaded by virtually all of the domestic ammo manufacturers, as well as by a number of overseas ammo makers. Frank Barnes comments that this is "a fine long range big game cartridge, but recoil becomes a factor for some shooters."

Barnes' studies conclude that the two calibers – 300 Win. Mag. and 300 Wby. Mag. – are close to being the same. According to his findings, the Weatherby cartridge has a muzzle velocity of some 3600 feet per second and muzzle energy amounting to 4316 foot/pounds.

In retrospect, Jack Lewis keeps coming back to the Threat Response Rifle designation. His conclusion is that the rifle could be a potent tool in situations in which motor vehicles might be involved such as drive-by shootings. There is little doubt that a couple of rounds from the Weatherby rifle/Winchester cartridge combo could take most civilian-driven vehicles out of circulation.

"Of course, at the price of the Weatherby rifle, you're not going to find many of them in ghetto neighborhoods. However, such violence has a habit of spreading," Lewis opines. "One only has to remember the now-historic North Hollywood bank shootout in which the baddies wore body armor and the police had to borrow big-bore rifles from a nearby gun shop to end the problem. That may have had something to do with Ed Weatherby's decision to get into the tactical market."

A Matter of Intervention

IN ARCO, IDAHO, a community of less than 1,000 residents, continuing work is being done on a combat rifle that could do much to change the path of modern warfare.

This one-time cowtown is the home of CheyTac Associates, a group of individuals and companies that have interlocked efforts to produce the ultimate sniper rifle.

The long-range rifle, the M-200 CheyTac, is part of the effort's Intervention Tactical system, along with the CheyTac cartridge, a proprietary round developed by the company. In testing, the system has been found capable of soft target interdiction to ranges of 2500 yards!

Via various airlines and wheeled transport, Jack Lewis found his way to Arco for the express purpose of checking out the CheyTac Intervention package, which consists of the rifle, the cartridge and an advanced ballistic computer. Not visible in this combo are the collective blood, sweat and tears that went into development.

The CheyTac Intervention is a seven-shot bolt-action takedown system, the barrel being removable to be replaced by the shooter, if necessary. According to Robin Sharpless, senior vice-president of the outfit, "The entire rifle is maintainable at the operator level, including complete teardown. Spare barrels can be maintained at the unit level and replacement can be made in the field, allowing for special barrel design and shorter barrels.

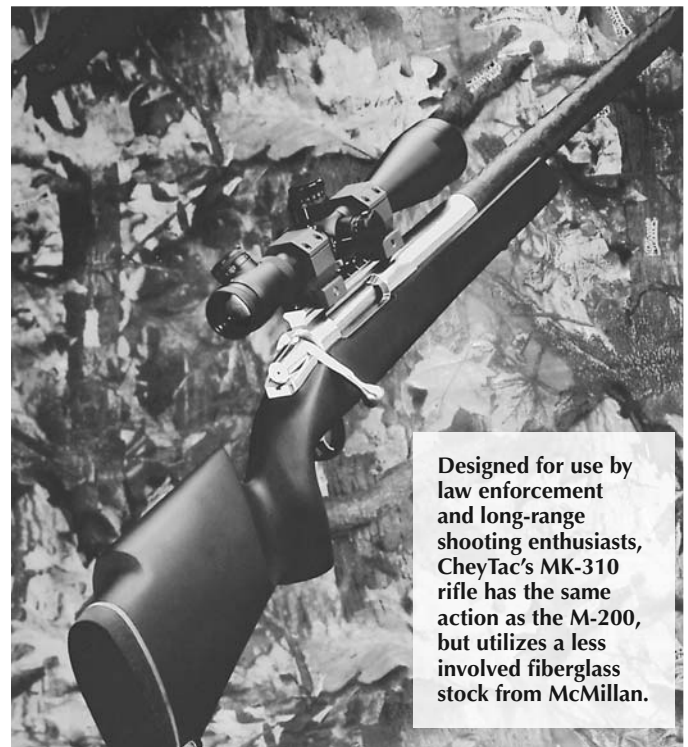
"The takedown capabilities provide a safe rifle that supports all methods of infiltration including military free-fall, static line, small boat, dive lockout, as well as other forms of infiltration."

The CheyTac cartridge was developed for the purpose of filling what was considered a gap between the 50 Browning Machine Gun cartridge and the 338 Lapua.

Robin Sharpless, incidentally, insists that the proprietary cartridge's downrange characteristics outperform the best of today's 50 BMG bullets.

The bullets are manufactured by Lost River Ballistic Technology, a part of CheyTac Associates that also is headquartered in Arco. Each of the 408 projectiles is of a copper/nickel alloy that is lathe-turned. The result is a 419-grain bullet that has a supersonic range of some 2200 yards under what are termed standard air conditions.

A second bullet, one weighing 305 grains, also is manufactured for the rifle. This one is meant for high-velocity, near-range application. The average ballistic co-efficient of the 419-grain projectile has been found to be .945 over 3500 meters!



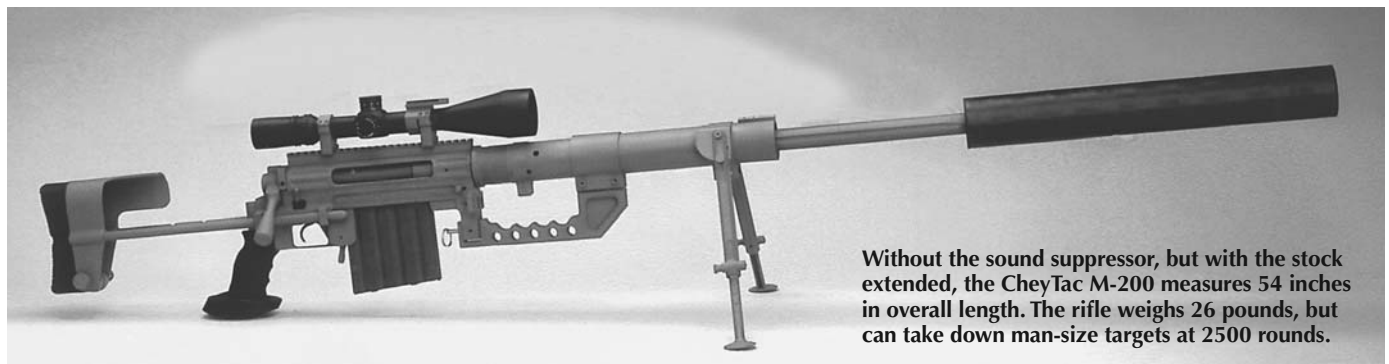
Designed for use by law enforcement and long-range shooting enthusiasts, CheyTac's MK-310 rifle has the same action as the M-200, but utilizes a less involved fiberglass stock from McMillan.

In early testing of the rifle/cartridge combination, it became apparent that the Intervention rifle had potential for field accuracy far beyond today's accepted military levels. In short, the rifle/cartridge combo was delivering sub-minute of angle groups at ranges up to 2500 yards!

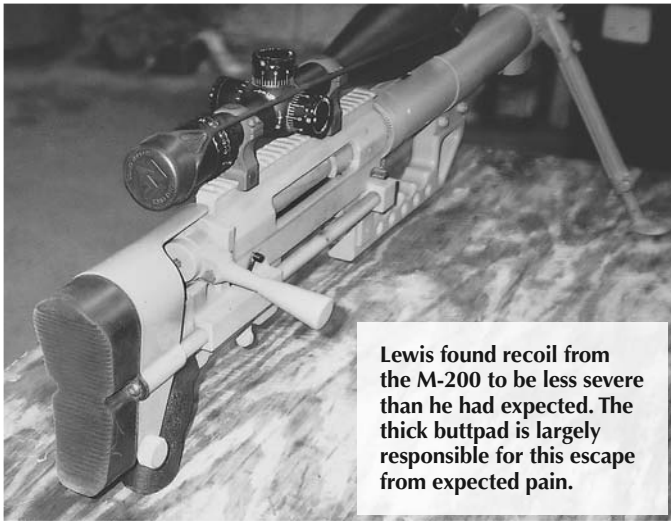
This inspired the CheyTac technicians to set about developing a hand-held tactical computer that could integrate radar data. This was drawn from the fact that during 2001/2002 tests of the rifle at Arizona's Yuma Proving Grounds downrange data was collected using a Webler radar unit.

The tactical computer developed by the Idaho team integrates radar data with the hand-held unit. The computer then calculates and provides the operator with elevation and windage settings. According to company personnel, the current platform is a Casio IT-70 using input from a Kestrel 4000 and a Vector Laser Rangefinder.

A number of variables can be programmed into the computer. Included are corrections for air temperature and air pressure, as well as corrections for temperature



Without the sound suppressor, but with the stock extended, the CheyTac M-200 measures 54 inches in overall length. The rifle weighs 26 pounds, but can take down man-size targets at 2500 yards.



Lewis found recoil from the M-200 to be less severe than he had expected. The thick buttstock is largely responsible for this escape from expected pain.

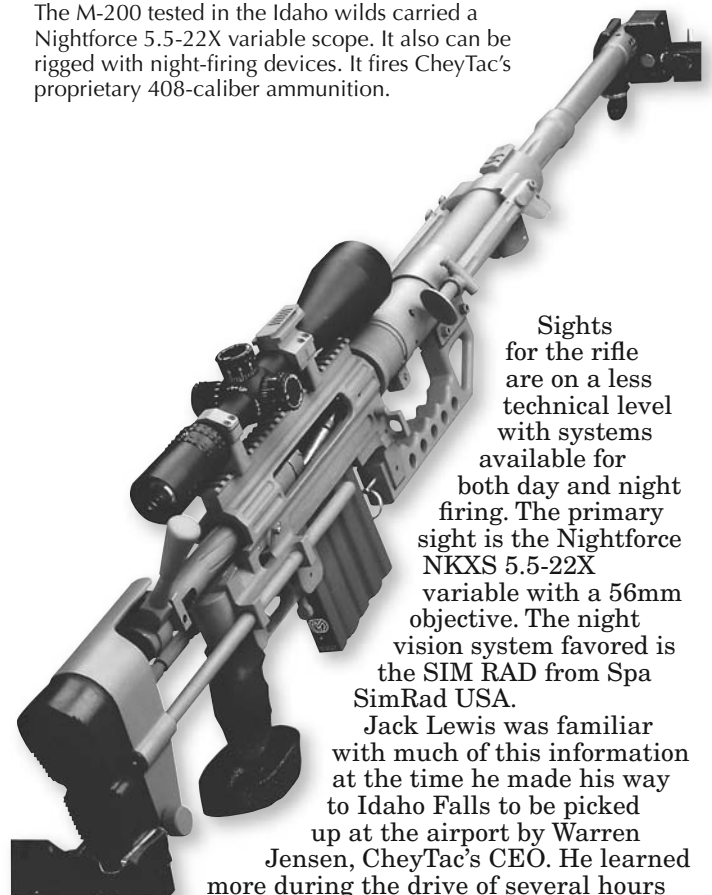
of the ammo, powder burn rate and muzzle velocity. The unit not only offers corrections for the twist rate of the rifle's barrel, but also corrects for the spin of the Earth!

The shooter also can input variables to compensate for gunlock times and the operator's reaction time when engaging moving targets. The computer, incidentally, is programmed to produce accuracy answers for all current U.S. sniper cartridges from the 5.56mm NATO to the 50 caliber. "This makes it usable for sniper teams at all organizations and weapons systems," Sharpless is quick to point out.



Retired Navy SEAL Chris Kinney was set up to fire at the 18-inch steel plate that was positioned more than 1600 yards across the Idaho canyon.

The M-200 tested in the Idaho wilds carried a Nightforce 5.5-22X variable scope. It also can be rigged with night-firing devices. It fires CheyTac's proprietary 408-caliber ammunition.



Sights for the rifle are on a less technical level with systems available for both day and night firing. The primary sight is the Nightforce NKXS 5.5-22X variable with a 56mm objective. The night vision system favored is the SIM RAD from Spa SimRad USA.

Jack Lewis was familiar with much of this information at the time he made his way to Idaho Falls to be picked up at the airport by Warren Jensen, CheyTac's CEO. He learned more during the drive of several hours to Arco. One bit of information was that Dave Durham, a member of the company's test team, had fired sub-minute of angle groups at 2700 yards.

The sniper system has created sufficient interest that the team has been called upon to introduce it to snipers from the Marine Corps, Army and the Federal Bureau of Investigation. One Marine marksman undergoing familiarization training at the Arco site set a world record by firing a three-shot group of 15.5 inches at 2322 yards. The staff at CheyTac, however, feels that the maximum range for hitting a human target is 2300 to 2500 yards. (For what it is worth, several months following Lewis' visit, his alma mater, the United States Marine Corps, awarded the Idaho company some \$10 million for a batch of its rifles.)

The model with which we worked at Arco had a telescoping stock, but steps since have been taken to replace it with a folding stock, making the unit easier to transport in the field. On the rifle that was taken into the Idaho mountains for long-range shooting, a suppressor was attached. This sound-slayer is manufactured by OPSINC, a California enterprise headed by a gent named Phil Seberger.

The sound suppressor is a long-life device made from stainless steel that attaches to the muzzle of the rifle by means of a unique system. Chris Kinney, a retired SEAL marksman, is the lead shooter. He told Lewis that the suppressor seems to improve accuracy, while adding from 25 to 30 feet per second to standard muzzle velocity. Seberger, the manufacturer, guarantees that the suppressor will equal or surpass the life of the rifle! Of major importance is the fact that when this sound reduction unit is removed from the rifle, then replaced, there is no change in zero.

The mountain area in which Lewis and the CheyTac staff fired the rifle contains several thousand acres of rough terrain that the company has under lease. The spot chosen would be such that the rifle could be fired across a wide canyon at an 18-inch metal plate more than 1600 yards distant. As an aid in accomplishing this goal, the rifle was equipped with the earlier mentioned Nightforce 5.5-22X variable scope.

Jack Lewis admits to being an electronic illiterate, but he learned that the tactical computer utilized with the CheyTac rifle allows the shooter to determine the speed of moving targets in miles per hour and direction from any position on the clock. The computer also checks downrange velocities to learn whether the target is within supersonic range of the copper/nickel projectile.

While the shooter can do all this for himself, if necessary, the Idaho folks suggest that the marksman's spotting partner handle the computer work when checking out likely targets. Lewis also learned that the company has printed paper data sheets should the computer fail. For this effort, all that is needed other than the data sheets is an ordinary pocket calculator.

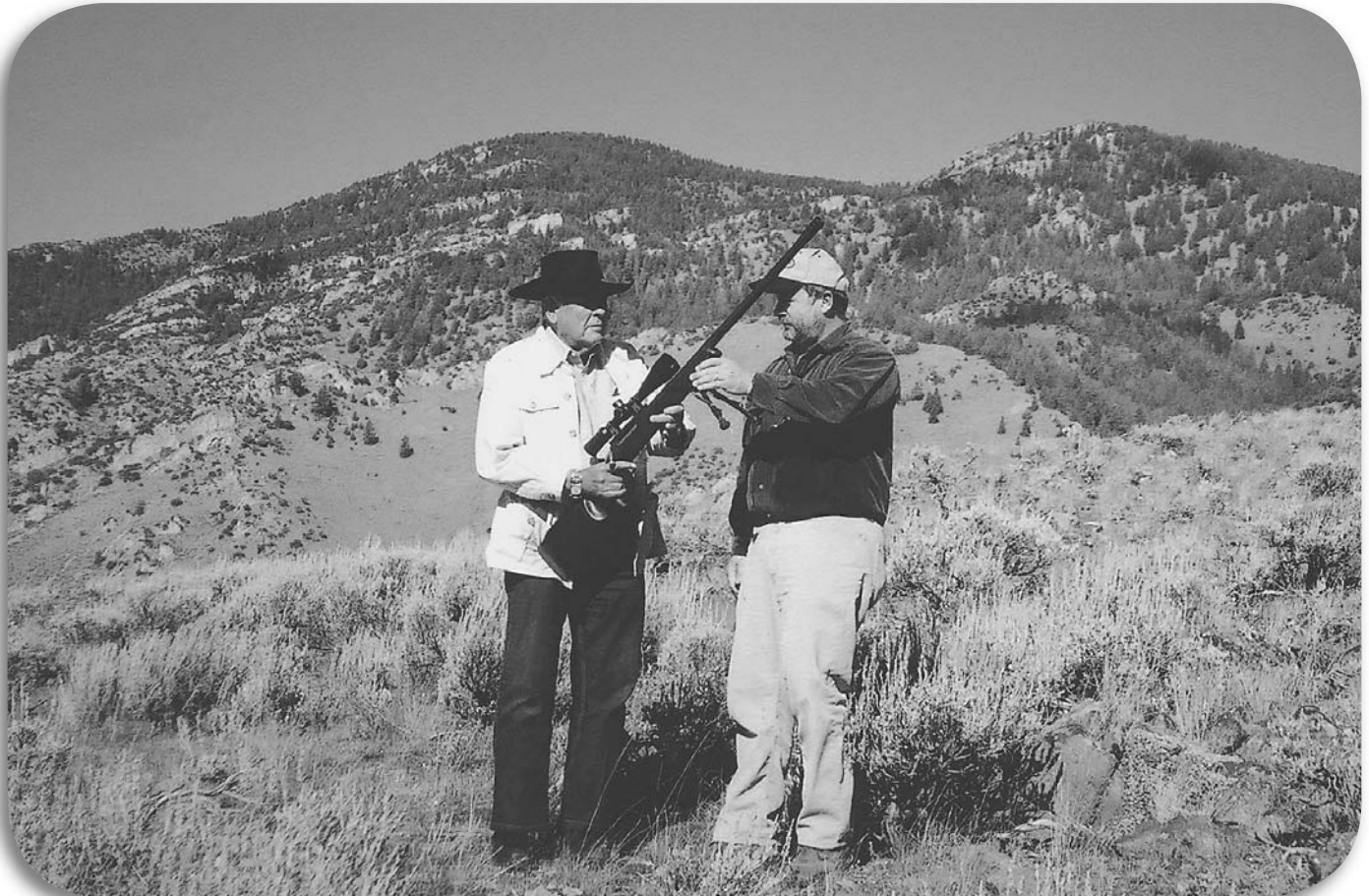
Other support items that Lewis had an opportunity to check out were the ANK/PEQ021r laser and an aid called the Kestrel 4000. The laser is a night-firing aid that illuminates a target in darkness. It is attached to the rifle by means of a titanium strut. The Kestrel 4000 is a sensor pack that can be utilized to check air pressure, wind velocity and air temperature. It also can determine relative humidity, the dew point and the wind chill factor.

With all of this information at hand, Lewis found himself wondering how practical the system would be in the field. The rifle weighs in the neighborhood of 26 pounds, with the Nightforce scope mounted. With the telescoping stock closed, the piece measures 49 inches in overall length. With the stock extended, the length becomes 54 inches. This is not something one is going to position at right-shoulder arms and take along on an extended march to the battlefield!

At the time of Lewis' visit, CheyTac was headquartered in an old but well maintained building constructed of local logs. It once had been a saloon and gambling hall. Several hours were spent there on the first morning, with Lewis having an opportunity to watch the copper/nickel bullets being milled, then handloaded into brass cartridge cases. It also was learned that plans for being made for a 70,000 square foot headquarters structure on land that the company owns nearby.

In mid-morning, several four-wheel drive trucks were loaded up with equipment and the group took off for the mountain shooting range. Lewis rode with Chris Kinney, the master trainer, and was told that a project under way was to come up with a carbine version of the M-200; this, of course, would reduce the length as well as some of the weight of the sniping machine.

When a plateau was reached that would serve as a good firing position, the trucks were unloaded of the guns, ammo, shooting mats and other paraphernalia. Among those items was another rifle. This bolt action carried a black fiberglass stock manufactured by



Amid the several thousand acres of shooting ranges leased by CheyTac, Jack Lewis got the lowdown on the company's M-310 rifle from company CEO Warren Jensen.



For such jobs as making bullets and handloading ammunition, a number of local residents are employed by CheyTac. The town of Arco has fewer than 1,000 residents.



Assistant CEO Dave Durham installs a scope on the M-310 that will be taken to the field at the same time as the military-designed M-200. The same computer system can be used with either rifle.

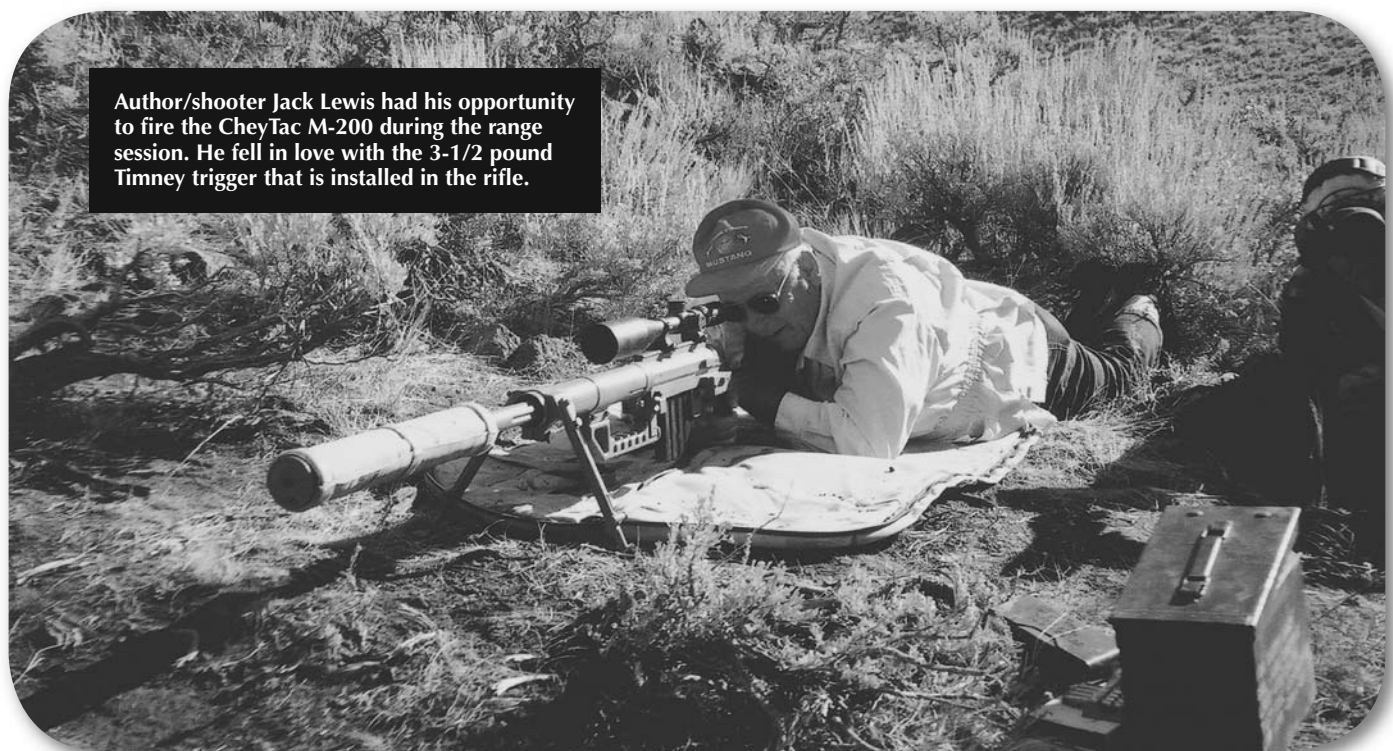
McMillan and there was no sound suppressor attached. Warren Jensen explained that this was the company's M-310, which also fires the .408 cartridge. The company felt that this particular model will find a welcome home among law enforcement people and long-range target shooters.

Included in the morning shooting party besides Jensen and Kinney was Dave Durham, Jensen's right-hand man who is listed as deputy CEO. Others were Ed Pratte, a trainer, and Dave Yustin, who also acts as a trainer and gunsmith. The latter works with the

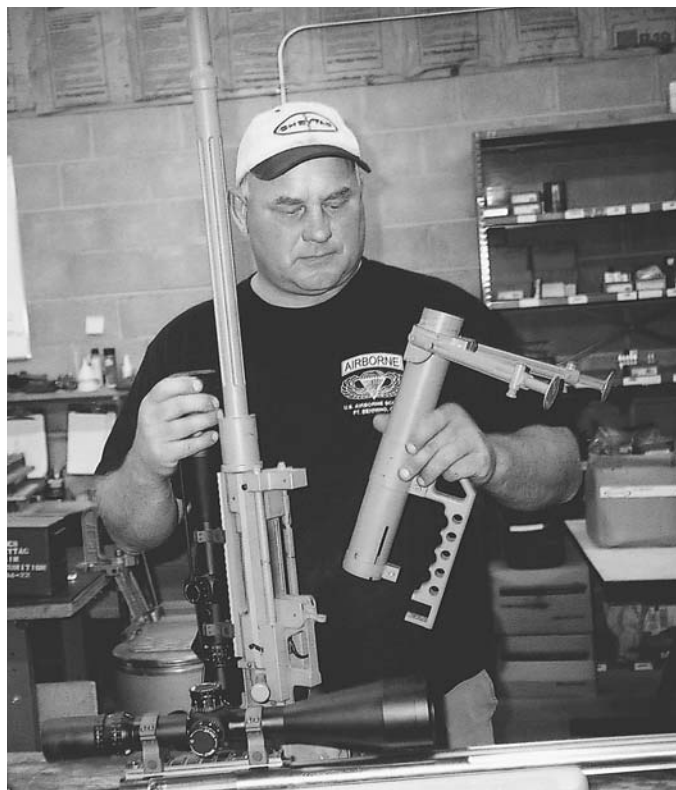
CheyTac team during his vacations only, since he heads up the SWAT team for the Vermont State Police.

A spotting scope was set up and Chris Kinney invited Lewis to look through it at the target, which the latter could not see with his naked eyes. Propped against a tree was the white-painted metal plate. It appeared to be not much larger than a human head!

Altitude was more than 5,000 feet and there was still a morning chill in the air. Lewis found a spot in the sunlight from which he could observe the proceedings and watch the target through the 40X spotting scope.

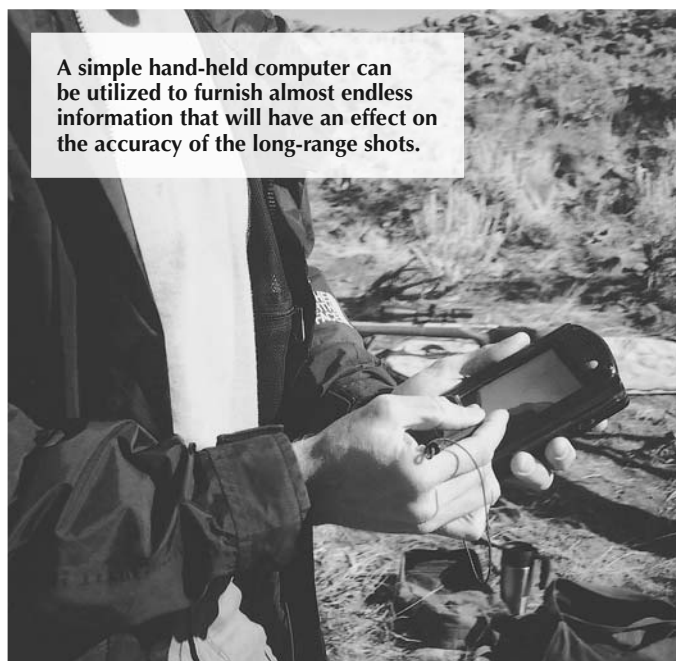


Author/shooter Jack Lewis had his opportunity to fire the CheyTac M-200 during the range session. He fell in love with the 3-1/2 pound Timney trigger that is installed in the rifle.



With the demonstration of the capabilities of the CheyTac M-200 complete, Dave Durham stripped the rifle for cleaning. Note that the bipod is an integral part of the rifle.

Chris Kinney rolled out his shooting mat and stretched out on it, as one of the others settled the M200 rifle butt close to his shoulder. Kinney did not load the rifle's seven-round magazine. Instead, he laid out five rounds of the 408 ammo on the mat at his elbow before settling into his chosen shooting position. Satisfied, he loaded the first round into the chamber of the M-200 and closed the bolt.



A simple hand-held computer can be utilized to furnish almost endless information that will have an effect on the accuracy of the long-range shots.

"I don't remember which of the team was handling the computer," Lewis admits, "but that first round was effective, punching its way through the one-inch metal plate. Roughly 40 seconds apart, the other four rounds were loaded and launched on the small target. The man serving as the spotter was observing through another 40X scope and was calling the shots."

While Lewis watched what Chris Kinney was doing, Warren Jensen and Dave Durham were perhaps 30 yards away, firing in a different direction with the McMillan-stocked M-310 Law Enforcement model. They had a small target taped to a cardboard box at a range of approximately 80 yards and were working for a proper zero with this particular firearm.

With Kinney's string finished, Lewis had turned his attention to what was being done with the other rifle, when a shadow fell across his line of sight. He looked up to see Kinney standing there with five more cartridges in hand.

"Your turn," the retired SEAL announced, offering a wide grin. "Everything ought to work for you."

"The previous evening I had said I'd like to fire the rifle and worked hard at manufacturing an excuse for lousy shooting," Lewis recalls. "My theory has long been that a rifle that is accurate for one person may not necessarily be accurate for another. Such variables as scope alignment and position of the shooter's cheek on the rifle stock can make a difference in my mind."

"Let's load up the magazine," Lewis suggested and Kinney promptly dropped the magazine out of the well and loaded the five 408 cartridges, while his erstwhile student settled down on the shooting mat.

Lewis recalls that the buttstock seemed to fit comfortably into his shoulder. He checked out the controls and flipped off the safety after bolting a round into the chamber. Through the Nightforce scope he could see the white-painted metal plate that already boasted five holes in it. "The problem was that at that range, the plate seemed to be bouncing up and down like a tennis ball," he recalls. "When I held my breath, it seemed to settle down a trifle."

The M-200's Shilen trigger offered a surprise. Lewis was wondering how much slack he would have to take up, as he drew back on the trigger. His thoughts were interrupted by the butt bucking against his shoulder. The exploding gases, of course, were muted by the sound suppressor. In short, there was no slack in the trigger.

"What's the trigger pull?" he asked Kinney, who knelt at his side.

"It's easily adjustable, but this one's set for three and a half pounds," came the reply. Lewis returned his attention to the scope, noting that there still were only five holes in the plate. He obviously had missed it, but at more than 1600 yards, he was not surprised. He has always considered himself a 300-yard shooter. Thus, he took his time in squeezing off the other four rounds, and then got up on his knees to take a long, deep breath in the rarified air.

"Kinney didn't say whether I'd scored any hits and I didn't ask," Lewis admits, "but I was in love with that trigger."

At the time of Lewis' visit to the Arco installation, there were only half a dozen CheyTac rifles being employed by U.S. troops in Iraq. The number has increased many-fold since then. At that time, some 25 Marine Corps snipers had spent a week with the CheyTac group, learning about the system and how to

operate it before heading for Iraq. Of U.S. forces being exposed to the 408 creation, the Navy SEALs had acquired the greatest number of rifles, although Warren Jensen would not quote a figure.

It was learned, however, that several NATO countries have added the CheyTac sniper packages to their inventory. Turkey has been a big customer and the company sent a team to that country to train 40 of the nation's best marksmen.

"Our training manuals had been sent to Turkey earlier for translation and each student had his own bound copy," Warren Jensen told Lewis. "That way, instruction worked out pretty well."

Early in 2006, Robin Sharpless announced that the first version of the M-200 Precision rifle for civilian shooters was in production.

"Actually, we expected the civilian community to settle on the McMillan-stocked M-314, but that turned out not to be the case. Everyone seemed to want a rifle that looked like the one built for snipers." The result has been the M-200 CIV.

"Until now, the CheyTac Intervention M-200 has been restricted to military and law enforcement sales only due to its impressive capabilities and a desire by our ownership to maintain every advantage with our operators in the field," Sharpless explained. "Now CheyTac engineers have developed a mildly de-rated version of the M-200 named the CIV (Civilian Intervention Version) to offer the long range competitor the outstanding capabilities of the MK-200, while limiting its effective range to significantly less than that of the current military versions."

Like the original, the M-200 CIV has a high-precision machined receiver, an attachable Picatinny M-1913 rail, a detachable 25-inch barrel, an integral bipod, a highly effective muzzle brake and that 3.5-pound trigger pull. Overall length is 51 inches with the stock extended and this version's magazine holds seven rounds of 408-caliber CheyTac ammo. With a steel barrel, weight of the civilian model is 24.5 pounds. One can also order the rifle with a carbon fiber barrel, bringing the weight down to 22.5 pounds.

The Big Bores of Valy Rosca

VM HY-TECH, LLC is not a corporate name that is on the tip of every firearms enthusiast's tongue, but all this may change in time. Jack Lewis became intrigued with the organization during the Shooting, Hunting and Outdoor Trade (SHOT) show held most years in Las Vegas. What attracted his attention was a display that centered around a single-shot 50 BMG rifle.

"I was amazed at the fine workmanship and found that the working parts on the big rifle operated with what could be called buttery efficiency," Lewis reports.

Some eight months later, he found himself in an industrial complex on the outskirts of Phoenix, Arizona. One of the buildings carried a small sign identifying it as the headquarters of VM Hy-Tech, LLC. The door was controlled by an electronic key pad, so one did not simply walk in without an appointment.

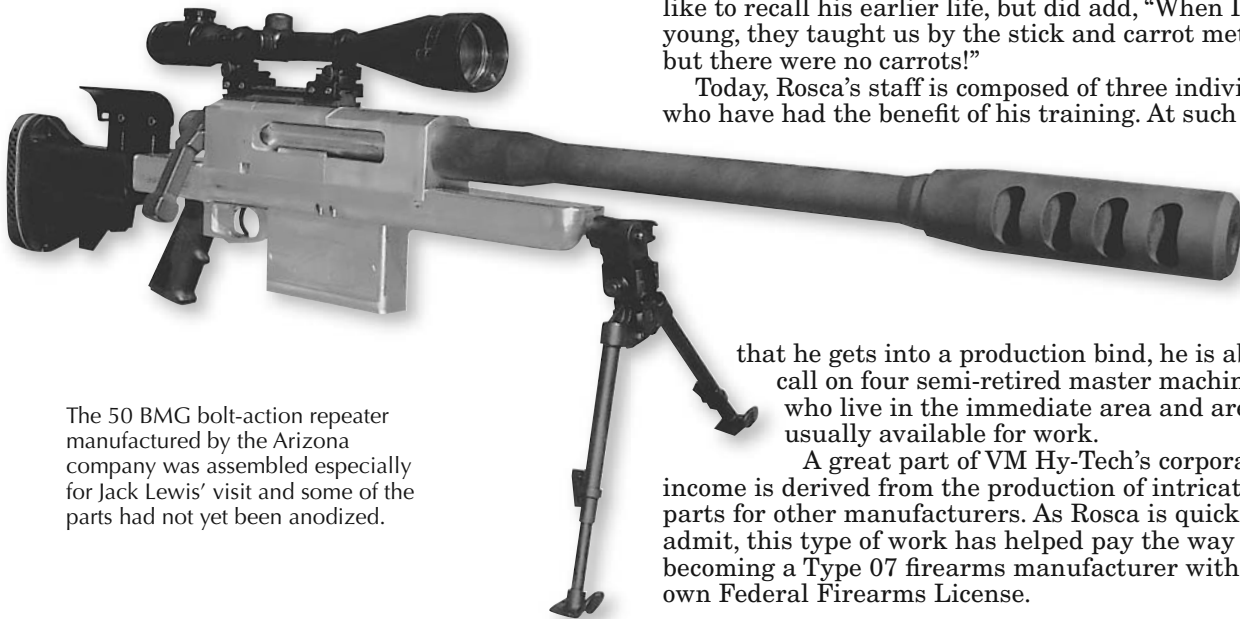
This particular building houses the operations of a gent named Valy Rosca, now a U.S. citizen, who escaped from communist-controlled Rumania. He made his way to Yugoslavia, where he found work that ultimately financed a ticket to the United States. Rosca, now in his mid-forties, began his training in Rumanian machine shops at the somewhat tender age of 14!

Once admitted to the inner sanctum of the operation, Lewis found that the structure offered a couple of small offices, plus an equally small conference room. The rest of the floor space was devoted to a large machine shop.

The first thing Lewis noted was that the shop proper was every bit as clean as the office spaces. There were no grease spots on the concrete floor, no metal shavings in evidence and all of the hand tools appeared to be arranged for easy access to the workers.

Lewis made mention of the cleanliness and Rosca offered a shrug. "That's the way I was taught. Now I try to teach others the same way," he stated. He does not like to recall his earlier life, but did add, "When I was young, they taught us by the stick and carrot method... but there were no carrots!"

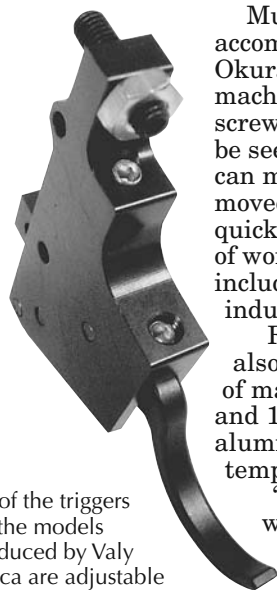
Today, Rosca's staff is composed of three individuals who have had the benefit of his training. At such times



The 50 BMG bolt-action repeater manufactured by the Arizona company was assembled especially for Jack Lewis' visit and some of the parts had not yet been anodized.

that he gets into a production bind, he is able to call on four semi-retired master machinists who live in the immediate area and are usually available for work.

A great part of VM Hy-Tech's corporate income is derived from the production of intricate parts for other manufacturers. As Rosca is quick to admit, this type of work has helped pay the way to his becoming a Type 07 firearms manufacturer with his own Federal Firearms License.



All of the triggers for the models produced by Valy Rosca are adjustable with little problem. Note the smooth finish on this example.

Much of the shop's work is accomplished on a relatively new Okura lathe. "With this same machine, we are able to make a screw that is almost too small to be seen with the naked eye or we can make parts that have to be moved with a forklift," Rosca is quick to declare. "We do all kinds of work for all types of customers, including electronic, aerospace and industrial companies."

Rosca and his small staff also work with a wide range of materials, including 303 and 1704 stainless steel, brass, aluminum, and even high-temperature aerospace alloys. "The broad spectrum of our work and the capabilities involved have added to our knowledge so that we have been able to use in developing our own firearms," Rosca told Lewis.

The veteran machinist is quick to admit, however, that not all of the parts used in the company's weapons are turned out in the Phoenix shop. All of the barrels used in the two 50 BMG models – the original single-shot and a bolt-action repeater – now in production are produced by Lothar Walther in Cummings, Georgia and shipped cross-country.

In the Rosca-designed guns, the customer has a choice of 18-, 28-, 30- and 36-inch barrels, all with a twist of one turn in 15 inches. The buyer also can choose between a custom profile or a bull barrel.

The machined aluminum stock features an adjustable buttplate that is backed by a thick Pachmayr pad to absorb recoil. The Rosca rifles are equipped with an all-steel VerPod bipod that boasts a quick-detachable mount. More important to the marksman, perhaps, is the fact that the bipod can be made to roll, tilt or swing, unlike most other units that allow only for roll.

The Model VM-50R now in production is a five-round bolt-action repeater that is equipped with a patented



The 5.56mm magazine is held in place by means of a special magazine well extension, the magazine being clicked into position.

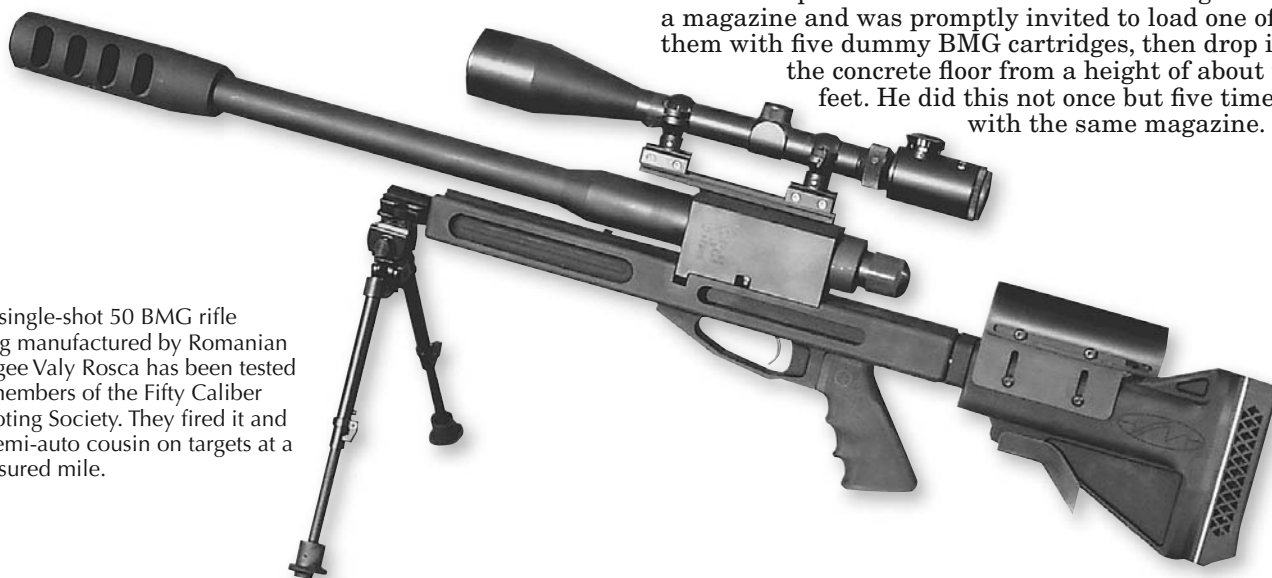
trapezoidal extractor that Rosca designed. This extractor is built to handle either the ages-old 50 Browning Machine Gun cartridge or the 12.8x99mm NATO round.

This rifle's muzzle brake is a fish-gill design meant to reduce recoil. It measures two inches in diameter and has eight ports with 30-degree rear sweep. The rifle's trademarked Tele-Stock is machined from a solid billet of hard-anodized aircraft-grade aluminum. According to Rosca, the production of each of his bolt-action repeaters calls for the machining of six separate billets of the chosen aluminum.

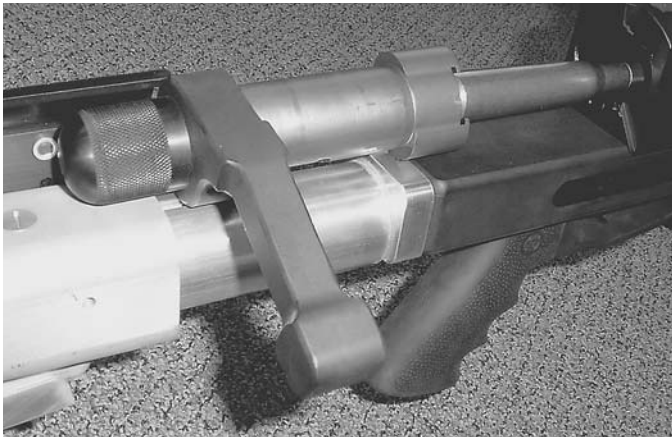
The stock is a collapsible type and features seven different finger-adjustable positions. In addition, there is the finger-adjustable buttplate as well as an adjustable cheek rest. The latter can be adjusted for proper eye relief or to match the height of an attached scope sight. According to Rosca, the cheek rest can be adjusted for use by either a right- or left-handed marksman.

The repeater's five-round 50-caliber magazine is machined from the same aircraft-quality aluminum as the stock. Unusual is the fact that the magazines are not welded in keeping with standard procedures. Instead, the parts are designed to simply snap together.

Lewis expressed his doubts as to the strength of such a magazine and was promptly invited to load one of them with five dummy BMG cartridges, then drop it on the concrete floor from a height of about five feet. He did this not once but five times with the same magazine.



The single-shot 50 BMG rifle being manufactured by Romanian refugee Valy Rosca has been tested by members of the Fifty Caliber Shooting Society. They fired it and its semi-auto cousin on targets at a measured mile.



Intricacy of the machining accomplished in building these rifles is reflected in the checkering on the rear of the bolt. Note the heavy-duty bolt handle on this single-shot 50 caliber.

“The magazine did not come apart, as I expected,” Lewis reports, “and close inspection showed no damage after such punishment. Not even a minor ding.”

Rosca does not include sights with his rifles. Instead, a steel Picatinny-type rail that will accept Weaver rings is attached to the top of each rifle.

The rifle’s trigger group, which also is manufactured and assembled in the Phoenix factory, is a work of art in that it can be adjusted from a lightness of only three pounds up to 14 pounds, giving the individual shooter his own choice of trigger pulls.

At the time Lewis inspected one of the first repeaters off the line, not all of the parts had been finished in the matte black anodizing, but it was noted that the rifle with an 18-inch barrel and not yet mounted with a scope weighs 26 pounds. If one should choose to have a 36-inch barrel installed, the weight would be increased to 33 pounds.

Corporate records which Lewis was allowed to review show that using ball ammo with a 647-grain boattail bullet, the velocity through the 18-inch barrel averaged in the neighborhood of 2400 feet per second. When test firing was done with a 36-inch barrel, velocity with the same bullet was increased to 2960 feet per second.

When accuracy tests were conducted at Arizona’s famed Black Canyon range, it was found that the repeater’s performance was virtually the same as that



The adjustable cheek piece is an innovation that Rosca added to his rifles, with the idea of increasing the shooter’s comfort when firing.



Barrels for the Phoenix-built 50 caliber rifles are supplied by Lothar Walther, who turns them out in Georgia and ships them to VM Hy-Tech, LLC.



Muzzle brakes in several different sizes are manufactured by the company. This one is for the 50 caliber sniper rifles being turned out.

of the earlier perfected single-shot, which is listed as the Model VM-50T. This single-shot rifle carries a Tele-Stock outfitted with a nine-position finger-adjustable PosiLok, while the repeater can be adjusted for only seven positions.

The VM-50T single-shot has many of the same specifications as the later-built repeater. As a result, there are a number of interchangeable parts. The result is that Valy Rosca is inordinately proud of his shooting machines and is quick to point out that the adjustable triggers, cheek rests and telescoping stock offer “a custom-built shooting tool for anyone who fires a rifle.”

Initial shooting tests of both of these 50-caliber rifles were conducted by members of the 50 Caliber Shooting Society. The targets were placed an exact mile downrange from the firing positions, and it was found that five-round groups resulted in less than three feet of dispersion.

However, Val Rosca realizes that not every shooter is a 50-caliber buff; that it is a somewhat limited market. As a result, he also produces a semi-automatic rifle that he calls his Model VM-15. Incorporated in the design are ideas drawn from the older AR-15, the military-issue M-16 and the M4 carbine.

As one no doubt would expect, the Rosca VM-15 is a gas-operated semi-automatic, but is equipped with a folding side-charging lever. The lower receiver is forged from 7075 T6 aircraft-grade aluminum, a high tensile-strength product. It is machined at the Phoenix shop to close tolerances, then hard-anodized.

This particular model is available in either 223 Remington or 9mm. Rather than the Lothar Walther barrels of the big bores, this design features a Wilson barrel, giving the buyer a choice of an M4 profile barrel, one that is fluted or another that is fluted and ported, while a fourth choice is equipped with a fish-gill muzzle brake. The Wilson barrels are available for this rifle in lengths ranging from 16 to 25 inches, each featuring a 1-in-9 twist. The rifle’s recoil-reducing muzzle brake measures one inch in diameter and has six ports that are cut for a 30-degree sweep to the rear.



All of the VM-Hy-Tech rifles leaving the factory carry the company logo, as well as model identity, caliber and serial number.

"But if a shooter wants a custom barrel or a bull barrel, we'll build it for him," Rosca promises.

The stock of the VM-15 is an item that is not manufactured in the VM Hy-Tech SOP. It is made by a stock specialist Rosca did not care to name, but it is formed from a thermo-set polymer resin.

Wearing a 16-inch barrel that is ported and fluted, overall length of this little rifle is 34.3 inches. With a 20-inch barrel, overall length increases to 38.5 inches. Again, there are no sights. Instead, as with the 50-calibers, the rifle carries a Picatinny rail that will accept Weaver scope rings.

Depending upon local and state laws, the rifle is shipped to the buyer with either a five or 10-round magazine, but Valy Rosca insists the piece will accept all currently made AR-15/M-16 magazines.

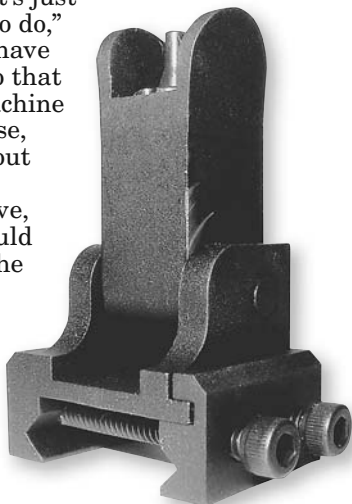
With three models currently in production – the single-shot 50, the bolt-action 50 repeater and the VN-15 – Valy Rosca is quick to insist that he isn't done yet. He currently is working on two more projects, both of them in the 50 caliber field.

The project on which he is concentrating at this writing is a 50-caliber semi-automatic. He also has plans – we hope you're ready for this – for a selective-fire 50; one that fires either semi-auto or full-auto.

"A full auto?" Lewis questioned when the announcement was made. "The way that gun will gobble up ammo, it'll take a supply battalion just to carry fodder for it in a combat situation!"

Valy Rosca laughed at Lewis' protest, and then shook his head. "It's just something I think I ought to do," he declared. "It'll probably have a drum magazine similar to that of the old Thompson submachine gun!" Time will tell, of course, just how serious he was about this particular project.

As he was taking his leave, Lewis asked whether he could have owner's manuals for the three guns in manufacture. Rosca shook his head with a grin.



The wing-protected front sight for the carbine can be adjusted for elevation changes.

The stock assembly for the Rosca-designed rifles starts out as a block of aircraft-grade aluminum. All necessary machining, including small parts, is done in the company's shop.

"I don't furnish manuals," he declared. "I don't want buyers taking my rifles apart. Each gun has a lifetime guarantee. If one of them goes wrong, I want the owner to ship it back to me. I'll make whatever repairs or adjustments are needed, then ship it back to the owner. I'll even pay shipping charges both ways!"

"The most I want an owner to do is swab out the barrel after shooting and add a protective coating to the steel parts."

Now there is a man with total confidence in his product!

When the magazine is empty, a finger punching the spring-loaded button on the extension allows the magazine to fall free, thus saving time in the reloading progression.



Some of the miniscule parts for the various firearms are shown with a Lincoln head penny to offer an idea of how intricately Rosca's equipment can produce needed parts.



A Matter of Conversion

HIDDEN AWAY IN an industrial area of Salt Lake City is an operation that may well do a great deal about changing the way we look at military armament in the days ahead. Alex Robinson, who has been an attorney, property developer and a Mormon missionary in the islands of the South Pacific, has long been interested in the development of practical weapons for combat.

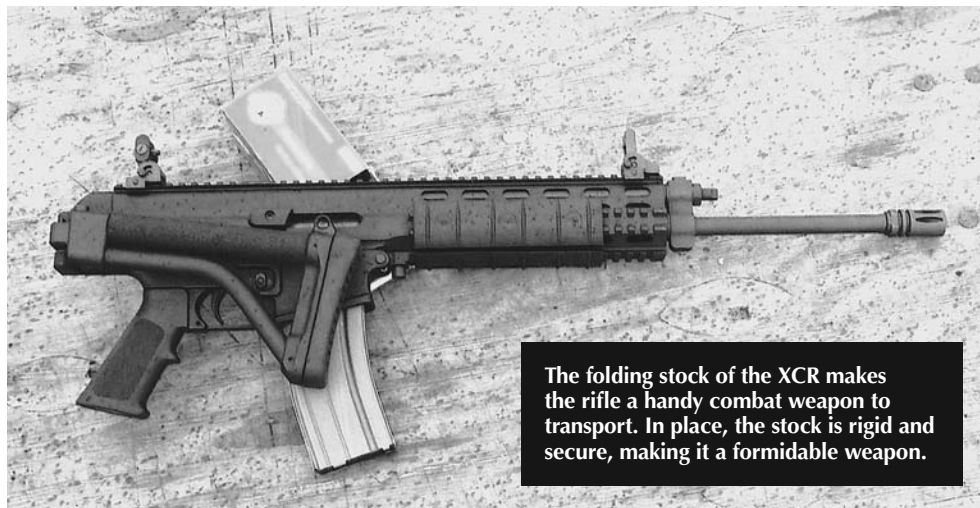
Several years ago, he and his staff came up with a rifle they called the Model 96. Inasmuch as the design could be used as an assault rifle, as a carbine with a few parts changes or as a top-loading weapon, there was a lot of interest in the conversion factor that quickly allowed the rifle to change appearances as well as uses. Experience showed, however, that to complete a rifle more than four hours of welding alone was involved.

"From a business standpoint we figured out that we would have to sell the rifle for something over \$2,000 a copy to make even a small profit. In short, the price didn't make it practical for police or military use, so it's somewhere out there on the back burner for the moment," Alex Robinson told Jack Lewis during the latter's visit to Salt Lake City in late 2006.

Instead, the entrepreneur's Robinson Armament Co. has introduced a modular weapon system that has been named the XCR. A part of their introductory program states: *M-16, Step Aside. Your Replacement Is Here!*



Robinson Armament's XCR rifle brings some new thinking to battle arms design. It is being developed to handle three different calibers with only minor changes.



The folding stock of the XCR makes the rifle a handy combat weapon to transport. In place, the stock is rigid and secure, making it a formidable weapon.

Practicality of the XCR lies in the fact that it features a quick-change barrel system and, with that, a multi-caliber capability. In the 5.56mm mode, it uses standard M-16 magazines.

When Jack Lewis ended up in the Robinson production shop, he had expected to be dealing with the earlier mentioned 96 model, not knowing then that the project was on hold. However, he found the XCR to be even more intriguing.

"The XCR is the most ergonomic of assault rifles," Robinson is quick to assure one. "All controls can be manipulated by the operator, while keeping the rifle shouldered with the target in view."

The rifle submitted to Lewis for inclusion in this volume carries a 5.56mm NATO barrel, but a spare barrel can handle the more potent 6.8mm Remington SPC. With further changes still being worked out, the same rifle – again with a change to what will be a third supplied barrel – will handle the 7.62x39mm cartridge, as well. The change from one barrel to another requires the substitution of the barrel, bolt, magazine and brass deflector. At the time of this test, the barrels for the 6.8mm round were just being turned out and one was not available in time to make the deadline for the 7th edition of this book. Robinson also stated that work was under way for inclusion of the 7.62x39mm, but

it would be several months before complete kits for either of the caliber changes would be available.

Taking a longer look at the ergonomics of the 5.56mm NATO version, the charging handle is non-reciprocating and is located on the left side of the rifle. "This placement," says Robinson, "allows the operator to cycle the rifle without interference from any rail-mounted accessories. The charging handle also acts as a forward assist simply by depressing its knob." The bolt hold-open can be manipulated easily and quickly with either hand, thus ensuring the shortest possible reloading time.

As for specifications, the possible cartridges that can be used have been mentioned. The rotating three-lug bolt is driven by the rifle's gas piston. The XCR that Lewis and Company ended up with was, of course, semi-auto, but Robinson Arms also is producing a selective-fire version for government and law enforcement use.

The barrel with which the test rifle was equipped seemed rather lightweight, fully floated and measured 16 inches in length. Perhaps the handy



Ace Kaminski deserted the makeshift barricade that was set up for use in the test shoot of the Robinson Armament rifle.

It was noted that the 1913 Standard Picatinny rails are machined directly into the upper receiver to be parallel with the barrel receptacle. This is meant to ensure that the bore of the barrel is parallel with the rails. The top rail is 17 inches in length, while the side and bottom rails measure eight inches each.

It was noted that the XCR has some other unique features to help fulfill the manufacturer's claim that "it is the most modular and flexible rifle available. The quick-change barrel system is easy to use, yet holds the barrel firmly. The barrels can be

changed quickly with little or no loss of zero using a quarter-inch Allen wrench."

Alex Robinson may have something in his approach to caliber changes. A number of arms manufacturers have been introducing weaponry that allows the upper receiver of the M-16 to be replaced by an upper that is tooled and machined to handle a larger caliber. Examples are the Rock River Arms SOCOM 468, which can be mounted on the lower receiver of the M-16. Another example is the .499 Leitner-Wise, which offers one a choice between a 62-grain 5.56mm bullet or a 300-grain .499-inch diameter slug. This one also involved an upper receiver chambered for the larger round.

The problem with some of these innovations lies in the fact that their cost is considerably more than that of Alex Robinson's upcoming replacement kits. While Lewis was in the Salt Lake City plant, Robinson made his point by removing the barrel, bolt, magazine and brass deflector, replacing them with items made for the Remington-developed 6.8mm Special Purpose Cartridge. The entire conversion

took less than three minutes!

"The XCR conversion kit is a lot handier than attempting to lug around a batch of upper receivers necessary to change the caliber of the basic M-16!" Lewis pointed out.

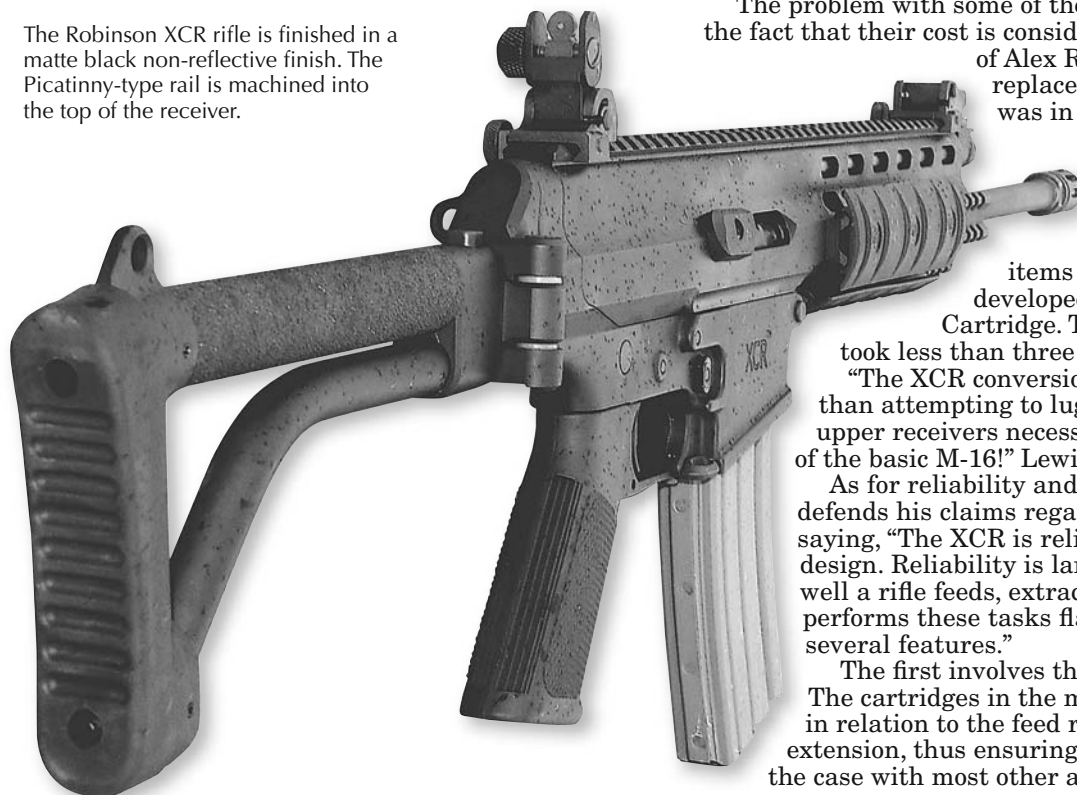
As for reliability and durability, Robinson defends his claims regarding those capabilities, saying, "The XCR is reliable and durable by design. Reliability is largely a function of how well a rifle feeds, extracts and ejects. The XCR performs these tasks flawlessly because of several features."

The first involves the rifle's barrel extension. The cartridges in the magazine sit higher in relation to the feed ramp of the barrel extension, thus ensuring better feeding than is the case with most other assault rifles.

balance of the weapon may have led to that impression of a lack of weight. The bore, incidentally, is chrome-plated with a standard twist ratio of 1 in 9 inches.

The rifle features a folding skeleton stock helping to hold the empty weight at 7.5 pounds. With the stock folded, length is 27.4 inches; with the stock extended, overall length tapers at 37.75 inches. The standard trigger is the military-inspired two-stage type, although a single-stage trigger is available, according to Robinson. The sight radius depends upon placement of the front and rear sight on the accommodating rail, but he says 15 inches seems to be typical.

The Robinson XCR rifle is finished in a matte black non-reflective finish. The Picatinny-type rail is machined into the top of the receiver.



As opposed to the six lugs on the standard M-16 bolt, the XCR's bolt carries three large, durable lugs. A heavy-duty extractor exerts positive force against the cartridge rim to accomplish reliable case extraction.

The ejector for the XCR rifle is of the solid type and is positioned ahead of the rear of the magazine, guaranteeing powerful and positive ejection. The rifle's non-fouling gas adjustment carries four positions, which allows the rifleman to make adjustments for conditions and circumstances as well as allowing installation of a suppressor.

That takes care of conversion from 5.56mm NATO to 6.8mm SPC, but work still is under way to make it possible to handle a third round – the 7.62x39mm – without major difficulties in the combat environment.

During Lewis' visit, he brought up the subject of marketing. What steps were being to introduce the XCR to the military and law enforcement markets? He wanted to know.

"That's really no problem." Alex Montgomery dismissed the question with a wave of his hand. "If a firearm is really good, there are always going to be buyers for it."

That sounded like the ultimate in self-assurance and Lewis was still pondering the statement some weeks later, when the XCR rifle was delivered to his doorstep. It was time to check out what had been said about the rifle's durability and accuracy.

The first thing noted was that the front sight and rear sight were not attached to the rifle. Each was



The first 10 rounds fired on the target from 200 yards were to the left. They were 55-grain Czech-made ammo. The rounds that perforated the body area of the target were, for the most part, 75-grain Black Hills Match HP rounds that matched the 1-to-9 twist ratio of the barrel. The faded area on the target is a water spot on the camera lens caused by an approaching storm.

The two bad boy targets carrying a life-size image were positioned approximately 200 yards across a ravine. The shoot took place in a lava pit on the coast of the island of Hawaii.



packaged separately in a moisture-proof bag. That was when Lewis called Ace Kaminski, who has tools to repair anything from a Swiss watch to a bulldozer. Though a working law enforcement agent, Kaminski probably could make as good or better a living as a gunsmith. Lewis delivered the cased rifle to him and was told that his shooting partner not only would install the sights on the built-in Picatinny rail, but also would zero it during his spare moments.

All of this would take place during Kaminski's off-duty hours, since the best place for testing such firearms was a deep-dug lava pit to which the shooters had access on Sundays, when the hole was not being worked. The only rule was that they had to pick up all of their brass and any other residue from the shoot so that said debris would not end up protruding from someone's driveway or home foundation in the course of construction.

When the test crew gathered at the lava pit on a weather-threatening Sunday morning, Kaminski had zeroed in the rifle, using a standard bullseye target at 25 yards. For this job, he used Czech-made ammo imported by Sellier and Bellot USA, an outfit that headquarters in Shawnee Mission, Kansas. The Boxer-primed cartridges each carried a 55-grain FMJ-type M193 bullet.

It was decided to use the life-size bad guy targets turned out by Kleen-Bore, Inc., positioning two of them across a ravine at a range of approximately 200 yards, if one can believe today's rangefinders.

In zeroing the rifle, Kaminski had fired only 10 rounds, which left another 10 in the box magazine. There was a stiff crosswind blowing and the folding

table normally used as a makeshift shooting bench was stood on end to attempt to cut down on the blow. Lewis pointed out that it could serve in a shooting-from-cover scenario. However, after bracing himself against the table for his first two shots, Kaminski stepped back from it and fired the other eight rounds offhand *sans* brace. He complained that the wind was causing the table top to literally vibrate, lousing up his aim.

Inspection of the target showed that most of the Czech rounds had missed the image, but were grouped in the upper left corner of the target's white space. That, it was surmised, meant that either the brisk wind was causing the lightweight bullets to stray or the sights needed adjusting. Lewis and Kaminski checked the sights, front and rear, to determine whether they could have come loose on the rifle's rail, but they were tight with no wiggle.

Lewis loaded 10 rounds of Black Hills' 75-grain Match hollow-point ammo in the magazine and handed it back to Kaminski. "According to the specs, the rifle has a 1-to-9 twist," he pointed out. "The Black Hills box says that heavy match bullets require relatively fast rifling twist rates for best accuracy. Jeff Hoffman recommends the 75-grain bullet for this rifle's barrel twist. Let's see if this makes a difference."

Kaminski took his offhand position once more and cranked off the 10 rounds with minor pauses between shots. He and Lewis discussed the cartridge information as they made a round-about trek to where the two targets were positioned.

Whatever the reason, all 10 of the 75-grain bullets had punched their way through the paper figure.



The sights of the rifle were attached to the machined rail, with the rear being adjustable for changes in elevation and windage.



The sights, front and rear are attached to the rail and may be removed for installation of a scope or other sighting device.

According to Black Hills' Jeff Hoffman, this particular bullet generates 2750 feet per second in muzzle velocity with 1259 foot/pounds of energy.

It can only be assumed that Hoffman knows all there is to know about his cartridges, since his company produces more versions of 223 ammo than any other company. His outfit currently is contracted to produce 5.56mm Match ammunition for all four branches of our Armed Forces.

Jack Lewis took his turn behind the upright table and used it as a rest for his first several shots on the still untried target. Suddenly, the target was nearly invisible in the deluge of tropical rain driven by increasingly heavy winds. This quickly brought the exercise to a halt and hurried moves were made to get protective cover over the rifle and remaining ammo. That accomplished, the two shooters and their photographer drove the circuitous route to the targets in Kaminski's four-wheel vehicle.

The wind had ripped the targets off of both of the holders and they were flapping away in the general direction of the Pacific Ocean three miles away. The trio sat in the vehicle, discussing what they had learned, while they waited for the storm to pass. When that happened, they gathered up the target stands, shoving them in the back of the vehicle and returned to the shooting site, where the other two vehicles were parked.

"I wish we had about six more months to work on this book," Lewis stated, eyeing the rifle, as he wiped off the moisture from the storm. "I'd really like to be able to convert it to 6.8mm, then to 7.62x39, comparing effectiveness of each of those cartridges from the same rifle."

"That'll give you something to do for the Eighth Edition," Kaminski offered.



Jack Lewis braced the rifle against the makeshift barricade for his shooting. While the flash suppressor works to conceal any flame, it can be seen that smoke from the muzzle could be a giveaway in combat.

CHAPTER 3

FROM BILLY CLUBS TO PEPPER BALLS

There Appears to be Growing Interest in What are Termed Less-Lethal Weapons in Today's World

WARFARE GENERALLY IS conducted with an array of lethal weapons and some of those same weapons, wielded by military personnel, have been used to maintain order within countries. However, during the 19th century, as value of the life of an individual gained importance in Western republics, police officers were expected to bring in most suspects alive.

Sir Robert Peel, then Great Britain's Home Secretary, formed what is considered the first modern police department. That took place in London in 1829. Under his guidance, the uniformed officers came to be known as "Bobbies" or "Peelers" in his honor. These officers were forbidden to carry firearms on patrol, which distinguished them from the country's armed forces. Instead, the so-called Bobbies were armed with nothing more than a short wooden truncheon.

"Of course, this armament policy cost a number of early Bobbies their lives, since the villains of the era still had their guns," David Steele reports. "The truncheon – variously known as a cosh, billy, nightstick or baton – is the most basic tool of the police officer, separating him from the soldier on one side and the common citizen on the other. Even now, with 45 of our states authorizing private citizens to carry handguns, authorization to carry so-called blunt instruments is rare."

The nightstick also exemplifies why such weapons now are called "less lethal" rather than "non-lethal." One newspaper

described the New York police encountering Irish rioters during the 1863 Draft Riot, stating "their locusts fell on heads like rain on a roof."

The burly police officers – themselves primarily of Irish extraction – hit hard with their locust wood batons as they would have with blackthorn canes and shillelaghs in the Old Country. Quite a few rioters did not survive the blows. However, this bothered neither side and ultimately it required Federal troops, fresh from Gettysburg, to put down the riot with the threat of artillery.

"Traditionally, the policeman's main job was that of keeping what were considered the lower orders in line," Steele reports. "The upper classes did not want to know how this was done. Until the 1960s, in fact, no one questioned the use of head blows in non-lethal situations. A suspect who decided to resist the police all too often could expect to be rendered unconscious via such blows. There is no doubt that it is easier to handcuff an unconscious person, but concussion or depressed skull fracture can result in brain damage and even death.

"Back in the days when head blows were standard procedure, some officers preferred a sap or blackjack to the wood baton. The sap was a leather-covered flat or round piece of lead with a spring handle, although it could contain lead shot rather than a solid piece of metal. The latter usually was safer for the suspect, as the lead shot would spread out when it hit bone. In fact, the first blackjacks were leather bags of lead shot used by 19th century muggers to incapacitate a victim."

The modern form of blackjack was well known by the time of the Civil War and usage was simple. The officer could carry it easily in a slash pocket of his uniform pants, thus making it much more convenient than

The ASP T21 telescoping baton expands from eight to 21 inches. Satin chrome or black chrome shafts are held in place by an ordnance-quality spring and an O-ring sealed cap. It is compact but intimidating in action.





In days gone by, some officers carried brass knuckles as less-lethal weapons. In most instances, they had been confiscated from criminals.

a wood baton. When necessary, it was applied to the back or top of the suspect's head. The resulting brain displacement would result in concussion and hopefully unconsciousness. It was probably less likely to result in a depressed skull fracture, brain damage or death than application of a hardwood stick or an aluminum flashlight, but it still had several drawbacks. The blackjack was too short to allow much standoff distance and its lack of rigidity prevented use in leverage "come-along" techniques.

According to Steele, "In the 1970s and '80s some thought the side-handle PR-24 baton would replace all straight sticks and blackjacks. Though it worked well, it was bulky and took up space in an already overcrowded duty belt. Today, it is more common to see a telescoping metal baton such as the ASP.

"This is a collapsible version of the medieval Japanese policeman's *jitte*. In Japan and Taiwan, the telescoping baton has been in common use since the late 1960s, but it took another 30 years to be accepted in the U.S. The telescoping baton is as easy to use as a sap, but provides the versatility and standoff distance of a baton. However, the goal in law enforcement has become to provide even greater standoff distance with less skill and strength required."

Chemical Weapons

The first less-lethal weapon that could be used at a distance was tear gas, which was developed in World War I. Since, it has been used widely in riot control, in chemical-biological-radiological training and in

area denial such as Viet Cong tunnels and barricaded suspect rooms.

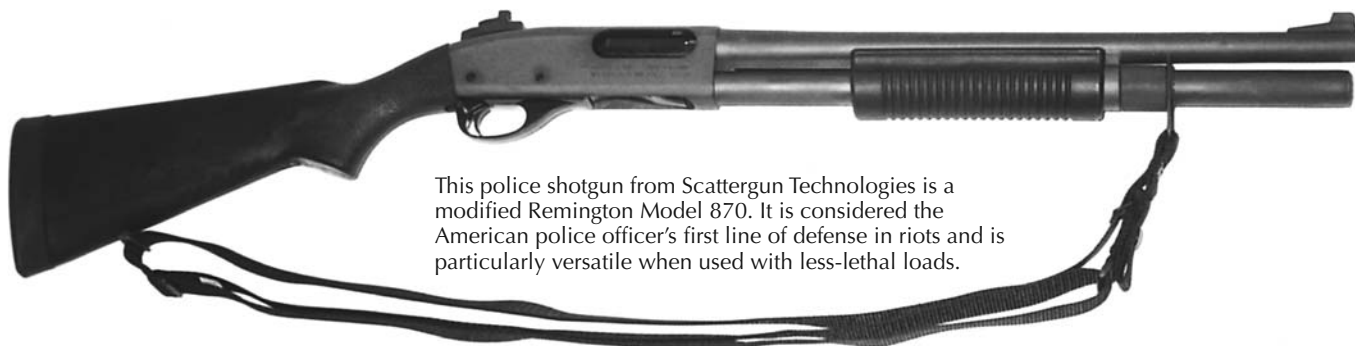
The two commonly encountered types of tear gas are known as CN and CS. A vomiting gas called DM has been developed, but has been found too disabling and sometimes lethal for use in American riot control.

Steele has found that "in the 1960s, the late Colonel Rex Applegate and several scientists developed a CN aerosol spray that came to be known as Chemical MACE. Used first in Latin America, the initial use in riot control in the U.S. was by police in Berkeley, California, around 1970. They advanced on the crowd with the MACE canister in one hand and a nightstick in the other."

Eventually, several companies came to supply CN and CS aerosols for police and civilian use. Larger munitions for 37mm launchers and hand grenades were made by Lake Erie, Federal, Penguin and Smith & Wesson. AAI Corporation in Maryland developed a plastic-bodied grenade, which avoided the flammable properties of earlier riot grenades. This corporation also designed the CS Ferret projectile, which launches three cubic centimeters of agent via a 12-gauge rocket-shaped cartridge. The Ferret could be lethal at close range, but was intended to penetrate light barricade material in order to saturate rooms or the interiors of vehicles.



This is MK Ballistic Systems' 37mm Flexible Baton shell for use in typical police tear gas grenade launchers.



This police shotgun from Scattergun Technologies is a modified Remington Model 870. It is considered the American police officer's first line of defense in riots and is particularly versatile when used with less-lethal loads.



MK Ballistic Systems' 37mm Flexible Baton shell is positioned amid the shot-loaded beanbag payload for use from 37mm tear gas grenade launchers.

"More recently, pepper gas or OC (oleoresin capsicum) have become popular for personal aerosol projectors," Steele has found. "It is reported to be more effective on drunks, dopers and emotionally disturbed individuals. It also is effective against dogs and other animals, unlike CN or CS. A firm called Cap-Stun has developed an OC grenade for riot control, but thus far, bulk dispersion of its cayenne pepper load has not reached the level of CN or CS."

Incapacitant gases are the most common chemical devices, but not the only ones. Some are not new, but have had technical problems in development. For example, what is known as Instant Banana Peel is an area denial weapon that dates back to 1970. It was designed to be sprayed on streets, making it impossible for rioters to stand up. Another device called Sticky Foam will project a gooey liquid as far as 35 feet, freezing a suspect in place.

"In theory, at least, future rioters could be funneled onto streets covered with Instant Banana Peel and when they fell, they could be frozen in place by Sticky Foam," Steele contends.

Projectile Weapons

Traditional riot control assumes an angry mob that has gathered in a single place can be dispersed or driven off into side streets. While this sort of riot still occurs, the most dangerous situation is the wide-area insurrection such as those in Los Angeles in 1967 and again in 1992, involving arson, looting, random assaults and even sniper fire.

"Chemical agents and batons are of little use against criminal gangs driving from one target to the next, attacking motorists, looting gun stores, burning shops owned by racial enemies, ad infinitum," Steele has learned. "The best single weapon against this sort of insurrection is the 12-gauge pump-action shotgun."

This particular weapon allows a variety of lethal and non-lethal tools to be used, including #00 buckshot, special purpose loads like the AAI Ferret and grenade launcher, as well as the MK Ballistic Systems' Flexible Baton.

Some of the better known anti-riot weapons were developed around the single-shot 37mm tear gas launchers made by Federal and Lake Erie, as well as in various European countries. A wooden baton shell was developed for "skip-firing" against rioters' legs. First used in Hong Kong in the mid-1960s, Berkeley police used this device against student rioters in 1971. Nicknamed the "knee knocker," the most common sort was a "multiple baton shell" made by Federal Laboratories.

It was the British who pioneered the so-called "rubber bullet," actually a long baton shell fired from a gas grenade launcher. It was introduced in Northern Ireland as a weapon against the Irish Revolutionary Army. From this initial research came the ARWEN (Anti-Riot Weapon, Enfield), which was produced first as a single-shot device, then in a five-shot configuration.

"Produced at the Royal Small Arms Factory of Enfield Lock, the ARWEN 37 entered British Army service in 1979. In 1985, it was adopted by the Los Angeles County Sheriffs Department and was used to quell a major riot in the Men's Central Jail in 1986. Issued to police sergeants, it was used to a limited extent on looters in the 1992 Los Angeles riots," Steele reports.

The ARWEN 37 is a five-shot, revolving-cylinder 37mm carbine that is capable of placing accurately at 100 yards the 2.7-ounce, 4-inch plastic flat-nosed



This is one of the newer 37mm gas grenade launchers available to police. It can be used easily with riot loads from MK Ballistic Systems.

projectiles called batons. The baton is launched from an aluminum case in front of a one-gram charge of blackpowder. "The ARWEN is effective," Steele feels, adding, "but at \$1,500 per copy, the greatest problem is getting enough of them into the hands of police officers."

A device related to the so-called rubber bullet guns is the "stingball grenade." Listed as the No 15 Stinger Grenade, this item is marketed by a Smith & Wesson subsidiary, Defense Technology Corporation.

"Hand-launched, the stingball has a three-second mechanical fuse. When it explodes, it sends 180 three-eighths-inch rubber pellets in a 360-degree radius out to 50 feet," David Steele reports. "The Los Angeles Sheriffs Department used the stingball effectively in the 1986 Central Jail riot in spite of low ceilings, which tended to inhibit the device's ideal air burst capability."

Steele feels that one of the more interesting devices marketed in the 1970s was the Mark 70 Model 2 Stun Gun from MB Associates. This device fires what were called "stun bags," actually beanbags loaded with bird shot. They could be fired from the 37mm gas launchers as well as from the 40mm M79 grenade launcher.

More recently, the beanbag concept has been taken up by MK Ballistic Systems of Hollister, California. MK turns out a complete line of what are called Flexible Batons. These beanbags can be fired from 37mm and 40mm launchers in several variations marked as Close Range, Low Impact, Standard, Long Range, Super Long Range, Tri-Flex and Multi-Flex.

"However, the firm is best known for its specially loaded 12-gauge cartridges that are marked as Close Range and Standard; there also is a dye marking round," Steele reports.

Accurate up to 25 yards, these loads can give an officer anti-riot capability without the issue of a new and expensive weapon. This setup allows him to "reach out and touch" looters without endangering himself or standing around in full riot gear, waiting for rioters to attack at stick distance.

"For safety reasons, those departments that issue beanbag rounds also issue a special dedicated shotgun to minimize the possibility of using lethal rounds by mistake. The round has been used against knife and stick-wielding suspects as well as mental cases to avoid the use of deadly force," Steele reports.

One weapon that combines impact and a pepper agent is the PepperBall Launcher manufactured by PepperBall Technologies in San Diego, California. The company makes a pistol-styled launcher called the SA-10, a paintball-style carbine designated at the SA-200 Semi-Auto and a full-auto carbine known as the TAC-700. These devices can shoot inert impact rounds, training rounds, marking rounds, glass-shattering rounds and live pepper rounds.

"The TAC-700 is the top of the line, capable of shooting 700 pepper balls per minute on full auto," according to Steele's findings. "It is useful for crowd control, barricade-busting and area denial. Getting



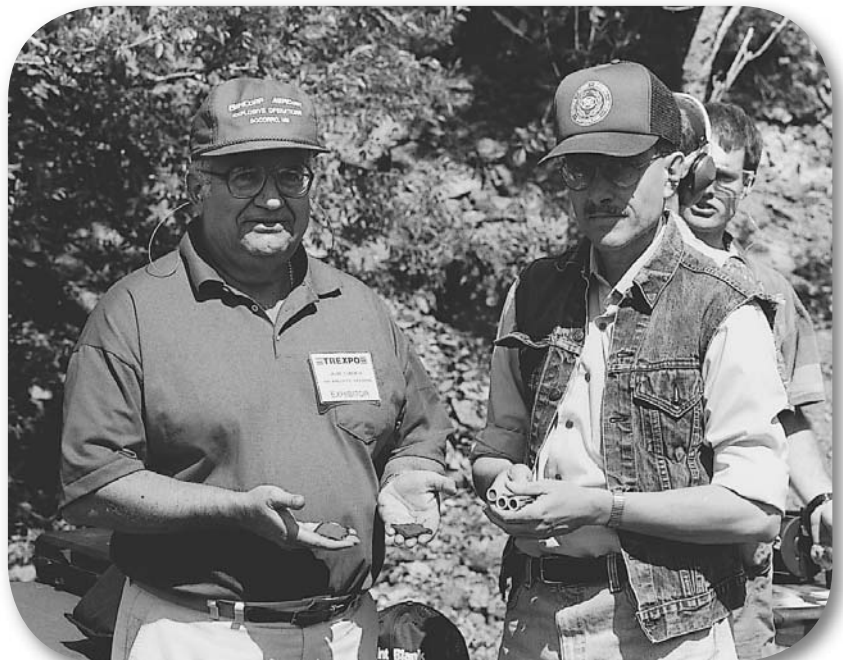
David Steele checks out a rifle-sighted Remington Model 870 pump gun, which he is about to load with the MK Ballistic Systems 12-gauge Flexible Baton Shell for testing on a police department firing range.

hit in the chest by one of these balls is painful enough, but multiply that by half a dozen hitting and dispersing the pepper agent simultaneously and one is in for real pain!"

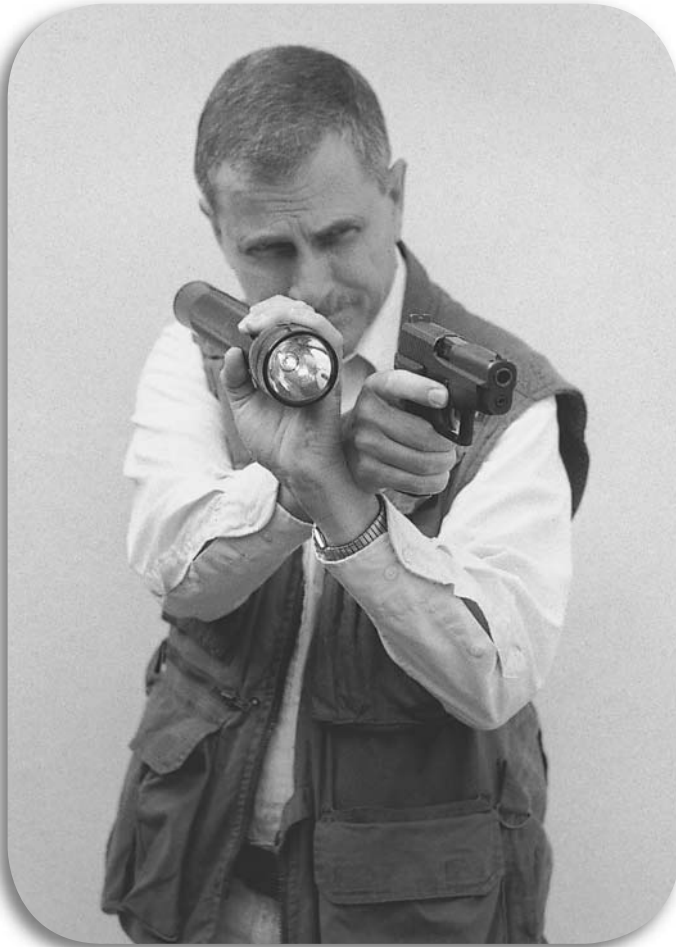
The TAC-700's hopper carries 200 rounds and a 48 cubic-inch compressed air bottle that provides the power. It is accurate up to 60 feet.

Electric Weapons

Some 40 years ago, at the height of the civil rights disturbances, Southern police officers were known to use cattle prods to keep demonstrators moving. This



J.H. Cuadras of MK Ballistic Systems shows Steele the shot-filled beanbags which fit into 12-gauge Flexible Baton shells.



David Steele has learned the hard way that such instruments as the D-cell MagLite can be utilized as an emergency impact weapon, depending upon the situation.

was pilloried in the press as using an “animal” device on people, as was the PVC *sjambok* bullwhip used in South Africa.

“The actual merits of the device, compared to guns and sticks, were ignored,” Steele points out. “The cattle prod image largely killed Electon and Shock-Baton electrified nightsticks of the era.”

The XR-5000 Nova stun gun used 50,000 volts and was small enough to be carried as a self-defense weapon. However, it had to be kept in constant contact with the suspect for several seconds to produce temporary disablement. The normal tendency, of course, was for the suspect to pull away.

The most successful electric weapon has been the TASER (named for Thomas A. Swift’s Electric Rifle, which was created in the 1920s for teen-age fiction readers). It was developed around 1970. Early versions were square, bulky and difficult to aim. However, the device delivered two darts – each trailing electric wire – out to 15 feet. Current versions of the TASER are pistol-shaped as is the M26, which shoots to 35 feet. The smaller X26 version has become quite popular, being easy to carry on the duty belt on a daily basis. It has a contact stun capability as well as the wire system.

At this writing, trial lawyers are attacking the TASER for some in-custody deaths they allege are due to the suspects having been “tased.”

“As usual, the truth is more complicated,” Steele contends. “Suspects may have serious pre-existing medical problems, heart conditions, be overweight, suffer drug addiction, but still decide to fight with officers who have to use a variety of weapons and restraint techniques. Obviously, the lawyers are just going for the bucks without consideration for the public good and the nature of hand-to-hand combat in the real world.”

Exotic Weapons

In order to avoid civil liability, international disputes and local police corruption, while fighting terrorism and piracy, shipping firms have experimented with less-lethal weapons instead of using mercenary guards and military small arms.

Terrorism can occur in any waters, although it is more likely to happen these days in Muslim-infested areas. For example, in 2000, the *USS Cole* was attacked, while refueling in Yemen. A power boat pretended to be operated by local workers and the two suicide bombers aboard the small boat killed 17 U.S. sailors and put a major hole in the vessel in the name of Al Qaeda. It was this event which has led to greater research on ship protection, both in the U.S. Navy and in commercial shipping circles.

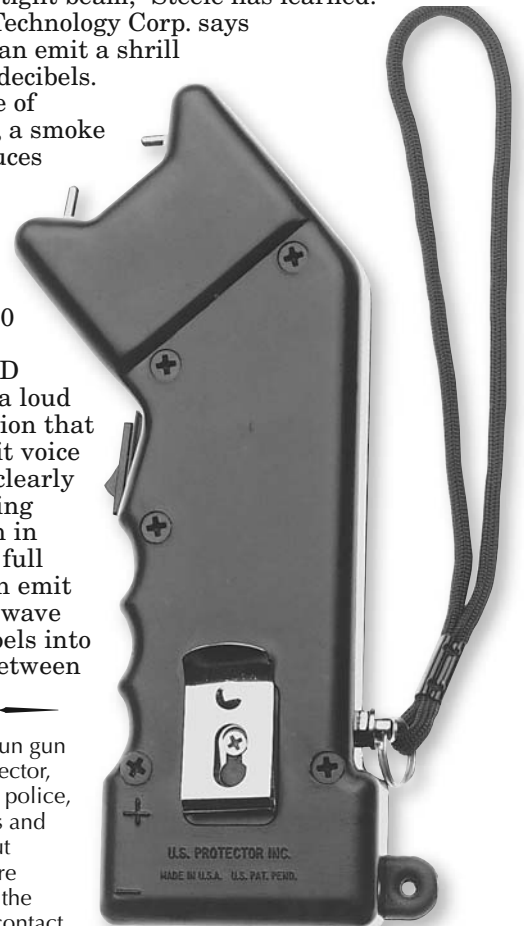
One offering which grew out of this research has been the Long Range Acoustic Device (LRAD), developed by the U.S. military to keep operators of small boats from approaching U.S. warships.

“The military version of the LRAD is a 45-pound dish-shaped unit that can direct a high-pitched piercing tone with a tight beam,” Steele has learned. “American Technology Corp. says the LRAD can emit a shrill tone of 150 decibels.

For the sake of comparison, a smoke alarm produces 80 to 90 decibels and the Concorde at takeoff produces 110 decibels.”

The LRAD also boasts a loud hailer function that can transmit voice commands clearly to neighboring vessels even in combat. On full power, it can emit an acoustic wave at 150 decibels into a beam of between

This electric stun gun from U.S. Protector, Inc. is used by police, security agents and civilians. About 50,000 volts are projected into the subject upon contact.





The Heckler & Koch flare gun – not sold in some states – features an injection-moulded body, safety, magazine and universal directions label. MK Ballistic Systems has developed a Flexible Baton load for this compact launcher.

15 and 30 degrees out to a distance of 300 meters, with 100 decibels out to 500 meters. According to the manufacturer, this high-pitched frequency “has enough intensity and volume to physically compel the human target to leave the vicinity.”

It has been shown that the LRAD is not just theoretical. On November 7, 2005, the *Seabourn Spirit*, a luxury cruise liner owned by Carnival Corp., was in international waters 100 miles off Somalia. This particular country, which has had no functioning government for more than 15 years, fits the profile for piracy. More than 25 ships were hijacked in these waters in 2005, including a chartered United Nations aid vessel.

Unknown to the paying passengers, the ship had been equipped with a 33-inch, 53-pound \$30,000 LRAD. This was only part of a comprehensive defense plan, which included a retired Gurkha as head of security. Suddenly, in the early hours, two boatloads of Somali pirates attacked the ship with AK-47 assault rifles and RPG-7 grenade launchers.

“The ship took evasive action and the LRAD was employed, driving the boats away. No passengers or crew members of the liner were killed or seriously injured and the pirates were unable to board or stop the ship. The superstructure did require repair from RPG hits, but that was nothing compared to what pirates have done to unarmed ships,” David Steele reports.

More recently, a company titled Compound Security Service has produced a similar device called the Mosquito. This device produces an irritating high frequency tone, which is inaudible to most adults (who have lost hearing by age 20 in our modern world). The device has been used in Great Britain to deter gangs of teens from congregating or causing trouble around shops. This particular device costs approximately \$1,000 and has an effective range of about 20 meters.

“The first riot control auditory device I saw was developed by P.M. (Mac) Tabor around 1971,” Steele recalls. “Police departments at that time were not very sophisticated when it came to technology, so such weapons have seen little progress until recently. Hopefully, the LRAD or specialized equivalent will see greater use in modern police work.”

Looking back on his own law enforcement career, David Steele reports, “One time I was frisking a drunk on a patrol car hood, when his 200-pound buddy tried to punch my lights out. As he pulled his left fist back, I hit him in his left elbow with a 22-inch C-cell Kel-lite. He was wearing a field jacket, but the impact still could be heard 20 feet away.

“Though he didn’t ask for medical attention, he didn’t want to fight anybody after that. The blow had changed his mind. Ideally, that is what less-lethal force does: It changes people’s minds.”

Modern less-lethal devices tend to increase the standoff distance, so suspects do not get close enough to injure the officer. In many situations, the objective is to make troublemakers leave the area or to cooperate with officers’ instructions. Taking a violent or armed subject into custody may require a higher level of force.

“I believe the basic equipment for police officers will continue to be the pistol and the nightstick,” Steele contends. “Hiring officers who are physically incapable of hand-to-hand combat is a mistake. You don’t lower excessive force complaints by hiring those unable to use force.”

However, a new concept may be in the making. In Iraq, U.S. military forces now are employing a laser tool at check points that will temporarily blind a driver. This is an effort, of course, to cut down on the shootings of innocent people.

The project which, at this writing, is still in the pilot stage is aimed at equipping thousands of M-4 carbines with the 10-inch laser which sends a dazzling beam of intense green light to affect the vision of the vehicle driver.

U.S. Army General Peter Chiarelli, on the scene in Baghdad, has stated, “I think this is going to make a huge difference in these check point confrontations. ‘I promise you that no one will be able to simply ignore it.’

It should be pointed out, however, that the Geneva Convention bans the use of lasers that could cause blindness. Some 10 years ago, U.S. Marines in Somalia were experimenting with what were termed “tactical laser devices,” but the program was curtailed at the last moment.

According to word coming out of Washington, the Pentagon has previously cancelled programs calling for stronger lasers, but a group called Human Rights Watch insists that even less powerful lasers meant simply to “dazzle” can cause permanent eye damage.

“I have no doubt that bullets are less safe,” is the feeling of General Chiarelli, who states that the military can minimize the risks through proper training and that the effort will help U.S. troops ward off suicide vehicle attacks and, at the same time, reduce accidental shootings of Iraqi civilians.

Lieutenant Colonel Richard Smith, who is deputy director of the Joint Non-Lethal Weapons Directorate at the Pentagon, feels that use of this particular laser weapon – under development for a decade – marks an important milestone for non-lethal weapons.

“This is actually the first time the visually overwhelming devices have been used,” the officer says. “This was based on needs of war fighters and commanders in the field. They have several incidents a day where a vehicle is coming at a group of soldiers. These dazzlers can reach out a couple of hundred meters and give soldiers added security.”

According to Smith, the laser being deployed in the Baghdad area is one of six different models being tested.

CHAPTER 4

A SKILL CALLED SNIPING

Once Morally Controversial, it Has Been Accepted that A Single Marksman Can Influence Battles!

A MILITARY SNIPER is a rifleman who fires usually from ambush at single enemy soldiers. While this task can be accomplished by regular infantry armed with standard combat long arms, the task usually is assigned to a specialist using a scoped match-grade rifle. These days, the U.S. Army is attempting to be politically correct by calling these individuals “designated marksmen.” The Marine Corps and the Navy SEALs still call them snipers.

“The role of the military sniper was, at one time, morally controversial,” according to the findings of David F. Steele. “Back in the 18th century, in such actions as the European-based wars, soldiers lined up in rows facing the enemy and the two forces fired muskets in each other’s general direction. In America, during the French & Indian War and the American Revolution, the mere idea of a Kentucky rifleman picking off a specific red-coated British officer from behind a tree was tantamount to assassination in the eyes of the Europeans!

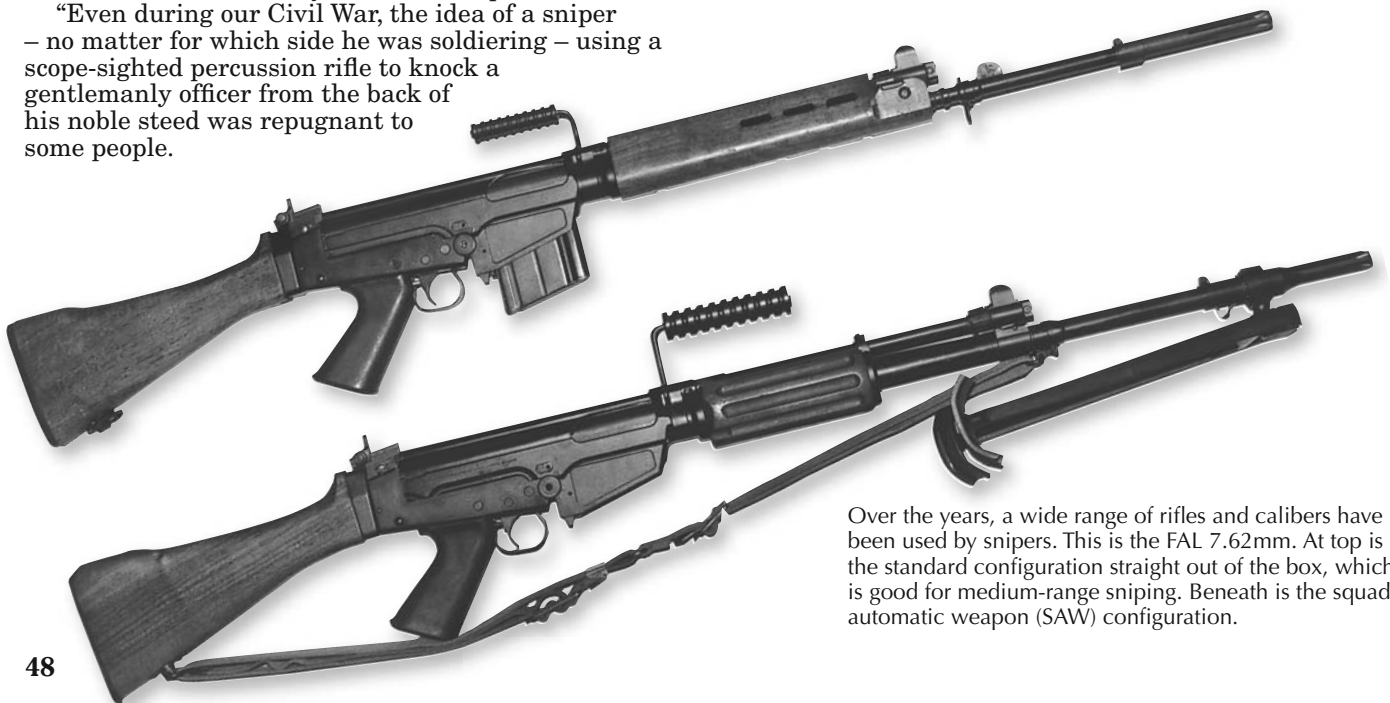
“Even during our Civil War, the idea of a sniper – no matter for which side he was soldiering – using a scope-sighted percussion rifle to knock a gentlemanly officer from the back of his noble steed was repugnant to some people.

“However, by the time World War I came about, the morality issue regarding sniping seemed to get lost amid the carnage then being inflicted upon both sides by machine guns, artillery, tanks and lethal gas.”

The sniper rifles used by these marksmen in World War I included the Austrian-made 8x60mm Mannlicher 2995, the German Mauser GEW 98, the Canadian Ross 1905 and 1910 models, the British No. 3 Mark 1 and the American Springfield 1903.

“Snipers usually would set up camouflaged and armored hideouts just in front of their own trenches,” David Steele reports. “By war’s end, their methods had become so perfected that a soldier in an opposing trench could commit suicide by sticking his head up or get a million dollar wound – sufficient for evacuation from the front – by simply sticking out an arm or leg.”

What we now refer to as sniping didn’t begin with the invention of gun powder. In the Middle Ages, talented archers were trained to send arrows



Over the years, a wide range of rifles and calibers have been used by snipers. This is the FAL 7.62mm. At top is the standard configuration straight out of the box, which is good for medium-range sniping. Beneath is the squad automatic weapon (SAW) configuration.



Heckler & Koch's MSG-90 is a sniper rifle chambered for the 7.62mm NATO cartridge. It is an expensive piece of equipment, but ideal for SWAT team use.

over comparatively long distances to take out specific human targets.

It has been pretty well established that the term, *snipe*, originated in the late 1700s in India, where British soldiers compared shooting at humans from a hidden place to hunting snipe from a prepared blind, since it was a difficult bird to down. The word, *sniper*, did not become a part of our American language until after the so-called War Between the States.

While the word had military connotations originally, the term has been bastardized to include any shooter who works alone be he soldier, police officer, assassin or a common criminal who shoots at human targets at relatively long ranges. As stated, in an effort to make the term more respectable, the "designated marksman" identification has become common in some situations, hopefully making the taking of human life seem more respectable. There also are such titles as "sharpshooter," "counter-sniper," "tactical marksman," "precision marksman" and others. However, the basic mission of the individual so trained remains the same.

During the middle years of the last century sniping was a skill rarely taught to soldiers between wars. It is hardly surprising that when World War II burst into being, the British had no sniper program. Responding to requests from combat commands, they set up a sniper

school at the Bisley Range in 1940. (Today, the site is the United Kingdom's National Shooting Center.) The two-week course conducted early in those war years consisted of fieldcraft, range estimation, camouflage, stalking, use of binoculars and telescopic sights and, of course, marksmanship.

In actual combat situations, the British sniper carried his 303 Enfield rifle, 50 rounds of ball ammunition, five rounds of tracers, five rounds of armor-piercing loads – and two hand grenades!

During World War II – and even a few years later, in Korea – U.S. snipers invariably were outfitted with modified version of the 1903 Springfield bolt-action rifle and a bit later, the Garand M1 semi-automatic. Both were chambered for the familiar 30/06 cartridge.

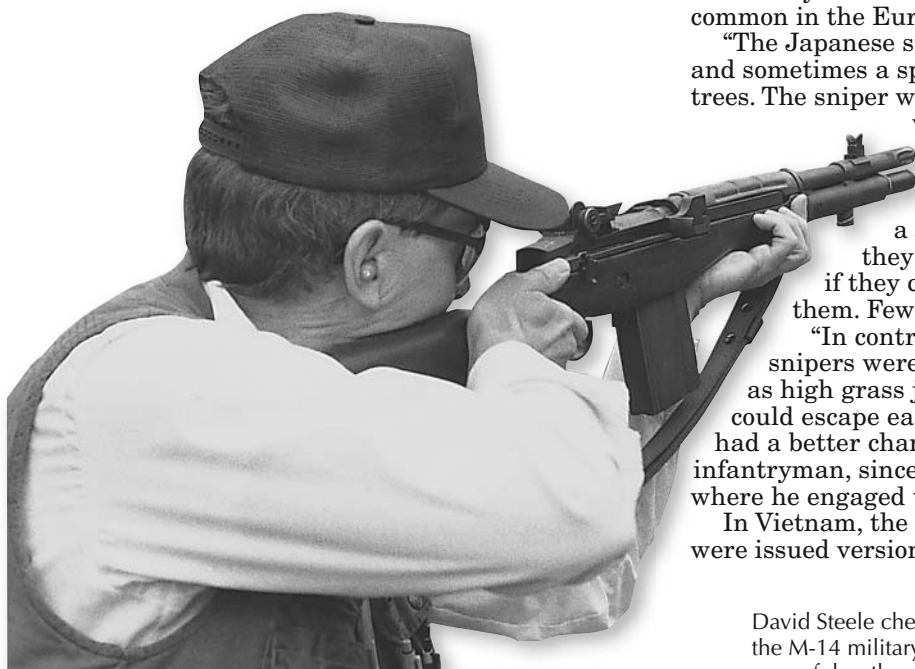
In World War II, German snipers were outfitted with either the Mauser 98K bolt-action or the semi-automatic Kar 43. Russian snipers – some of them women – usually were issued the bolt-action Moisin Nagant 91/30, the same maker's Model 1930 or the semi-auto Tokarev.

"Japanese snipers in World War II were noted for their rigid discipline, their excellent use of camouflage and their patience, as well as their tenacity and willingness to die at their posts," David Steele's research shows. "Due to the jungle terrain and possibly the limitations of the Arisaka Type 97 and Type 99 bolt-action rifles, most Japanese sniping was done at less than 300 yards as compared to the 700-plus yards common in the European theater of operations.

"The Japanese snipers carried special climbing spikes and sometimes a special chair or harness for perching in trees. The sniper would often work with a partner, who would catch small American patrols in enfilade when they responded to the first sniper's fire. The Japanese snipers seemed to be motivated by a *samurai* concept of 'mutual slaying'; they were happy to die for the emperor, if they could take a few of the enemy with them. Few of these snipers survived the war.

"In contrast, American and European snipers were taught to fire from positions such as high grass just below the top of a hill so they could escape easily. The Western sniper actually had a better chance of survival than the average infantryman, since he had more control over when and where he engaged the enemy."

In Vietnam, the U.S. Marine Corps snipers generally were issued versions of the Remington Model 700 or



David Steele checks out a LaFrance modification of the M-14 military rifle. He found it as accurate and powerful as the original, but far more compact.

the Winchester Model 70 bolt-action rifles that were outfitted with 3-9x variable scopes. Match-grade 308 ammunition was standard. For its snipers, the Army developed a special Match-grade M-14 selective-fire rifle called the M21. This weapon usually was fitted with a Leatherwood ART 3x9 variable scope and a Sionics sound suppressor. NATO M118 match ammunition completed the package. A Starlight scope usually was available for night operations.

"The M21 is equal or perhaps even superior to any sniper rifle developed to date," Steele contends. "It was the weapon used by Army Sergeant Burt Waldron to kill 113 enemy soldiers at ranges up to 1000 yards. In fact, in the first six months of 1969, Army snipers and sniper instructors were credited with accounting for 1,245 enemy dead with an average of 1.39 rounds per kill."

In today's military – the United States, the United Kingdom and other powers friendly to us – sniper chores usually are assigned to a two-man team: a marksman and a spotter. Actually, the two may be interchangeable, possessing roughly the same talents. Thus, they often take turns in observing and doing the shooting, thus avoiding visual fatigue.

Sniping involves a long list of possible targets. From the beginning, one of the chief chores has been to put down enemy commanders, thus creating confusion among the opposing troops. The team may be called upon to eliminate enemy snipers and, in recent years, the targets often have been military supplies and materiel. In Iraq, for example, the U.S. and UK forces

have increasingly used such calibers as the 338 Lapua Magnum and the venerable 50 Browning Machine Gun (BMG) cartridge. These big bores also have been used to advantage in fire support roles in urban areas.

Probably the best known sniper prior to World War II was Sergeant Alvin C. York. One of 11 children, he grew up in the Tennessee mountains hunting game with which to feed the family. Oddly, York was a religious pacifist, when he was drafted in November 1917. As one writer has pointed out, "The mountaineer's religion told him he should not go to war, but his patriotism told him he must."

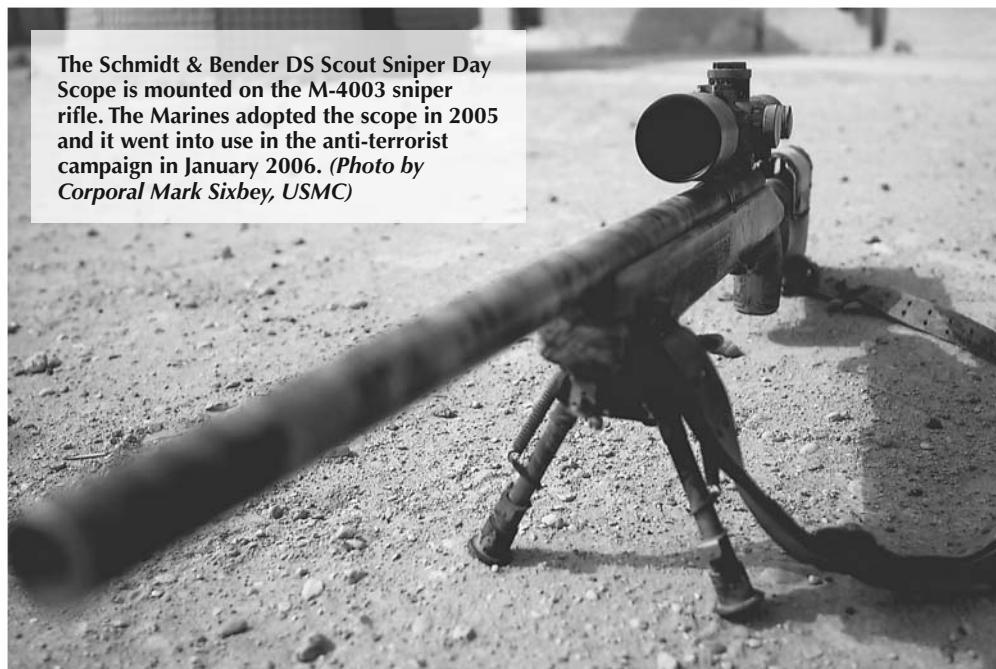
In France, on October 8, 1918, York – then a corporal – was ordered to lead a squad in an attack on German machinegun emplacements. The mission looked like a success when the squad surprised about 20 Germans and took them prisoner. Moments later, though, the American force was under fire from a nearby hill. All but two of York's squad were killed instantly.

The mountaineer had no formal training as a sniper, but he did have plenty of experience in shooting difficult game. He began exchanging shots with the machine gunners on the hill. Moments later, a German lieutenant led five soldiers in a bayonet charge on the Tennessee sharpshooter's position. York shot the last man first, then worked his way through to the leader, killing all six. Moments after that, the German officer in charge offered to surrender the remainder of his unit, if York would stop killing them. The corporal then marched 132 disarmed prisoners into U.S. lines.



During a visit to Idaho, Jack Lewis had the opportunity to work with the then-new CheyTac 408 Intervention firing a copper/nickel bullet. He was impressed.

The Schmidt & Bender DS Scout Sniper Day Scope is mounted on the M-4003 sniper rifle. The Marines adopted the scope in 2005 and it went into use in the anti-terrorist campaign in January 2006. (Photo by Corporal Mark Sixbey, USMC)



Twenty-eight dead Germans were found in the debris of the battle. York had fired exactly 28 shots. He later was promoted to sergeant and awarded the Medal of Honor, our nation's highest military decoration. After discharge, he returned to Tennessee and became a minister. Alvin York passed away on September 2, 1964, at the age of 76.

At this writing, what is thought to be the longest range sniper kill took place in Afghanistan and was accomplished at 2340 meters by a Canadian sniper, who

used a 50 BMG bolt-action rifle manufactured in Arizona by McMillan. The shooter was Master Corporal Arron Perry from the Princess Patricia's Canadian Light Infantry. Prior to that shot, the record was held by Marine Corps Gunnery Sergeant Carlos Hathcock during the Vietnam War. He took out a Viet Cong sniper at 2250 meters.

Hathcock was 17, when he enlisted in the Marine Corps in May 1959. His talents as a marksman were noted during initial recruit training and he served on several rifle teams before he out-shot more than 3,000 other service shooters at the Camp Perry national marksmanship meet in 1965. He was awarded the coveted Wimbledon Cup for his victory.

A year later, in 1966, Hathcock was assigned to a new sniper program. Upon completion of this training, he and other snipers were positioned on what was designated as Hill 55 about 35 miles south of Da Nang. In only a matter of days, Hathcock and the other snipers began to whittle down the enemy forces in the area. Ultimately, the North Vietnamese Army placed a bounty of \$50,000 on the Arkansas native's head!

While operating from Hill 55, Hathcock accepted an assignment to take out a North Vietnamese general who



A custom sniper rifle made in 1970 is checked out by Bill Krilling, a Korean War sniper. Called the CSRS – Countersniper Rifle System – the shooting tool combines a Remington Model 700 action chambered for 5.56mm, a Leatherwood ART ranging scope and a MAC sound suppressor. A good idea, but few were produced.

Marine Corporal Darren R. Smukowski looks through his rifle scope in providing overwatch during a sweep to disrupt insurgent activity in Fallujah. (Photo by Lance Corporal Christopher J. Zahn, USMC)

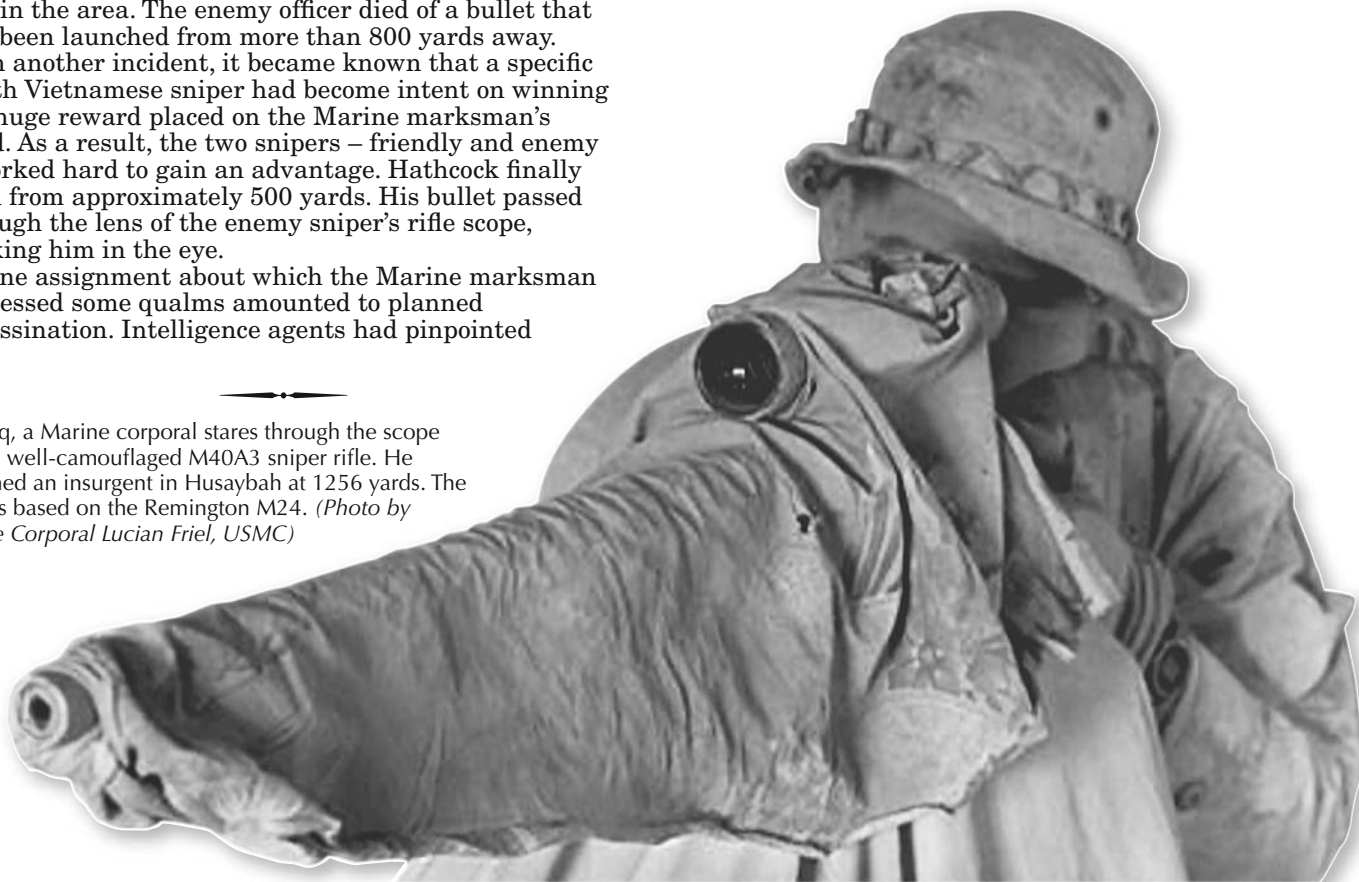


was in the area. The enemy officer died of a bullet that had been launched from more than 800 yards away.

In another incident, it became known that a specific North Vietnamese sniper had become intent on winning the huge reward placed on the Marine marksman's head. As a result, the two snipers – friendly and enemy – worked hard to gain an advantage. Hathcock finally fired from approximately 500 yards. His bullet passed through the lens of the enemy sniper's rifle scope, striking him in the eye.

One assignment about which the Marine marksman expressed some qualms amounted to planned assassination. Intelligence agents had pinpointed

In Iraq, a Marine corporal stares through the scope of his well-camouflaged M40A3 sniper rifle. He downed an insurgent in Husaybah at 1256 yards. The rifle is based on the Remington M24. (Photo by Lance Corporal Lucian Friel, USMC)





As a spent 7.62mm cartridge case tumbles through the air, a sniper with the 22nd Marine Expeditionary Unit slams another round into the chamber of his M40A1 rifle. The unit was conducting combat operations in Iraq's Al Anbar Province. (Photo by Sergeant Robert A. Sturkie, USMC)

a Frenchman, who was working with the North Vietnamese as an interpreter. It was established that this renegade European enjoyed his work, carving up with knives American airmen who had been shot down

and captured. Carlos Hathcock observed the Frenchman from afar for several days and finally ended the man's career of horror with a round from his Model 70 Winchester rifle.

In another incident, Hathcock took out a Viet Cong leader with one round from a scope-mounted Browning Mk2 50-caliber machinegun. Range was estimated at 2500 yards!

Gunnery Sergeant Hathcock returned to Vietnam in 1969 for a second tour. There, he was badly burned while rescuing seven Marines from an amphibious tractor that had hit an anti-tank mine. During his recovery, he was awarded the Silver Star, our nation's third ranking military decoration. It also was discovered during this recovery period that he had developed multiple sclerosis. He was discharged with just short of 20 years service, receiving 100 percent disability compensation.

In the years prior to his ultimate passing on February 23, 1999, Carlos Hathcock worked

with a number of police departments and other law enforcement agencies, invariably teaching anti-sniper tactics. Regarding his wartime actions, he stated to a friend not long before his death, "It was the hunt,

Marine Lance Corporal Josh M. Nalley sights behind the M107 50caliber rifle while providing security for his unit's explosive ordnance disposal team. (Photo by Corporal Rocco DeFillipis USMC)





Marine Sergeant Andrew Jones (*left*), a scout sniper instructor, assists a student during a 10-week training course at the Army's Schofield Barracks in Hawaii. (*Photo by Lance Corporal Roger L. Nelson, USMC*)



Marine Sergeant Daine K. Doughty uses skills learned in the Corps' Scout Sniper Basic Course to literally become invisible. He was the honor man of his class. (*Photo by Lance Corporal Adam Johnston, USMC*)



Marine Corporal Bryan J. Calderon ensures that his weapon is in pristine shape before returning to the field. He was a scout sniper for the 1st Marine Regiment in Iraq. (Photo by Corporal William Skelton, USMC)

not the killing.” In Vietnam, his rifle accounted for a confirmed 93 enemy dead.

Time has shown that it takes a special kind of person to be a sniper. Marine snipers are all volunteers, but each trainee is evaluated carefully. “We don’t want any crazies who come to love killing for the thrill of it,” Jack Lewis

was told by one Leatherneck sniper instructor on a range at Camp Pendleton, California. Snipers are chosen carefully from the ranks of expert riflemen, most of whom have been wild game hunters prior to entering the services.

Army Sergeant Burt Wadron has said, “Unlike the general line trooper, who rarely sees his target – or if he does, it’s in the heat of battle – the sniper must very deliberately plan his shot, range it, hold for the wind and squeeze. Then he must follow through by watching the impact.

“Can you imagine the effect of a 173-grain bullet moving at 2250 feet per second hitting a person of 150 pounds or less, while watching with three-power magnification? Well, the reaction varies. Some men quit right then. They turn in their equipment.

Others, rather than be known as quitters, just won’t shoot anymore. Sometimes it takes 30 days to find out what has happened. We just can’t tell how a man will do until he is trained and put into the situation.”

Law enforcement snipers are, for the most part, drawn from military veterans who have learned their



Marine Sergeant Joseph D. LaBorde sights in with the M82A3 Special Applications Rifle. The 50-caliber can take out an engine block at great distances. (Photo by Corporal Randy Bernard, USMC)

trade in a combat environment. Police forces tend to deploy SWAT teams including snipers in hostage situations. These individuals are trained to shoot only as a final resort in the moment when there is a direct threat to the life of the hostage.

Law enforcement snipers almost invariably do their firing at far shorter ranges than those attached to military units. Ranges usually are less than 100 yards and more often less than half that distance. When a hostage's life is at stake, police marksmen do not shoot to simply wound a felon. They shoot to kill, thus saving the hostage from possible harm. At the other extreme, there is on record an incident in the Midwest wherein a potential suicide was avoided when the sniper shot the revolver out of the man's hand!

For the military, there have been some major readjustments in thinking over the past 20 years or so. Some of our Armed Services have come to favor sniper rifles that are more powerful and fire a larger projectile than the standard battle rifle. The U.S. Coast Guard may have pioneered this concept by using shoulder-fired 50 caliber rifles to put sea-going drug smugglers out of business by disabling their boats...and in some cases the smugglers!

The Marine Corps began to use the Barrett M82A1 early on in Iraq. This rifle, of course, is chambered for the 50 BMG cartridge. Theoretically, the old Browning Machine Gun round racks up about six times the energy of the 7.62mm NATO cartridge. Somewhere between the standard rifle and the Barrett are the recently introduced 408 CheyTac and the 338 Lapua cartridges.

Undergoing tests at this writing is another item from Barrett, their XM109 rifle, which fires a high-explosive 25mm cartridge. The rifle has an overall length of 45 inches and weighs 33.2 pounds. That, at least, was the weight in 2003 before the Special Operations Command began to ask for changes in the design. Jack Lewis had an opportunity to check out the XM109 during a visit to the Barrett gun works in Tennessee in 2005.

"Generally speaking, at first glance, the gun looks as though they have substituted a new upper receiver on the M82A1 50 BMG rifle. Along with that, however, is a modification of the box magazine to allow it to hold five rounds of what the Barrett folks call 25mm cargo rounds," Lewis reports.

One of the problems with the gun in its original configuration lay in the fact that it offered something like 60 foot/pounds of recoil, when the 25mm round was fired. At the time of his visit, this problem seemed to be under some sort of control. Meanwhile, Ron Barrett and his staff were attempting to refine a 25mm armor-penetrating round that has been developed by General Dynamics.

Even before Lewis' visit, Bob Gates, Barrett's vice president for product development, had told the brass at the Special Operations Command that the company would deliver a minimum of six guns for testing no later than 2004. Each of those weapons would be equipped with the Barrett Digital Ranging Optical Sight. In the opinion of some, the XM109 is "directly on the boundary between a sniper rifle and a cannon."



A Navy medical corpsman, Petty Officer Dwayne McBryde, is assigned to a Marine sniper unit. Here he uses a spotting scope to identify distant targets for his sniper teammate. (Photo by Corporal Randy Bernard, USMC)

The Many Guises of the SR-25

GETTING ON TOWARD a decade back in firearms history, Knight's Armament came up with a sniper rifle that was based upon the company's SR-25 rifle, a firearm that had found great favor with big-bore competitors. The SR in the designation, as might be expected, stands for Stoner Rifle. The late arms designer and Reed Knight, Jr., co-operated on a number of projects over the years after Gene Stoner severed relationships with the original Armalite firm.

In the final days of Stoner's life before he succumbed to cancer, the two of them redesigned the SR-25 workings to come up with a rifle they came to call the Mark 11 Model 0. (This rifle was discussed at length in the 6th Edition of the GUN DIGEST BOOK OF ASSAULT WEAPONS.) The rifle was tested by all of our Armed Services, but initially rejected as a sniper rifle. After all, the Remington-built M24 bolt-action had been in service for years and there seemed to be more than a minor degree of military mistrust of a sniper tool that boasted a semi-automatic fire capability.

Eventually, however, the U.S. Navy's SEALs saw value in the Mark 11 Model 0 and purchased a number for these specially trained seamen/warriors. Meantime, it had come to be accepted that the M-16 rifle, which has

been with us for more than four decades, can be a good weapon for close combat such as house clearing, but doesn't cut it for long-range enemy-downing chores.

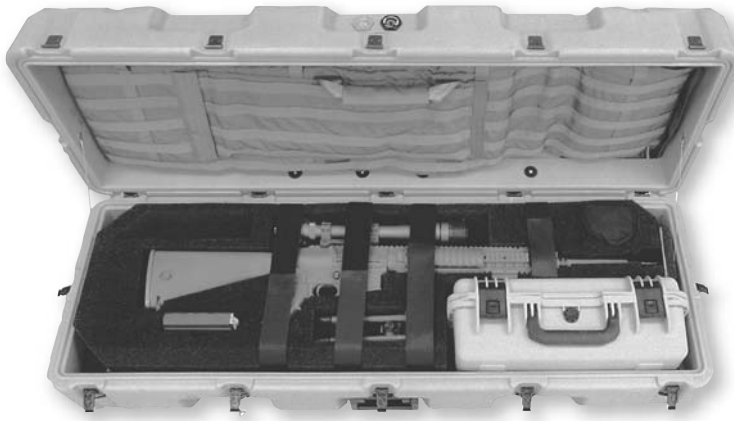
This lack brought about the introduction of Barrett's 50 BMG rifles as long-range sniper tools. In addition, the designated-as-obsolete M-14 rifles firing the 7.62 NATO cartridge were being pulled out of military warehouses; those that had not been destroyed by Presidential order of Bill Clinton. And out of this came Remington's new 6.8mm SPC (Special Purpose Cartridge), which proved to be considerably more forceful than the 5.56mm NATO that has been standard battle issue.

The Mk 11 Mod 0 rifle out of Knight's Florida works was chambered for the 7.62x51mm NATO round that had been vacationing in the wings combat-wise, but had earned a non-military reputation among hunters and some law enforcement agencies as the 308 Winchester round.

There are great similarities between the rifle adopted by the SEALs and the M110 (SASS) that became of seemingly sudden interest to the Army and Marine Corps. When Jack Lewis contacted an old friend, retired Marine Corps Lieutenant Colonel Dave Lutz, he was told that there wasn't a single M110 Semi-Auto Rifle



Navy SEALs train with the Mark 11 Model 0 rifle that was redesigned from the civilian Stoner 25 model meant for winning marksmanship trophies.



The basic M110 rifle and scope case fit neatly into the case for transportation on a quick mission, where a lot of backup should not be needed.



The Mark 11 Model 0 rifle is marketed in a handy carrying case that doesn't take up much space, but doesn't leave room for any great amount of ammunition.

System (SASS) in the factory. All had been gobbled up by ground-pounding elements of the Department of Defense. Lutz, incidentally, is now a vice-president of Knight's Armament Company.

A different source told Lewis that the Marine Corps' initial order was for 180 rifles, the reasoning being that the M110 bears great resemblance in appearance to the 5.56mm-firing M-16. Reasoning apparently was that if an enemy counter-sniper was looking for a Marine marksman to take out of the game, he'd be looking for a camouflage-clad individual armed with the bolt-action M24 that has been the standard sniper rifle for U.S. forces for decades. Makes sense.

At first glance, Lewis thought he saw similarities between the Stoner 63 machinegun that had been of temporary interest during the Vietnam hostilities, and

then quietly retired by the designer. Lewis questioned his friend Dave Lutz, now Knight's vice president for Military Operations, and was told, "The M110 has absolutely nothing to do with any machine gun. The M110 is simply a variation of the Navy's Mk 11 Model 0 with a flash suppressor, new free-floating barrel and forend with a removable lower rail for cleaning purposes. One could not do this with the Mk 11's rail forend. The M110 also has an adjustable buttstock and a few other changes.

"The M110 is dark earth brown in color, while the Navy rifle is black. The M110 also carries a different Leupold scope. The chief difference other than color is



The M110 sniper rifle carries a Knight's Armament sound suppressor and has an adjustable stock. With all of the additional parts and accessories, including a drag bag, the sniping system weighs 78 pounds; not something for a long forced march!



The Knight's Armament Mark 11 Model 0 sniper rifle is somewhat less sophisticated – and somewhat less expensive – than the more recent M110, which is literally an upgrade.

the M110 scopes' half-minute-of-angle elevation click adjustments and illuminated reticle.”

Both of the Knight-produced rifles fire the same cartridge, both have 20-inch barrels that feature five grooves and a right-hand twist of one turn in 11 inches. Muzzle velocity of the two rifles are the same when firing M118 LR rounds – 2571 feet per second – and each is considered to be effective at ranges out to 1000 meters. That's where the similarities end.

The earlier introduced Mk 10 Mod 0 has a target-crowned barrel and no threads, while the barrel of the rifle adopted by the Army and Marines is threaded for a flash suppressor. The rifle adopted by the SEALs measures 39.5 inches overall, while the other Knight product measures 40.5 inches with the shortest buttstock adjustment. The stock, incidentally, can be extended an additional 1.5 inches. The Mk11's buttstock is not adjustable.

There isn't much difference in weight for the two rifles. The M110 – unloaded and sans any sights or accessories – scales at 10.74 pounds, while the other rifle weighs a slightly less 10.48 pounds. Add iron sights, a scope and mount, a bipod with mount, a sound suppressor and 20 rounds of military issue ammo and the weight of the M110 comes to 17.16 pounds, while weight of the Mk 11 is 17.14 pounds.

As for numbers, the U.S. Army thus far has ordered 30 XM-110s, the Marine Corps order was for 180 rifles, as mentioned earlier, and according to Lutz, “The rest of

the Department of Defense, other government agencies and allies such as Australia and the United Kingdom who are participating in the war on terrorism have had delivered more than 2,000 sniper rifle systems.”

But more recently still another version of this rifle Gene Stoner couldn't sell to the Pentagon – the Stoner Rifle (SR) 25 – is making itself known in military circles. This one is called the Mk 11 Model 2 Sniper Rifle. Hoping to avoid further confusion with all those Marks and numerals, Lewis asked Dave Lutz for a bit of clarification.

“The Army is buying the M110 semi-auto sniper rifle system (SASS), which includes a rifle with a Leupold scope. The rifle receiver is engraved *US Rifle M110*. The Army rifle is a modified SR-25/Mk11 Mod 0-type rifle with a 20-inch Match grade barrel.”

At the time of this report, the “Marines are buying the Mk 11 Mod 2 Sniper Rifle ‘system.’ via the Navy. The Navy also is buying the identical rifle, but with different kit. The Marine rifles will mount a Schmidt-Bender scope, the Navy guns a Nightforce scope. The rifles will be identical to the Army's but the Navy/Marine Corps receivers will be marked Mk11 Mod 2.

“So the ‘new’ Mk 11 Mod 2 rifle is the same SR-25/Mk11 Mod 0 type rifle with the same 20-inch match barrel,” Dave Lutz explained, then added, “There are changes from the original Mk11 Mod 0, however.

“There is a flash suppressor, an upper receiver extending (URX) rail forend to free-float the barrel, an integral folding front sight in the rail forend and an ambidextrous safety. Other new features are an integral case deflector, an adjustable stock and sling attachment points at the small of the stock.” We learned that what now is the Mk 11 Mod 2 features a gas-deflecting-type



A night vision device developed by Knight's Armament Co. operates in conjunction with the Leupold scope, which depends upon electronics to operate properly.



The Mk 11 Mod 0 rifle also carries a Leupold scope, but it is less sophisticated than that now gracing the M110. This scope carries an 8 MOA dot reticle and a standard sunshade.

charging handle. This model has an overall Dark Earth finish and features a tan nylon “cuff” sling.

As of July 9, 2006, we learned that scout snipers of the 26th Marine Expeditionary Force were firing their Mk 11 Mod 2 rifles for the first time on a range at Fort A.P. Hill in Virginia. Going back to the reason for not buying the original rifle, it was reported that the Knight-produced descendant will be fired right along with the Remington-made M24 (which the Marine Corps stocks as the M40A3).

Marine Sergeant Gerald V. Gavin, commander of the scout sniper platoon for the 26th Marine Expeditionary Force, felt the resemblance between the new Knight-made semi-auto and the standard issue M-16 could be a plus. He said that the distinctive look of what the Marines call the bolt-action M40A3 makes identifying a sniper in an infantry patrol easier for the enemy. The Mk 11, he felt, would allow the sniper to better blend in with the infantry, making him less vulnerable. The Mk 11 Mod 2 fires the same 7.62 NATO round as the bolt action and weighs 18.29 pounds with its two-pound suppressor attached.

When Lewis initially met Reed Knight, Jr., the latter was interested only in designing guns and producing prototypes that could be marketed by others. The Colt 2000 semi-auto handgun was a good example.

More recently, however, Knight's Armament Co. has been producing rifles, weapon accessories and suppressors. Originally, the company operated out of a smallish building built on the edge of a grapefruit grove that Knight had inherited from his family. Located on the outskirts of Vero Beach, Florida, there was a short range for testing that featured an earthen berm thrown up as a protection against bullets going downrange toward the civilian population.

More recently, the company has purchased the former Boeing missile

plant in nearby Titusville, a facility which has almost 300,000 square feet for engineering, testing and manufacturing operations. The facility is located on 454 acres with a patrolled perimeter road and security fence. There also are four firing ranges with support buildings. Ranges of 1,000 meters, 300 meters, 100 meters and 25 yards currently are used for testing rifles, accessories, suppressors and ammunition. There also is a large firing range that originally was used to test man-fired missiles and rockets.

Getting back to the differences and similarities of the M110 and the Mark 11 Model 0, the chief differences in the sniper systems other than those mentioned appear to be in the kit components that go with the individual rifles.

For the Mk 11 Mod 0, this kit consists of an operator's manual, a case for the system, 10 magazines holding 20 rounds each, a Dewey bore rod, as well as a bore rod guide, a Harris LM-S bipod, a bipod adapter, a standard quick-detachable front sling swivel, a round-count book and a 25-meter iron sight zeroing target. All of this comes to a weight of 38 pounds, according to Dave Lutz.

The M110 SASS kit is somewhat more complicated as well as more complete. Included are the same bore rod, bore rod guide, bipod and bipod adapter as the earlier introduced rifle. In addition, the M110 comes with a packaged operator's manual that includes scope instructions and an operator's introduction to new equipment. The system's case is large enough to include four 20-round magazines and four 10-rounders. As for sling swivels, each rifle comes with two each, as well as a leather sling, cleaning kit and flex rod kit.

But there's more: The delivered system included a scope case that can double as a deployment kit case. There also is a parts kit that carries just about anything that might break, wear out or be lost, plus spare sling swivels, a spare sling/bipod stud and nut assembly, a lens and scope maintenance cleaning kit including lens tissue, Q-Tips, alcohol and a lens brush. Other included items are a spare scope reticle battery, three different wrenches – and a drag bag! Weight of this collection is 70 pounds, with the drag bag adding another eight pounds.

“The only thing missing,” Lewis opines, “is a two-wheel cart like we had in World War II for carrying machineguns!” An important difference in the minds of some is the fact that the M110 carries a flash suppressor, while the Mk11 Mod 0 does not.



The Leupold scope mounted on the M110 sniper rifle is 3.5-10x 49mm and utilizes a TMR illuminated reticle.

Savage Goes Tactical

SAVAGE ARMS IS an old-line company that found its niche in the market place by producing and selling long arms that offered value at a price that consumers could handle without mortgaging the kids.

The head of an Indian chief has long been part of the corporate logo, which brings to mind an advertising program of the 1960s, which featured a series of American Indians, each clutching a Savage rifle. The ads were spectacular, according to Jack Lewis, who then published his own gun magazine.

"As I recall, the Savage folks had placed one ad with us. In attempting to sell them more space, we were meeting with the then-ad manager and the sales manager. The ad manager stated that the keyed ad they had run with us didn't sell any rifles. I couldn't resist it. I asked how many Indians they had sold. The sales manager, eyebrow raised, looked at his underling and growled, 'I've been asking the same thing.' Apparently, he wasn't impressed by the ads, either."

All that has long since changed, of course. The Savage operation has gone through numerous changes over the decades and made a definite break several years ago, when they introduced an entirely different rifle from those made over the company's history. A varmint rifle that was produced initially in 223 Remington caliber, it was stocked with a black synthetic rather than the customary walnut or a lesser wood. When the rifle was unveiled at the annual SHOT show, one Southern distributor ordered a batch of them,



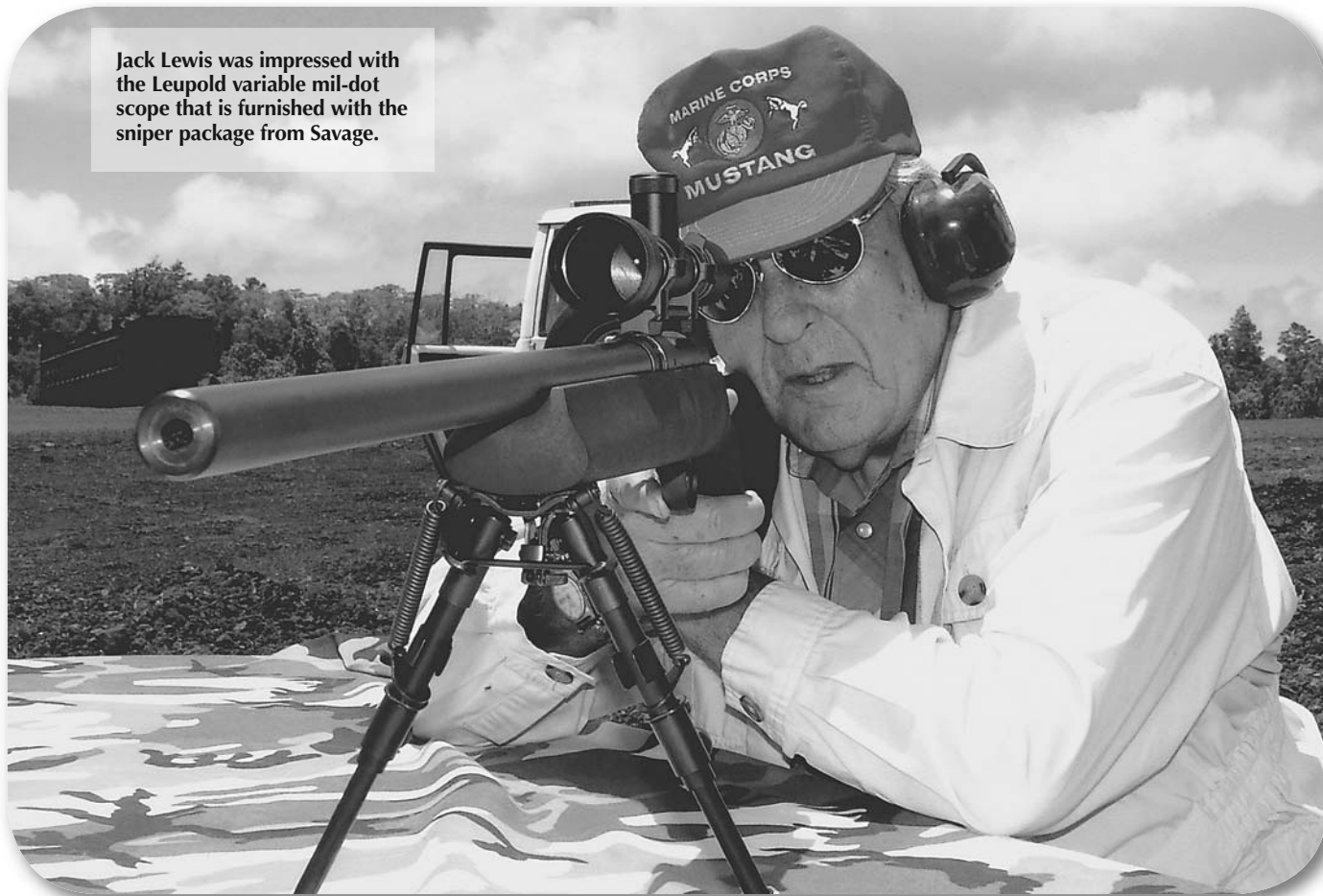
The Savage Model 10FPXP-H-S Precision rifle comes as a complete package that includes a Leupold combat-oriented scope, a Harris bipod, all of this and more packed in a waterproof case by Storm that has rollers for easier movement of the setup.

but wanted them in 308 Winchester for sale to police departments! That particular rifle was listed originally as the Model 12VSS Varminter.

According to Brian Herrick, current sales vice-president for Savage Arms, this was the beginning of the company's introducing in 2006 what they list as their Law Enforcement Series.

"In law enforcement, accuracy is everything and we've designed this series with this goal in mind," Herrick declared. Thus the rifle designed to be a standard law enforcement tool became available in several variations.

Jack Lewis was impressed with the Leupold variable mil-dot scope that is furnished with the sniper package from Savage.





The heavy bull barrel of the rifle as well as the additions is well supported by the Harris Engineering bipod, which is a part of the package being marketed by Savage Arms.

The one we chose to test for this book is the short-action Model 10FPXP.

Like the others in the series, this rifle comes as a package that includes a Leupold 3.5-10x 40mm scope with a mil-dot reticle, the Tactical Stock from H-S Precision and an adjustable Harris bipod. Other parts of the package include a Farrell Picatinny-style rail base and Burris Z rings. All of these items are packaged in a padded Storm case that has wheels on one end so that one can drag the weight where needed instead of having to carry it.

Jack Lewis, who tested the rifle for this chapter, felt that “one of the most important features of the rifle has to be what Savage calls the AccuTrigger. This device allows the shooter to adjust trigger pull to his personal wants. It is easily adjustable in a range from 2.5 to 6 pounds.

“Within minutes after the rifle arrived on my doorstep via UPS, I had it out of the case and was testing the trigger. It seemed somewhat light, so I checked it with my RCBS trigger-pull scale. The pull measured an ounce over three pounds. I tried it twice more as a check and the weight repeated itself each time. At that setting, I discovered there is no creep in the trigger system.”

As with the earlier varmint model tested, the VSS12, this sniper rifle is chambered for the 308 Winchester round. Actually, the specs on this cartridge are virtually the same as the military-issue 7.62mm NATO round.

“Apparently some law enforcement agencies and their media relations people feel it is less offensive to taxpayers and bleeding hearts to ignore the military connection,” Jack Lewis opines.

A number of the Savage models are produced with short actions as is this 10FPXP. Weighing almost exactly 11 pounds unloaded, this model is the heaviest in the entire corporate-produced line of arms. The rifle measures 46.25 inches in overall length and carries a 24-inch barrel. As an aid to balancing the rifle during firing, each one is equipped with a Harris adjustable bipod. The rifle Lewis and his crew tested carried the H-S Precision Tactical stock that is cast from a man-made synthetic chosen for its strength and durability.

A casual glance at the piece might easily lead one to believe he is looking at an expensive single-shot rifle. That’s hardly the case. There is a recessed magazine under the bolt that carries four rounds of chosen ammo.



This photo, taken over the shooter’s shoulder during the test, offers an idea of how small the bad guy targets appeared at the edge of the lava field.



The smooth, flowing lines of the H-S Precision stock tend to make the rifle look more like a classic target model than one meant for taking down an enemy.

Following the lead of others in the marketing effort, this rifle is more than that. It is delivered as a package that includes a Leupold 3.5-10x40mm scope with flip-open lens covers. The scope is mounted securely on the Farrell rail and the entire package is shipped in a fitted, weatherproof Storm case.

Brian Herrick told Lewis that every heavy-contour barrel is button-ripped to enhance precision and features a recessed target crown. All of the six rifle variations



Ace Kaminski (*right*) and Jack Lewis look over the workings of the new Savage sniper rifle. Based upon the earlier varmint model one of which is owned by Kaminski, the operation of the rifle was familiar to both.

in the Savage Law Enforcement Series carry over-sized bolt knobs that are designed specifically to help the marksman get off a fast second shot, if needed. Each rifle also carries a floating bolt head designed to ensure that headspace on every rifle in the series is set at the absolute minimum.

The six other rifles in the Savage series are basically the same, except for stocking. In addition to two H-S Precision designs, there also are rifles outfitted with



For testing the Savage 10FPXP, a pair of targets was set up at what the rangefinder judged to be approximately 120 yards. Most of the shooting was done with the scope set at 6X.

Choate and McMillan stocks. The Choate offering, incidentally, is a folding type that is meant to reduce length of the rifle for storage or transport, but still serves as an accurate, stable tool when it comes to serious law enforcement employment.

All of these Savage rifles have short actions with the exception of one that is outfitted with a modified pistol grip stock. It is designated simply as the 10LP, which assures that it is equipped with the short action, but is built specifically for a left-handed marksman. The final version is listed by Savage as the 110P and is built with a long action.

Jack Lewis had reviewed all of this information before he made for a makeshift range in a lava quarry to learn how well the rifle issued him would shoot. It should be noted that shipped with each rifle is a signed and witnessed target carrying a three-round group fired at 100 yards. For the specific target shipped to Lewis, the group puncturing it measured only 0.3-inch.

For this range check-out, Lewis teamed up with his long-time shooting pard, Ace Kaminski, a working law enforcement officer. As usual, Kaminski was champing at the bit to get the rifle tucked into his shoulder and use the AccuTrigger, which the manufacturer was touting.

The shooting bench was set up on a low hill of red lava and the life-size bad guy target installed at what Lewis paced off as roughly a hundred yards downrange and slightly lower in elevation. Behind the target was a rock ledge that would absorb the flying bullets after they'd been through the paper outlaw printed and distributed by Kleen-Bore. It should be noted here, perhaps, that Kaminski had borrowed a rangefinder and this instrument stated that the target actually was 120 yards downrange from the shooting bench.

On their last outing, Kaminski had been the first to shoot, so it was Lewis' turn at the bench. Instead of loading the rifle's internal magazine, he laid out three rounds of the 308 ammo close to the rifle. Then, as he settled in, he glanced at the setting on the Leupold scope and found it set at 3.5x, the lowest magnification. He left it there and stared through the tube at the mil-dot targeting setup. Having no idea as to the potential bullet flight, he fired his first round at the belly of the image. Without checking to see where his bullet had landed, he ejected the empty cartridge case and slid another round into the chamber. He repeated the same type of shot, aiming at the figure's body mass.

The ammunition was a box of Winchester's 308 Supreme loads carrying 168-grain Ballistic Silvertip bullets, which the maker recommends as a deer load in open country. Factory statistics indicate that muzzle velocity out of a 24-inch barrel is 2670 feet per second, which translates to 2659 foot/pounds of energy. It also had been noted earlier that the bullet should be dead on target at 100 yards, but at a range of 500 yards, the bullet drops approximately five feet – 60 inches!

"From the first two rounds fired, I had expected more recoil," Lewis reports. "For the third round, I cranked the scope up to 6X and aimed at the head of our paper outlaw."

Trodding downrange to check the damage, it was found that the shooter's two shots had landed in the upper body area as aimed. That third round, aimed at the villain's head, had passed through the figure's nose.

It was Kaminski's turn to do the triggering. For this he selected another Winchester-manufactured cartridge, this one was the 7.62 NATO, which was packaged under the maker's USA brand name. The rounds Kaminski

fired each carried a 180-grain bullet with a full metal jacket. The duo did not chronograph this round, but Winchester reports it generates 2580 feet per second in the way of muzzle velocity when fired from a 24-inch barrel. That translates to 2658 foot/pounds of energy at the muzzle. When the bullet is on target at 100 yards, it drops 65 inches if aimed at a target 500 yards downrange.

Lewis suggested that Kaminski aim at the hand holding the figure of a black revolver. The shooter squeezed off his three rounds in marksman-like fashion and it was another trip to the target. Kaminski won the day's shooting honors, since two of the holes in the target pierced the printed figure of the revolver. The third round was two inches lower, in the paper shooter's fingers.

There was little purpose in packing partial boxes of ammo home, so the two shooters fired up the rest of the 40 rounds they had brought, pretty well destroying the target. Both agreed that the Savage offering is fully qualified as a sniper tool.



Mounted with a variable Swarovski Optics scope, Kaminski brought along his Savage-made varmint rifle for the sake of comparison. He found that with both chambered for 308 Winchester, they shot equally well.

Return of the AR-10

MANY YOUNG SHOOTERS are not aware that the original chambering for the series of ArmaLite rifles designed by the late Gene Stoner was 7.62mm NATO, also known as the 308 Winchester.

This rifle, designed as a replacement for the M-14 combat rifle, was fashioned from Space Age materials and featured good ergonomics. It was a contemporary of the FN FAL and the Heckler & Koch G3, but arrived on the scene a bit late to be truly competitive with these designs.

"Certain features are similar to those found on the little known Johnson semi-auto rifle and the better remembered German MG 42," according to Robert K. Campbell, who reviewed the rifle for this edition. "The break-open receiver was seen first on the FN FAL, but a revolutionary gas impingement system eliminated the gas piston, resulting in more simple construction. Recoil of the AR-10 is straight to the rear, offering good control in full-auto fire."

The AR-10 was not adopted by the Department of Defense and thus was never produced in great numbers. However, the aluminum forging and composite construction of the furniture paved the way for later designs. Further development of the concept and technology eventually resulted in the AR-15 and the M16 military rifle.

The AR-10 was not forgotten, however. In recent years, it has been resurrected by ArmaLite, Inc., a company located in Geneseo, Illinois, which has sought to carry on some of the traditions of the original corporation.

"The new AR-10 has several improvements over the original design that are noteworthy," according to Bob Campbell. "While the modern version is larger than the AR-15 types, some of the parts are in common with ArmaLite's 223 caliber rifles. The rifle has been redesigned to accept a rugged and reliable M-14 magazine, which is considered an improvement over the original AR-10 type. While an original AR-10 may be a collector's dream piece, the version being built today in the Illinois factory is the better shooter with predicted greater reliability and accuracy."

While larger and heavier than the more familiar AR-15, the modern AR-10 operates on the same



The massive bolt of the 300 RSAUM ArmaLite is fully capable of handling the recoil of the 300 Remington Short Action Ultra Mag.

principle. In reality, it is the AR-15 that operates on the same principles as its predecessor, the AR-10. Gas pressure is gathered in a gas block and directed toward the bolt and operating handle. A piece on the bolt itself serves as the actuator to propel the bolt.

The bolt fits directly into the barrel extension with seven locking lugs, thus featuring steel-on-steel lockup, as it would not be wise to lock into the aluminum receiver.

"This is a strong, reliable action, but I would avoid mounting excess gear on the forend as that added weight could transfer pressure to the bolt carrier and barrel extension," Campbell notes. "This rifle is often more accurate than the general run of M-14 rifles and features modern lines and handling."

The AR series has always been meant as a combat tool, a piece intended to excel in close quarters battle, but there are situations in which heavier calibers than even the 7.62x51mm cartridge are needed. In recent years, military marksmen have been using heavy rifle calibers that range through the 30/06 and the 300 Winchester Magnum all the way up to the 338 Magnum and the 50 Browning Machine Gun round.

"For a heavier push, a larger rifle is needed," Campbell points out. The AR system chambered for the 223 cartridge enjoys surprising popularity with the varmint hunting fraternity, modern semi-auto versions giving even the custom-built bolt-action rifles a run for their money. That instant second shot has definite advantages.

"There has been considerable demand, however, for a heavy-caliber AR-type rifle," Campbell has learned. "The technology became more applicable to the AR platform with the introduction of what were termed short magnum cartridges a few years ago. The folks at ArmaLite saw the opportunity and went to work in adapting the AR-10 to a short magnum cartridge."



The ArmaLite AR-10 Magnum (top) is considerably larger than its better known cousin, the AR-15. Robert Campbell is convinced the AR-10 fills a niche once held by bolt-action magnum-firing rifles.



The safety on the new ArmaLite offering is the same type as that used on the AR-15. It has been found to be crisp and positive in operation. The AR-10 features a bolt release, safety, trigger and grip identical to those of the military AR-15 model.

The 300 Remington Short Ultra Magnum was chosen for several reasons. First, it has the same overall length as the 308 Winchester cartridge (aka the 7.62mm NATO). The case is larger in diameter, but length is the dictating factor in dealing with development of a semi-auto action. According to Mark Westrom, who heads up ArmaLite these days, the Remington cartridge was chosen over competitors, because it has a stronger head and a thick web area. The Remington Short Ultra Magnum, of course, was designed as a long range cartridge from the beginning.

"The result is a special version of the AR-10 chambered for this short magnum cartridge," Campbell explains. "In examining the rifle, the robustness of all parts is apparent. This is not a lightly modified 308 caliber AR-10. The bolt and internal parts are beefed up considerably to accommodate the powerful short magnum cartridge."

Since this is a precision rifle not necessarily designed to be exposed to the rigors of day-in day-out combat, the fitting of parts is tighter than is found in the general run of AR rifles. Considerable effort is required simply to open the upper and lower receivers. "The lock pin that holds the two together is a right tight fit," Campbell found.

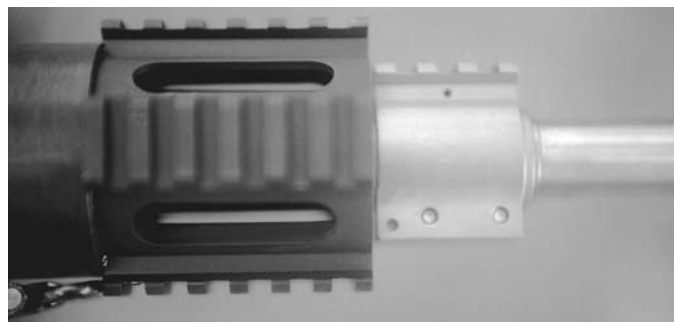
"While ArmaLite produces good, accurate barrels, they went top end with this new rifle. The barrel is manufactured by Lothar Walther. It is free-floating and of stainless steel."

The hand guard is the archetypical round type fitted to AR rifles destined for precision shooting. The magazine holds only five rounds instead of the 10 or 20 rounds normally held in the magazines of AR-15 sniper rifles.

"Five rounds is the capacity of the majority of bolt-action sniper rifles and should not present a problem in operational use," declares Mark Westrom of his creation. "The important advantage of a rifle of this type is the instant second shot in case of a miss or an ineffective first shot. A longer magazine in this type of rifle would be counter-productive in handling."

The optical sight with which Bob Campbell's test rifle was mounted came from Mueller Optics. "The scope is of high quality, but offered at a modest price considering the performance exhibited. Eye relief runs from 3 to 3-1/2 inches, depending upon magnification. There is good ocular adjustment and a cushioned 38mm eyepiece. Adjustment is quite precise and allowed me to get on target quickly and sight in for a hundred yards."

Campbell further reported that after a long firing session, the scope had not worked loose and had not lost its zero considering the "momentum of the vibrant



The Picatinny-type rails on the barrel are suitable for adding laser sights or any other suitable device.

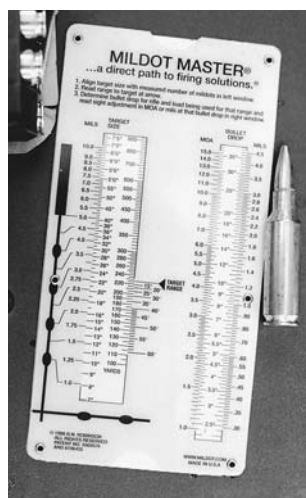
and effective 300 RSAUM. The Mil-Dot reticule was appropriate to the intended mission."

During extensive testing, Campbell chose to do most of his testing from a solid bench rest, but he also checked out the rifle's potential in the prone, kneeling and offhand positions. Remington is the only current manufacturer of the cartridge, making it available with bullets weighing 150, 165 and 180 grains.

"I also handloaded my own ammunition toward the end of the test program," Campbell reports. "I lubricated the rifle lightly before firing, making certain the bolt and long bearing surfaces were adequately lubed." His first few shots were devoted to sighting in and becoming adjusted to the rifle's recoil.

"Make no mistake," he says. "This is a hearty cartridge that generates noticeable recoil. The hump is far above that of the 308, but so is the power. On the other hand, the recoil is less savage than from a straight-stocked 300 Magnum rifle. The semi-automatic action seems to soak up much of the backup."

The reciprocating spring-loaded bolt and gas system are designed also to aid in absorbing recoil or, at least, delaying its effect over a longer period. In addition, less explosive powder is used than in the long belted magnums for equal performance in the short magnums, thus resulting in less recoil energy.



Campbell contends that if one is engaging in long-range riflery, the Mil-Dot Master is a useful option that is well suited to making the shot count when needed.



For the sake of comparison, the cartridges shown here are (from left) the 30/06 Springfield round, the 308 Winchester and the 300 RSAUM. It is felt in many quarters that the last-named round has great potential.

Campbell's bench rest testing was what he termed "uneventful," adding that "accuracy was good as expected. It was similar to the accuracy of other ArmaLite rifles I have fired in the past, but with a definite edge on precision."

He felt that the rifle's weight and the high-grade barrel were advantages and noted that the trigger on this particular rifle was far more crisp than those of the general run of AR rifles.

"After a few guest runs by shooting compadres, the consensus was that this rifle carried one of the best triggers experienced on any of the other AR-type rifles," Campbell reports.

He found accuracy more than acceptable, with a 100-yard three-shot group of Remington's factory load measuring 1.5 inches. "A preliminary round was fired into the berm as a 'fouler' on several occasions, but the rifle exhibited the ability to place a cold shot near the point of aim with regularity.

"The rifle is well suited for many tactical requirements and takes out sheet metal and vehicle glass like nobody's business. Wound potential or killing power would appear to be excellent well beyond 300 yards. As a plus, the Core Lokt bullet available in factory ammunition is first class in every regard."

This particular bullet is not simply a 308 Core Lokt loaded into a Magnum case. It was developed especially for the 300 RSAUM round. Both the ballistic coefficient of 402 and the bullet's accuracy potential show considerable development on the part of Remington.

Campbell has found that the 150-grain bullet exits the ArmaLite's muzzle at a solid 3200 feet per second. "As for offhand handling, this is a dream rifle for those used to handling the AR. The AR-10 is heavy at 11.8 pounds, but for the AR fan, this rifle offers commonality of action and controls as well as being well designed for its purpose of delivering a heavy blow at extreme ranges. Barrel length, incidentally, is 24 inches."

For those who may be called upon to engage felons or terrorists at long range, Campbell contends that penetration and wound potential "are practically unequalled in semi-auto actions. This rifle is more than accurate enough for virtually any task."

Experimenting with his own handloads for the rifle, Campbell reports that he loaded a once-fired case with 56.6 grains of Varget powder. Overall length of the cartridge was measured at 2.82 inches. Result for a three-round group with this concoction was a recorded velocity of 3032 feet per second. At the 100-yard range, his group measured 1.2 inches center to center.

He worked up another load using the same bullet and the same overall cartridge length, but used 53.4 grains of H4895 powder. Muzzle velocity for this recipe was 2958 feet per second. Group size for three rounds was .9 inch. For both loads, he used 150-grain Hornady SST bullets. In further determinations, he tried both the 165-grain Hornady bullets as well as the same maker's 180-grainer. The 180-grain load, he found, raised the bar considerably higher than he had expected when it came to felt recoil.

"Just the same, the rifle was controllable and accurate with all loads. However," our man in South Carolina adds, "more than any other rifle I have tested during the past decade, this rifle demands a skilled operator. I am certain that an operator who becomes familiar with the piece and practices diligently will be able to perform well on demand. The ArmaLite AR-10 Magnum may just help rewrite history on the battlefield, in the hands of police officers and even in the hunting field."



Campbell prepares to shoulder and fire the AR-10 Magnum. While a handful for the marksman, he feels its performance more than pays its way.



Using his favored kneeling position, the rifleman found that the AR-10 rifle could be held steady and proved to offer excellent accuracy.



With a rolled Army-issue blanket as a rest, the shooter found that the rifle was quite accurate from the bench rest. Comfort may not have been the right descriptive word, but the setup was manageable.

Remington's Venerable M24

ONE OF THE things that recent warfare has brought about has been the adoption of “systems” rather than basic arms. The Remington M24 bolt-action rifle has been a real workhorse in the Army’s “designated marksman” community and, with a few changes and a different numerical designation, for the Marine Corps’ snipers as well.

There was a time when a sniper took his rifle, a pack to cushion his scope against the elements and a pocketful of ammunition and sought a spot from which he could reduce the enemy population, hopefully, without himself becoming a reducee!

Out of what appears to be the new approach to sniper work, one of the upgrades is a package that weighs 64 pounds and is listed as Remington’s M24 Sniper Weapon System. The complete system includes the rifle, an iron sighting system, a mounted Leupold Mark IV M3 scope, a scope and iron sight carrying case, a deployment kit complete with tools, spares and cleaning needs as well as a soft gun case and a Hardigg System hard case.

Mention was made of the deployment kit. Included in this is a rifle cleaning kit, a torque wrench, a hex key wrench, a scope sun shade, iron sight inserts, a scope cleaning kit, a box wrench, assorted spare parts and a scope dust cover.

“I’m not certain all that gear is necessary for launching rounds downrange at a target that might shoot back, but if it aids the friendly marksman’s performance, I’m in favor it.” Jack Lewis said that, of course, after he learned much of this gear will be left somewhat in the rear to be used after the mission is completed.

As for the rifle itself, it has some pretty decent parentage, the design having been derived from Remington’s highly thought of Model 700 bolt action and the 40X target rifle. The M24 measures 43 inches overall and carries a 24-inch barrel fashioned from 415R stainless steel. Rifling involves five radial land grooves, with a twist of one turn in 11.5 inches.

The rifle had been shipped to Jack Lewis immediately following a series of tests by an Army unit stationed at Fort Lewis, Washington. It arrived at Lewis’ digs sans any sign of a manual. A spec sheet he found

in his files assured potential buyers that the trigger of the M24 is adjustable, but Lewis didn’t feel comfortable toying with the device without printed guidance. Instead, he settled for weighing the existing trigger pull on his RCBS Trigger Pull Scale. The pull was set at a couple of ounces over three pounds.

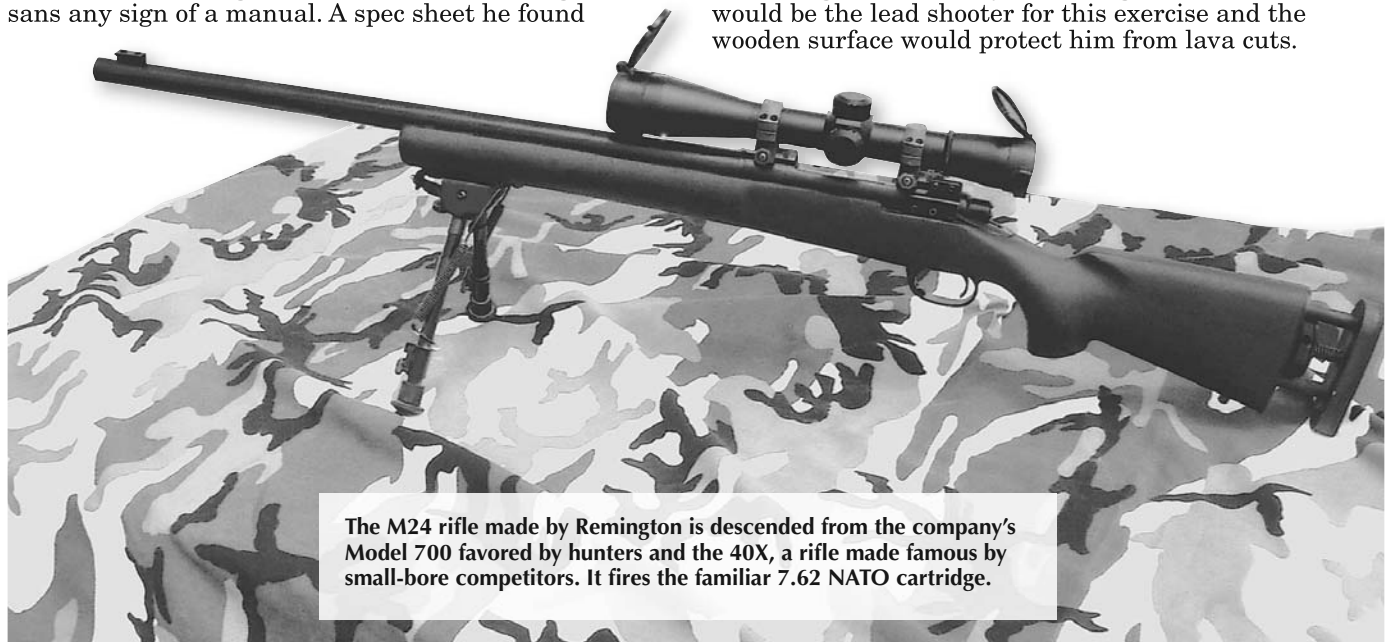
The rifle’s buttplate has an available 1-1/2 inches of adjustment in length and wearing both the sling and the Leupold 10X scope that are part of the package and carrying five live rounds in the magazine, the combat weight comes to 14¼ pounds. As for caliber, it is available in the familiar NATO 7.62x51mm or 300 Winchester Magnum, the latter being a round that seems to be catching on with U.S. sniper teams. The stock, incidentally, is cast from a synthetic called Aramid fiber.

Armed with all this knowledge, Lewis and his shooting pard, Ace Kaminski, noted that the effective range with a day scope such as the supplied Leupold fixed 10X is listed as being 800 meters. Wearing a night scope, however, the effective range comes down to 300 meters. The bipod, incidentally, is an optional feature, but it was included with the rifle sent for testing.

Finding an open area suitable for long range shooting on the island of Hawaii where Lewis resides involves several problems: (1) much of the landscape is covered by grazing cattle; (2) other available real estate is interrupted by jungle growth that limits shooting range; (3) in many situations there may be a volcano – active or otherwise – in the way; (4) or all three simultaneously.

To explain, what is considered the largest cattle ranch on U.S. soil is on the island of Hawaii. For truly long ranges, it might well become necessary to shoot between the bovines! Needless to say, the owners of such livestock don’t feel that’s a good idea at all! It finally was decided not to look for an open 800 yards, but to settle for what the rangefinder said was roughly 250 yards.

Lewis chose a semi-flat area as the sniper position, but it was covered with sharp lava rocks. The answer was to drop the legs on the folding table usually used as a shooting bench and lay it on the ground. Ace Kaminski would be the lead shooter for this exercise and the wooden surface would protect him from lava cuts.



The M24 rifle made by Remington is descended from the company's Model 700 favored by hunters and the 40X, a rifle made famous by small-bore competitors. It fires the familiar 7.62 NATO cartridge.

Some 250 yards downrange in a pile of lava boulders, a trio of three-dimensional targets was installed, each held in place by a length of steel rebar pounded into the lava. The targets selected for this outing are available from Law Enforcement Targets of St. Paul, Minnesota and are moulded to duplicate the upper half of the human torso.

Kaminski had clothed the dummies in cast-off garments and headgear to make the exercise appear a bit more realistic. One give-away, of course, was the brilliant white of the material from which the dummies are cast. It was decided after the fact – and after the shoot – that additional realism might have been accomplished by spraying the totally visible chalk white areas with some mixture that would match human skin.

Dressed in desert camouflage, Kaminski stretched out on the makeshift shooting station that had been arranged. He loaded the rifle with four rounds in the magazine and one in the chamber, then pulled a sheet of camouflaged material over most of his person to offer an added touch of realism.

The Leupold scope with which the Remington rifle was equipped was the military-issue fixed 10-power model and Kaminski found immediately that the scope's strength seemed to draw the plastic figures up close. With great deliberation, he picked the figure on the left and triggered off his five rounds, taking just enough time to bring the crosshairs back on target after each round. When done, he nodded his satisfaction and began to reload the rifle.

The performance was repeated on the middle target without incident. However, for the final sequence, the shooter shoved the camouflage sheet away, complaining that it was too hot under such concealment.



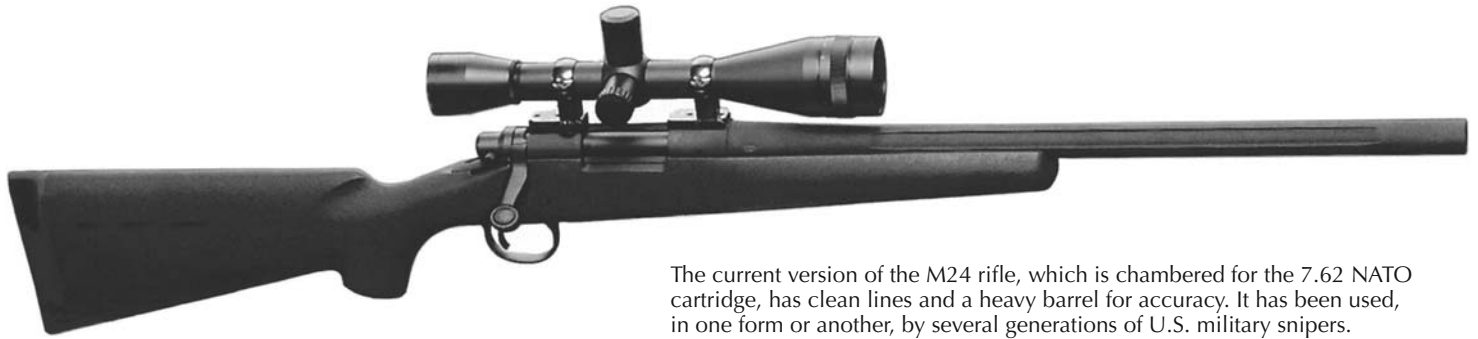
Ace Kaminski, clad in camouflage and covered by a camo sheet, took his sniper role seriously in checking out present-day capabilities of the long-time sniping tool of U.S. forces.

After the final string of five shots had been made on the third target, Kaminski and Lewis ventured down to where the figures still stood among the rocks. In the head of each of the dummies were five holes.

That, of course, took care of 15 rounds of Winchester's USA 7.62 NATO ammo, but it also left a full box and the other five rounds to play with. Lewis took his turn in perforating the three targets in the body areas, using



There's such a thing as suffering for realism, but it was decided to handle the sniping exercise from the top of a folding table rather than crawl around in sharp lava.



The current version of the M24 rifle, which is chambered for the 7.62 NATO cartridge, has clean lines and a heavy barrel for accuracy. It has been used, in one form or another, by several generations of U.S. military snipers.



On this plastic target, there are seven bullet holes in the head and neck area. Five of them were made in the initial shoot, others were fired later to expend the rest of the ammo.

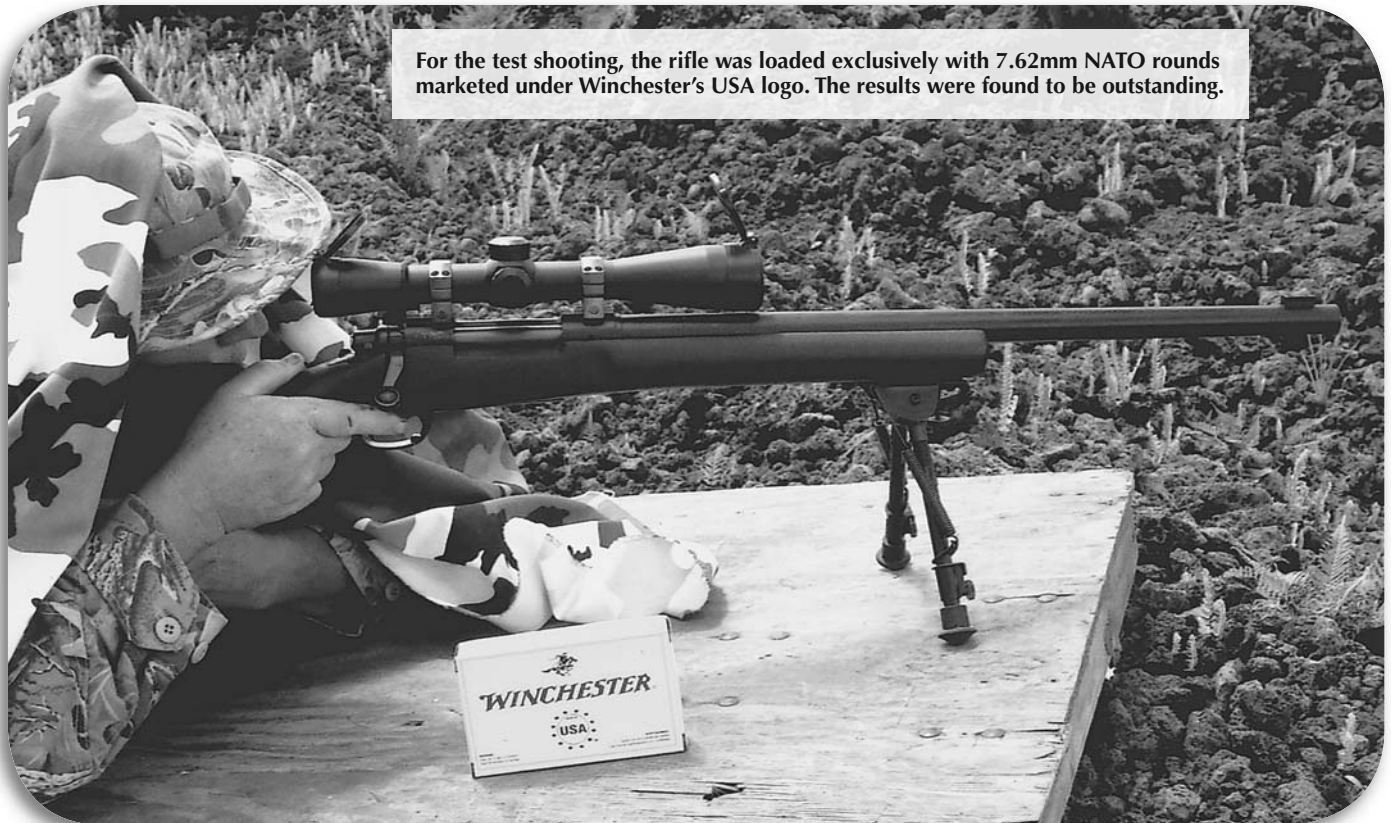
the sitting position into which a Marine Corps rifle coach had folded him pretzel fashion more than half a century ago.

"I'm going to be mighty stiff come morning," he allowed, as he finished his share of the ammo and was helped to his feet. The last 10 rounds were fired by Kaminski, again aiming for head shots. With the ammo gone, it was time to close up shop, clean up the gear and start evaluating what had been learned.

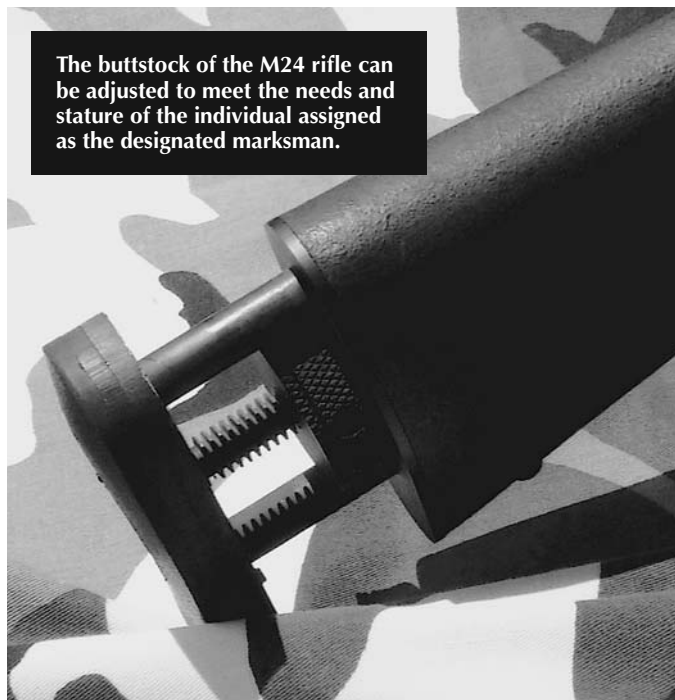
"It's going to take some careful repair work before we can use the dummies again," Lewis suggested, as they gathered up the targets and shoved them into the vehicle that had carried them from the shooting site.

Lewis and Kaminski took time to consider the 10X scope that was mounted on the rifle. Leupold & Stevens, the Oregon manufacturers, have been turning out such equipment for many decades. Without a doubt, it was the desire of the powers in the Department of Defense, who settled on outfitting the rifle with a fixed-power scope rather than a variable model.

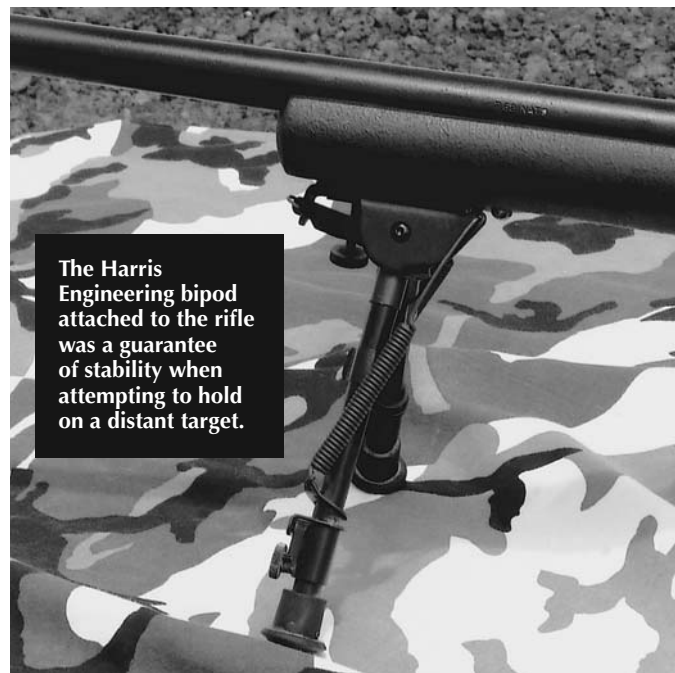
"It makes sense, I guess," Kaminski admitted, holding the rifle to his shoulder once more to check out the sight picture on a prickly pear cactus plant he estimated to be 400 yards away. "The scope's solidly



For the test shooting, the rifle was loaded exclusively with 7.62mm NATO rounds marketed under Winchester's USA logo. The results were found to be outstanding.



The buttstock of the M24 rifle can be adjusted to meet the needs and stature of the individual assigned as the designated marksman.



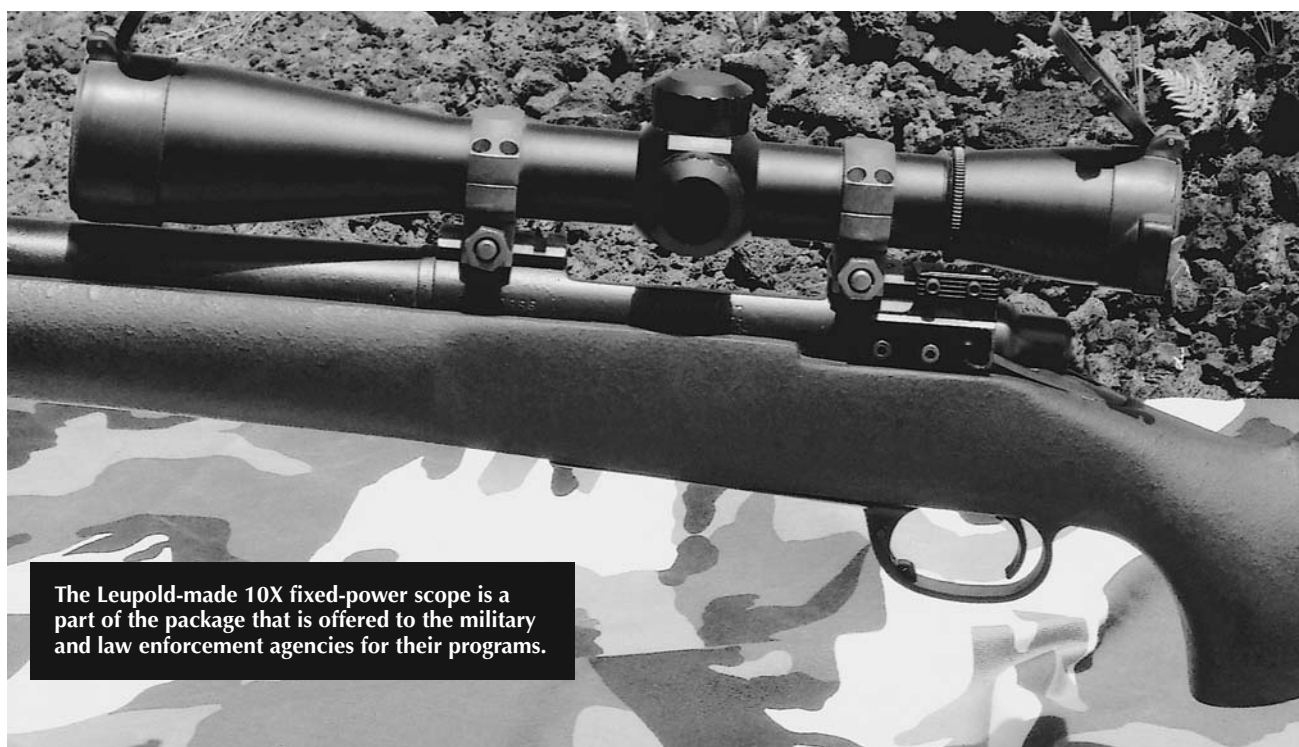
The Harris Engineering bipod attached to the rifle was a guarantee of stability when attempting to hold on a distant target.

built and there aren't a lot of little parts in the innards to go wrong and louse up an anti-sniper shot that could save friendly lives."

In retrospect, whoever made the decision probably was following an age-old rule: "Don't try to improve on success!" In our so-called modern world, it would not be surprising to ultimately find the venerable bolt-action rifle being replaced entirely by a sniper tool that fires semi-auto or perhaps even selective fire. Whoever makes such decisions, should keep in mind that full-auto M-16 fire in Vietnam made the ammo companies wealthy, an estimated 200,000 rounds being expended for every confirmed kill.

It should be noted, perhaps, that Remington markets what the company lists as its M24 Sniper Weapons System in five different packages. No. 25716 includes the rifle, an iron sight, the mounted Leupold Mark V M3 scope, a scope and iron sight carrying case, a deployment kit containing tools, spares and a cleaning kit, as well as a soft gun case. All of this is carried in that Hardigg Systems hard case.

A step below is the setup listed as 25705. This collection is the same as No. 25716, but is less the Leupold scope. Offer No. 25727 includes the M24 rifle, with iron sights and a mounted scope; nothing else. No. 25729 offers the basic rifle with only Olympic sights, while No. 25732 includes the basic rifle, period.



The Leupold-made 10X fixed-power scope is a part of the package that is offered to the military and law enforcement agencies for their programs.

CHAPTER 5

THE THEN & NOW OF SMALL-BORES

The When and Why of This Type of Ammunition

“IN DISCUSSING SMALL-bore rifle ammunition, we are not relating to a weak sister or an under-powered cartridge,” contends Robert Campbell, a veteran law enforcement officer and recreational shooter. “Some of the most effective and accurate rifle ammunition ever fielded has been of 25-caliber – or less. However, let’s take a hard look at the days when rifle ammo of less than 45-caliber was considered small-bore.

“Rifles had to be of considerable caliber to maintain killing power past a hundred yards. The blackpowder then in use was dirty, fouled quickly and made an exhausting chore of pressing a ball, lubricated patch or not, down a long barrel. The round ball lost power quickly upon meeting wind resistance.

“While the 45- to 72-caliber military muskets no doubt were effective when meeting flesh and blood at



Big bore and full-power do not always work well. This Krag carbine was liked for its light weight, but did not work well with the 220-grain bullet in a full-length rifle.



The first rifles of limited power used extensively in warfare were the Henry and the Winchester 66. As used by the Turks who understood their limitations, these rifles produce carnage among adversaries.

moderate ranges, they were relatively ineffective against light cover and accuracy was problematical. Still, some loads were not slow by any measure. Primitive measuring devices recorded a velocity of nearly 2000 feet per second."

(These devices consisted of a pendulum attached to a tape. The pendulum was shot, the arc measured against the length of the tape pulled and one had the approximate velocity. In the words of Bob Campbell, "It would never give the Competition Electronics Chronograph a run for its money!")

The pointed or Minie ball eventually was developed. A bullet with a pointed or rounded nose and a flat base, this projectile offered much better ballistic performance and was utilized in the first rifled firearms. The previous military muskets carried smooth-bore barrels. At times,



Full-power rifles such as the German-made 98 Mauser were adopted by most of the armed forces of the world's major companies by 1903.

the muskets were loaded with several balls, shotgun-fashion, as was the case at the Boston Massacre.

The new bullets were not more accurate as far as the individual soldier was concerned when fired in a musket, but in massed fire, the effective range was extended. When the rifled bore was coupled with a pointed bullet, much better accuracy was realized.

"With the advent of repeating rifles, concessions were made regarding range and power," Campbell has found. "The Spencer rifle adopted by the Union in the War Between the States was less powerful than the muskets in common use despite the Spencer's 56-caliber bore. The 44 Henry rifle was considered a virtual pipsqueak, firing a 44 rimfire cartridge at less than 1500 feet per second. Nonetheless, these repeaters were effective at close range."

The Henry and the Spencer had limited ranges, but could deliver aimed shots at a rate of five to one against any musket or rifled muzzleloader. The single-shot Sharps and Springfield rifles continued to be issued for years, because they were powerful enough to engage massed troops at long range – and to drop an Indian war pony at 300 yards or more!

At that time, the 45-caliber rifle was pretty much the standard, the 32-caliber long gun being considered a squirrel rifle. However, around 1885, events in Europe changed this philosophy forever.

The French were the first to develop smokeless rifle powders. Far from perfect in its original form, smokeless powder still offered tremendous advantages. There was less corrosion of the firearm, the rifle did not produce a cloud of smoke when fired and previously unheard of velocities became possible.

"The Lebel rifle adopted in 1886 fired an 8mm bullet," Campbell reports. "Two things distinguished this bullet. It was a small-bore compared to previous military rifles and the bullet was jacketed. The copper gilding jacket was necessary to withstand the heat from the smokeless powder and to prevent heavy leading of the bore."

The British used the single-shot Martini Henry and U.S. soldiers were issued the Springfield trapdoor model, while repeaters were viewed as being wasteful. The Turks, of course, created carnage with their supply of Winchester Model 1866 lever-action rifles in fighting the Russians, but still favored Martinis for long-range shots.

When smokeless powder was introduced, it became recognized as so superior that no nation could afford to ignore it. Britain, Germany and the United States quickly developed efficient rifles for the new fodder. These rifles differed considerably from earlier models in that they ranged from 25- to 32-caliber.

For military issue, the British soon adopted a 303 caliber, the Germans the 8mm and the United States the 30-40 Krag. During the same era, the Norwegians were interested in the 6.5mm Krag and the U.S. Navy reported glowingly of tests with the 6mm Lee rifle. Small-bore suddenly came to designate cartridges firing a 6mm bullet. Some say that smokeless

This off-duty soldier was intrigued with the semi-auto Thompson, the tamed-down version of the famed Thompson submachine gun that made its name over the years with lawmen, mobsters and U.S. Marines. A heavyweight by today's military standards, it was phased out of military inventories after World War II.



powder technology invited a mistaken belief that small-bore cartridges would be effective due to high velocities.

“While we do not regard 2300 feet per second as high velocity today, in 1890, this speed was considered sensational,” according to Campbell. “The 30-40 Krag and 303 British launched 200- to 220-grain bullets at about 2000 feet per second, while the 6mm approached 2500 fps.

“The 6.5 Carcano and the 6.5 Swedish were praised by those who adopted the cartridges for light recoil and being easy to fire accurately at longer ranges. The flat trajectory made it ridiculously easy for a trained rifleman to connect at unheard-of precision shooting ranges.”

Some of these cartridges such as the 6.5mm Swedish Mauser had the potential for extreme penetration. For example, a long, heavy-for-the-caliber 160-grain 6mm bullet traveling at 2400 fps proved effective on even large wild game. A further advantage of these new calibers was the fact that the individual soldier could carry many more cartridges into the field of battle. (Forty 45-caliber blackpowder cartridges had been a considerable load for an individual infantry soldier. However, it was found that 100 30-caliber cartridges could be carried rather comfortably. The 6mm rounds were even lighter in weight and bandoliers with several hundred rounds became common.)

These cartridges offered such high velocities that they did not fall far below the line of sight at longer ranges. However, this approach was in development and both Italy and Japan were adopting the 6.5mm cartridges, the U.S. and Germany were developing full-power battle cartridges. The 8mm Mauser and 30/06 Springfield set the stage for future wars.

“However, with these rifles came another problem: recoil. Blackpowder produced slow recoil that was much less sharp than the jolt from smokeless powders. Full-power rifles gave soldiers a solid kick,” Campbell reports.

Soon, the question of the effectiveness of small-bore cartridges would be examined thoroughly in wartime. The U.S. experience was limited, because we began the smokeless powder race with a 30-caliber rifle. However, this rifle did not perform well due to its slow 220-grain round nose slug. The 6mm Lee adopted by the U.S. Navy promised high velocity. A number of Colt 1895 machineguns were chambered for this particular cartridge. Strangely, this ultra-modern combination served beside blackpowder Springfields. The Colt machine gun – often called the “potato digger” due to an actuating rod that recoiled from the bottom of

the machine gun – was a kind of early squad assault weapon (SAW) in 6mm caliber.

The experiences of the Italian and Japanese forces were different. Little information has ever been shared from these sources, but each nation sought to replace its rifles after combat use presumably showed the 6.5mm Carcano and the 6.5mm Japanese to be ineffective. The Japanese never completely upgraded to the 7.7mm Japanese and the Italians belatedly adopted a 7.35mm Carcano.

“Each of these combatants used their 6.5mm rifles throughout World War II,” Campbell reports. “I have extensive experience with the much maligned Carcano. It is well made of good materials, accurate enough with good battle sights and is easy to use well. However, at long range against cover or vehicles, it would have been limited.”

By 1936, the major powers of the world – Britain, Russia, France, Germany, Italy, Japan and the United



By 1900, long, pointed bullets fed into the magazines of rifles. This is the much maligned Italian Carcano, which used an *en bloc* clip that fell out of the bottom of the magazine as the last round was fired.

States – all had adopted full-power rifles of 7mm to 8mm and were in the process of switching over to these calibers.

But somehow an intermediate cartridge with good properties was envisioned if never perfected. The unheralded full-automatic Russian rifles produced during World War I were chambered for the Arisaka round. While ground-breakers in a technical sense, these rifles were unimportant historically due to their low production rate.

During World War I, the first submachine guns were introduced. These sometimes were referred to as machine pistols, because they chambered a pistol round. Some were chambered for the most popular cartridges of the day, including the 38 Super, 9mm Largo, 32 French Long and the 45 ACP, but most were used in 9mm Luger.

“Some subguns were big and heavy like the Thompson, while others were lightweight and handy, but all were underpowered,” according to Campbell’s findings. “Web gear and even light cover defeated pistol cartridges much more easily than full-power rifle cartridges. The submachine gun was not useful for providing a base of fire and even less effective against vehicles and aircraft, so a new theme was investigated.”

The problem was to devise a caliber that would be effective at moderate range, but which would be lighter in recoil and offer more firepower than the battle rifle.

Trench warfare of World War I showed the effectiveness of shotguns and rapid-fire weapons. Thus, a trench weapon was invented that would provide the American soldier an interesting option.

What came to be known as the Pedersen device could be fitted to a Springfield rifle and thus completely modify the weapon. The device offered full-automatic fire, using a short, underpowered 30-caliber cartridge. The bullet was a lightweight projectile that traveled at less than 1500 feet per second. However, with a 30-round magazine, the Pederson device offered considerable firepower.

“The French purchased a reported 500,000 left-over Pederson cartridges and thus developed their 7.65mm 1935 pistol round known as the 32 French Long,” according to Bob Campbell. “The Pederson devices fell into disfavor and were destroyed, but still presented an interesting thesis. Previously, small-caliber battle cartridges had been full-power, full-length rifle cartridges of 6mm or so. Suddenly, we were working with short, less powerful 30-caliber cartridges.”

Research continued, with some nations developing down-loaded versions of the full-length cartridge for use in carbines. The original CETME semi-auto developed by Spain during World War II featured a down-loaded 7.62mm cartridge, but NATO forced the full-power cartridge on Spain and the rest of Europe.

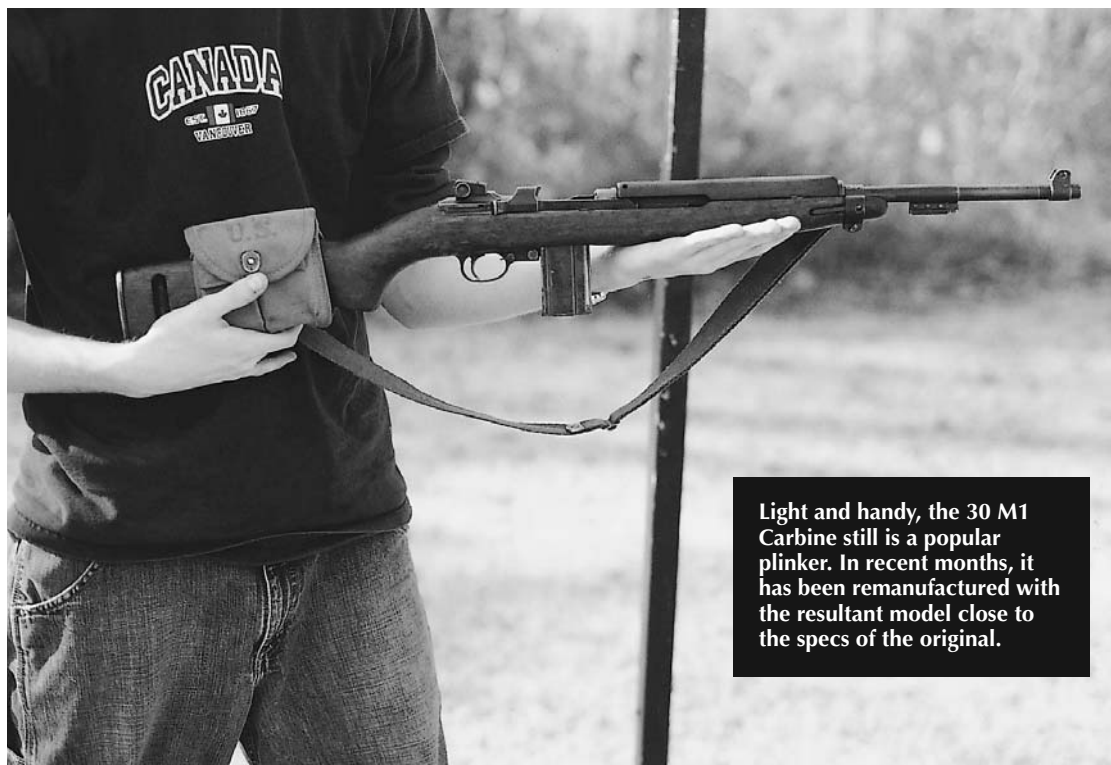
However, the first mid-range 30-caliber cartridge would be used extensively during World War II. The U.S. 30 M1 Carbine had its adherents and detractors to be certain, but it was used in the thousands in all theaters of that extended war.

The M1 Carbine was intended for use by soldiers and their officers who normally would be armed with a handgun. Tank crews, gunners and officers had a weapon then superior to the pistol, but the carbine got into the fight in the hands of regular GIs, as well. This little carbine featured a 20-round detachable box magazine and fired a 110-grain bullet at 2000 feet per second. It was – and is – accurate enough for short-range work and is reliable by most accounts. It should be noted that a selective fire version with full-auto capability was developed and issued late in the war, firing the same cartridge.

“The only fault with the M1 Carbine was the cartridge’s power and this quality is still being debated,” according to Campbell. “Some criticized the caliber as worthless. I have noted that most of the criticism came from the European battlefields, where ranges were longer and the enemy larger, stronger and protected by plentiful web gear. In the Pacific, after-action reports

often praised the carbine. Authorities stated that the M1 Carbine was a fine weapon for combat under 200 yards, noting that effectiveness of the cartridge fell off rapidly after the bullet reached that distance.

“In studying the criticism of the carbine, I have weighed this criticism against the reputation of the Russian’s so-called burp gun. The PP series has a fine reputation for reliability and effectiveness, giving the bearer a light weapon with plenty of firepower. By all accounts, the burp gun was effective in



Light and handy, the 30 M1 Carbine still is a popular plinker. In recent months, it has been remanufactured with the resultant model close to the specs of the original.

combat, but ballistics of the weapon's 7.62mm Tokarev cartridge was inferior to those of the 30 U.S. carbine. Neither was satisfactory, but the U.S. carbine served well in both World War II and Korea and it certainly holds an important spot in arms history."

World War II convinced the higher echelons that in the next war, high firepower and machineguns need to be more compact for rapid deployment. It could be said that the German *Sturmgewehr* 44 started it all with a 30-round detachable box magazine and a short 8mm cartridge.

"Like the intercontinental ballistic missile and jet aircraft, the assault rifle was a tremendous advancement that arrived too late and in too little quantity to affect the course of WWII. However, the introduction of such advanced battle gear forced the Allies to push much harder and endure high casualties in order to bring the war to an end before technology could give the Germans a lead that would change the face of history," Campbell contends.

The Germans took a different track in producing a small-bore fighting cartridge. The 8mm Kurz or 7.92mm Short was a short rifle cartridge rather than for a full-length smallbore. The cartridge was deemed effective to 200 yards, considered the limit for small arms marksmanship in battle conditions. Set piece actions now longer were a mark of warfare and massed troops even at long range invited slaughter by air power and artillery. The short cartridge was acceptable and a similar version was adopted by the Soviets for the AK-47.

The AK is an old system as of this writing, but when introduced, it was considered revolutionary. Today, it continues to give an account of itself and its caliber in the hands of some who are our nation's friends, others who are enemies. The original rifle featured low production demands and extreme reliability. The innards sometimes are referred to as floating parts, as they are not held to tight tolerances.

Full-power battle rifles chambered for the 7.62x54mm, the Russian weapons were the equivalent of our 30/06 Springfield, but often suffered broken parts. Thus, the Russians came to feel that a semi-auto rifle of moderate power would be more reliable, although they kept their machineguns chambered for full-power rounds. Thus, the AK-47 became the epitome of the Russians' mobile doctrine, replacing the SKS, all other older rifles and the submachine gun, although they did keep the subguns in development status for some years.

In America, experimentation showed that full-auto versions of the M1 Garand were uncontrollable in rapid fire mode. "The 7.62mm NATO cartridge is not a true intermediate round," Bob Campbell contends. "It is a short round that equals performance of the longer 30/06 due to modern powder development.

"The U.S. Army began moving toward a lighter cartridge in terms of weight, but a short 30-caliber cartridge did not meet the requirements of lethality the military brass were seeking. Also, the accuracy for such a caliber was lacking. The Army was looking for an intermediate cartridge with high lethality and good accuracy."



Such firearms as the Heckler & Koch 33, with its telescoping stock, are controllable when chambered for the 5.56mm cartridge. The same cannot be said when the gun is chambered for the 7.62mm NATO round.

An organization known as Fairchild Engine & Airplane Corporation had been involved in developing airframes including an advanced 1945 prototype for a four-engine bomber. The Armalite Division of this company concentrated on the modern technology involved in developing lightweight alloys for battle weapons. Thus, the original Armalite rifle began to take form under the design genius of the late Eugene Stoner. Ultimately, it became the AR design from which many modern rifles have descended.

"This rifle had a high hit probability based on excellent human engineering and fired a lethal cartridge with great accuracy," according to Bob Campbell's findings. "The ability to carry a large store of ammunition was one of the design requirements. From the beginning, the rifle that was to become our M-16 had a full-auto capability. The cartridge, of course, was the 5.56mm – also known as the 223 Remington. It was basically a varmint cartridge built for the type of rifles that rely upon extreme accuracy and a light, fast bullet to quickly dispatch mammals at long range. The cartridge was considered ideal for the new battle rifle."

The development of the M-16 capped the history of small-bore rifle cartridge development. There have been developments in light weapons, notably the 5.7mm FN designs, but the M-16 system remains the premier system in the world at this time.

The M-16 and the AK-47 both are available in 22-caliber high velocity versions, as well as short 30-caliber configurations. A 7.62x39mm Armalite variation was deemed expedient for use in countries with huge stocks of this ammunition and this particular rifle, the AK 74, was developed as a response to Western technology. The M-16 and the AK models have met on the fields of battle many times and, as of this writing, they do so daily in the Middle East.

The modern 5.56mm military load uses a 62-grain bullet to offer greater penetration than the original 55-grain loading. The 62-grainer reaches velocities of more than 3000 feet per second. The bullet breaks up at the cannelure when striking flesh, thus creating individual projectiles that often strike something vital. When the bullet hits heavy bone, it is especially effective.

"I have examined several individuals who had been struck with the 223, 5.56mm and similar bullets and the effects often are more pronounced than those generated by a 30-caliber rifle. Shooting in this country takes place at shorter ranges than military combat," Campbell states, adding, "I am aware of 14 deer taken with a single shot each from a 5.56mm rifle, using Winchester's 64-grain JSP. These were taken all in the same deer season at ranges from 35 to 110 yards."

"The 5.56mm rifle has earned a good reputation for its effect on living targets at moderate ranges. At longer ranges, the bullet tends to break up and shows less effectiveness."

(NOTE: There are differences in 62-grain bullets. Not all have the proper jacket thickness for fragmentation and others have off-center or harder cores. The 62-grain load is by no means a standard item, but is a type manufactured by dozens of makers world-wide. Considerable experimentation is called for in choosing a proper load.)

The Soviet-designed cartridge does not reach tumbling potential at muzzle velocity. For this reason, those conducting tests in ballistic gelatin report that the wound channel usually resembles that of a 38 Special bullet. However, the AK can – and does – direct a lot of bullets in a single burst.

The chief drawback for the AK is severely degraded accuracy beyond 100 yards.

This particular model demonstrates the Russian theory that the side that wins in an infantry shootout is the side with the most firepower. This often was true in Soviet Russia during World War II. On the other hand, the American philosophy is geared more toward individual riflemen, although the need for firepower is clearly recognized.

Either rifle gives a soldier advantages in combat. The AK is relatively simple and a man can be trained quickly, but this also is true of the AR clones, including the M-16. It is Campbell's feeling that a trained shooter can master the accuracy factor of the AR and take advantage of the rifle's versatility.

"The two small-bores are the giants in the military firearms field today, with millions of examples tested in combat. Any further development in small-bore cartridges is almost certain to be based upon the action and function of one or the other," he states.

"Today, there remains controversy surrounding the main battle cartridges. The AK is all it is and no more. Some have complained that the AR system could be delivered with a more powerful cartridge and retain its excellent control and accuracy. Arguably, the 6.8x43mm cartridge accomplishes this."

The 6.8 cartridge, incidentally, is designed to allow retrofit of existing weapons with a minimum of modification. The main objective is to increase lethality through greater wound potential. While the cartridge shows excellent accuracy and functions well, most of the test rifles are semi-custom pieces such as the Barrett M468. These rifles will be more accurate than a production line AR model, but the cartridge itself shows potential.

"Performance is not pedestrian, with a 114-grain 6.5mm bullet driven at 28 feet per second," Campbell states. "I am somewhat new to this cartridge, but my experiments with the Silver State Armory loadings and especially hand-loaded cartridges with the Sierra Match King bullet have offered excellent results."

"Some have compared the 6.8 to the British 280 experimental cartridge, but the 6.8 is a more compact case. From a 16-inch barrel, the cartridge retains 2600 feet per second of muzzle velocity."

A concern with modern small-bore ammunition is the decrease in velocity with short-barreled weapons. This problem was recognized first with the Krag carbine and remains a problem with short-barrel 5.56mm weapons. A cartridge with effectiveness predicated on speed cannot lose velocity.

A recent development of interest has been the 6.5mm Grendel, which is basically a 7.62x39mm cartridge that has been necked down. The cartridge originally was designed around the excellent Lapua Scenar bullet.

"This combination offers exceptional long-range accuracy, but it should," Campbell contends. "Among the major players involved in its development were competition shooter Arne Brennan and the well-known developer of benchrest cartridges, Dr. Lou Palmisano. The cartridge may launch a 123-grain bullet at 2600 feet per second from a 24-inch barrel. Mainly a target round, this cartridge should do what the 6.5mm Swedish Mauser will do in the field."

Development of small-bore cartridges for military use is ongoing. Bigger may be better, but these small-bores have replaced the full-power 30-caliber round in all but specialized use.

CHAPTER 6

THE AK VERSUS THE AR

A Hard Look at What May Be the Modern World's Two Most Often Used Tools of Warfare!

WHEN IT COMES to a comparison of the world's premier battle rifles, it is interesting to consider where and perhaps why they originated. A great influence where the Russians were concerned lay in the fact that their World War II semi-automatic rifle program had been less than successful. Only when the SKS, firing an intermediate-power cartridge, was adopted was the program considered any sort of a plus.

The United States, on the other hand, had the viable M-1 Garand. The success of this particular model – by design and in battle – colored our national thinking for decades.

However, both major powers recognized the obvious fact that static defense and warfare favoring static defenses was a thing of the past. Rapid deployment forces and superior firepower were then thought to be the watchwords of the future. Lighter weapons – most with the capability of full-automatic fire – would become the order of the day. Each nation apparently

adopted this doctrine...but in different vehicles. The U.S. continued development of the M-1 Garand until it emerged as the M-14, a full-size, full-power rifle equipped with a detachable box magazine. The Russians adopted a rifle that was based largely on the German MP 44. The Russians liked the AK's firepower above all. The AK-47, the most popular of the various models, features a 30-round magazine and could be fired in the full-auto mode. The piece was – and is – designed to allow great reliability, which means that the parts are fitted loosely!

In the U.S., the M-14 was regarded as a good rifle, but experiments showed the rifle was not controllable in the full-auto mode. The heavy-barreled M-15, fitted with a bipod, then was suggested as a successor, but was not considered an efficient battle tool for full-automatic fire. Thus, controversy erupted between those who advocated rapid but accurate semi-auto fire and the emerging doctrine of firepower over accuracy. The situation remained static until events in Vietnam caused the U.S. military powers to consider an alternative weapons system.

In the Russian armed forces, the AK-47 did not replace Soviet machine guns at first, but it was noted that the AK utilized technology developed in the design and ultimate production of the successful PPSH-type 7.62mm Tokarev weapons. In this operation, metal stampings took the place of carefully machined parts. This approach made for an inexpensive weapon that could be mass-produced readily and quickly.

The bores of the early AKs were hard-chromed largely because of the previous Russian experience with poor quality ammunition and corrosive effects caused by inferior gun powder.

"While the AK may not invite close tolerances, it is not sloppy," according to Robert K. Campbell, who has made a study of the weapon. "Parts do not wear quickly to produce eccentric surfaces."



The Saiga rifle is a beefed-up AK firing a 308 cartridge. The safety is up and on, locking the bolt. In the down position, the rifle is ready to fire. Campbell contends this is certainly not the handiest of modern battle rifle safeties.

Campbell adds that “a parallel may be found between Armalite and Glock. The original Armalite corporation was unknown for weaponry, but wished to introduce aluminum into battle rifle production. At roughly the same time, Glock was entering its first venture in the firearms field by using a polymer frame. Both efforts, of course, have been successful. Even then, the AR-15 rifles and ultimate clones were produced on the newest machinery which was used to full advantage. However, the AR cartridge was designed to be more lethal than that fired from the AK.”

Another then unique feature of the AR was the gas system. This rifle does not utilize a separate gas piston as does virtually every other gas-operated rifle in existence. Instead, the late Gene Stoner – a long-time friend of Jack Lewis prior to the inventor’s passing – designed the rifle to deflect gas into a chamber in the bolt assembly.

“In one regard, the bolt is the action piston,” Campbell soon learned. “This system has the advantages of low recoil impulse and high accuracy. A trade-off is that the system must be kept clean for proper function. Today, the M-16 variants all feature chrome-lined barrel and chamber surfaces. Problems in function with early rifles were answered with this chroming process.”

In comparing the two types of rifles, one must realize that the AR-15 design arrived on the scene somewhat later concept-wise than the AK and is a somewhat fresher creation. The philosophies of the countries building these rifles also are evident in the production facilities needed to produce either rifle. State-run mega-factories appear best at producing the AK, while a good AR can be built by relatively small companies equipped with good CNC machinery. The technical differences of the two certainly exist on paper, but the real deal is how each rifle of its type handles and shoots. Thus, a comparison of the two rifles was undertaken by Bob Campbell to determine just how they stacked up against each other.

“In fairness, one must recognize the fact that there are many variants of either type rifle. I could have matched a precision-grade AR against perhaps a Krebs custom AK, or I could have chosen an Armalite version with optical sights and lorded it over the AK. I could have built up one or the other, but I opted for good but not extraordinary gear,” Campbell explains. “The AR was ably represented by a Bushmaster carbine. The AK was a Century Arms variant with a folding stock.”

It perhaps should be noted that the AR actually was the personal rifle of Campbell’s son and had been fitted with a Vitor stock.

In comparing weights of the two combat-ready contenders, average weight of the loaded AR types was established as being about 7.5 pounds. The AK, carrying a loaded magazine as well, came in at 9.5 pounds. The Bushmaster used in the test had a 16-inch barrel, while the tube of the AK was 17 inches.

“The first question about the two weapons involved their handling qualities. To me, the AR



The AR-15 system, as exemplified by this Bushmaster carbine, is touted as being among the most ergonomic rifles ever fielded. It is considered to be user-friendly.



Campbell feels that cheek weld with the AR rifle is excellent. The sights come to the eye as the rifle is shouldered, the fore-end offering a comfortable grip.



The sight radius of the AK is shorter than that of the AR and the rear sight is much farther from the eye than with the AR sights. Proper hold can be uncomfortable.



The safety on the AK-47 tested illustrated the belief that the device is less than user friendly. Moving it in either direction is somewhat demanding.

felt better, offering the shooter confidence during quick movements, although the support hand felt cramped, when gripping the rifle's fore-end.

"I got the feeling," said Campbell, "that the AK was designed to be used by smaller people, but the Russians are by and large comparable in size to Americans. The forend of the AR has much more area for comfortable hand placement."

Campbell also felt that cheek weld with all of the AK variants he has tried over the years becomes more difficult than with the AR. "Some fellows with long arms must bend their wrist uncomfortably to hold the AK," the investigator reports. "This results in a slightly cramped grip. The three-position stocks available for the AR make firing with body armor relatively comfortable and allows the rifle to be carried comfortably. Truth is, the AK is less ergonomic than the AR."

In making the piece ready to fire, the cocking handle of the AR is easily actuated with either hand. Campbell says the AK is not difficult to make ready, but is less handy than the AR in this respect.



Bob Campbell insists the AR safety is among the most positive ever designed. Easy to manipulate, it offers rapid handling with a high degree of safety.

"With the AK, the bolt is cocked easily with the right hand in most cases, but the left hand is clumsy in coming over the top of the receiver to cock the rifle. The AR system is friendlier," Campbell contends.

He also feels that the AR safety is leagues ahead of anything else in current use. The safety lies under the thumb in a positive position for operation. Thus, the thumb can make the rifle safe in one quick, sweeping motion.

"The AK safety is a long lever mounted on the right side of the receiver. This lever resembles the safety of the Remington Model 8 and is no handier," according to Campbell. "The lever blocks the bolt when in the upper position and it requires the firing hand to be removed from the firing grip to manipulate the safety. The weak hand may travel over the top of the receiver to handle the safety, but this is a poor tactic.

"The safety of the AR-15 is much superior to that of the AK-47 in every way," is the evaluation on that score.

"Trigger compression for both types of rifles is probably close to equal," Campbell opines.

"Both use military-style triggers that are neither light nor crisp. The Bushmaster trigger is the equal of any commercial offering, but the Century AK, while abrupt, was usable. Either trigger guard is suitable for gloved-hand use, although the AK is more generous."

Campbell found the sights of the AR much better for accurate fire at short, medium and long range, but especially at longer ranges. "The open sights of the AK simply do not allow the positive, quick sighting of the AR-type rifle. The aperture sight of the AR-15 quickly centers the eye."

Campbell feels a concern that must be addressed by law enforcement officers and citizen shooters is the fact that the AR tends to shoot low at close range. This is common to all military rifles, but the need to place the sights of the AR far above the bore adds to the problem.

"In a hostage situation, at up to 10 yards, a center hold on the forehead of a hostage taker could result in a shot to the hostage. As an example, if the hostage taker is holding your wife from behind in a take-over robbery and you take a dead-on center of the forehead hold and proceed to do business, the bullet will strike about in her clavicle. This is not something the designers were concerned with in coming up with a battle tool, but anyone using an AR for personal defense must understand this issue. The AK is slightly less offensive in this regard."

As for changing magazines, Campbell feels the AK is dated. "Robust and reliable, true, but the magazine is more difficult to change quickly than with the AR"

The AK magazine catch is located forward of the trigger guard and is actuated while the magazine is swung out and now. A new magazine is grasped, and then literally rocked into the receiver.

"The AR system is much smoother. A push of the magazine release allows the spent magazine to fall free. Since the magazine well extends below the bolt, it acts as a funnel to allow the magazine to be seated quickly. The ability of a soldier to keep up a barrage of fire is much greater with the AR."

Campbell also found that in firing, the AK recoil is greater than that of the AR. He says that neither rifle is uncomfortable or difficult to handle, but the AK-47 offers greater recoil. He found the sound of the fired cartridge is louder than that of the AR-15.

"As for reliability, the AK-47 has the mechanical and practical advantage," the investigator found. The gas cylinder of the AK-47 sits above the barrel and is cleaned and serviced easily. The gas tube is fairly large, affording much leverage in operation. The AR-15 has what is termed a gas impingement system. Gas alone works the bolt and there is no gas cylinder.

"There is an economy of manufacture realized by eliminating the gas cylinder and piston," Campbell says, "and the system also allows better stability and accuracy. At the same time, though, unburned powder may blow into the chamber causing carbon to form upon the gas port channel. The system demands clean-burning ammo or a malfunction may occur in less than 1,000 fired rounds."

The AR is assembled with closer tolerances than the AK and this is reflected in the AR-15's greater accuracy. This rifle was designed to allow quick, easy maintenance and troops in combat situations sometimes strip and clean the rifle several times a day.

"However, judicious use of hard chrome and ammunition development have done much to make the AR-15 series a much more reliable rifle than was the case with the original issue. In a worst case scenario, the AK is the more reliable beast, but the AR is certainly a reliable system."

During his evaluations, Campbell fired the AK in several positions, including offhand, in the under-the-arm unaimed position, kneeling and prone. He found it less well balanced than the AR, but feels a seasoned shooter could perform acceptably in most combat situations. "An exception was firing from the prone position, since the length of the extended magazine makes firing difficult."



For rapid reloading with a fresh magazine, one simply has to push the magazine release button and the empty falls out, saving seconds in the process.



Here the Bushmaster has been outfitted with the ATN illuminated reticle scope. This scope can be set for 100, 200 and 300-yard targets by click adjustments.



After the magazine release has been pushed to its forward position, the magazine of the AR must be rocked out, requiring what may be precious extra seconds.

Campbell contends that the AK is the less accurate rifle, but adds that this accuracy deficit involves more than one facet. He says the rifle did not group well off the bench as did the AR and in rapid-fire, maximum-speed drills, the AK did not equal the AR.

"I think that while we realize the AR is the more accurate system overall, we must also give the devil his due. The AK is not a bad system and can be used credibly. A difficulty in achieving the best results with the AK is the issue sights. The AK uses open sights that are a bit tighter than the buckhorn sights found on lever-action rifles, but they are not precise by any measure. The rear sight ranges from a U to a V, depending upon the date of issue and the manufacturer, while the front sight is a simple post."

The rear sight of the AR-15 features two aperture settings, the larger aperture being for close-range combat shooting, while the other opening is meant for long-range precision fire.



To reload the AR, one simply thrusts a magazine into the magazine well and it locks in. This allows for extremely rapid replenishment of 5.56mm ammunition.



The fresh magazine must be seated with a repeat of the rocking motion, then one must be certain that it is locked securely into the rifle's magazine shallow well.

"In firing the rifles, I found that if I shot 10 to 20 rounds rapid-fire at ranges from 10 to 100 yards, the groups from the AR would be half the size of those from the AK. I also found that I tended to concentrate on the AR sights more closely. One tends to use the AK as designed: as a bullet hose! It will lay down a lot of firepower pretty quickly," Campbell found.

As for absolute accuracy, Campbell could not resist the comparison. "I used surplus-grade 'burner' ammo for most of the firing tests with good results. Wolf Ammunition's 62-grainer was used in the Bushmaster, while the 122-grain HP load from the same importer was fired in the AK.

"There were no malfunctions of any type in either rifle. I then used upscale loadings designed to give the top accuracy in each rifle. The results were unremarkable. The AK did not benefit from top-quality ammo nearly as much as did the AR. For the Russian rifle, I used 7.62x39mm top-quality loads from Cor-Bon and they



Campbell says he is happy to have both of the rifles in the family. If he could afford only the AK, he would make do, but would hope to buy the AR soon!

Accuracy Results

Five-shot 100-yard groups measured from outside to outside of the most distantly spaced bullet holes.

Bushmaster 5.56mm (16-in. bbl.)

Load	Group size (inches)
62-grain Wolf Ammunition	2.0
55-grain Winchester USA ball	1.8
64-grain Winchester JSP	1.5
55-grain Cor-Bon JSP	1.4
60-grain Black Hills	1.5
77-grain Black Hills	1.3

Century Arms AK-47 7.62x39mm (17-in. bbl)

Load	Group size (inches)
124-grain Norinco ball	4.5
122-grain Wolf Ammunition	3.65
123-grain Federal American Eagle	3.75
124-grain Winchester USA	3.6
125-grain Cor-Bon JHP	2.9
150-grain Cor-Bon JSP Hunter	3.25

seemed to improve the ballistic effect, making it a respectable ranch or personal defense weapon. However, in the matter of accuracy, it will require another system to show the 7.62x39 rifle in a different light.

Campbell feels that the Russian battle tool is colored by World War II experience. House-to-house fighting in Stalingrad and other cities showed that firepower often decided the battle's outcome. In such environs, accuracy beyond 300 yards meant little.

The AK does not require a great deal of training. Soviet human resources certainly should never be underestimated, but diverse groups from all over the



This Bushmaster carbine has been fitted with KNS precision sights. Note that the cocking handle is handy for use by either hand. In pure function, Bob Campbell considers the AR variants as the premier among current battle rifles.

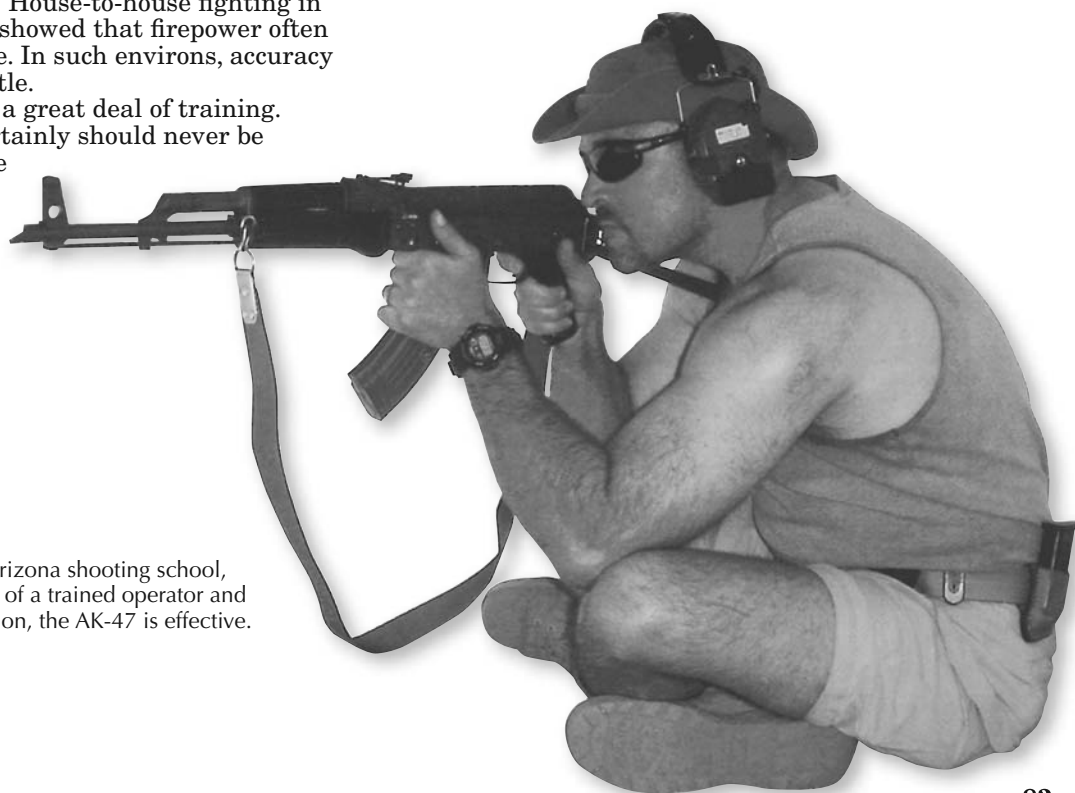
world have been able to learn to fire and maintain the AK-47 quickly.

The United States Army fought the same war against the same enemy in Europe, but came to different conclusions. Americans of that era were generally fine shots, since our freedoms allowed us to use firearms and become proficient with them.

The M-16/AR-15 is not the highly accurate long-range rifle that was the M-14, but it is more accurate than the AK and most of its clones. Campbell considers the M-16 a model of human engineering, noting that the Soviets favored a mechanized unit, whereas Americans still counted on infantry foot soldiers, so light weight and self-sufficiency were important. The AR-15 was developed to meet that need.

Which rifle does Bob Campbell prefer?

"I like the AK," he says. "It is a reliable rifle, an ideal centerfire plinker and an important part of history. But the AR would be my first choice in battle."



Gabriel Suarez, at his Arizona shooting school, shows that in the hands of a trained operator and from a solid firing position, the AK-47 is effective.

Elevating the AK Rifle

THERE ARE LITERALLY millions of AK-47 rifles and later improved models in the world today, but a gunsmith named Marc Krebs, who operates out of Wauconda, Illinois, has devoted a hunk of his life to improving upon the original design by Mikhail Kalashnikov.

A 1984 graduate of the gunsmithing venue at California's Lassen College, the gunsmith is noted in shooting circles for his upgraded M1911 pistols, but it would seem his chief interest is in military small arms, particularly those of the aforementioned Russian arms designer. Krebs admits he has been impressed from the beginning of his career by the simplicity and overall design of the AK assault rifle series, so he decided to build his own.

Starting with a Russian-made Saiga hunting rifle, he now turns out a model that is identical to Russia's current AK-103 assault rifle chambered for the 7.62x39mm cartridge. It should be noted, of course, that the Saiga is based upon the AK series.

Robert K. Campbell is a fan of both the 7.62x39mm round and of Krebs' work as well, and has settled on the cartridge for taking medium-size deer in his native North Carolina.

"I have examined and fired many AK rifles," he states. "Some have been pretty rough and others represent an improvement over the original. In the case of the Krebs rifle, what we have is a major redesign. These rifles are

more than a simple rework of the AK-47. What Krebs calls his KTR 033 is more modern in appearance than any other AK derivative and there is no hiding the fact that it is an assault rifle, but from certain angles, the Krebs creation – or recreation, if you like – does not even look like an AK. While a unique appearance may have been the gunsmith's design target, his creation outperforms any existing AK rifle by a considerable margin. The rifle handles better and shoots better!"

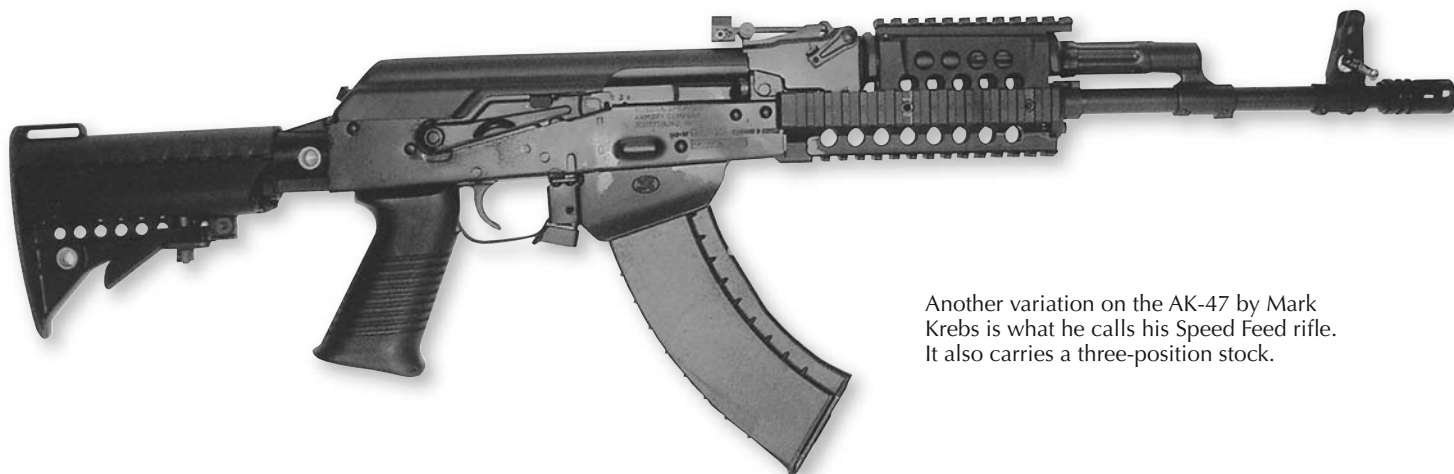
The KTR 033 features a muzzle brake that is closer to that of the AR series than to any other AK rifle. It also incorporates an AR-15-type gas block. In his research, Campbell found that the rifle features a good adjustable post front sight and a quality aperture rear sight. Adjustments to either sight can be made with the rim of the 7.62x39mm cartridge case. The rifle's gas tube is exposed for the length of the barrel, which is a chrome-lined 16-incher.

"Chrome lining is a must for a hard-use rifle," Campbell opines. "This is particularly true when one considers the origin of much of the ammo of this caliber in use over the world."

The Krebs rifle features a high-impact aluminum forend with rails at the side and bottom for installation of lights and other accessories. The length of pull of the standard-stocked rifle is roughly 14 inches, but Krebs has settled on an adjustable stock for his creation.



Of the available Krebs customized models, this one features a three-position stock (seen here in its closed position). The sights, Vltor stock and hand grips are new additions.



Another variation on the AK-47 by Mark Krebs is what he calls his Speed Feed rifle. It also carries a three-position stock.



This standard Century Arms AK boasts a new forend from Command Arms Accessories. It is an obvious upgrade at little cost to the gun's owner.

Improving the looks and hopefully the potential of this AK are the combat light and bipod mount from Command Arms Accessories.



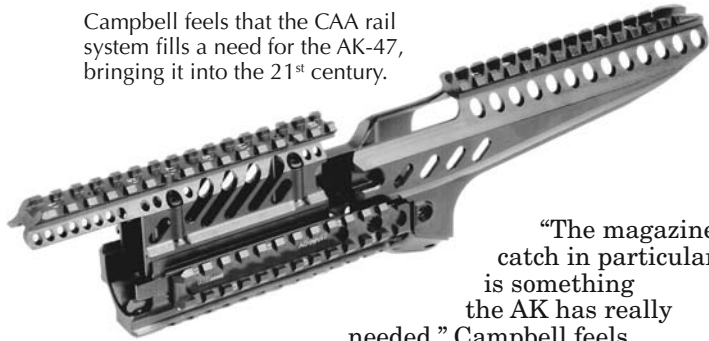
"With several adjustments that allow the user to set the length for use with a gas mask, a vest or even inside a vehicle, Krebs' three-position stock is a good option," Campbell feels. "Another great improvement is the fact that the safety is now a thumb-operated safety set near the pistol grip. On Krebs' design the dust cover safety has been reduced to the role of just being a dust cover. "I never liked the safety on the original AK-47. It reminded me too much of the ungainly system on the ancient Remington Model 8 rifle. The Krebs safety means the rifle can be at the ready instantly rather than time being taken up to fight the original unhandy safety. In addition, the dust cover can be activated without the tell-tale snap of the AK-47."

Campbell also feels that the trigger action of the Krebs is a great improvement over that of any AK he has fired in the past. The Krebs trigger is renowned for the excellence of its break and reset. The Krebs rifle also has a speed feed variant of the original AK that features a funnel-like magazine chute and a modified magazine catch.



This rifle has been tricked out with accessories from Command Arms Accessories that include the bipod, light rail forearms, vertical grip and ergonomic grip.

Campbell feels that the CAA rail system fills a need for the AK-47, bringing it into the 21st century.



"The magazine catch in particular is something the AK has really needed," Campbell feels.

"It was stuck in the Fifties. Thus, the Krebs rifle definitely upgrades the handling and ergonomics of the AK 47, while keeping the reliability intact."

Campbell has not had the opportunity to seriously fire the rifle from benchrest. Instead he has had to rely on examining the Krebs owned by a friend, and firing it in an informal setting.

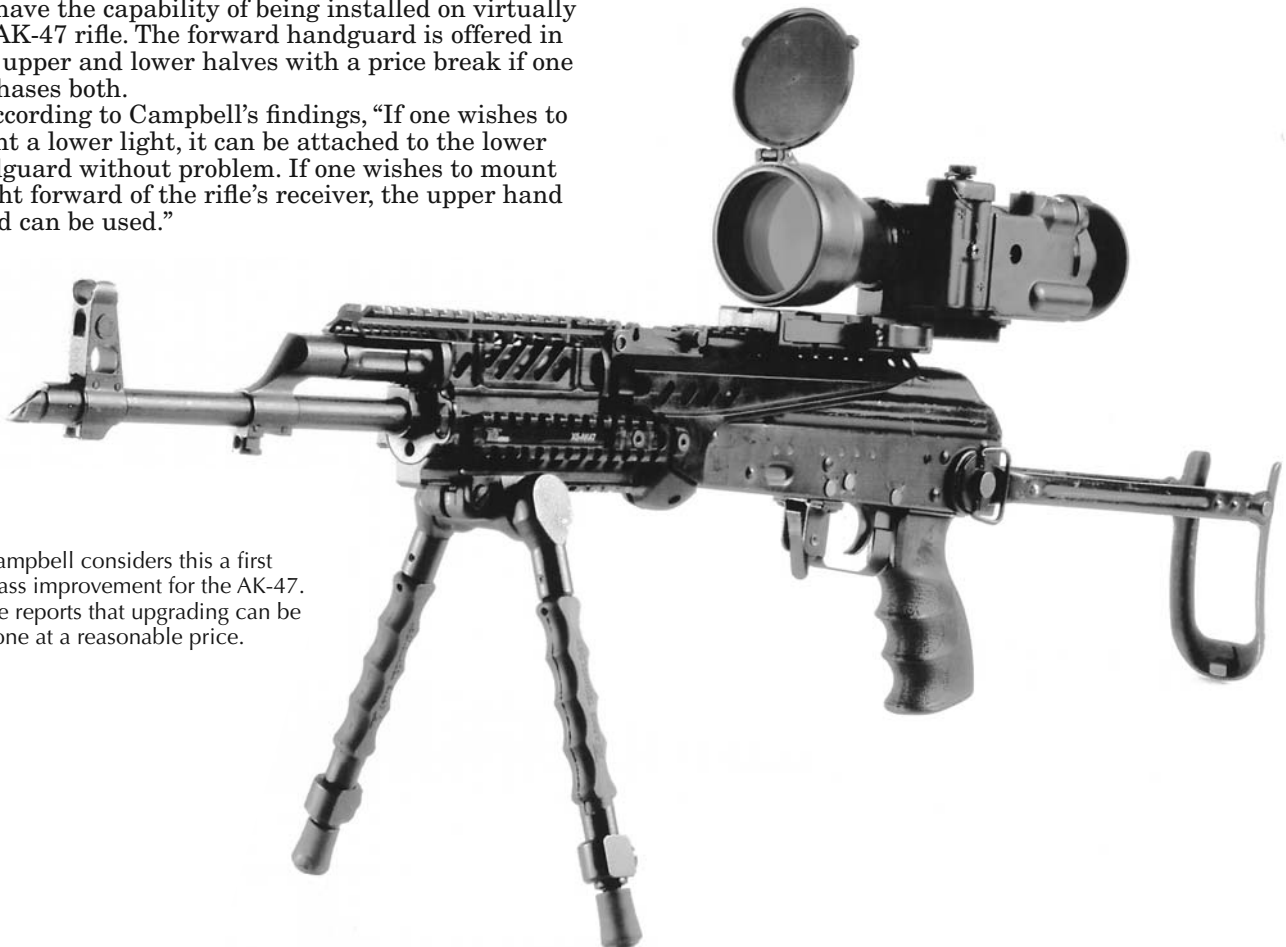
"But reports from learned shooters tell me the Krebs rifle is considerably more accurate with quality ammunition than the original AK. Black Hills, Winchester, Federal and Cor-Bon all stock 7.62x39mm ammo that will help the shooter realize the full accuracy potential of this rifle."

At a lesser extreme, if one owns what Campbell refers to as a decent AK-47 and wishes to upgrade the piece to something that is more shooter friendly, Command Arms Accessories offers what he considers to be "genuine high-quality gear." He is particularly high on the company's bipod.

Investigation has shown that Command Arms Accessories are manufactured of Space Age materials and have the capability of being installed on virtually any AK-47 rifle. The forward handguard is offered in both upper and lower halves with a price break if one purchases both.

According to Campbell's findings, "If one wishes to mount a lower light, it can be attached to the lower handguard without problem. If one wishes to mount a sight forward of the rifle's receiver, the upper handguard can be used."

Campbell considers this a first class improvement for the AK-47. He reports that upgrading can be done at a reasonable price.

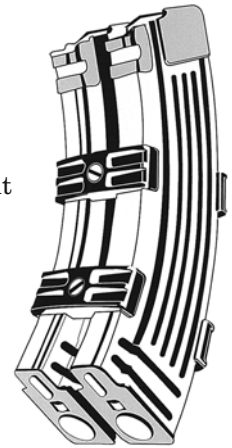


Command Arms Accessories also markets magazine couplers for the AK-47. They are simple to install and remove.

AK47 Mag Coupler

He feels that the pistol grip of the original AK 47 tends to be too thin for proper holding. CCA offers an ergonomic pistol grip that is finger-grooved for excellent purchase. "This grip is especially useful in stabilizing AK 47 rifles that are fitted with the folding stock. CCA also has available such components as magazine couplers for The AKs. While I seldom use such devices, were I keeping a rifle ready for serious use, I would want to have these couplers at hand."

"The company also offers a complex, impressive and practical forend for the AK-47. It is the most impressive device of the type I have seen offered for any rifle," Campbell enthuses. "The forend is a combination light and accessory rail that is built for hard use. I would have bought one if my AK 47 was my number one excursion piece, but favored ahead of the Russian design is my AR-15, followed by the Garand, with the Remington 870 shotgun somewhere in the middle. Nonetheless, such accessories tend to get the tired old AK up off its knees and into the 21st century!"



CHAPTER 7

RUGER GOES LAW ENFORCEMENT

**Some Old Standards are Being
Face-Lifted to Battle the Bad Guys
at Home & Abroad**

AS MENTIONED IN an earlier chapter, a number of firearms companies that have concentrated on sporting arms over the decades – in some cases, centuries – have recently moved into the law enforcement and military market.

There was a time when the sales forces for these companies resented publicizing of any long arm that suggested it might be utilized for legal mayhem. Jack Lewis still recalls the days when Remington, Mossberg and a number of others tended not to advertise with any publication that dared run a cover featuring a selective-fire weapon – or even one that looked as though it might fire full-auto.

The inclination is to list Sturm, Ruger as being among this group, but the late Bill Ruger came to realize ahead of his then-sales manager that the number of hunters and sports shooter were diminishing year by year and that the firearms industry needed new purchaser blood.

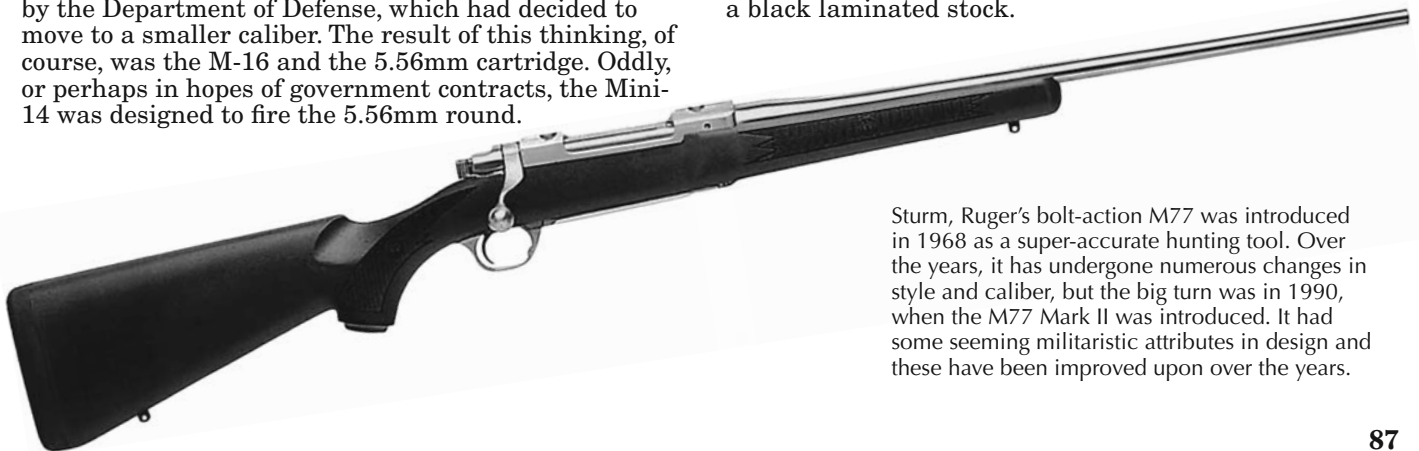
As a result, Ruger introduced what he called the Mini-14. That was in 1974 and at least some of these rifles were selective-fire models, aimed specifically at law enforcement agencies.

For all practical purposes, the Mini-14 was just that; a scaled-down version of the military M-14, which had been phased out of the Armed Forces after only a few years of service. It had been termed an “interim weapon” by the Department of Defense, which had decided to move to a smaller caliber. The result of this thinking, of course, was the M-16 and the 5.56mm cartridge. Oddly, or perhaps in hopes of government contracts, the Mini-14 was designed to fire the 5.56mm round.

However, to maintain the civilian image, the cartridge was named for the developing entity. It was – and is – the 223 Remington cartridge. Marketed with a five-round magazine as standard, the Ruger Mini-14/5 is still in the company’s production schedule, although there have been some changes from the original. In fact, the “5” in the current catalog listing would suggest this is the fourth revision, at least.

Today, the Mini-14 measures 37-1/4 inches overall and boasts an 18 1/2-inch barrel with a one-to-nine twist ratio. Weight is 6.4 pounds. The Ruger folks tell us the rifle has a new buffer system and a redesigned ejector among other things.

Bill Ruger had introduced his M77 bolt-action rifle as long ago as 1968, selling it as an accurate hunting tool. It was not until 1990 that the rifle was reworked to become the M77 Mark II and took on some of the attributes of a sniper rifle. Today, the Mark II version is made in half a dozen or more configurations, including one that is listed as the Ruger Mk II Compact model. This one is based upon the standard Mk II to a point, but weight has been reduced from around 7 to 5.75 pounds and the barrel length has been cut to 26-1/2 inches. This one is chambered for 223, 243, 260 Remington, 308 and 7mm-08. It was marketed initially with a blued finish and a walnut stock. Now it is available also in stainless steel with a black laminated stock.



Sturm, Ruger’s bolt-action M77 was introduced in 1968 as a super-accurate hunting tool. Over the years, it has undergone numerous changes in style and caliber, but the big turn was in 1990, when the M77 Mark II was introduced. It had some seeming militaristic attributes in design and these have been improved upon over the years.



In 1994, Bill Ruger added the MP9, a 9mm Luger submachine gun, to his firearms aimed specifically at law enforcement forces. It's still in the company line.

Bill Ruger is gone, of course, but it seems that the new powers in the company are continuing to look at law enforcement and military markets with longing eyes. In the first ever Ruger Law Enforcement catalog, there is the M77.

This version is listed as the M77 Mark II AWLE model, which the company claims "has been designed to withstand harsh environments. Stainless steel components and rugged, impact-resistant stocks resist the elements, whether deep in the woods or on salt-water patrol."

Claim is that the one-piece bolt is one of the strongest on the market, while a non-rotating Mauser-type controlled-feed extractor guarantees positive case removal. Someone in the ad writing department got carried away with prose that states, "Element-defying matte stainless actions are mounted in rugged black polymer stocks that are checkered for enhanced control in all situations."

As one might expect, the rifle is chambered for the 223 Remington (which translates to 5.56mm NATO), the 308 Winchester (just a civilianized name for the 7.62mm NATO cartridge) and for the 300 Winchester Magnum, which is being used by some military snipers these days. A heavy-barreled bolt action listed as the M77308SLE also is being marketed to law enforcement agencies. This one also is chambered for the same three calibers mentioned above.

Attached is a Harris bipod and the stock is a Hogue Over-Molded style. The maker's boast is that his stock will not harden with age

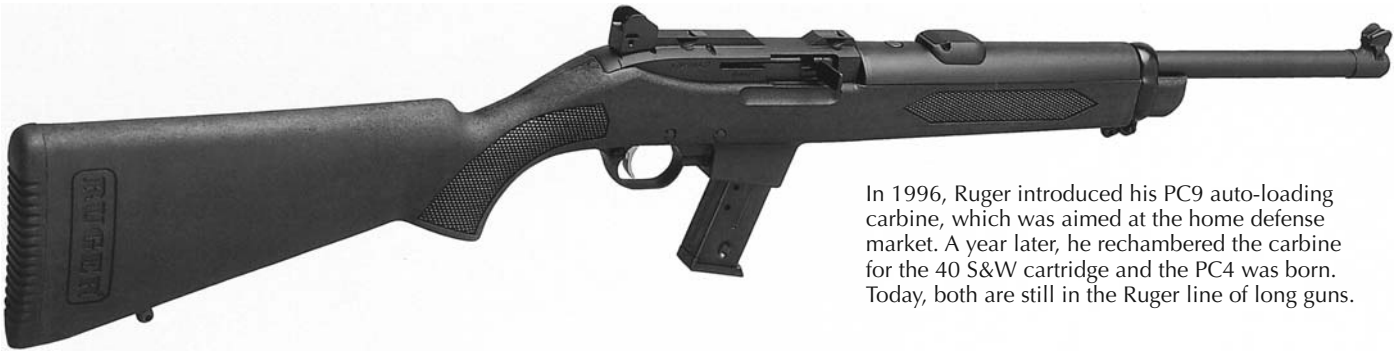
and become brittle and that it is impervious to all oils and solvents found around firearms. This particular rifle also is equipped with Sturm, Ruger's two-stage target trigger.

With an obvious eye to the law enforcement market and perhaps some military spill-over, Ruger introduced his MP9 submachine gun in 1994. This shooter was allegedly developed from an Israeli-designed subgun for which Ruger had purchased the rights. Listed now as the MP-9LE, the gun fires the 9mm Luger round from a magazine that has a 32-cartridge capacity. Cyclic rate of fire is 600 rounds per minute. Operating from a blowback action, it is hammer-fired from a closed bolt. Weight unloaded is 6.6 pounds.

The subgun's upper receiver is fashioned from stainless steel, while the lower receiver is of Zytel. A sliding selector on the receiver offers a choice of semi-auto or full-auto fire. Both the front sight and the rear



The MP9 submachine gun is so designed that the stock can be folded in such a manner that the shooting machine becomes a virtual handgun. Such action is not recommended by the maker, of course, since accuracy would suffer greatly.



In 1996, Ruger introduced his PC9 auto-loading carbine, which was aimed at the home defense market. A year later, he rechambered the carbine for the 40 S&W cartridge and the PC4 was born. Today, both are still in the Ruger line of long guns.

sight are adjustable and the stock is a telescoping, folding metal design. Overall length with the stock folded is 14.8 inches; stock extended it measures 22.8 inches. Length of the barrel is only 6.8 inches.

Introduced in 1996 and seemingly aimed at the home defense market was the PC9, a semi-auto carbine that was simple to operate and might do well in the hands of a woman. It fired the 9mm Luger cartridge.

The next year, 1997, Ruger introduced the PC4, which was almost identical to the earlier PC9, except that it was chambered for the 40 Smith & Wesson pistol cartridge. This carbine is discussed at length in the chapter dealing with arms for home defense.

Ruger's Mini Thirty-LE

Catalog-listed as the KMini30LE, Ruger's 7.62x39 autoloading rifle can hardly be considered new. In its original form and dress, it was introduced in 1986. Initially, there apparently was reluctance on the part of some shooters to purchase a rifle that was chambered for the round being used by the Russian military.

Two years later, however, the Berlin Wall came down and some of that initial reluctance disappeared. Today, the law enforcement version of the rifle is being used by a number of agencies across the country.

According to a company spokesman, "After 18 months of dedicated effort to totally retool, Sturm, Ruger introduced the new Mini Thirty LE, the most precisely fitted Law Enforcement Mini Thirty ever offered."

New to this 2006 version of the rifle are a new contoured receiver and a new adjustable Ghost Ring aperture rear sight, as well as a protected blade front sight that is meant to simplify and speed up target acquisition.

The rifle admittedly is designed to be a mid-range law enforcement tool. Other items in its makeup include side ejection, a patented recoil buffer that is meant to help protect a scope, integral scope mounts and one-inch Ruger medium-height scope rings. The stock is of

a cast black polymer with a checkered grip, while all metal parts are of stainless steel. Sling swivels and the non-slip grooved recoil pad are standard equipment. The magazine holds five rounds of 7.62x39mm, a round that now is manufactured and marketed by virtually all U.S. ammo manufacturers.

Overall length of the rifle is 37 inches, with a barrel that measures 18.5 inches. Length of pull is 13.5 inches and unloaded weight is an even seven pounds.

As it turned out, this may well be the only Ruger-manufactured long gun Jack Lewis had never had an opportunity to wring out over the years. He does, however, recall asking the late Bill Ruger why he had chosen a Russian military round for inclusion in his lineup of armament.

"Because it's a damned good cartridge," Ruger had snorted in typical no-nonsense fashion.

It was decided to check out the new Law Enforcement Mini Thirty for this edition and one was ordered in from Sturm, Ruger. Meantime, Lewis took a look at the available ammunition.

The original Russian military cartridge had been worked over by its originators in 1943 to become the Soviet M3 and probably has been best known on a world-wide basis for his highly effective use in the AK-47 selective-fire rifle.

Both Federal and Winchester currently manufacture the 7.62x39 round with a 123-grain SP bullet. Remington uses the same type of bullet in its loadings for the round, but it weighs 125 grains. Today, Black Hills manufactures the round in two bullet weights: 123 grains and 150 grains.

Lewis had a supply of both of the Black Hills loads and used his chronograph early on to determine that the Ruger rifle fired the 123-grain load with a muzzle velocity of 2284 feet per second. Reloading with the 150-grain round, he was able to clock this particular bullet at 2208 feet per second.

Lewis attempted to maintain an open mind as he worked with the rifle and the cartridge. However, such an authority as Frank C. Barnes, the noted ballistician, has gone on record as stating that the 7.62x39 cartridge



Ruger's Mini Thirty is not a new gun, but the company spent 18 months retooling to make it a contender in law enforcement. It fires the Russian-originated 7.62x39 round.



Jack Lewis was one of those who checked out the current edition of the Ruger Mini Thirty. It has been described as a mid-range firearm and Lewis conducted tests on that principle. He found the little rifle operated as well as the maker claimed it would.

virtually duplicates the performance of the 30 M1 Carbine round, a relic of World War II origin.

Recollections of a long winter night on a Korean hill, when the Chinese decided to attack has left Lewis with no love for the 30 M1 Carbine, which failed to stop an enemy soldier bearing down on him. Someone on his flank thoughtfully put down the charger with a Thompson submachine gun.

The Thompsons, incidentally, had been phased out of the U.S. military and thousands of them had been passed to the Chinese Nationalists. Apparently, when the Chinese communists took over China, they also took over the subguns. In Korea, when a downed Chinese soldier was found to be armed with a Thompson, it became a prize to be put to practical use, since there was plenty of 45 ACP ammo available for the gun. A few days later, Lewis had the opportunity to trade a bottle of Kentucky-made bourbon for a Thompson and immediately turned in his M1 Carbine. He carried the captured 45 subgun through the rest of his tour.

More recently, as he reviewed the available information on the Russian-originated cartridge, he found himself somewhat confused. In using the 7.62x39 for hunting, the experts say it should prove adequate on medium-size game. The aforementioned Frank C. Barnes opined that firing a soft-point 150-grain bullet, this cartridge was barely more effective than the antiquated 30-30 beyond 100 yards.

Lewis had intended to mount a Swarovski Optic mil dot sight on the Ruger offering for his shooting tests. However, it turned out that the furnished rings were for a one-inch scope. Lewis' personal Swarovski called for 30mm rings. He had no Ruger rings in the proper size.

Lewis called his shooting pard, Ace Kaminski, and the two of them battled the problem around. The answer was to install a fixed four-power Weaver scope that was of somewhat ancient vintage. Kaminski thought he had acquired it back in the days when the Weaver company was owned by Olin/Winchester. Thankfully, the scope had been treated well over the years!

On a Sunday morning, Lewis and Kaminski met in a lava quarry that was closed down for the weekend. With the quarry's high walls, it was a perfect place for shooting without any chance of endangering the surrounding flora and fauna, not to mention the neighbors. The closest was at least three miles away.

Lewis was interested in learning how the 7.62x39 bullet would serve in light underbrush. Looking around, the pair found what had been a roadway to a branch of the quarry that had been worked out, then the road abandoned. In the interim, the coarse grass had grown hip high.

The pair set up a folding table that is used frequently as a shooting bench as well as a means of keeping shooting tools out of the dirt. With the scoped rifle and several boxes of ammo deposited on the table, they



trekked up the slight rise to place the target. Kaminski carried the target and necessary tools, while Lewis counted off 100 long paces.

With a hammer, Kaminski pounded a length of iron rebar into the lava, and then used it to anchor the bad guy target that was taped into a frame fashioned from ordinary PVC pipe. The target was a type that the pair

used often. Marketed by Kleen-Bore, it is called the Municipal Police Training Council Combat Target and features a life-size artist's rendition of an ugly customer pointing a revolver directly out of the scene.

Between them, Lewis and Kaminski had brought three different brands of 7.62x39 ammo. Two of the brands were manufactured in Russia and imported. The third brand was from Federal and marketed under the company's American Eagle trademark.

The shooters were familiar with one of the Russian-made brands of ammo. One is imported by Wolf Performance Ammunition, which headquarters in Anaheim, California. The other Russian-made cartridges simply stated that they were packaged by the State Unitary Enterprise Production Association – whatever that is – but manufactured at the Ulyanovsk Machinery Plant.

Both of the Russian-manufactured brands of ammo had steel cases coated with green shellac that apparently was meant to keep the cases from rusting. The Wolf packaging assured the two that the ammo's full metal-jacketed bullets carried bullets weighing 122 grains each. The other Russian-made ammo carried no info as to what made up the load, so Kaminski pulled one of the bullets wearing a full metal jacket and weighed it, finding that it was a single grain heavier than the Wolf ammo. It weighed 123 grains.

That left the American Eagle cartridges, the packaging of which assured us that each round carried a bullet weighing 123 grains.



In test firing the Mini Thirty on a bad guy target at 100 long paces, Ace Kaminski aimed low on the target's body, forcing him to fire through the stiff growth of grass.



The reworked Mini Thirty – listed in the current Ruger catalog as KMini30LE – has a clean, business-like appearance. Changes in the rifle took 18 months of work.

Lewis deferred to Kaminski's relative youth and suggested the younger man shoot first. It would give him something to attempt to equal. He even pointed to the chair drawn up behind the table used as a shooting bench, but Kaminski shook his head.

"How many combat rounds are fired from a shooting bench?" he wanted to know. It was enough to make Lewis shake his head and admit he had no idea, but he added, "Not many if there's something to hide behind."

That brought a snort from the shooter and he raised the Ruger to his shoulder, loaded a round in the chamber, activated the safety and paused for a moment, eyeing the target from his practiced offhand stance. He must have been happy with what the four-power Weaver scope showed him, for he switched off the safety and triggered his first shot.

He paused for a moment, lowering the rifle to look over the top of the scope. It was much too far to see a bullet hole with the naked eye and probably even through the scope. Lewis learned later that Kaminski was eyeing the lava field behind the target, looking for a telltale puff of dust that might tell him where his bullet had landed. There had been a tropical downpour half an hour earlier, however. That meant no dust.

After a moment, Kaminski offered a frustrated shake of his head, settled the rifle stock against his cheek once again and triggered off the magazine's remaining four rounds.

As they sauntered up the slight hill toward the bad guy image, Lewis was lugging another target as well as a roll of masking tape. He asked Kaminski where he was aiming on the target.

"In my earliest training, they taught us that trying to be nice could get you killed," Kaminski allowed. "I tried to gut-shoot him. Studies show that a shot to the belly or even lower tends to take the fight out of even the most desperate people."

As the pair drew close, inspection showed that four of the offhand-fired bullets had pierced the figure's lower belly. The shooter obviously had accomplished what he had set out to do.

Between the two of them, they managed to tape the second target bearing the same bad guy image over the first. Back at the table, where the rifle and ammo lay, Kaminski loaded five rounds of American Eagle ammo

in the magazine, while Lewis located his Remington hearing protectors and his shooting glasses.

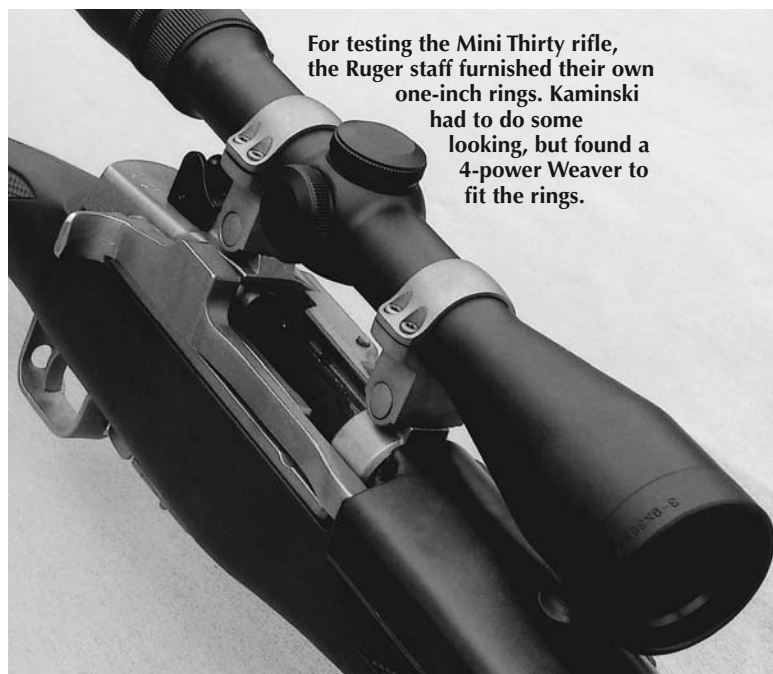
As he picked up the rifle and seated the five-round magazine in the well, Lewis was eyeing the target up the hill. "The last time I fired offhand at a target that far away," he muttered, "it was at an elk and I was using a scrub pine as a brace!"

"If it was that long ago and you're feeling old and tired, use the table," his shooting pard suggested, a note of chiding in his tone.

Lewis offered him a grimace and stepped away from the table, settling his feet into almost the same tracks left in the volcanic ash by Kaminski's boots. He took several long breaths, and then shouldered the rifle. He complained aloud that the cross-hairs were going up and down like a yo-yo, but after another long breath, which he held, the sights settled to some degree.

Lewis said later that he had aimed higher on the target, hoping whatever group he managed would be in the area of the paper bandit's heart and lungs. Hoping he might even score a spine shot, he squeezed off the first round.

This was the first time he had fired the 7.62x39 cartridge. Compared to the 7.62mm NATO round



For testing the Mini Thirty rifle, the Ruger staff furnished their own one-inch rings. Kaminski had to do some looking, but found a 4-power Weaver to fit the rings.



The Mini Thirty has a hold-open bolt feature for when the last round has been fired from the magazine. All metal parts in the rifle are fashioned from stainless steel.

with which he was familiar, the recoil from his shot seemed negligible. Several seconds later, he began to squeeze off the other four shots.

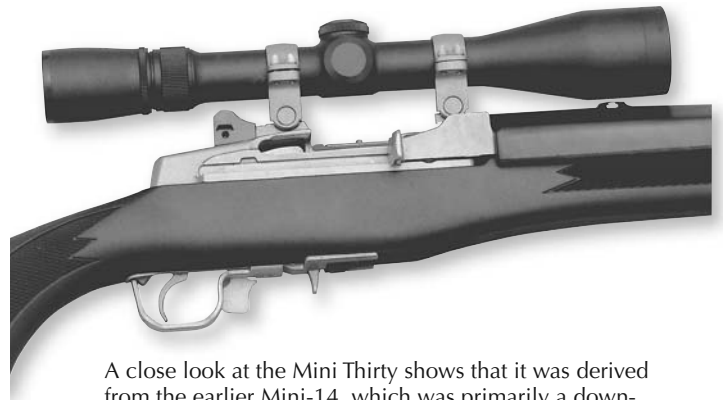
"I like the trigger," he announced.

"After that first shot, you know how it's going to react." This was said, while he was removing the magazine from the

rifle, checking the chamber and laying on the table beside what was left of the three brands of ammo.

Dark clouds were building in the sky to the northeast, the direction from which most of Hawaii's rain comes. It was noted as the pair moved back up what now was becoming a trail through the high grass.

At the target stand, Lewis bent to inspect it. All five of his bullets had landed in the general area at which he had been aiming. Any one of the bullets should have been sufficient to put a villain on his back at least temporarily.



A close look at the Mini Thirty shows that it was derived from the earlier Mini-14, which was primarily a down-sizing of the military M-14 of the post-WWII era.

The five rounds did not constitute the kind of group that would win awards, but as Lewis learned long ago, in a combat situation, one is not shooting for score. The mission is to either damage or slay the opponent! As the shooter admitted, "Those five rounds probably wouldn't be covered by a dinner plate, but a dinner platter might do it."

As the clouds moved ever closer, the two spent most of the next hour shooting up what was left of the 60 rounds of the various loads and trademarks that had been brought to the site. A large part of the ammo was used in blasting dust and chips off of hunks of lava gathered another 50 or so yards beyond where the targets had been stationed.

All of the ammo was expended and the test gear had been quickly loaded into their pickup trucks when the first drops of a deluge struck.



Ace Kaminski insisted upon firing on the bad guy target from the offhand position. The hearing protectors he wore for the test were marketed by 3M.

CHAPTER 8

IT'S NOT JUST FIFTIES ANY MORE

Ron Barrett Began by Catering to Long-Range Competitors, then the Marine Corps Adopted His 50 BMG Rifle!

BARRETT FIREARMS MANUFACTURING Co., Inc. didn't just happen. Ron Barrett was quite happy making a living as a photographer, but he also enjoyed shooting and tinkering with firearms. It is said, in an effort to get involved in more demanding long-range competition, he designed and built his first rifle. It was a single-shot firing the 50 Browning Machine Gun cartridge, a round that had seen tough service through World War II, then in Korea. In his first year of business in the early 1980s, Barrett sold over 30 rifles. The core of those early customers seemed to come from the Fifty Caliber Shooter's Association, Inc., a civilian organization devoted to long-range marksmanship.

Others also were building single-shot 50 BMG rifles, so Barrett moved on to come up with a bolt-action repeater, the M82A1. This was the model that caught

the interest of Marine Corps snipers. They were seeking a big-bore that could knock out vehicles, shoot up radar sites, destroy ammunition dumps, and otherwise disrupt the flow of an enemy's war materiel, as well as do away with opposing snipers at long range. The result has been that thousands of the M82A1s have ended up in Iraq in the hands of both Marine and Army snipers.

But, Ron Barrett would appear to be one of those who feel that the moment you rest on your business laurels, you are moving backward. When the impression developed that 5.56mm NATO cartridges fired by the M-16 rifle and its clone, the M4 carbine, were inadequate for desert warfare, Remington came up with the 6.8mm Special Purpose Cartridge (6.8mm SPC), and Barrett Firearms Manufacturing, Inc. was among the first to build a version of the M4 carbine that fired this



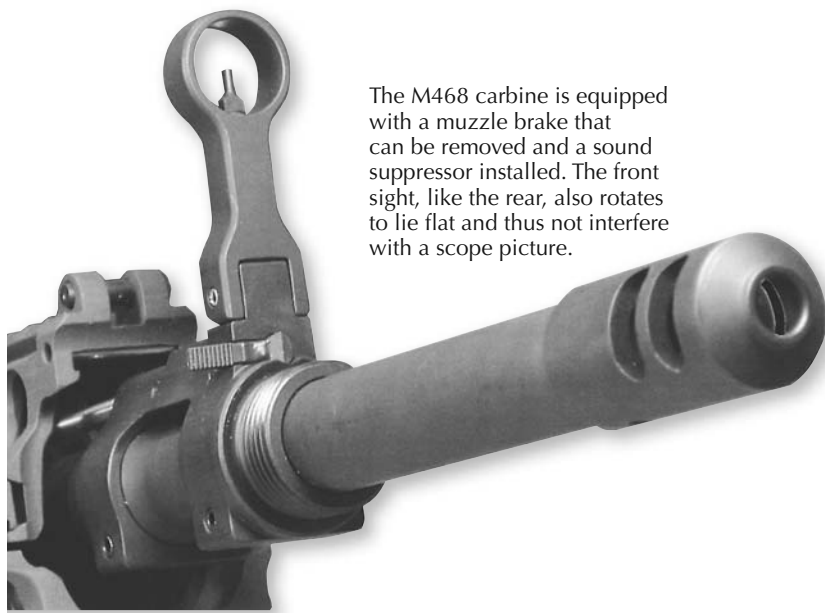
Bob Gates, Barrett vice-president, explains the workings of the XM109, a new rifle that is designed to fire a 25mm cartridge against materiel targets.



Jack Lewis and Bob Gates inspect a shipment of brass cartridge cases manufactured for the 50 Browning Machine Gun cartridge.



The patented rear sight on the M458 is designed to lie flat so a scope or other sighting device can be attached to the Picatinny rail.



The M468 carbine is equipped with a muzzle brake that can be removed and a sound suppressor installed. The front sight, like the rear, also rotates to lie flat and thus not interfere with a scope picture.

particular cartridge. This weapon is listed as the Barrett Model 468.

That was when Jack Lewis went down to Murfreesboro, Tennessee, and the Barrett factory to check out the then-new carbine. He quickly learned that the M468 was being produced in several variations. A complete, selective-fire carbine was being built, ready for issue to our combat troops or those of friendly governments. A buyer also could contract to purchase just the upper receiver that attaches to the original lower receiver of the standard M4, thus handling the 6.8mm Remington SPC round. Still another version is being manufactured in semi-auto status-only for legal sale to civilian shooters.

Bob Gates, Barrett's vice president for business development, "Upgrading the cartridge-handling capabilities to 6.8mm opens up hunting options in those states where the 5.56mm bullet has been ruled too small for larger game."

For comparison, let's look at the differences in the two cartridges. The military-loaded 5.56x45mm M855 Ball cartridge carries a bullet that weighs 62 grains.



For its 50 BMG rifles, Barrett now is manufacturing and marketing ammo in that caliber. The brass cases are furnished by an outside contractor.

This particular round has a muzzle velocity of 3100 feet per second, with muzzle energy measured at 2335 foot/pounds. The 6.8mm Remington SPC case houses a bullet weighing 115 grains that generates a muzzle velocity of 2200 feet per second and muzzle energy of 2002 foot/pounds. It is Remington's boast that their cartridge offers low recoil and shoots minute-of-angle groups at 100 yards.

Both the military and the civilian-legal versions of the M468 are gas-operated in the manner designed by the late Gene Stoner for the ArmaLite AR-15/M-16, but the civilian alternative fires in the semi-automatic mode only. Overall length of the carbine – whether military or civilian – is 35.5 inches with a 16-inch barrel. The firing controls are a duplicate of those for the 5.56mm M4.

The Barrett-produced M468 has a muzzle brake. On the military-issue carbines, this can be removed and a sound suppressor substituted. In looking over the firearm, Lewis noticed immediately that the front sight is a type that can be folded down; this is the same sight used on the military-issue 50 BMG rifle. The ARMS rear sight also folds down so that a selective integrated rail can mount a scope or other sighting accessories.

It was pointed out by Bob Gates that the M468's forend is a Barrett creation that has been designed specifically for functionality as well as the chore of cooling the carbine's barrel. Gates mentioned that there is a law enforcement version of the carbine that features a shorter barrel, but Lewis did not have an opportunity to check out this particular variation. A two-stage trigger and a dual spring extractor system are parts of the carbine's makeup.

The in-house range at Barrett's headquarters is an underground structure that extends for slightly more than 100 yards beneath the Tennessee soil. Like the company's array of gun vaults, this door to the range remains locked, when not being used by company workers or other authorized personnel. Someone displayed a bit of ingenuity in the design that came as a surprise to Lewis. As the door to the range is swung open, an attached folding shooting bench is silently unfolded into position.

Bob Gates was quick to state that he did not consider himself a talented marksman, as he settled hearing protectors over his ears. Lewis had been handed similar protection and adjusted the ear protectors before his guide squeezed off the first round.

"There was nothing really special about the earmuffs," Lewis said later, "but I didn't notice any great difference between the report of the Remington 6.8mm round and the 5.56mm with which I was a lot more familiar."

The rifle that had been brought to the range was equipped with a heavy-duty Harris bipod and was topped by a Leupold & Stevens Mark 4 10-to-40x scope, the same sighting system favored by Marine Corps snipers at that time.

Gates was using a 10-round magazine with the carbine and Lewis looked over his shoulder, as the former squeezed them off one at a time. It should be noted that Barrett's metalsmiths turn out magazines with capacities of 5, 10 and 28 rounds. All magazines, incidentally, are manufactured in the Barrett plant.

The welding booth was empty, Lewis had noted, as they had toured the plant earlier. Asking about the absence of workers, Gates explained that when the company was first getting into business, there had been no air-conditioning. Thus, the Tennessee summers had been virtually intolerable in the booth's close confines during the summer. The policy had been that those making magazines and doing other metal welding would work at night, when the hours were somewhat cooler.

"It got so the metalsmiths liked that schedule, so we've never changed it. They still work on a night shift," the company executive explained.

With the M468 carbine empty and the bolt open, Gates slid off the shooting bench and motioned to indicate Lewis should try his hand. The latter took the seat and rotated another 10-round magazine into the well, hearing it snap into position.

A hundred yards downrange, the butts were arrayed with a batch of targets, each of which had a two-inch black square in its center. Looking through the 10-power scope, the targets appeared highly shootable.

"Do you want to try the sound suppressor?" Gates asked as Lewis started to shoulder the carbine. That brought a pause, while the loaded magazine was removed, the muzzle brake was unscrewed and the sound suppressor mounted in its place. Moments later, the shooter tucked the butt of the carbine into the depression in his shoulder and concentrated the scope's crosshairs on the row of targets at the bottom of the display.



From left are two versions of the Barrett XM109 25mm ammo, three rounds of Remington 6.8mm SPC and the Barrett-loaded 50 BMG cartridge that is fired in the maker's line of long-range sniper rifles.



When outfitted with a 28-round magazine, the Barrett M468 carbine is an ominous tool of warfare or law enforcement.

"The biggest surprise, as I fired at the targets was the fact that with hearing protectors and the installed sound suppressor, the most noise I noted was the rattle of the bolt as it moved back and forth in the receiver with each shot," Lewis said later.

The visitor received a slight shock, however, when he and Bob Gates had walked the length of the range tunnel and stood before the array of targets. Of the targets on which Gates had fired, seven of his 10 rounds had landed in the black two-inch squares at which he had been firing.

However, on the bottom row of targets on which Lewis had been firing there were only three holes to account for the 10 fired rounds and they were barely on the paper. Before the shooter could express his puzzlement, Gates offered a chuckle.

"I forgot to tell you, Jack. When one uses the sound suppressor, the bullet lands about 10 inches low at a hundred yards. Scope adjustments have to be made." He bent to point to the baffles below the targets. "All your shots landed down here." There were definite marks of foreign metal evident on the steel baffles, but no kind of pattern.

"How about another go?" Lewis asked. So it was back to the shooting bench and exchanging the suppressor for the muzzle brake. With a fresh magazine loaded with



Field-stripping of the Barrett rifle for cleaning or repair is accomplished with ease. The M468 upper receiver can be replaced with one designed to fire the 25mm cartridge.



The magazine carried by the upper M468 carries 10 rounds of 6.8mm ammo, while the longer curved magazine of the other rifle is loaded with 28 rounds of the same ammo.

the standard 10 cartridges, the shooter once again settled on a target, but this time higher on the board than before.

What resulted was a 10-round group he could cover with his hand. Not a record breaker, but he no doubt felt better after the earlier business with the sound suppressor.

During lunch at a nearby restaurant, Ron Barrett joined Lewis and Gates. Our reporter was somewhat



Bob Gates explains to Lewis that the crates awaiting shipment are filled with new M468 rifles bound for Israel. A number of U.S. allies are ordering the Barrett model.

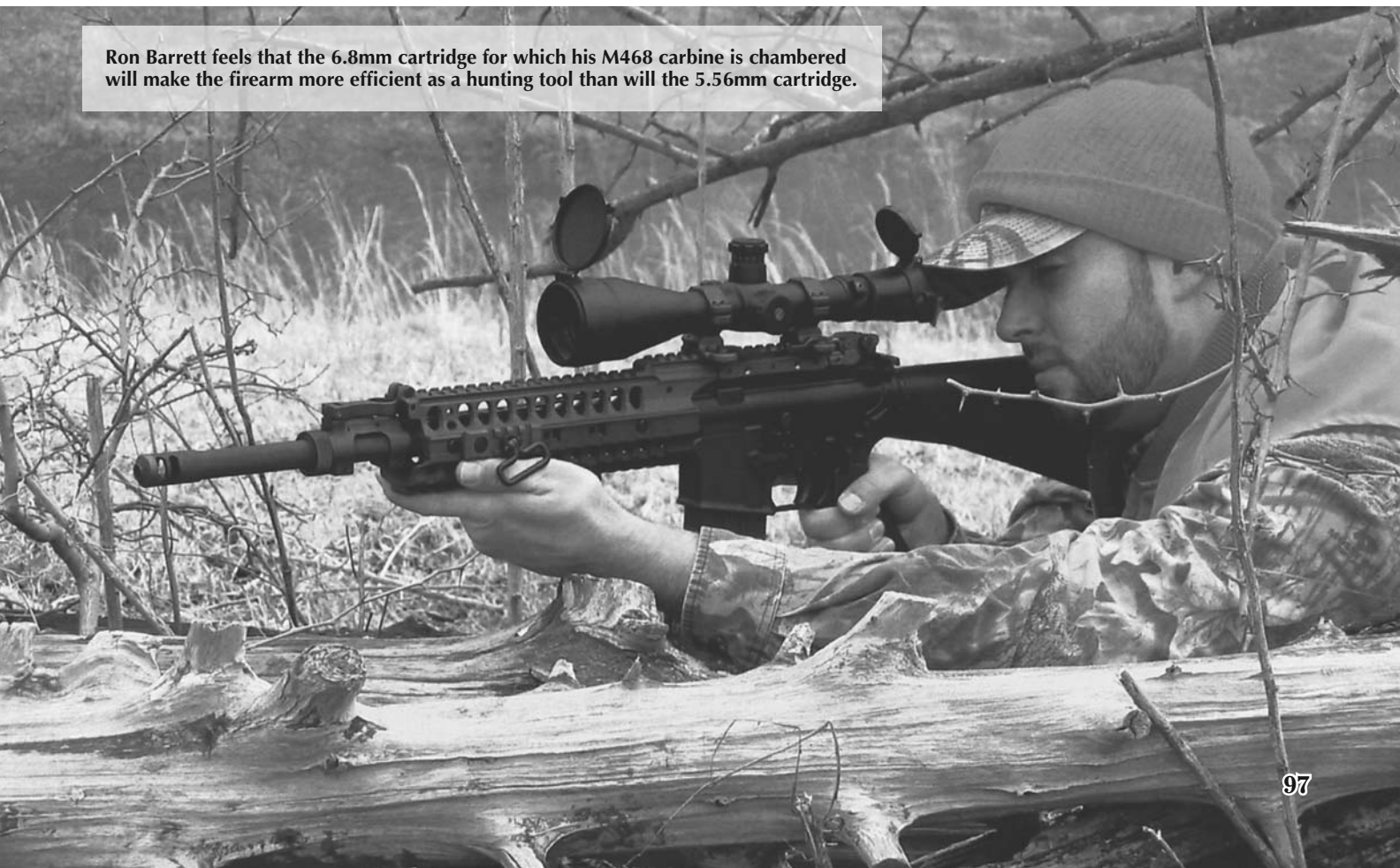
surprised at the youthful enthusiasm the gun designer displayed in talking about a new rifle on which they were working for the Department of Defense.

"Right now, the Defense people are calling it the Barrett XM109," Barrett stated. "When we started, we titled it the Objective Sniper Weapon (OSW) or just the Barrett Payload Rifle. It's a semi-automatic that we've designed primarily for engagement of light vehicles and similar materiel targets."

He explained that in many ways, the XM109 is "Simply a scaled-up receiver for the M82/M107 series of 50-caliber rifles." (The M82 is the Marine Corps designation for the big-bore blaster, while the U.S. Army is calling their slight variation the M107.)

Thinking ahead, Barrett and his staff designed the weapon in such a way that the upper receiver of the

Ron Barrett feels that the 6.8mm cartridge for which his M468 carbine is chambered will make the firearm more efficient as a hunting tool than will the 5.56mm cartridge.



company's 50 BMG rifle can be replaced with the XM109 upper receiver and will function with the 25x59mm cartridge. This particular round also is being used in a warfare tool called the XM307, a crew-served weapon.

According to Ron Barrett, development of the XM109 is expected to "More or less phase out the 50 Browning Machine Gun. As with the XM305, the XM109 can be reconfigured back to 50 BMG should the need, necessity or export market require it be done."

In further discussion with Bob Gates, Lewis was assured that the XM109 offers great range with shorter overall length than the 50 BMG rifles that have proved so valuable in Iraq. Overall length of the XM109 is 46 inches and weight is 32.2 pounds. Maximum effective range, according to initial Defense Department tests, is about 2500 meters. Muzzle velocity has been measured as 2600 feet per second. The weapon features short recoil operation and carries a five-round detachable box magazine.

Like its predecessors, this particular shooting machine is equipped with the familiar MK1913 optical rail and also features a BORS ballistic computer and a monopod socket. Accessories that have been developed to date include a dual-chamber detachable muzzle brake, a sound suppressor system, a detachable bipod and a carrying handle.

The Barrett staff feels the XM109's 25x59 cartridge has potentially greater power than the Mark 211 50 BMG round. "Because of the recoil system developed by Barrett – a carry-over from the earlier semi-auto rifles – the recoil is not substantially greater than its 50-caliber ancestors."

Time, of course, will tell how the two compare on the battlefield.



During Lewis' visit to the Tennessee arms factory, Ron Barrett took the opportunity to brief him on several future projects the company will pursue.



All of the rifles produced by Barrett are kept under lock-and-key until time for shipment. As seen, the paperwork for each weapon stays with it during storage.

CHAPTER 9

HANDGUNS & THE ASSAULT

Charging Enemy Positions with Only A 9mm or 45 Auto is Not Recommended, But it Has Happened!

IT HAS BEEN going on a century since a Marine first sergeant, already the holder of one Medal of Honor for heroism during China's Boxer Rebellion, stood on the edge of a trench and shouted, "Come on, you bastards! Do you want to live forever?"

Clutching only a 1911 Colt automatic, he led the remnants of his rag-tag company in a charge against German positions that had been destroying the Marine force with sniper fire, machine guns and artillery.

The end result of the charge was that the Germans fled in fear from the screaming, cursing, shooting Leatherneck horde and the Marines soon captured the town on the edge of what came to be known as Belleau Wood. For this action, Dan Daly was awarded his second Medal of Honor.

Jack Lewis recalls World War II tales of a Marine captain, armed only with the trusty 45-caliber Model 1911 pistol, who allegedly led his troops in a bayonet charge against Japanese positions during the battle for Saipan. However, Lewis has been able to find no substantiation for this long-ago told story and has had to conclude that it may be a lesser incident that time and the telling have nurtured to the proportions of legend.

But the handgun certainly has had a definite role in a number of situations and has

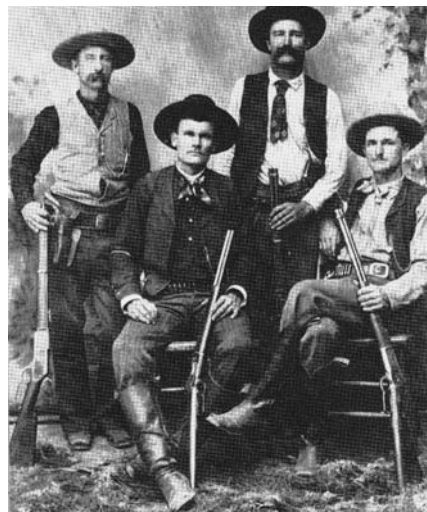
been shown to be a more than adequate weapon in the right hands and against a specific enemy. As long ago as the Mexican War, Captain Samuel Walker, a Texas Ranger attached to the U.S. cavalry, proved the worth of handguns in the attack by carrying the Walker Colt, a gigantic six-gun that was designed by the captain himself and Sam Colt.

Firing a mammoth 44-caliber bullet, the six-guns and their owners comprised a force that the Mexican soldiers feared greatly. What came to be known as the Walker Colt, incidentally, was the most powerful handgun in the world, until the introduction in 1956 of the Smith & Wesson Model 29 chambered for the 44 Magnum cartridge. Roughly 1100 of the Walker Colts were manufactured; fewer than 100 are known to exist in collections today, with each valued at more than \$100,000!

In the matter of law enforcement, it has only been half of the 20th century that weapons other than standard police revolvers – most of them 38-caliber – have come to be involved in day-to-day law-keeping. In Texas, the recollections concerning Captain Walker and his like, had much to do with the formation and mission of the



Lone Wolf Gonzauillas, astride his horse, Charcoal, posed for this photo in the 1940s. He dressed in the fashion of a Hollywood cowboy star, but his law enforcement feats with handguns became legendary.



This photo of unidentified Texas Rangers was taken in El Paso in 1890. All were armed with six-guns, but note that each officer also carried a Winchester lever-action rifle.



This pair of 45 Colt Peacemakers was owned by Gonzauillas. Note the ivory grips and the cattle brand engraving on the metal. The Texas Ranger owned some 580 guns, but those pictured were for show, not for carry when in pursuit of Texas outlaws.



As a young Texas Ranger, Frank Hamer posed for the semi-obligatory photo that illustrates how such a lawman dressed and the weaponry he had at his command.

Texas Rangers. Over the years, there have been countless stories and legends concerning individual Rangers holding off hordes of outlaws and Indians. During the last century and the beginning of this one, a few modern Texas Rangers maintained much of the reputation and mystique of the Ranger service despite the fact that these officers now are Civil Service employees and no longer responsible solely to the Texas governor.

One of the Texas Rangers best remembered, perhaps, from the movie, *Bonnie & Clyde*, was Frank Hamer, a veteran lawman who reputedly had gunned down 80 criminals in his career. At the time, he and five other lawmen ambushed Bonnie Parker and Clyde Barrow on a lonely Louisiana road, Hamer was not even an active Ranger, although he retained a commission as a member of the organization. He had been a captain, when he resigned, incensed that the then newly-elected governor, Miriam "Ma" Ferguson, allegedly was appointing known criminals as Texas Rangers.

During this period, Bonnie and Clyde had broken old friend Ray Hamilton and another convict, Henry Mathvin, out of a Texas prison. A gent named Lee Simmons was general manager of the Texas Prison System and it was he who hired Hamer to track down the outlaw pair. Along the way, five other lawmen were assigned to work with him over his objections.

There is little doubt that when the ambush came down all of the officers were packing handguns, but none were involved. Hamer was armed with a Remington Police Special, a rifle he had special-ordered from Peace Officers Equipment Company in St. Louis, Missouri. He admitted he had ordered this 30-caliber rifle for one purpose only: to use in the hunt for Bonnie and Clyde. Instead of the standard five-round magazine, the rifle had been reworked to take a 20-round magazine.

On a more modern level of history have come such Texas Rangers as Lone Wolf Gonzauillas and Joaquin Jackson. Some have claimed that the former – born in Spain as Manuel Trezazes Gonzauillas – was the most

famous Texas Ranger of the 20th century, overshadowing Frank Hamer and the feats of his long career. No matter what the opinion, the man born in Cadiz of a Spanish father and German mother on July 4, 1891 went on to write a new page in the gunfighter legends of Texas lawmen.

Known as *El Lobo Solo* – translating as The Lone Wolf – along the Mexican border, he explained the name by saying, “I went into lots of fights by myself and I came out by myself, too.”

A bandit raid on his family’s Texas homestead in 1906, which left his two brothers dead and both parents wounded, led to Gonzaullas’ intense personal hatred of outlaws. His idol became Ranger Captain John Hughes, who had Rangered since 1887.

The new recruit was 29, when he joined the Rangers on October 1, 1920. He did not retire until 1951.

According to David Steele, “The Lone Wolf stood five feet ten and weighed 170 pounds, with cold, gray-green eyes. He attributed his survival of numerous gunfights to the Lord’s protection as well as his personal skill with handguns and rifles. He had no children, but his wife gave him the moral support needed by any man in a dangerous and nomadic profession.”

M.T., as some of his compatriots called him, liked diamonds whether in rings, belt buckles or handgun grips. His fancy Western dress and decorated pistols eventually became his trademark. Gonzaullas, like other legendary Rangers, had his fans as did the cowboy movie stars of a bygone era. Some of the diamond-studded, gold and silver embellished handguns were presents from these admirers. The showman in him also appreciated the carved gun leather, fancy Stetson hats, silver-mounted saddles, hand-tooled boots and immaculate parade uniforms.

“The 580 guns in his weapons collection were real showpieces, some of them decorated with miniature Ranger captain badges, cattle brands and his initials as well as Masonic, Scottish Rites and Shrine emblems,” Steele has learned. “On some he had mottos engraved, such as *Never draw me without cause or sheath me with dishonor* and *God created all men equal*, *Col. Colt made them the same size*.” Today, of course, because of fear of bad press and civil litigation, police officers are advised not to carry macho guns, much less use them on malefactors.”

As was not the case with most presentation-quality firearms, the Ranger used his fancy hardware to actually perforate a number of desperados. As seen on the guns on display at the Ranger Museum in Waco and the Gene Autry Museum in Los Angeles, his regular working pistols – both revolvers and autos – had trigger guards cut away in the manner made popular between the two World Wars by factory Colt representative “Fitz” Fitzpatrick.

“On his 45 autos, M.T. had safety catches placed on both sides. His hip holsters had a spring retention system built in and the leather was cut away to expose the triggers. There were no safety straps,” according

to Steele’s findings. “The whole system was geared to extreme speed, which he credited with saving his life on several occasions. With the exception of the ambidextrous safeties, especially the cut-away trigger guards, these gunfighter modifications would be anathema today from a court defensibility point of view.” Steele adds, “Few officers today kill even one felon without being shuffled off to police a desk or to be hounded out of law enforcement by the press. By contrast, the media was kind to the Lone Wolf and supported his efforts against bootleggers, robbers and other assorted badmen. They even credited him with killing as many as 75 law-breakers, a figure that Gonzaullas called a gross exaggeration.”

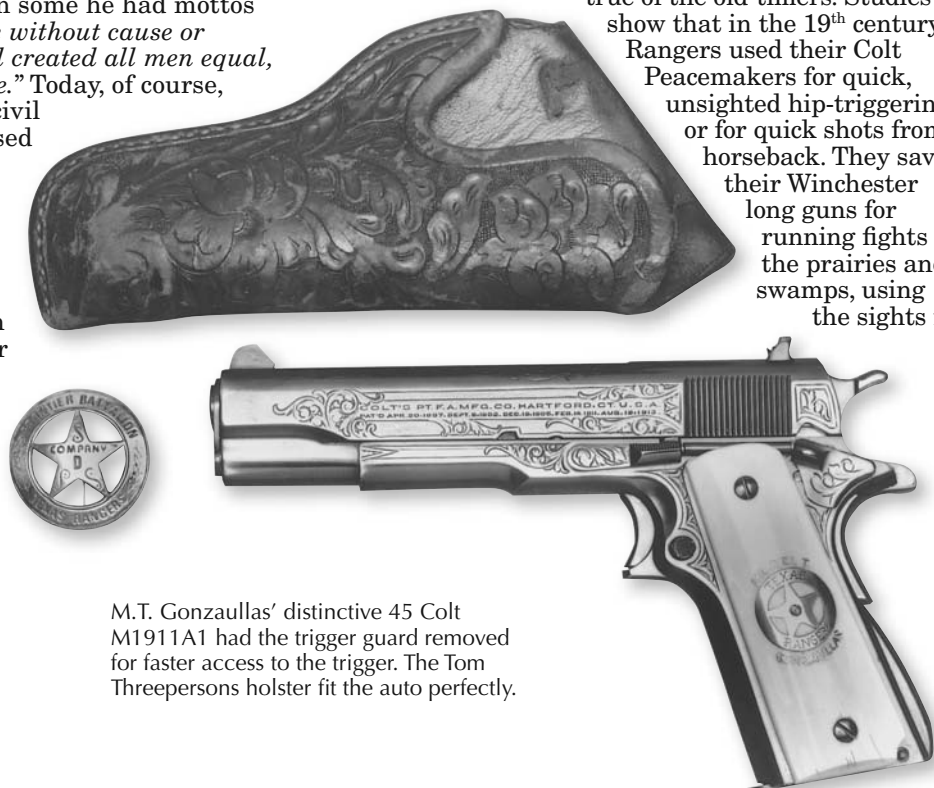
Following what some term “Texas etiquette,” this lawman never gave details of any of his gunfights when interviewed by the press, letting reporters draw their own conclusions from his half-dozen or so well-documented affrays. Of course, many fights did not rate documentation along the border in the 1920s and 1930s.

“Like most Rangers, Gonzaullas was already tested and experienced when he hired on as a Ranger,” Steele has learned. “He had been a major in the Mexican army at age 20 and had been a special agent for the U.S. Treasury Department for five years. In fact, while he was best known as a Ranger, he also did some oil company detective work and some of his most famous operations were conducted as a federal liquor agent during Prohibition.”

During that era, the Rangers served the governor of Texas and it was common practice for them to leave, then perhaps return, the decision depending upon who was sitting in the governor’s chair. Today, the Texas Rangers are part of the Department of Public Safety and, as mentioned, have Civil Service job protection.

Gaines de Graffenried, curator of the Ranger Museum in Waco, knew Gonzaullas personally and said that the Ranger’s shooting style was self-taught, a fact that was

true of the old-timers. Studies show that in the 19th century, Rangers used their Colt Peacemakers for quick, unsighted hip-triggering or for quick shots from horseback. They saved their Winchester long guns for running fights on the prairies and swamps, using the sights for



M.T. Gonzaullas’ distinctive 45 Colt M1911A1 had the trigger guard removed for faster access to the trigger. The Tom Threepersons holster fit the auto perfectly.

accuracy. The Lone Wolf's documented handgun fights were at close range, often at night. Reportedly, he could hip-shoot effectively with either hand.

In cleaning up the bootleggers, gamblers and ruffruff from the oil boom towns of the 1920s, this Ranger's methods were rough, but effective. Due to the lack of jail space, offenders often were chained in the open to a drag line or another piece of heavy construction equipment. In rough country, where autos or trucks could not go, the suspect might have to walk to the jail handcuffed to the stirrup of the Ranger's horse. In the case of vagrants, Gonzauillas usually gave them two hours to get out of the state.

On December 7, 1920, the Lone Wolf was assisting a local police officer in chasing a robber, who had knocked over a high-roller gambling den in Wichita Falls. The two chanced upon the getaway car in an alley and waited for the thieves to return to it.

Suddenly, a burst of fire hit a garage wall near Gonzauillas. He dropped to a crouch, spotted what he thought was a white shirt and when the hijackers fired again, the Ranger triggered off two shots. There followed a scream and the sound of a falling body, but Gonzauillas waited in case it was a ruse. Later, Wichita Falls police caught the two suspects, the wounded man being carried by the other.

In one 1922 operation as a Prohibition liquor agent, Gonzauillas led a flying squad against bootleggers in and around the oil town of Mexia, the place where David Steele's father was born. The lawmen had to track down the owners of some illegal corn mash. It had been discovered when cows had pushed aside the protective wire and gotten into the mash. Their behavior and mooing quickly attracted attention to the area. That was one of the easy missions.

On a Saturday night in July, 1922, the Lone Wolf and another Prohibition agent were at the entrance to a dance hall in Calaveras, where liquor was being sold. Suddenly, their entrance was blocked by a local law officer, who threatened Gonzauillas' partner, then started to draw his six-gun. He had it half-way out of the holster, when he was killed by Gonzauillas' bullet. A local grand jury indicted both of the Prohibition agents, but the charge eventually was thrown out after a good deal of political infighting at the local, state and federal levels.

Since he still was allowed to function as a federal officer during all this, Gonzauillas went on a number of other Prohibition raids sometimes carrying an auto pistol with a 64-round magazine.

"This weapon was the forerunner of the firepower carried today on modern drug raids by drug enforcement agents," Steele notes. "On many search warrants, Lone Wolf went by himself. This move probably would not be allowed in modern agencies, with their emphasis on officer safety, civil liability, court defensibility, ad infinitum. As it was, the Lone Wolf's methods were efficient; not having to ask anyone's permission or get together a team—just to serve the court order."

On July 2, 1924, he reenlisted in the Texas Rangers. A little over a year later, he was at a Dallas garage, when he looked up to see a black man running toward him, pistol in hand. Taking the man for a robbery suspect, Gonzauillas ordered him to drop the gun. Instead, he kept running until confronted by a local deputy. The suspect reportedly yelled, "Stay back or I'll shoot!"

At this point, both officers began firing. The deputy's bullets went wild. The six rounds from the Ranger's

Peacemaker all struck home, although the shooter later said, "I didn't really take good aim, but just shot loosely from the hip." Opinions were that had his group been any tighter, it would have meant a trip to the morgue instead of the hospital for the suspect. As it turned out, the man was a bad check artist who had assaulted a storekeeper when confronted.

"Gonzauillas may not always have believed in manpower, but he definitely believed in firepower," Steele opines. "When sent to help prevent a lynching in one Panhandle town, he and his associates took along two submachine guns, 10,000 rounds of ammunition, 100 gas grenades and 50 fragmentation grenades, as well as their usual handguns, rifles and shotguns."

Gonzauillas made captain in the Ranger force and went on to head a new scientific division, but he never forgot what it was like to stand up to a badman. He never hid behind his desk.

For example, on January 25, 1943, he joined a search for a pair of escaped convicts. His team had riddled the suspect's vehicle and Gonzauillas was about to open the door, when another officer shouted, "Look out, Cap! I think he's playing possum!"

Gonzauillas ducked, but a bullet tore through the left shoulder of his coat. He returned fire with the pistol in his left hand, putting five slugs into the escaped prisoner; there was no reason to return him to prison. Somehow, the man had managed to hide on the car's floor boards and had been unscathed by the initial fusillade, which had finished his partner.

Gonzauillas went on to work a number of famous cases, including one that was made into a film titled, *The Town That Dreaded Sundown*. Following his retirement in 1951, he became a technical advisor for films and television, including the 1950s series, *Tales of the Texas Rangers*. He died of cancer on February 13, 1977. He was 85.

Still alive and deeply involved in the National Rifle Association is H. Joaquin Jackson, who first saw the light of day on a dusty Texas farm, where every day was a scramble for continued existence.

Out of high school, Jackson won a basketball scholarship to a nearby college, but had to quit to go to work. He had a number of outdoor jobs including cowboyboying before he qualified as a Texas Highway Patrolman. That was in 1957. After nine years of patrolling the highways, he was one of three applicants out of more than a hundred who qualified to be appointed a modern-day Texas Ranger.

Jackson may eventually have questioned the wisdom of his transfer. There were only 100 Texas Rangers to cover 267,000 square miles of his native state. That meant he was responsible for 39 counties!

"In the early days, the Rangers comprised a band of individualistic, heroic adventurers following charismatic leaders," David Steele tends to feel. "Rangers were often controversial, but always manly and stylish in the way of a border warrior. At various times this could mean killing Indians, fighting Mexicans, tracking cattle rustlers, arresting *contrabandistas*, busting unions or suppressing riots. The real question is how long this tradition can last in the face of post-modern law enforcement collectivism."

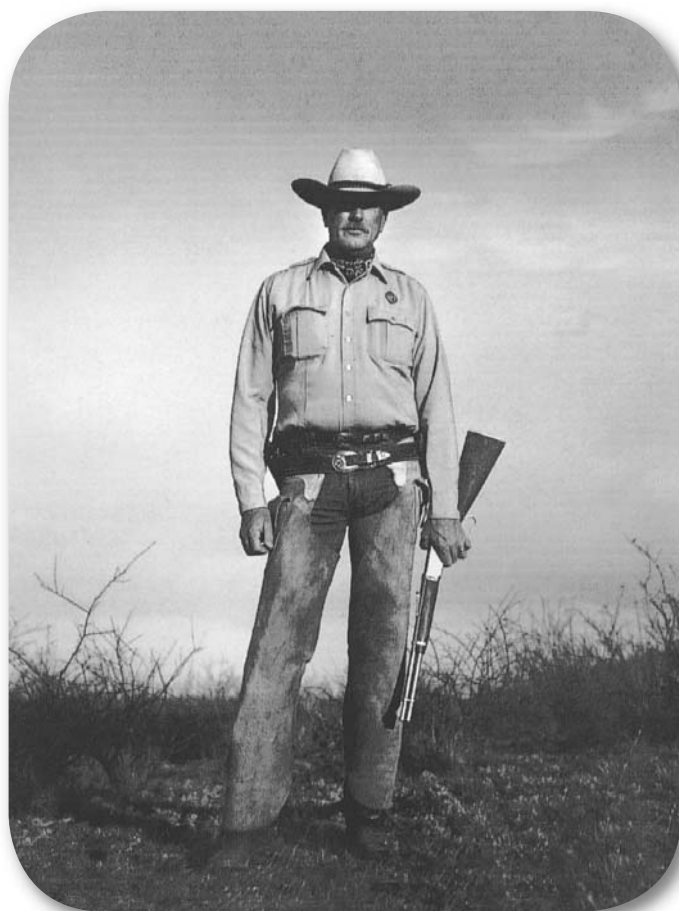
Jackson began his Ranger career in 1966, apprenticing with the legendary Captain Alfred Allee, Sr., who had been on the job since 1931. Jackson found that the cowboy image was still strong, although the civil rights movement was reshaping



Joaquin Jackson's custom gun belt carried his 45 Colt auto with silver and gold grips, as well as a stock knife and extra magazines.

the country and technology was restructuring law enforcement even then.

"Starting even before World War II, the Rangers had shifted from a law enforcement flying squad to a technologically-equipped investigative corps, which could reinforce the rural constabulary in major cases," Steele reports. "Even so, the *High Noon* public image was still strong."



Texas Ranger Joaquin Jackson's exploits are described in his book, *One Ranger* which may be made into a motion picture. He retired in 1993 after 27 years of Ranger service.

During a 1969 attempted jail break in Carrizo Springs, prisoners had seized the armory, Jackson responded along with his mentor. Captain Allee assumed command and used a megaphone to tell the prisoners they had til the count of 10 to surrender. At the count of three, he triggered off a magazine load of 30-30 cartridges.

Surprised, Jackson turned to his commander to say, "Captain, I thought you told them you'd give them 'til a count of 10."

"Ah, them sons of bitches can't count no way," was Allee's reply before the shooting became general. In that era, Jackson then carried a war surplus M2 30 U.S. Carbine made at Massachusetts's Springfield Armory. He put down some rounds on full auto, bullets pinging off the jail's steel bars. Using suppressive fire, the Rangers soon took back the jail.

As the only Ranger in 39 counties, Jackson had to take his arsenal along on his belt and in the trunk of his state-issued vehicle. When he had been a state patrolman for the Department of Public Safety, he had been issued a Smith & Wesson Model 19 revolver chambered for the 357 Magnum cartridge. When he made it to the Rangers, he chose a 45 Colt auto.

Today DPS issues a SIG-Sauer P226 chambered for 357 SIG, which offers the car body penetration of the older revolvers, but with 10 more rounds in the magazine. This weapon also is issued to Rangers, but most still prefer the old Colt.

Jackson's primary pistol was a lightweight Colt 45 Commander. He had the standard trigger replaced with an old-style 1911 long trigger that was adjusted to three pounds. He added a beavertail safety to protect his hand which was proportional to his 6-foot 5-inch frame. Standard wood grips just wouldn't do for a Ranger and custom wood or ivory grips can become slick in the hand, so Jackson had engraved silver and gold grips made by Felipe Samora, which carried enough engraving to ensure a solid on-target hold.

The holster for this particular auto was made and carved by another Ranger, Tolliver "Tov" Dawson, on the old Brille design. It was suspended from a gun belt crafted by Joe Pena, a saddlemaker in Uvalde, Texas. The heavy-duty belt was made to accommodate a pair of Dawson-made magazine carriers. The magazines, incidentally, were loaded with 45 ACP cartridges, alternating hollow-point and ball bullets.

It is the Ranger custom to wear two belts, one for the trousers, the other as the gun belt. The carving and silver mounts on both belts match. Silver accessories on Ranger gear often come from Holland's, a jeweler in San Angelo, Texas.

Joaquin kept four more loaded magazines in his vehicle along with spare departmental ammo and a backup Colt M1911 Government model. Both were carried chamber loaded, cocked and locked.

If not near the trunk of his vehicle, Jackson had a variety of back-up guns. He kept a 38 S&W Chiefs Special revolver in his boot until he realized it was uncomfortable. Sometimes he had an American 380 auto under his shirt behind his belt. Other times he carried a 22 Magnum S&W revolver, which he considered as deadly as the 38 at close range. Additional ammo was easily stowed in the vehicle.

There also was a SIG-Sauer auto in the trunk, but Rangers have always preferred the Colt from the time when Captain Jack Hays used a 1836 Colt Paterson to battle Comanches to the Colt Peacemaker of 1873 origin, which was used during the post-Civil War cattle wars.

According to David Steele, “When the Colt 1911 45 auto was designed for use of the U.S. Army in the Philippines, the Rangers actually figured it was designed for them. Some Rangers went directly from the single-action revolver to the single-action auto without pausing to try a double-action revolver. The DA revolver was considered safer by most police departments, as was its successor, the double-action automatic, but Rangers didn’t put much store in what ‘amateurs’ thought was safe and modern.”

When on horseback, Jackson favored a 44 Magnum S&W Model 29 double-action revolver which he carried in a Tom Threepersons rig that featured 24 belt loops for spare ammo. Threepersons, a legendary lawman in the Texas Panhandle in the 1920s, had designed what was considered a classic speed rig, but Jackson had a leather hammer thong added to the version made by El Paso Saddlery; this was to keep the revolver secure in rough brush country.

“When he first joined the Rangers, Jackson was issued a Remington Model 8 30-caliber semi-auto rifle. However, he soon replaced it with a classic Winchester 30-30 Model 94 lever action that had left the factory in 1957,” Steele reports.

“He had a local gunsmith trim the barrel to 16.25 inches so the carbine would maneuver easily inside the car. He also had a brushed chrome finish applied, which made the gun impervious to rust. He carried the 30-30 in a saddle scabbard mounted at foot level in his state-issued car. The gun was still there 25 years later, loaded with 150-grain Silvertips, five in the tube and one in the chamber. Jackson also had a bandolier of 40 more rounds for the 30-30, plus several hundred additional rounds in the auto trunk.”

The Texas Department of Public Safety also issued him a 12-gauge Remington Model 11 semi-auto shotgun that carried a bead front sight and had an 18-inch barrel.

He swapped this weapon for a Remington Model 1100 semi-auto 12-gauge with rifle sights and a 21-inch barrel. The scattergun was loaded most often with #00 or #000 buckshot or one-ounce slugs. As usual, plenty of spare ammo was stuffed in the vehicle trunk.

According to Steele’s findings, “For maximum intimidation and firepower, he also packed some form of full-automatic rifle. With jurisdiction so large and rural back-up so far away, it made sense. As previously mentioned early on, this Ranger initially carried a selective-fire U.S. 30 Carbine M2. Two spare 15-round magazines were in that bottomless car trunk along with boxed ammo.”

Along the way, the Ranger tried the M-14, the Thompson subgun, the Mini-14 and the Colt-made M-16, but eventually settled on the Armalite AR-18. Chambered for the 5.56mm cartridge, Jackson felt the

AR-18 was designed to be more reliable and easier to manufacture than the M-16. He always had four loaded 30-round magazines for the AR-18 in that trunk – along with spare cases of 5.56mm ammo.

As support gear, the Ranger had a military-issue polymer night stick and two sets of Peerless handcuffs. His trunk invariably carried four or five gas grenades and a pair of gas masks. On his gun belt he carried a Schrade-Walden Trapper, a two-blade folding knife that was held in a Dawson scabbard.

That vehicle trunk also carried a Department of Public Safety investigator kit with fingerprint gear and evidence containers, a Canon 35mm camera, a first aid kit, an old-time coffee pot and C-rations or military MREs for stakeouts. There also was a cowboy bedroll with blanket and the requisite tarp.

Jackson felt that the DP-issue badge did not fit the Ranger tradition, so he got a 1948 five-peso Mexican coin and had a Houston silversmith turn it into a five-point Lone Star inscribed with his name and TEXAS RANGER.

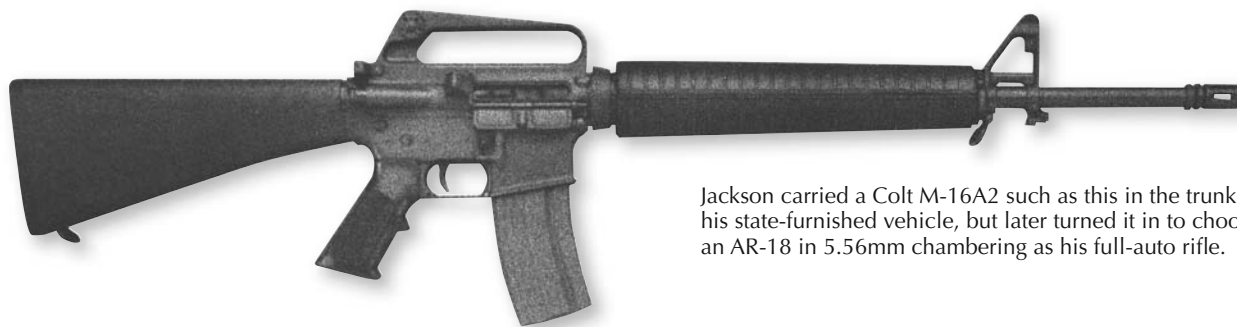
At the time in 1993 that he ended 27 years of following Ranger trails, H. Joaquin Jackson had little to say other than his feeling that “the Ranger service has changed and I’m too old to change with it.”

“One day soon the Rangers may become more like the Georgia or Kansas bureaus of investigation, an elite detective unit wearing business suits and carrying computers,” Steele suggests. “I hope I don’t live to see it. The Rangers are not just state investigators, but a symbol of Texas pride, individualism, heroism and paternal authority. In the old days, folks wrote songs about the Rangers, but nowadays people think nobody’s special. If you don’t hire special people, you won’t get them.”

Since retirement, Joaquin Jackson has served a three-year term as a director of the National Rifle Association and has written his autobiography titled *One Ranger*. It has been published by the University of Texas Press. At this writing, the book has been optioned for a motion picture.

It is a far cry not only geographically but philosophically from Texas to Switzerland, but the modern tale of what one individual can do with a small caliber handgun against trained terrorists is something of a reflection of the deeds carried out by that handful of Texas Rangers over nearly two centuries.

El Al, the Israeli airline, had been caught up in sky-jackings in 1968. This, according to David Steele, “...was before air marshal programs became the politicized and bureaucratic organizations they are today. Shin Beth, the Israeli FBI, started riding on aircraft, but this was only a stop-gap. They needed some special aircraft guards so the SB agents could go back to their regular assignments.”



Jackson carried a Colt M-16A2 such as this in the trunk of his state-furnished vehicle, but later turned it in to choose an AR-18 in 5.56mm chambering as his full-auto rifle.



As an Israeli sky marshal, Mordechai Rachmim stood trial in Switzerland after a shoot-out at Zurich's airport, where he took on terrorists with a 22 Beretta pistol. He was released after the hearing and eventually opened his own security service.

Israel is a small country and secret units like Mossad and Shin Beth prefer to recruit likely subjects rather than review unsolicited applications. Every male and most females are drafted into the military at 18. Those who do well, especially in the nation's special forces, have already been tested, some in combat. These individuals are considered natural candidates for secret projects.

Morechai Rachamim had done his three-year conscript service in the Israeli Defense Force (IDF) as a parachutist and operator with one of the country's special units. He was only 22 and studying English at Tel Aviv University, when Shin Beth asked if he would do six months as a sky marshal, with an option to extend for a full year. This showed perspicacity on SB's part, since young hard-chargers do not look forward to 20 years of riding in one airplane seat after another. However, foreign travel was rare in those days for most Israelis, so the short assignment would allow Rachamim to see some of the world while saving money to continue college.

"The new sky marshal had only three weeks of training with chief instructor Dave Beckerman, who had served with American intelligence during World War II," David Steele reports. "He was a superb pistol shot and taught the recruits single-handed shooting and other techniques rarely seen today. Other instructors taught the recruits advanced hand-to-hand combat."

This may sound familiar to FAA sky marshals after 9/11, but the airlines didn't want anyone aboard carrying guns. For the first few months, sky marshals were allowed to carry only an irritant spray. They considered this outrageous and degrading, so they collectively flew back to Tel Aviv and staged a strike. After considerable negotiation, it was agreed to issue the marshals each a 22 rimfire Beretta, namely the Model 70S Jaguar.

"These were single-action guns carried chamber-empty," according to David Steele. "The idea for using

a 22 rimfire was to minimize damage to the aircraft. However, James Bond movies aside, catastrophic decompression or damage to controls was – and is – statistically impossible from a handgun bullet, even from the 357 SIG cartridge now used by U.S. sky marshals.

"The modern passenger aircraft is a marvel of redundant safety systems. A greater danger would be hitting the wrong person, but at least, a 22-caliber makes over-penetration unlikely. Although there probably is an ideal sky marshal pistol somewhere, a 22 is not a bad choice. It is accurate, easy to learn to master, has fast recovery time, low report, lightweight magazines and spare ammo. Although it has low single-round stopping power, the 22 has serious close-range wounding power. The Ronald Reagan and Robert Kennedy shooting incidents have illustrated just how effective a 22 can be."

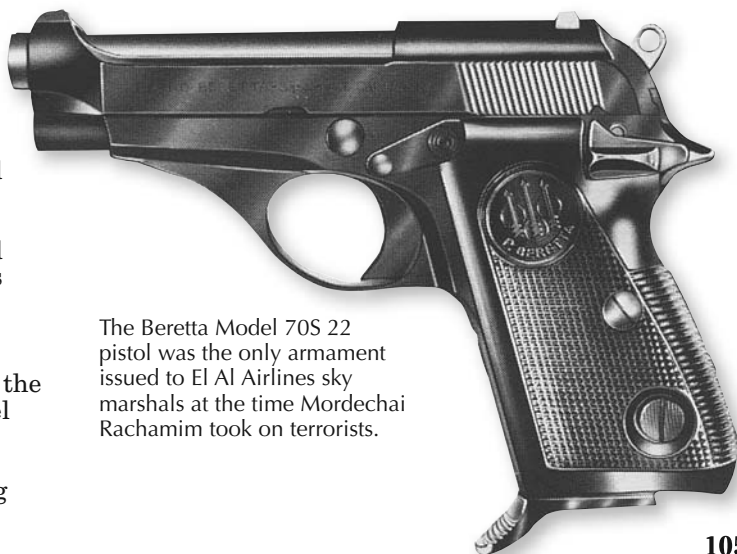
Back in 1969, the guards flying El Al were not allowed to take their pistols with them when they reached a foreign airport. Instead, they picked them up from the cockpit when boarding and left them aboard the plane upon landing and debarking.

On February 18, 1969, Mordechai Rachamim rendezvoused with his assigned flight in Zurich, Switzerland, where snow was heavy on the ground. He took the passenger bus to the plane, for only the crew knew who he was. He was working alone, since there were not enough trained sky marshals at that time for them to work in pairs.

He had not yet picked up his pistol, when the plane reached the taxiway for takeoff. He heard several banging sounds and thought they came from the engine. Then the captain came on the intercom, shouting, "They're shooting at us. Everyone get down!"

Looking out the window, Rachamim saw several men and one woman positioned behind a fence in an observation area that was being utilized as a sniper nest. The marshal immediately rushed to the cockpit, where he found the pilot, his intestines falling out, dying in agony. The marshal grabbed up his assigned pistol and leaned through a hole that had been smashed through the cockpit window. He spotted two men an estimated 50 meters away, both firing AK-47s. A third man threw hand grenades. The explosions of the grenades were visible on the tarmac.

Rachamim opened fire on the snipers, but could see no effect from his bullets. Only later did he learn that his counterattack had served to disrupt the plans of the



The Beretta Model 70S 22 pistol was the only armament issued to El Al Airlines sky marshals at the time Mordechai Rachamim took on terrorists.



The familiar AK-47 was used by Palestinian terrorists in their effort to destroy an El Al aircraft on the runway at Zurich, Switzerland, in 1969.

terrorists, since they had expected no resistance.

He was concerned that the attack would set fire to the aircraft's wing tanks. He decided to distract the terrorist's fire to himself, but realized that if he jumped down from the cockpit, the plane still would be in danger. The gas tanks would be behind him.

He ran to the rear, passing dazed, uncertain passengers and ordered the steward, "Open the emergency slide for me!" Seconds later, he slid down the escape chute on the far side of the plane. Out of sight of the terrorists, he ran around the tail of the aircraft in a wide arc.

As a parachutist in the Israeli army, Rachamim had been taught to run, while shooting at the enemy. This keeps their heads down and hopefully demoralizes them until they can be finished hand-to-hand. The tactic grew out of an upper echelon strategy that Israel did not have the territory or the manpower to get involved in a slow-moving war of attrition.

With this sort of training as his guide, Rachamim charged from one pile of plowed snow to another, using them for cover as he fired, at the same time, yelling in English, "Throw down your weapons!"

Coming to a bank of snow piled to the level of the top of the security fence, he climbed up and over, landing only eight meters from what he now could see were three men and a woman. Two men were firing Kalashnikovs, another was tossing grenades and the woman was launching PLO propaganda pamphlets on the wind.

Staying out of their sight, the marshal reloaded his second magazine and fired on the run as he advanced. When he was roughly six meters from the foursome, one man threw down his rifle, but the other stopped shooting at the aircraft and swung to point his assault rifle at the Israeli.

Racamim emptied his Beretta, killing the second terrorist, then tossed away his empty pistol and leaped onto the grenade thrower, choking him while screaming, "You bastard, attacking civilians." In that moment, he felt a pistol muzzle pressed against his back and heard a Swiss police officer saying, "Let go of him or I'll shoot." He was arrested along with the two Palestinians.

The Swiss policeman took his gun and he was put in the same cell with the two Palestinians, with the jailer declaring, "You're equal. We don't care about your struggle. No one shoots on Swiss soil."

Initially Mordechai Racamim would not talk to the Swiss prosecutor. The Israeli sky marshal program was still secret and he would not talk until cleared by the Israeli consul. Once authorized, he talked and the story broke in the news that Israel now was using armed guards on its planes.

The marshal was in prison for a month, but at least it was a clean Swiss lockup he later told reporters. Eventually, he was released on his word as an Israeli soldier to return for trial. Back in Israel, though, he was greeted as a national hero and, still on the Shin Beth payroll, they put him in charge of the bodyguard detail for then-Prime Minister Golda Meir. Two months later, though, the German press reported the assignment and he was taken off the detail.

Soon after, Racamim returned to Zurich for trial and was acquitted. Out of a job, he returned to the university in Tel Aviv to resume his studies. But all was not ended. On May 9, 1972, he was called out of class to participate in the retaking of a Sabena 707 that had been commandeered at Lod airport by Black September terrorists. Today, he resides in Tel Avid and runs Hawkeye, his own private investigative and security consulting service.

On a more current note, one of the most unlikely handgun combat devices ever to come down the pike is of Israeli origination. It is called the CornerShot and is described as a "high-tech weapon support system designed to enable military, law enforcement and security operations to effectively observe and engage targets from around the corner or from behind cover without exposing any part of the operator's body."

According to Amos Golan, inventor of the system and co-founder of CornerShot Holdings, LLC, the latest version of the device is listed as the APR – Assault Pistol Rifle – and is an update of the original handgun version, firing the 5.56mm NATO round.

Golan retired from the Israeli Defense Forces in 1995 with the rank of lieutenant colonel. He served as a troop commander in various elite and counter-terror units. Asaf Nadel, described as a major developer of the CornerShot system, is co-founder of the company. He served as a major in the Israeli Defense Forces' armored corps and subsequently in various security positions around the world, first with the ministry of foreign affairs, then El-Al, the Israeli Airline. The pair – and their company – now headquarter in Miami, Florida.

Both the rifle version and the handgun version of the CornerShot offer the ability, it is claimed, to "observe, acquire and engage targets from around the corner." In short, it is meant to allow security forces to remain outside the line of fire while engaging targets. The APR version of the CornerShot combines the design principles, features and capabilities of the earlier introduced handgun version.

This device is discussed more thoroughly in Chapter 24.

CHAPTER 10

UPDATING THE 223

Bushmaster's C15M4 Looks Like Our Military M4 Carbine, But it's A Carbon 15 Creation!

JACK LEWIS HAS long been a fan of the rifles being turned out in Windham, Maine, by Bushmaster Firearms, Inc. In the early days of the company's existence, the sales emphasis seemed to be on paramilitary samples that didn't make it through the Government test cycle. But it didn't take long for all that to change.

The fact that the company's sales manager, John Clark, is helpful to writers and photographers working with firearms makes contacts with the Down Easterners a pleasure.

For this edition, Lewis felt it would not be complete without a look at Bushmaster and what they are doing for shooters these days. Rather than battling with larger companies over military contracts, the firm has come to concentrate on long guns that follow the general design of the now public domain AR-15/M-16. With almost no exceptions, the Bushmaster rifles are chambered for the 223 Remington round (also known as the 5.56mm NATO). The company's aim is accuracy and they have found a ready market in three categories: law enforcement, home defense and varmint hunters.



The Bushmaster C15M4 carbine was checked out with four different brands of ammunition. No problems were encountered during a run of some 200 rounds in a single afternoon.



So, when Lewis called John Clark to discuss the possibilities of this chapter, the latter showed instant enthusiasm.

"I'm glad you called," the sales manager declared. "We've just unwrapped a brand-new model that's based on the M4 carbine. In fact, we're designating it as the C15M4. It'll be an important part of our Carbon 15 line."

"Caliber?" Lewis asked, already certain of the answer.

"The same as our other guns, the 223 Remington cartridge," came the reply over about 6,000 miles of space between Lewis' base in Hawaii and the Bushmaster Firearms factory in Maine.

Clark and his caller had earlier discussed the use of carbon in rifle and handgun construction. As the former put it, "The technology we're using in our new Carbon 15 rifles and pistols offers us the chance to work further toward developing hybrids that combine the traditional AR15/M-16 design and lightweight carbon fiber components."

Clark went on to declare, "The C15M4 is designed for military and law enforcement use and is the first of these new hybrids."

Less than a week later, Lewis had the C15M4 in hand. When he took it out of the carton, it seemed extremely lightweight. He guessed it at five pounds. On the scales, unloaded, it weighs right at six pounds. When

10 rounds of 5.56mm ammo are added to the magazine, it gains a pound.

"Looking at the little shooter, I have to admit I really wondered about the maker's Carbon 15 composite that was used to cast both the upper and lower receivers," Lewis admits, adding, "I learned from John Clark that this treatment saves 12 ounces in weight over the standard receivers made from forged aluminum."

According to Clark, "These receivers are totally impervious to moisture, corrosion or rust and actually are 40 percent stronger than aluminum. The Carbon 15 material is of the same composition throughout, so there is no surface finish to wear off or require some sort of maintenance."

Some of the company's Carbon 15 rifles are equipped with bright stainless steel barrels, but the Carbon 15M4 barrel carries a military spec outer coating of manganese phosphate that insures full protection against corrosion and rust not only for the barrel but for all critical steel parts.

Once on the range with his shooting partners, Ace Kaminski and Greg Buettner, it took only moments for Lewis to realize that all of the functional controls of the little carbine operate virtually the same as those of a standard AR-15. Even better, should there become a problem, the Bushmaster product will accept standard



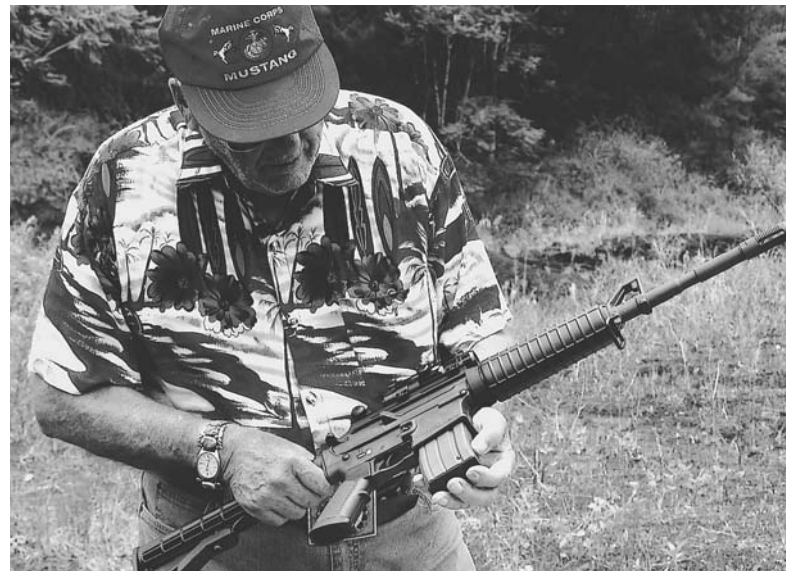
Both the upper and lower receivers of the Bushmaster carbine are cast from a carbon composite material that is lighter and stronger than aluminum, according to the manufacturer's specs.



The Adco Sales red dot one-power sight proved to be a plus when mounted on the carbine. All three of the test staff thought it was a worthy addition for accuracy.



Jack Lewis found the light weight of the carbine no disadvantage in holding on his target during the test session. The front sight is adjustable for elevation.



During the extensive check-out of the Bushmaster C15M4 carbine, Lewis found that the maker's claims were true: the carbine would handle Colt-made AR-15/M-16 metal magazines as well as the carbon composite unit furnished with the weapon.

AR-15 parts and function well. At least that was the claim of the manufacturer. The trio had no problems with the test carbine while firing several hundred rounds at various targets and at varying ranges.

An innovation being used these days by several gun makers involves the carbine's front sight. It is adjustable for correcting elevation. Attached to the mounting rail, the rear sight has dual apertures and adjusts for windage.



Ace Kaminski, a member of the test team, was interested in checking out the new red-dot sight which he has installed for the shooting session.

The short Picatinny rail mounted above the action of the Bushmaster rifle is designed to handle installation of a wide variety of scopes, red dot sights, night vision equipment, or even holographic equipment. For purposes of checking out the combo, Lewis installed a one-inch Mirage Ranger electronic red dot sight from Adco Sales, which is distributing the product in the U.S. Once mounted, he was able to see the red dot through the carbine's rear peep sight. Mounted and adjusted properly, the red dot appears to balance atop the carbine's front sight.

The Adco Mirage features a three MOA red dot and click adjustments. It is available in either muted black or a nickel finish; the test team was using the former. The unit measures a mere 4.25 inches in length and adds only 3.3 ounces to the overall weight of the carbine. There is no magnification, with a field of view of some 37 feet at 100 yards. The test team also learned that Adco offers a 30mm Ranger model, which has slightly different specifications.

Checking out the specs for the carbine, it was found the barrel measured only 14.5 inches, but was made civilian legal by the addition of a welded-on muzzle brake. The 10-round magazine furnished with the carbine is of the same carbon composite as the receiver, but it was quickly found that the piece would handle Colt-made AR-15/M-16 magazines.

Between the three members of the test team, four different brands of ammunition were rounded up for the shooting session. The scene was an abandoned lava pit, where the Hawaiian jungle was rapidly taking over. With machetes, the team members managed to cut out a firing lane approximately 80 yards in length. At one end, a folding table was set up as a makeshift shooting bench.

At the far end of the cleared path three targets were set up. One target was a life-size figure of a baddie who is aiming a revolver directly at the shooter. The second target with the image roughly 75 percent of normal size featured an angry woman who was pointing her paper handgun toward the shooting bench. The third target



– also about three-quarters normal size – involved a bad guy holding a female hostage as protection while aiming his handgun.

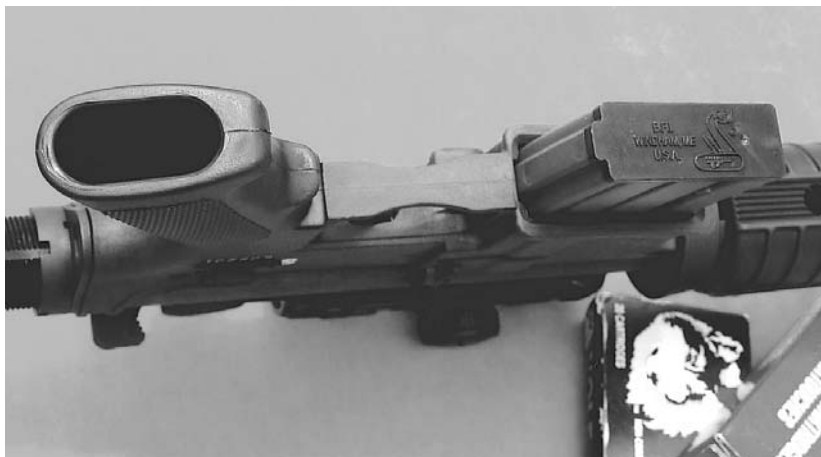
Ace Kaminski was the first to settle in at the makeshift shooting bench to fire on the full-size target featuring the paper gunman. His approach was to fire all 10 rounds from the semi-auto carbine as rapidly as possible, while keeping in mind the basic techniques for fire fights.

Lewis timed the fusillade and found it took the shooter approximately 11 seconds to empty the magazine on the target. Kaminski, incidentally, was firing Federal's 55-grain cartridge carrying the company's American Eagle logo. Bullets were of the boattail design with a full metal jacket. All the rounds pierced the image, most of them in the chest area where the shooter had been aiming.

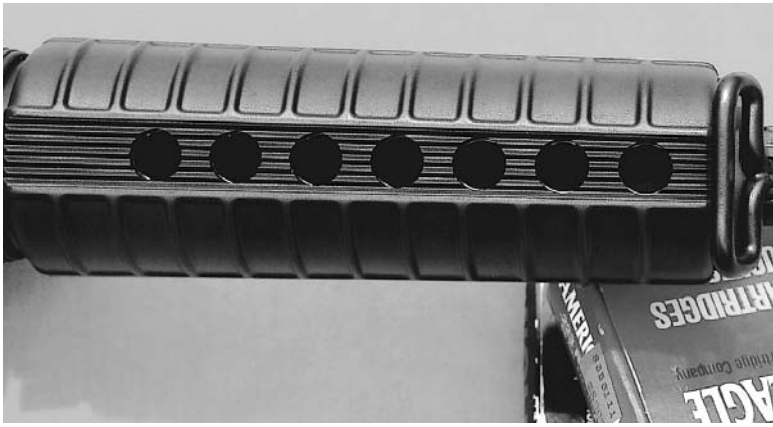
Lewis moved in behind the bench next, choosing the figure of the cruel-eyed outlaw holding the figure of what was meant to be a panic-stricken woman. He announced



The length of the carbine's barrel is only 14.5 inches, but it gains legal length by means of the welded-on permanent muzzle brake that has been added.



The Bushmaster carbine's hand grip is hollow, a design feature aimed at holding down the overall weight of the weapon, which is only six pounds.



The under side of the carbine's forend is perforated by a series of evenly spaced holes. This serves as an aid in bleeding off heat from the barrel during intense firing.

to the others that his best bet would be to put bullets into the right arm and shoulder of the baddie holding the paper revolver at hip level.

He had taken the time to check out the trigger in a dry-fire exercise earlier and had noted that there was virtually no creep. An earlier check with the RCBS' Premium trigger-pull scale has shown that let-off for the trigger was an ounce or so over eight pounds.

Looking through the single-power sighting device, Lewis discovered it was somewhat difficult to tell the difference between the buff-shaded blouse worn by the woman hostage and the only slightly darker shirt of her captor. In this segment of the exercise, every shot was a carefully aimed round, with the shooter taking time between each shot to reestablish the red dot on the area of the target he had chosen. Kaminski, meantime, was watching the target through a set of binoculars.

After the first shot, Lewis established a slow rhythm for squeezing off his shots, mentally counting each round as he fired. During his first nine rounds, he was concentrating on the gun hand and shoulder of the papyrus villain. With the final round of the 10, he shifted his aim to the figure's head and put the bullet through the image's hairline.



The stock of the carbine is hollow and is covered by a carbon composite butt plate. The trapdoor covers the compartment that can hold cleaning gear.

Walking down to the target, the three men found that four of Lewis' bullets had missed the bad guy image completely; a case of super-caution in an effort not to hit the hostage. Three of the rounds had blasted through the figure's shoulder area, however. Another bullet had hit the baddie in the belly area.

For this effort, Lewis had chosen Wolf Performance Ammo, which is made in Russia and imported. Each of these rounds featured a steel cartridge case and a 55-grain full metal jacketed copper bullet. Earlier, in discussions, Kaminski had noted that the steel cases were coated with a lacquer meant to protect the ammo against rust. There had been reports that the lacquer, heated by exploding gases, tended to cause the cases to stick in a gun's chamber.

Following his volley and the check of the targets, Lewis checked the chamber and barrel of the carbine and found no obvious evidence of fouling by the cartridge-coating material. The carbine's chrome-lined bore and chamber might well have had a part in avoiding any problems.

The third member of the test team, Greg Buettner, chose to fire on the same target Lewis had used. The latter's bullet punctures were marked with circles to avoid confusion. Buettner fired his 10 rounds, using Black Hill's 73-grain match hollow-point. Two of his rounds pierced the baddie's shoulder and two more had taken him in the lung area. For reasons the shooter could not explain, there also were holes in each of the hostage's arms. The other bullets had punctured the villain's heavy growth of hair for kill shots.

"That trigger takes a bit of getting used to," Buettner commented after inspecting his target. "On a couple of those shots, they went before I was really ready." However, he had to admit he was proud of the head shots he had scored in the closing rounds of his string.



The rear sight of the carbine is moulded as a part of the carbon composite rail. The flip-type aperture was developed to handle two different ranges.



In checking out the Bushmaster C15M4, three different types of printed figure targets were utilized. Range for the test series was approximately 80 yards.



Ace Kaminski marks the position of bullet holes to avoid confusion with rounds fired on the same target later during the test session.

There remained one unfired-on target: that of the handgun-wielding female. The only brand of ammunition that had not been used to that point was the import from Sellier & Bellot USA. These cartridges are imported from the Czech Republic, each bullet carrying a 55-grain full metal jacket.

The trio took turns shooting up all of the ammo brought along for the event: some 200 rounds. By the time they were done, the sun was starting to fall behind the local volcano, Moana Loa, and the shadows were growing long. The targets were pretty well shredded and it can be reported that there was absolutely no problem with the feeding and firing of the Bushmaster C15M4 carbine with any of the ammunition.

Members of the test staff have worked together and/or individually with a number of Bushmaster products over the years and have found all of them to be well constructed and problem free. It looks as though the M15M4 has a future in chores ranging from varmint hunting – including the two-legged type – to whitetail-size game.

CHAPTER 11

WHAT EVER HAPPENED TO ACCURACY?

**Political Influences, Juggling of Target
Scores and Limited Choice of Weaponry
Are Reasons Enough**

“BACK IN THE 1950s, my uncle took me on the tour of the Federal Bureau of Investigation Building in Washington, D.C.,” David Steele recalls. “At the end of the tour was a firearms demonstration involving a 38-caliber revolver and a Thompson submachine gun. Today, although the demo is more likely to involve a SIG or Glock and the Heckler & Koch MP5 submachine

gun, the point is the same. FBI firearms instructors do the demonstration, but the remaining illusion with the audience is that all FBI agents can do the same.

“You have to go down to Quantico, Virginia, and watch remedial training for agent recruits to know the truth.”

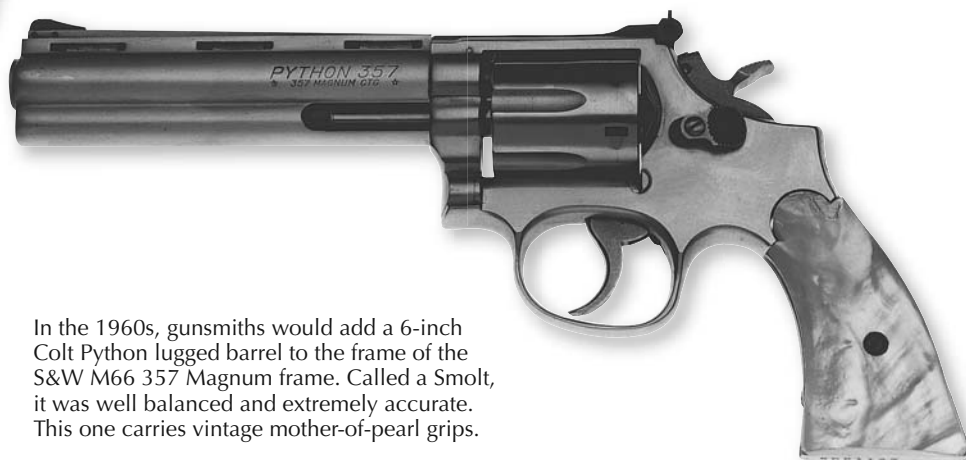
Like all other physical skills, shooting is best learned in youth. However, with the advent of urbanization and



The Heckler & Koch MP5 9mm is standard for most of today's police departments that have the submachine in its arms inventory.



The Smith & Wesson M24 aka the "K-38" was standard issue in the Los Angeles Police Department in the early 1960s. It has been called the most accurate handgun ever issued to U.S. patrolmen.



In the 1960s, gunsmiths would add a 6-inch Colt Python lugged barrel to the frame of the S&W M66 357 Magnum frame. Called a Smolt, it was well balanced and extremely accurate. This one carries vintage mother-of-pearl grips.

more restrictive firearms laws, it is becoming a rarity to find prior firearms experience in new police trainees.

In 1988, Steele was invited to a graduation of new Los Angeles Police Department officers; these new officers made up one of the last classes to be issued revolvers. As the top shooter was announced and strode up to receive his award, the whole class sang out, "Baa! Baa!"

"This was an amusing reference to the fact that this rookie had been recruited from South Dakota, where there are said to be more sheep than people. The point is that his rural background gave him a leg up in shooting skills," Steele relates.

David Steele knows this first-hand, as he has been the top shooter – as well as top student overall – in two of the three law enforcement academies he has attended. He started shooting a pistol at age 13 on his father's farm.

"If you hunted rabbits with a K-22 handgun, there is nothing a modern police department can teach you about accuracy," he contends. "If sight alignment and trigger control are second nature, you can concentrate on the latest fashions in police tactics."

Cop generations, as they are called, are short; 20 years or less, thanks to safety retirement. Most officers serve their entire career in just one law enforcement agency. This usually means a narrow perspective and the illusion of constant progress in police training.

For example, before World War I, the Los Angeles PD had no formal academy and the new recruit did not get training in law or marksmanship. He was partnered with an experienced officer for a few days, and then he was pretty much on his own. He had to buy his own revolver, handcuffs, billy, keys and uniform with its brass buttons. However, in 1926, the LAPD got a new chief, one James Davis, who was to emphasize marksmanship in a manner that was as important as when Police Commissioner Teddy Roosevelt began handgun training at the New York Police Department around 1895.

History shows that by the 1930s, James Davis had not only built an academy, but he founded and participated with the LAPD pistol team, which fired in competitions and gave public demonstrations. For most shooting, the demonstration team carried the standard

duty 38-caliber revolver with a six-inch barrel and fixed sights, but for demonstrations, they also used target 22s.

The routine demonstration took place at the academy, with the artificial waterfall and the pop of recruits' 38s as background sounds. Davis would invariably give his speech to the invited local dignitaries (usually concentrating on the threat of communism), then would lead the tour group to the shooting range.



David Steele believes the SIG-Sauer P226 is the most accurate of modern police autos, but not nearly as accurate as the S&W K-38 revolver issued in 1960.



The Benelli semi-auto shotgun with a 14-inch barrel has been found to be a powerful and maneuverable entry firearm.

Team member Joe Dircks would light a cigarette and put it in his mouth, and Chief Davis would call for Tommy Carr to “Raise pistol.” Then as though in afterthought, Davis would pause and say, “Wait just a minute, lieutenant. I’ll hold the cigarette. In the Los Angeles Police Department a superior never asks a man to do anything he wouldn’t do himself.”

Davis then would stride forward, take the cigarette from Dircks and pop it between his own lips. However, in one somewhat notorious case, the police chief talked for so long that he gave Carr nothing to shoot at but a long ash. When the marksman fired, ash, cigarette paper and tobacco splattered over Davis’ face. As the story goes, having created the image of a fearless crime fighter, Davis could not reach up to check the condition of his nose like a normal person. He had to do it with dignity.

“Davis was probably the highest-ranked police shooter this country is likely to see,” David Steele contends. “Shooting is too blue collar and politically incorrect for the modern chief of agency. In 1970, I visited several well-known police departments around the nation and rarely found any pistol experts above the rank of sergeant. Today, though, with the advent of what is called officer survival training, departmental experts may reach the rank of lieutenant or even captain.”

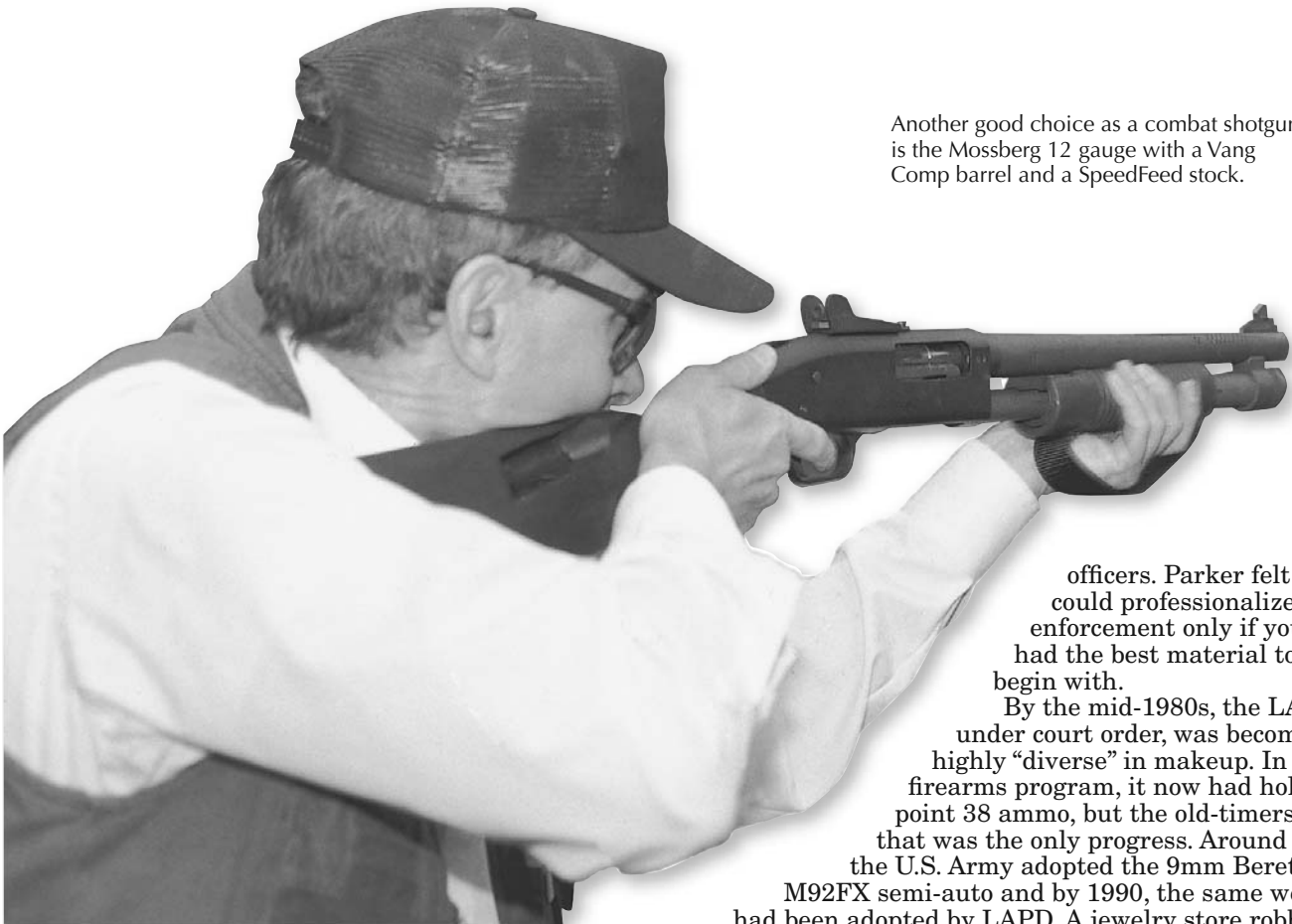
After World War II, the LAPD was run by legendary Bill Parker, whose law school-trained “just the facts” personality is said to have inspired the *Star Trek* character, Mr. Spock. During the early 1960s, the standard LAPD sidearm was the Smith & Wesson K-38 with a six-inch barrel. Later called the Model 14, a

heavier underlug version is still being produced. The fully adjustable sights made the revolver extremely accurate, which was of particular import in the days when the standard load for this department was a 158-grain round-nose lead bullet.

Officers would coach each other to “put six in the 10-ring,” hoping all rounds in the sternum might stop a hopped-up suspect. The six-inch barrel and smooth double-action pull also tended to make hip-shooting easy to teach. The K-38’s only real competitor was the Colt Officer’s Model Match, but the K-38 became the gun to beat in the typical PPC competition of the period. The heavy, modern PPC revolvers are considered to be just “steroid-enhanced” versions of it.

However, as patrol cars got lower and the Sam Browne belts came to carry more gear, the service revolver barrel length was reduced to four inches. Examples include the Smith & Wesson Model 15 Combat Masterpiece, the S&W Model 19 Combat Magnum and the Colt Python. Most common of all is the fixed-sighted S&W Military & Police Model 10. Younger officers, who had never used a six-inch barrel, never noticed a drop in accuracy or pointability.

In Bill Parker’s days as chief, day patrol officer recruits were male and at least 70 inches in height. Most were military veterans, many with combat experience in World War II and Korea. Police academy training in Los Angeles was based on the U.S. Marine Corps so-called “boot camp.” Parker’s theory was that even a smaller department could still be effective, if comprised of intimidating, physically fit, aggressive



Another good choice as a combat shotgun is the Mossberg 12 gauge with a Vang Comp barrel and a SpeedFeed stock.

officers. Parker felt you could professionalize law enforcement only if you had the best material to begin with.

By the mid-1980s, the LAPD, under court order, was becoming highly “diverse” in makeup. In its firearms program, it now had hollow-point 38 ammo, but the old-timers felt that was the only progress. Around 1985, the U.S. Army adopted the 9mm Beretta M92FX semi-auto and by 1990, the same weapon had been adopted by LAPD. A jewelry store robbery in



California state investigator Juan Hernandez uses the typical isosceles competition stance in firing his custom S&W 8-round revolver with an optical sight.



The Colt 9mm submachine gun is constructed along the lines of a small M-16. This is the selective-fire weapon favored by the Drug Enforcement Agency.

Chinatown that resulted in an officer's death was said to be the impetus to adopt a high-capacity 9mm auto, along with the urban legend of a department outgunned by drug dealers.

Beretta and Smith & Wesson 9mm autos were standard for Los Angeles law enforcement until the infamous 1997 North Hollywood Bank Shootout in which the bank robbers were wearing body armor and using big-caliber firearms. The surrounding police were armed with their 9mm pistols and a smattering of M-16 rifles firing the 5.56mm cartridge.

It wasn't until the cops went to a nearby gun store and borrowed big-bore rifles that the tables were turned and the LAPD eventually won the battle. This incident also led to a 45 double-action S&W pistol becoming the alternate standard for patrol officers. SWAT, of course, had carried a single-action Colt auto since the 1970s. Recently, the Colt pistol has been replaced by

one from Kimber. Initially, following their inception in 1967, SWAT officers had carried a K-38 backed up by a J-frame 38 with a two-inch barrel. Since hollow-point ammo was not authorized, the move to the 45 increased stopping power, if not accuracy.

Throughout the law enforcement community, the move from revolvers to autos began with the firepower argument. The 9mm is not much more powerful than the 38 Special, but its double-stack magazines could easily carry 15 to 20 rounds. Based upon positive experiences of the U.S. military, police departments were sold on the 9mm. After all, the U.S. Army was carrying the M92FS, the Navy's SEAL team members were armed with the SIG P226 and the counter-intelligence folks had settled on the SIG 228 as their own. Also, inexperienced police recruits liked the idea of "shoot 'til you hit." The introduction of the Glock 17 provided this firepower combined with low production costs, which led to Glock's control of some 65 percent of the U.S. police market.

However, after the much publicized FBI Miami shootout in 1986 in which law enforcement took some hard hits, the 9mm Parabellum cartridge came under scrutiny and was accused of less than optimum penetration and stopping power. This resulted in development of the 10mm cartridge at the urging of the FBI. Next came the 40-caliber S&W, a 10mm that would fit in the frame of the 9mm.

"The 40-caliber is the current fashion statement in U.S. law enforcement, even though it provides less stopping power than the 45, less firepower than the 9mm, less penetration than the 357 Magnum and less accuracy than an adjustable-sighted pistol," David Steele points out.

"The new service autos have fixed sights that can be semi-adjusted by the use of an armorer's tool. They are probably stronger, though less adjustable than the S&W Micro revolver sight," Steele is quick to add. "However, some law enforcement agencies neglect to adjust the sights for the individual shooter, leaving them at the accuracy level of a revolver fixed sight."

So how would these autos perform on the Practical Pistol Course used by the FBI back around 1960? Since this course extended out to 50 yards, the answer has to be that most recruits could not qualify with current-issue autos. The old course required more one-handed shooting as well, but that's another story. Even toward the end of the revolver period, most law enforcement agencies had reduced the maximum



Steele favors the Remington Model 870 shotgun with Scattergun Technologies/Wilson Combat retrofit as an excellent combat shotgun.

distance to 25 yards. Now even that distance is being lowered, using close-range gunfight statistics as justification.

"I know of one agency that recently adopted the 40 Glock 23 to replace the aging 9mm S&W 6906s," Steele reports. "One would expect that since the G23 is shooting a more powerful load through a 9mm frame qualification scores would go down. On the contrary, scores went up and failures to qualify went down.

"How is this possible? At the same time the gun was issued, a whole new set of qualification courses was promulgated. None of these courses exceeded 15 yards and some maxed at seven yards. Transitioning students were pleased and impressed with the Glock's accuracy. They didn't realize that the illusion of accuracy came from the shorter courses and the easy, consistent trigger of the Glock system.

"No one's issue gun had its sights adjusted. No one tested benchrest accuracy at 25 yards. Another way to rewrite the course is to keep 25 yards, but to make the number of shots at that distance so low that it doesn't affect final scores. None of this violates the law or policy, but ethically, I believe instructors should teach the limitations, as well as the strong points of issue weapons."

Incidentally, another common trick these days is to keep only Pass/Fail records on qualification. By not posting the numerical scores, agencies prevent potential litigants from accusing officers of being too good as "trained killers" or too poor as "marginal officers put on the street" when it comes to pistol qualification.

This, along with forcing officers to carry one issue gun leads to what David Steele calls "enforced mediocrity."

Why should an officer practice on his own time and strive for perfection when he is limited by his equipment and not recognized by his agency and his peers?

Now comes the question of how officers manage to survive in the modern era of lowered physical standards and less accurate pistols. The answer is what some call "the new collectivism," wherein strong officers protect the weak without appearing to do so. Whenever a situation carries any risk, as many officers as possible are gathered in the name of "officer safety." Out of these, a few will do the actual dangerous stuff, while the others assist. In more serious situations, a separate team is called in.

"Perhaps that is why today's SWAT members spend 85 percent of their mission time on serving warrants rather than the sniper and barricaded suspect calls for which the original SWAT was designed," Steele declares.

"These days, officers are hired for a number of reasons, some technical, some political. Few have any military, martial arts or firearms experience. Hiring changes have had as much to do with liberal politics as changes in society and computerization. Part of the liberal agenda is to limit firearms, especially pistols, to the military and police. Some agencies such as the California Highway Patrol allow only the issue weapon, a 40 Smith & Wesson, to be carried," says David Steele. "This policy will make it easier when, in the fullness of time, the party is able to ban all private ownership of handguns in the state."

There is no perfect pistol. As police instructor Bill Murphy puts it, "If one size fits all, why not just buy a size 41 police jacket for everyone in the department."



The Benelli 12-gauge semi-automatic serves as a modern combat riot gun. Note that the gun is carrying Ghost Ring sights.

Officers are different and may feel they should be allowed to purchase their own duty pistols within departmental guidelines.

As far as the duty gun is concerned, some feel that the Texas Department of Public Safety has the right idea, issuing a SIG-Sauer P226 in 357 SIG. This pistol combines 357 125-grain JHP penetration and stopping power, with double-stack firepower and as much accuracy as one is likely to find in a service auto even at 50 yards.

According to Bill Murphy, one police department he trains has reduced training to 12 hours a year, with six qualification days budgeted to 150 to 250 rounds. In his qualifications, he still uses a 25-yard PPC target, but with moving stages, prone, standing and left-handed shooting. When instructing at the Los Angeles Police Academy, he adds 50- and 75-yard shooting to keep the cadets on their toes. When not on duty, Murphy runs his own Firearms Training Associates at Yorba Linda, California, as well as instructing at Gunsite in Arizona.

On the bright side, while handgun accuracy may have dipped among police officers, long gun shootability and accuracy have been on the increase. While some officers and departments still are saddled with bead-sighted 12-gauge riot guns, there are many better choices available.

SWAT teams and other specialized units have submachine guns, carbines, automatic rifles and even the occasional machinegun available, but the average line cop and detective still have only a 12-gauge pump manufactured by Remington or Mossberg. The difference is that these guns now can be modified for combat. In the U.S., the most common police shotgun is the Remington Model 870. A sporting gun based on customer suggestions, it was introduced in the 1950s. Behind it now is more than half a century of police experience with pump guns.

Still, with the exception of the occasional farm boy, most police recruits bring no shotgun experience with them. The typical police load has been #00 buckshot or one-ounce slugs initially designed for taking deer at ranges up to a hundred yards. Recoil with the ammo listed is comparable to the backup of a 375 Holland & Holland elephant gun!

“Most recruits – especially the small and thin ones – have avoided shooting the shotgun any more than absolutely necessary. This has been unfortunate, since the shotgun has so much more stopping power than the

handgun in a shootout. With suitable modification, it can be more accurate as well,” Steele contends.

Today, Gunsite, Scattergun Technologies/Wilson Combat and other firms modify conventional shotguns for combat. Both Remington and Mossberg now are putting more combat-ready models out the factory doors as a result of the aftermarket competition.

The first modification usually is the addition of rifle sights, since the law enforcement shotgun is used more as a rifle than a bird gun. Even pellet loads have to be controllable so that projectiles don’t stray into bystanders. The barrel itself can be rifled for slug loads only or it can be modified to compressed patterns, as is the case with the Hans Vang barrel.

A tactical sling should be added for carry afield and the standard magazine tube can be extended to carry more rounds. An alternative, of course, is that extra rounds can be carried in a sidesaddle pouch or on a Speedfeed stock. Recoil controlling stocks are available from such sources as Knoxx Industries in Paso Robles, California and ammo companies are producing what they call “reduced recoil” slugs and buckshot. David Steele feels that “the stock itself should be about an inch shorter than that of the conventional bird gun so as to fit the shorter officers and work better with body armor.”

A few special units such as narcotics or gang details have issued semi- or full-auto versions of Heckler & Koch and Colt-made submachine guns. The FBI favors the HK MP5, called by some the most accurate and user-friendly police subgun ever made. The Drug Enforcement Agency has issued the 9mm Colt “Shorty,” a 9mm version of the M-16.

“I have found problems with the typical Colt 9mm magazine,” Steele reports. “It is difficult to load, hard to push into the gun when fully loaded and dropping a full magazine usually will spray out the cartridges.”

Some local law enforcement agencies, particularly in rural areas, now are issuing rifles in addition to shotguns. The most common rifles are the Ruger Mini-14 and the Colt AR-15, both firing the 5.56mm cartridge. The LAPD started issuing the M-16 to supervisors, primarily, after the 1997 North Hollywood bank robbery shootout.

“Accurized shotguns, subguns and semi-auto rifles are all improvements for patrol personnel and detectives,” Steele feels. “However, they are not often available in a sudden police confrontation. There is no substitute for handgun accuracy.”

CHAPTER 12

WHAT ABOUT SHOOTING SCHOOLS?

Much of What is Taught Today is Based Upon History That has Been Updated for Modern Weaponry

WHAT IS A martial art?

It is any structured method for defeating an enemy in combat. In theory, piloting a fighter aircraft or maneuvering a battleship would be martial arts, but we usually associate martial arts with hand-to-hand fighting.

“In medieval Japan, for example, the *samurai* warrior learned empty-handed combat – plus the use of 18 personal weapons, training from childhood to old age,” David Steele has found in his research. “This type of training also was meant to develop the individual’s character emotionally, spiritually and physically. It is these benefits that are most valuable in long-term martial arts.

“An art which teaches attacks, counters, empty-hand and weapons is called a ‘complete’ martial art, but it is not necessary to study a complete art to reap some benefit in practical combat. For example, boys of the headhunting Dyak tribe in Borneo practiced clever ways of decapitating an enemy. However, this art of wielding the traditional jungle sword contained no defensive moves or counterattacks.”

Nepalese Gurkhas, likewise, do not have a complete martial art related to their kukri knives. Instead, the Gurkhas use the kukri as a utility and forest knife in their Himalayan homeland. When individuals join Gurkha units in the Indian and British armies, they use the small arms they are issued. However, if hand-to-hand combat is required, they use the kukri for simple cleaving and decapitating blows.

“Their lack of sophisticated defensive techniques does not seem to limit their effectiveness in real combat, nor does it reduce the fear felt by their enemies,” Steele observes.

Some martial arts that were “complete” in the Middle Ages are no longer practiced. Outside of movies, television and occasional demonstrations, one will rarely have use for the long staff, mill wheel handle, rice sickle, weighted chain, iron fan or halberd. According to Steele’s beliefs, “A modern complete art would include empty hand, short stick, knife, pistol and assault rifle, but these items rarely are taught together as part of a package even in the modern military.”

International and Olympic shooting competitions have had most of the combat elements removed. As a result, few people are aware that the stance used in Olympic pistol competition evolved from the 19th century *Salé des Armes*, which trained gentlemen of the era for duels. Amazingly, this antiquated stance was still being taught to military recruits and police officers into the 1960s!

In the late 1960s, a World War II Marine veteran, one Jeff Cooper, introduced what he termed the “Modern Technique.” This particular effort combined the two-hand Weaver stance with compressed trigger pull, sighted fire and major caliber. Most of these elements now are accepted in police and military training, although caliber and stance remain somewhat controversial.

During and following the Vietnam War, a new industry developed. It was the combat shooting school. The first of these that became established and still is in existence is Gunsite in Pauldin, Arizona, a multi-course school that was established by the aforementioned Jeff Cooper. This was and is a serious school that has taught a lot of police officers and even some military members how best to use the tools of their trade. Cooper later sold the enterprise, but it continues under the leadership of those who agree with his concepts of self-defense and gun-fighting.

Today, there are 203 known schools or courses in North America that teach firearms defense – and even offense – techniques. Ten of these schools are in Canada. California, where lawmakers continually attempt to harass gun owners, has 33 of these schools. That fact alone should say something to the state’s anti-gun politicians. Arizona is second with 14 and Texas third with 13. At least one of the operations, Ladies’ Handgun Clinics in Raleigh, North Carolina, caters only to female students.

In addition to Gunsite, top-scored gun-handling education is offered by Thunder Ranch, which is run by Clint Smith in Mountain Home, Texas, and Front Sight Resorts near Las Vegas, Nevada. The last-listed operation offers courses not only covering firearms

including submachine gun firing, but also offers a two-day edged weapons curriculum, two days of empty-hand defense training and another two-day course covering children and youth safety. More recently established is a two-day mountain climbing and rappelling course. In each of these operations, the instructional staff is made up of retired police officers and qualified military veterans. Most of them have previous experience as

instructors in the arms-handling careers from which they have been drawn.

Many of the training courses included on the long list available from Martial Arts Resource in Campbell, California, are one-instructor operations. Others are connected with firearms dealers, and several are conducted by weapons manufacturers who seek to familiarize new shooters with their products.

The Turnipseed Touch

IN THE COURSE he teaches in Chandler, Arizona, Kent Turnipseed tends to tell students to forget what they think they know about shooting. He was – and is – one of those martial artists not satisfied with the stance being taught in modern “combat” gunnery.

Years ago, Turnipseed noticed that competitive pistol shooters were using all sorts of personal variations of the Weaver and isosceles shooting positions. After a good deal of research and personal experimentation, he developed his own method, which utilizes the skeletal system rather than muscular power.

“Once mastered, the Turnipseed Quick Shoot stance is not only consistent, but is also more effective in controlling heavy recoil and repeated shots,” according to David Steele, himself a graduate of the course.

While the Turnipseed recoil-absorbing stance works well with rifles, shotguns and even submachine guns, his students begin their training cycle with pistols. The Turnipseed two-day course starts with the four basic safety rules, color codes of awareness, sight alignment and sight pictures that are taught by most such schools. For this first phase with pistols, the instructor prefers that students use Glocks and/or single-action automatics.

Though it has caused some eyebrows to raise in wonder from time to time, each student is issued two plastic buckets. One is for the student to sit on, the other serves to ground the pistol with the slide open during the training session. From this beginning, students learn to shoot a handgun from sitting, squatting and standing positions. Trigger control is given just importance with emphasis on using the pad of the trigger finger. Initial instruction is from the standing position, the student handling an empty pistol and dummy loads, prior to moving rather quickly to the use of live ammunition.

Kent Turnipseed keeps his classes small in number so that he and his assistant, Alan Egusa, can push and prod each student into the correct physical positions. In the basic two-handed stance, the student is taught to point his toes at one o’clock. He – or she – then indexes the body toward the target, straightens the shooting arm, then touches the thumbs of both hands. Thus, the non-shooting hand grasps and reinforces the shooting hand.

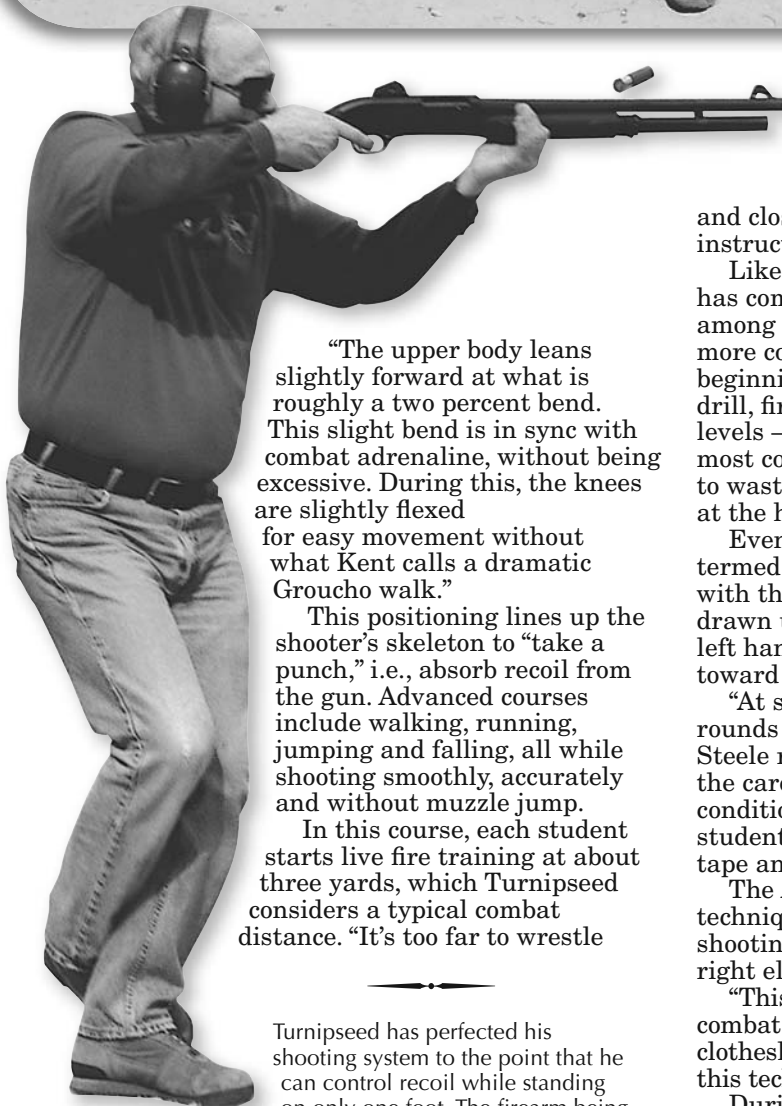
“But the instructors make certain that the non-shooting arm is relaxed and is not pulling back against the shooting hand,” Steele recalls from his own training at the Arizona site.



Kent Turnipseed shows the standing position he favors armed with a 12-gauge shotgun. Note the light touch. Recoil is controlled by the skeleton, not the muscles.



Seated on a plastic bucket, Turnipseed demonstrates recoil control by barely touching the shotgun. This is the type of control he seeks to teach his shooting students.



“The upper body leans slightly forward at what is roughly a two percent bend. This slight bend is in sync with combat adrenaline, without being excessive. During this, the knees are slightly flexed for easy movement without what Kent calls a dramatic Groucho walk.”

This positioning lines up the shooter’s skeleton to “take a punch,” i.e., absorb recoil from the gun. Advanced courses include walking, running, jumping and falling, all while shooting smoothly, accurately and without muzzle jump.

In this course, each student starts live fire training at about three yards, which Turnipseed considers a typical combat distance. “It’s too far to wrestle

Turnipseed has perfected his shooting system to the point that he can control recoil while standing on only one foot. The firearm being used is a Benelli 12-gauge.

and close enough to see a threat at night,” is the instructor’s explanation.

Like many in law enforcement, Kent Turnipseed has come to assume that body armor is now common among criminals and terrorists and will become even more common in the future. As a result of such thinking, beginning students learn a Turnipseed-style failure drill, firing multiple rounds at the throat and bladder levels – above and below the typical body armor. (In most conventional failure drills, the shooters are taught to waste two rounds on shots to the chest before aiming at the head.)

Eventually, the student is taught to combine what is termed the draw stroke with the shots. The draw begins with the left hand just below neck level. The pistol is drawn up to high chest level in the right hand, then the left hand meets the right, as the right arm is extended toward the target.

“At short distances, the student will fire multiple rounds on the throat of the target, using the front sight,” Steele reports, “until the individual is able to split the cardboard even when it is turned sideways! Once conditioned to indexing the body Turnipseed-style, the student should be able to cover the sights with black tape and still split the target!”

The Arizona instructor also teaches his students techniques for weapons retention as well as a hip-shooting method that calls for body-indexing and the right elbow held slightly behind the line of the spine.

“This is an extremely solid position, and at close combat distance, the instructor can easily hit a clothesline strung lengthwise down the target. He teaches this technique to students, as well,” according to Steele.

During his lectures, Kent Turnipseed is quick to point out that he is not a gun collector as such. He

carries and uses what he has found works well with his method of shooting. At this writing, he favors the 40-caliber Glock 23 compact, which he carries inside his waistband. For low profile situations, he recommends the subcompact 40-caliber Glock 27. He also has positive things to say about their 357 SIG counterparts, the Glock 32 and Glock 33. The holsters he has come to favor for his own use are turned out by Alfonso Leather of Burbank, California.

On the other hand, Turnipseed's co-instructor, Alan Egus has a more specific favorite for his own Glock. He uses an IWB holster made by Tucker Gunleather in Houston, Texas. Marketed as The Answer, this holster combines a Kydex pouch and belt clips with a leather backing.

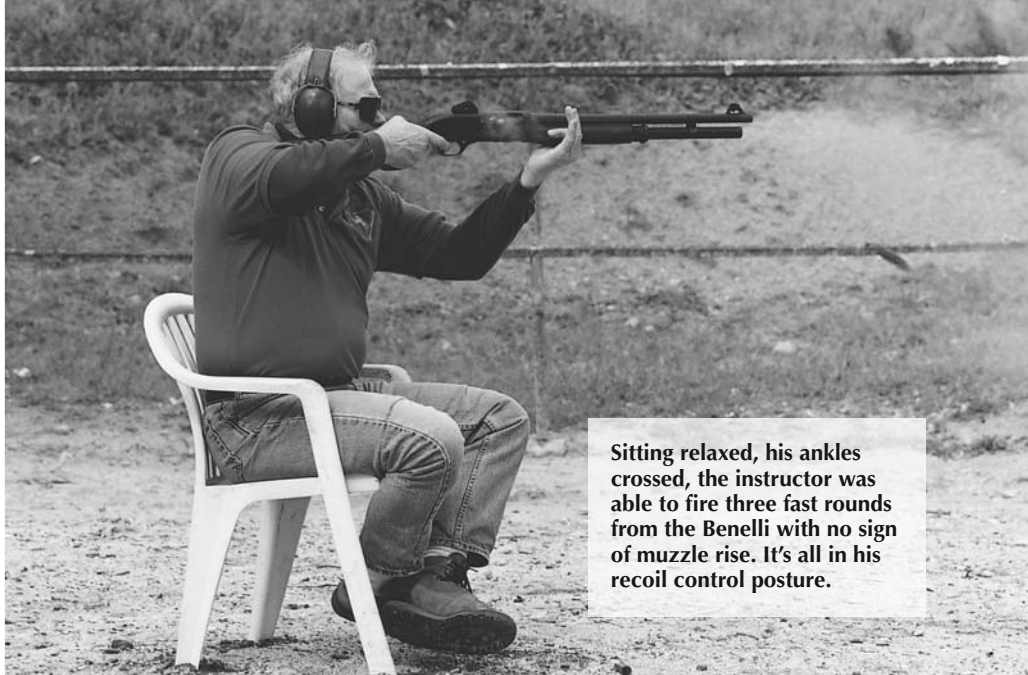
Egus feels that Kydex is a perfect material for Glocks, which need a stiff holster to prevent anything from catching the trigger. The trigger guard proper is covered and the holster is tension-adjustable by means of a small hex wrench. There is no retaining strap, but a leather extension keeps the receiver away from the body. Clips allow height and cant adjustments, as well as allowing the shirt to be tucked over the gun.

Steele, who inspected the Tucker-made holster, opined, "It is not cheap, but it's well-made and is designed to be worn behind the right hip, Israeli-style. Egusa, however, had his holster modified for a three o'clock position on the hip. For an appendix carry, more adjustment would be required. Alan also suggested having the holster mouth beveled for easier reholstering."

For his own participation in the Turnipseed course, David Steele employed the combination he always uses for what he calls "unknown" courses. This is a 9mm SIG-Sauer P226 carried in a Galco-made Yaqui Slide holster.

"I have found this combination safe, accurate, reliable, fast and the caliber is compatible with typical machineguns such as the Heckler & Koch MP5," Steele states. "The course calls for three magazines, each holding at least eight rounds.

After "killing" the target, Turnipseed turned his gun's muzzle on the stakes that had held the target. He has shot the stakes away as well, still firing from the hip.



Sitting relaxed, his ankles crossed, the instructor was able to fire three fast rounds from the Benelli with no sign of muzzle rise. It's all in his recoil control posture.



Turnipseed can cut a length of rope with a bullet, shooting at an angle and from the hip. Here he is aiming at the rope, which is taped to a silhouette target board.



In theory, the course could be shot with a revolver, but there would be a lot of playing catch-up. When I took the course, all of the other students had automatics, mostly Glocks and Berettas.”

As for recoil control in actual pistol shooting, Steele found that the recoil absorption effect of the Turnipseed method is felt in firing long shot strings with no muzzle rise.

The effect, he found, was made even clearer with shotguns, which Turnipseed demonstrates by shooting a Benelli with slugs while sitting with his legs crossed, standing on one foot and even balancing on a ladder. The method also allows long bursts from an MP5 submachine gun with no apparent muzzle jump.



Turnipseed's assistant instructor, Alan Egusa, demonstrates the effectiveness of the method taught in hip-shooting with a 40-caliber Glock automatic.



A series of one-gallon water jugs explode as Alan Egusa shoots from the hip, using Kent Turnipseed's method, which is taught to students at the Arizona course.

Several videos are used for demonstration purposes during the training sessions. In one of these tapes, Alan Egusa walks, runs and even takes judo falls, while firing a 44 Magnum revolver from the hip to center-punch multiple silhouette targets.

“Prior to seeing this video, most of the students would have said such shooting was impossible. After seeing it, nearly everyone wanted to know how fast one could learn to shoot that way,” Steele said.

The school-taught method of recoil control is related to what is known as the Alexander Technique, a renowned system of mind/body control coordination, although the Turnipseed approach was developed independently.

“Kent's ideas on shooter strategy are related to what's known as the Boyd OODA Loop,” Steele learned. “This approach was developed for jet aircraft dog-fighting, but is now is being applied to all phases of modern combat. The basic idea is to get inside and ahead of your opponent's decision-making process. Colonel John Boyd of the U.S. Air Force coined the term as an acronym for Observation, Orientation, Decision, Action.”

David Steele has been through three police academies – two federal and one state. He feels that if there is one thing lacking in such formal surroundings, it is effective shotgun training, especially when compared to that available in some of the well-known civilian-operated shooting schools.

“Essentially,” he declares, “what is called riot gun familiarization has descended from the days when police departments recruited only males who were at least 68 inches tall. Many of these were farm boys with lots of wing-shooting experience. The average police shotgun is made for such a person in terms of stock length and bead sights. Today's shotguns need to have the stock shortened and rifle sights added.”

The greatest problem in teaching combat shotgunning, of course, is recoil, especially with short, thin individuals. Even the adoption of so-called low recoil slugs and buckshot doesn't seem to cure the problem. Thus, a shooting method that absorbs the recoil without the need for special guns, ammo or the shooter's muscle mass would be of great benefit in the law enforcement community. According to Steele's beliefs after undergoing training at the Arizona site, “All of those needs are what the Turnipseed method provides.”

Proof of David Steele's contention lies in the fact that Kent Turnipseed likes to load a Benelli shotgun with deer slugs, and then demonstrate his control and lack of muzzle rise. He does this while holding the forearm with two fingers and standing on one foot or in some other precarious position. Such a method could be of great use in police training.

The method of instruction described has been perfected over the past 20 years. It is the first to be based on good body mechanics, which includes balance, skeletal alignment, muzzle relaxation and body indexing.

“After attending the classes and putting them into practice, a student can draw a pistol and engage three targets from the hip in less than two seconds, fall to the ground and hit targets in a 360-degree circle, control a police shotgun without planting his feet and fire 200 slugs with no shoulder bruising,” Steele concludes.

Firearms Training Associates

YOUR AUTHORS HAVE come to believe over the decades of turning out the first six editions of this series that most serious shooters would like to attend at least one of the major shooting schools such as Gunsite in Arizona or Thunder Ranch in Texas, but they lack the time and perhaps the resources to go out-of-state for a week or so of intense training. Local police officers, holders of concealed carry weapons permits, sports shooters – and home defenders – all want better training, but they want it close to home with a program that is conducted primarily on weekends.

“There are such programs,” David Steele has found. “One example is Firearms Training Associates, headquartered in Yorba Linda, California. It is conducted by Bill Murphy, a man now in his 40s, who has been a working police officer since the age of 19.”

Murphy, it turns out, has been – and continues to be – an instructor at the Gunsite operation in Arizona; he can be seen in some of that school’s training videos. Standing six feet two and weighing 215 hard pounds, this individual has no problem getting the attention of his students. Among other things, he is a raconteur, offering stories and real-life incidents that best illustrate some of the things Firearms Training Associates tries to teach. Such true verbal accounts are a dying talent in Southern California law enforcement circles due to the continuing infusion of “political correctness.”

“These days, an instructor risks some of his trainees being offended every time he utters words not printed in the training manual,” Steele has found, adding, “and some feminists have opposed the hiring of what they term ‘dynamic’ instructors’...another code word for white males. I suppose white males of Irish descent would be even lower on this list, since they

have represented the cultural core of American law enforcement since the New York Police Department was organized in 1845.

“However, Bill Murphy walks the walk, which is why people tend to listen closely when he talks the talk.”

History shows that Murphy has used deadly force on two occasions while on duty. In November, 1998, he was involved in a widely reported incident that was even filmed as it was happening from a Los Angeles television news helicopter.

The record shows that at about 11 p.m., Murphy stopped a taxi-van, which had been stolen at knife point by a crack abuser. After the carjacker crashed the vehicle, he stayed in it, refusing to come out. Murphy settled for covering him with a suppressed Heckler & Koch MKP5 submachine gun, while he waited for backup.

Newly arrived officers broke out the back and side windows of the stolen vehicle with their heavy-duty flashlights. When the suspect still refused to exit, the lawmen tried pepper spray, then Taser darts followed by so-called “bean bags,” the less-lethal loads fired from shotguns.

When none of these efforts worked, the dog handler tried to put his K-9 through the window on the driver’s side of the wreck. When the suspect slashed at the animal with a long kitchen knife, the handler quickly snatched the dog away from danger.

At that point, history shows, the drug-crazed suspect came out of the vehicle on the passenger’s side. Expecting and preparing themselves for a long chase, the officers were surprised when the suspect ran directly toward them, brandishing the knife. The dog handler barely had time to jump clear of the slashing blade.



Utilizing the facilities of a naval shooting range, Bill Murphy offers entry team training to a group of working law enforcement agents. Murphy is a retired police officer.



Armed with a Glock auto, this lady lawyer illustrates good technique at the FTA Advanced Pistol class.



Bill Murphy's wife, Cheryl, is part of the instruction team. Here she guides one of the students through an introduction to the 25-caliber Beretta pistol.

Firearms Training Associates' Advanced Pistol class involves students moving into the Speed Kneeling position. Note the Ruger CG100 revolver in the foreground.



The man then charged directly at Bill Murphy, but attempted to slow himself by grabbing the officer's sleeve with his left hand, while he prepared to stab the officer with the blade still gripped in his right hand.

Bill Murphy side-stepped just as he once demonstrated in a Gunsite training film, then fired a single three-round burst. The 147-grain subsonic 9mm rounds performed precisely as advertised, completely penetrating the body side to side and causing immediate death.

"I've known Bill Murphy for a decade," says David Steele. "I've taken his weekend courses in general pistol and shotgun, a Utah course for concealed carry permit holders, as well as a specialized law enforcement Dynamic Entry course. I even took the Ladies' Pistol/Self-Defense course, along with my daughter, for article



One of the Associates' professional instructors observes as a female student tries out the S&W 442 in 38-caliber during one of the outfit's Ladies' Pistol classes.

research. More recently, I took his one-day Advanced Handgun, the follow-up to General Pistol. All of these courses utilize some of the knowledge and experience Murphy gained on the job and at Gunsite.”

Though headquartered in Yorba Linda, the birthplace of Richard Nixon and a former citrus-oriented community that now seems to grow more houses than anything else, most of the courses that Murphy teaches are conducted at Mike Raahauge’s Shooting Enterprises in nearby Norco, California. This installation is probably best known for hosting each year’s End of Trail competition extravaganza for members of the Single Action Shooting Society.

As a part of the Raahauge plan, Bill Murphy has his own range on the property, complete with an awning-like tent for loading and resting on hot summer days. Initial orientation and paperwork are done in one of the center’s classrooms.

The training course line-up at the time of this writing includes five handgun venues: General Handgun, Tactical Handgun, Advanced Handgun, Concealed Carry Handgun and Ladies’ Pistol. When it comes to scatterguns, there are four courses that begin with just plain Shotgun, then are followed by Advanced Shotgun, Shotgun Night Operations and Sporting Clays. Also in the long-gun line-up are courses titled Carbine and Advanced Carbine.

Not surprising, Bill Murphy also has seen the wisdom in providing special training for those individuals who have permits covering concealed carry. There actually are three courses for three different locations: Arizona, Utah and Orange County, California, where the associates base their training. Possibly the most demanding part of the program is aimed primarily at those individuals who make a living with a gun in hand. The course is listed simply as Live Fire Entry Training.

All of this can hardly be handled instruction-wise by a single individual, so assistant instructor roles are filled by such police officers as Rob Natale and Randy

Parker. Murphy’s wife, Cheryl, take part in the training of women shooters.

“When I took Murphy’s Advanced Handgun course, we began, as usual, in the classroom, where we signed Release of Liability forms and listened to Bill Murphy recite the safety rules and range procedures,” Steele reports. “In this course, classroom time was short. Everyone had already taken the General Handgun course and wanted to learn new methods, working intensively on the range. The two dozen students covered the gamut, including a pair of lawyers, several police officers and some truly serious citizens.”

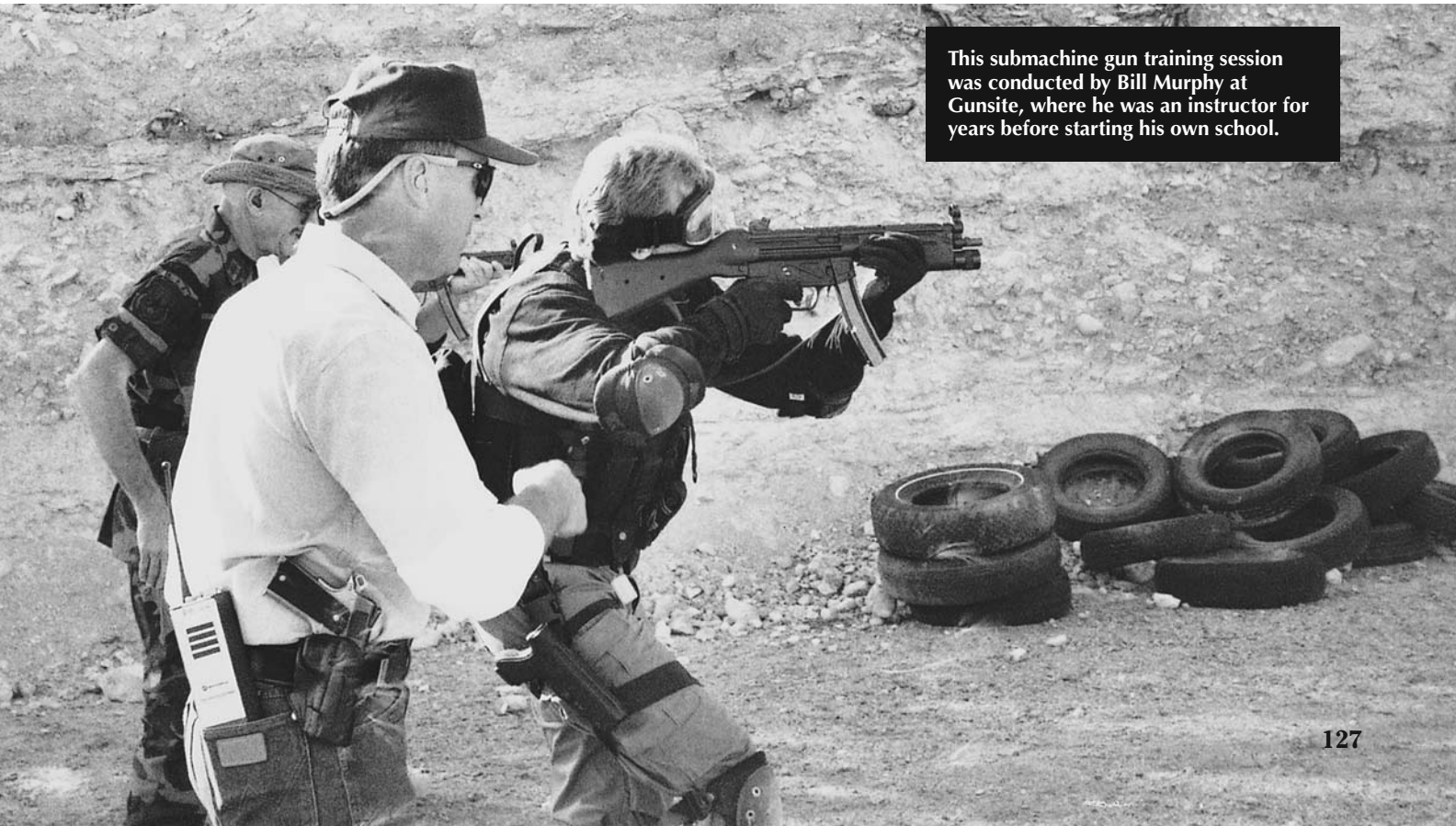
In summer, this course runs from 11 a.m. until 9 p.m. Even with breaks under the tent, dehydration is a definite possibility and Murphy wears his CamelBack hydration system at all times.

“The idea in Advanced Handgun is to build on, improve and extend the skills learned in General Handgun,” Steele explains. “Training is on the usual paper silhouette targets as well as steel head/chest targets that are two-thirds the size of the average human.”

The first objective of this course is to increase student speed at close range. The second is to improve accuracy at distances out to 50 yards. Third is position shooting, especially kneeling and prone. The fourth objective is shooting on the move – linear and laterally – and the fifth is night shooting with ambient light, flares, flashlights and night sights.

As one might expect, speed work starts with doubles and failure drills – two rounds to the body and one to the head – at three, five and seven yards, with variations. One relay team learns and shoots, while the second relay reloads magazines under the tent. Shooting is done two-handed in the fashion taught at Gunsite, using a strong-side hip holster.

“I used my Galco Yaqui Slide holster for this training segment, though on duty I prefer a shoulder rig,” Steele points out.



This submachine gun training session was conducted by Bill Murphy at Gunsite, where he was an instructor for years before starting his own school.

The Weaver stance still is acceptable, but the isosceles position is coming into its own, because of its better use with body armor, not to mention the fact that most competitive shooters have gone to the latter position.

When Steele took the course, a majority of the shooters on the line had high tech autos ranging through Glock, Beretta, SIG, Smith & Wesson and Heckler & Koch products. One woman shooter, however, had a Ruger GP1009 revolver.

"Revolvers are difficult to keep up and running on speed drills, which is why few bring them to the school these days," Steele reports. "When I use revolvers on Murphy's end-of-the-month refresher courses at Raahauge's, I always bring a pair of them and eight speed loaders. For the Advanced Handgun course, I brought my 9mm SIG-Sauer P226 with three magazines and a P225 with six magazines. Reloading was never a problem and SIG reliability is legendary. When I would change guns, both fit in the same holster and the magazines in the same holder."

Doctrine is to vary speed drills with accuracy exercises. The paper drills included speed and controlled pairs out to 10 and 15 yards. In the course Steele took, a new tactical reload bit was included, "which is like a speed reload, except the chamber is loaded. There is no fumbling the partly empty magazine. It just falls to the ground as a new magazine replaces it."

After the paper target work, the relay moved over to the reduced-size steel targets. Bounce-back by bullets means that the steel targets cannot be used closer than 10 yards. However, in this segment the shooters were doing single-round accuracy drills at 25 and 50 yards. In this exercise, each shooter in the relay must get his hits before the next segment starts.

"If the distance itself is not pressure enough, the shooter must do it when ordered by his instructor," Steele reports. "Most shooters these days, except for Practical Pistol course competitors, do not shoot at 50 yards. In modern police qualifications, scores even dip at the 25-yard line due to the use of modern service autos with stiff triggers and fixed sights."

Since the steel exercise did not require speed, Steele decided to try out one of his collector guns, a 455 Webley Mark VI revolver issued to British Army troops in 1917. He had put only a dozen rounds through it, but knew it was sound. Military historians call the Mark VI the best combat revolver ever made. It was one of these that was carried by the legendary hero, T.E. Lawrence of Arabia.

"Ficocchi still makes ammo for the 455 and that's what I used. The 455 creates a booming sound quite unlike the audible crack of the modern pistol. In its time, this 455 was noted for its single-action accuracy and that's what I was counting on," David Steele recalls.

He daubed some fluorescent orange paint on the skinny front sight so he could see it, then went to work at 25 yards. The revolver shot low and to the left, so the shooter compensated with so-called Kentucky windage. At 50 yards, the antique put three out of four rounds on target, better than most of the modern guns on the line. "As always, though, minimizing the wobble zone was critical to accuracy."

From the steel range the shooting class moved back to fire on paper for position shooting. Bill Murphy displayed the low kneeling, speed kneeling and braced kneeling positions that he favors. The shooters practiced them all.

"Personally, I use the low ('California') kneeling position on both knees and speed kneeling on one knee, unsupported. Braced kneeling, similar to the rifle



As part of the training, Bill Murphy demonstrates the braced knee position. It is uncomfortable for some, but leads to excellent handgun accuracy for others.

position, is theoretically more accurate," Steele observes, "but I find it slow and uncomfortable, with minimal increase in accuracy."

Murphy then demonstrated for his pupils the rollover prone position. He pointed out the advantages in comfort, low silhouette and accuracy. All of the students had an opportunity to try it out.

"Next we tried what Murphy calls Groucho walking. This involves shooting on the move toward the target, then moving laterally. After a dinner break, we came back for the night shoot."

Bill Murphy emphasizes that target identification is the most important thing in night tactics, meaning that a good flashlight is more important than night sights. For this type of shooting, Steele carries a SureFire 9Z, which not only puts out more candlepower, but is far lighter in weight than his old D-cell Mag-Lite.

"Bill Murphy has a wealth of experience and I have seen him seamlessly modify his technique over the years as better ways are developed," Steele states. "He always is conscious of how to get his point across. For example, I have seen police shooters do the post-fire assessment strictly by rote. Murphy, at the other extreme, says that if an enemy is still standing, keep shooting. When the enemy disappears is the time for assessment."

That is why you point down first, then left and right, looking for other threats.

"Over a lot of years, I have been to a lot of courses in a lot of places, but I keep coming back to Bill Murphy, because he is current, competent and close to where I live. Also, he respects the combat revolver and lets me work one into his courses, when practical."

The Combat Training Team

JAMES SEAMUS SHORTT is a comparatively young man, but one with experience and expertise beyond his years. His father was a jujitsu instructor who began teaching young Seamus when he was about 6, then turned him over to a Japanese master for polishing.

Seamus Shortt grew up in Ireland. In fact, he was a Franciscan monk for three years. However, the monastery made a tactical error in sending him to an English hospital for medical training. He met a girl who was a nurse. They now are married and have two children.

Young Seamus Shortt started teaching martial arts and doing military instruction full time, handling more conventional hospital work on the side, when not teaching empty-hand skills to civilians. Eventually, he developed the Combat Training Team, often referred to simply as CTT, to teach fighting and weapon-retention techniques to the police and military. More recently, he has begun teaching a course in *savate*, French kick-boxing.



As an introduction to the intricacies of bayonet fighting, reservists of the Royal British Marines battle with pugil sticks introduced in training by U.S. Marines.

Shortt is a British Royal Marine (TA). The TA stands for Territorial Army, the British form of Reserves. These Marines are trained to a high standard, because they are the only force backing the English Regulars now that the National Service – actually, the British version of what once was our Selective Service – has been suspended. Shortt has other military training as well, but details of it are still classified.



British Royal Marine Commandos practice the short thrust with SMLE rifles. The rifle in the center carries the WWII short spike bayonet. The other two use Enfield knife bayonets.

Royal Marine Reservists practice during a training session at England's Camp Pilgrim. In this exercise, they are using obsolete Enfield rifles and bayonets.

The team's Close Quarters Battle (CQB) course includes unarmed combat, sentry neutralization, prisoner seizure, weapon retention, knife and stick fighting, bayonet fighting and advanced bayonet fencing. (To explain the British definition of CQB, it encompasses close combat that does not involving ballistic or fragmentation weapons.)

Members of the team teach this course to the active military as civilian advisors. Shortt does not use the term "expert," because of the British wariness of the title. They think of an "ex" as a has-been and "spurt" is just a drip under pressure. Shortt and his team do not



British reservists practice on their own time at a private training session conducted at a Royal Marine base. Belgian rifles with plunger bayonets are in use.



Combat Training Team Instructor Seamus Shortt corrects British military students in the proper use of the Japanese *jukendo* wooden training rifles.

use the term "instructor," either, because that is a title that Regular military trainers reserve for their own. The term also implies a doctrinal approach to instruction, which Shortt finds inimical to true learning.

Seamus Shortt teaches a modified CQB course for police officers and security personnel called Police Defensive Techniques (PDT). This course includes unarmed self-defense and weapons usage. For the British police, the weapon is limited to the baton, but may include other weapons from Irish and Continental police departments. Weapon retention and handcuffing techniques are included in the course.

In January 1983, Seamus Shortt formed an international organization of military trainers called ICMAG or International Military Advisors Group. The



British Commandos practice bayonet work with various forms of training gear used by other European armies as well as the military services of the Japanese.

founding members were Brian McCathry in Ireland, Lucien Victor Ott in Belgium, Jan deJong in Australia, Captain Ben Mangels in South Africa and Shortt, himself, in the United Kingdom. All of these individuals had extensive credentials that are not for publication.

ICMAG also developed contacts with police, paramilitary and military CQB instructors in Malaysia, Saudi Arabia, France, Switzerland, Luxembourg, Indonesia, Algeria, West Germany, Spain, Holland, New Zealand, Tunisia, Austria, Portugal, Spain, Holland, New Zealand, Tunisia, Austria, Portugal and the United States.

The main objective of the organization is the sharing of information regarding CQB instruction. Professionals wishing to learn more can contact James G. Shortt, Director, ICMAG/CTT, 49 Avondale Road, South Croydon, Surrey CR26JE, United Kingdom.

Our David Steele became involved in one session of the Combat Training Team during a recent summer. The training was conducted at Fort Pilgrim, named for the pilgrim's route to the grave of martyr Thomas A. Beckett.

"We all lived in tents for the weekend, training from early morning until evening," Steele recalls. "I was a visiting instructor for this session, teaching knife fighting to the military and the use of the PR-24 baton to police officers. The military attendees were from Royal Marine, Parachute and Royal Air Force elements. The policemen were from the Metropolitan force of London, which includes Scotland Yard."

Steele noted that Seamus Shortt spends a great deal of time on the bayonet, offering more instruction than most modern armies. European and American military establishments tend to devote the greatest amount of training to the skills and tools of modern warfare: firearms and explosives.

"Statistically, hand-to-hand combat is rare in modern warfare, although not as rare as some statistics might indicate. The number of troops engaged in it sometimes is taken as a percentage of all troops in-country, as opposed to a percentage of all troops in combat," it was pointed out. Some British Army troops in the Falklands lost their lives, because they didn't check Argentine bodies with the bayonet. They were shot from behind by enemy soldiers playing possum.

The military teaches the bayonet as "aggressiveness training." Seamus Shortt teaches it as though it is going to be used.

"Like most skills, the trainee will tend to use those techniques in which he has been coached the longest and most realistically," David Steele has found. "If he is only put through a bayonet drill, he will tend to rely in combat on other improvised weapons such as a sharpened entrenching tool. After 1918, no country used the bayonet more than the Japanese. They used it because it was taught as being the close-quarters weapon of the soldiers of the Imperial Army. They also used it because of a chronic ammunition shortage, something that could happen in the best-equipped armies, if they are fighting far from home or their resupply aircraft are shot down"

Seamus Shortt begins his bayonet course with some preliminary instruction, and then the trainees are divided into pairs. Some of them work out with pugil sticks. This is a type of training adapted from that

developed by the U.S. Marine Corps at their Parris Island, South Carolina, recruit depot. In this training, the contestant wears a protective helmet, face mask, a groin guard and padded gauntlets. The four-foot staves used are padded at the center and either end with canvas-covered foam. One end is usually colored yellow to represent the bayonet. Contests of one-against-one or one-against-two are no more than three minutes in duration. The objective is to win and to practice cuts, thrusts, parries and butt strokes in doing so.

Shortt considers pugil training to be an equivalent but not safer form of aggression training than the "milling" used by the British parachute regiment. In this exercise, the parachutists line up by height, turn and face each other. They are wearing boxing gloves. One side is "skins," because they are bare from the waist up. The other side is "vests" as they are wearing T shirts. During their 60-second matches, these soldiers go flat out and those disabled or knocked unconscious must go again!

Some troops are assigned to "go at the bag." They are given real rifles – usually old Lee-Enfields – with bayonets attached. These soldiers are set to running at a sand-filled bag suspended from a tree. The sand has soon leaked through the holes, spreading widely. When the bag is destroyed that phase of training ends. It is followed, however, by a mock charge, four or more soldiers abreast, simulating a real attack for the others assembled as onlookers.

After bayonet training, the CTT course moves on to survival techniques. At the time Steele was present, this course was taught by an internationally recognized military survivalist, Ted Kelland. This training is followed by camouflage techniques, improvised weapons, unarmed combat and knife fighting.

"The knife fighting style Seamus and I teach to the military is essentially that developed by Biddle, Fairbairn, Applegate and Styrers," Steele explains. "In reality, it is based upon European saber fencing. There usually is not enough time for the personal one-on-one instruction necessary to teach more sophisticated Oriental knife-fighting systems."

There also is quite a bit of time devoted to sentry neutralization. This, of course, can be accomplished by a choke hold, possibly preceded by a stunning blow to the throat or groin. If a stick is available, it can be used for the stunning blows, then for constriction against the tracheal process. The objective is to cut off the flow of air to the lungs and blood to the brain.

If the objective is to capture rather than kill the sentry, a stick or a more professional blackjack or baton can be used. In this situation, one team member usually takes down the subject, the others then handcuff or tie him.

When the sentry must be destroyed, it is safest to do so from a distance, using projectile weapons, Shortt contends. However, there is a possibility of missing the target, having him cry out or get away wounded. If that is a possibility, the knife or garrote are the obvious tools. Projectile weapons are best used when it is impossible to get to the sentry; for example, if he is in deep snow.

"As should be evident, the Combat Training Team gives more in-depth instruction in Close Quarter Battle than most services," Steele contends.

Filipino CQB Combat Training

THE MOST COMPLEX weapon on the battlefield is the infantry soldier: the natural warrior. However, in modern warfare, nine out of 10 soldiers support those who do battle. For that one individual, special training is often a necessity if he is to stay alive.

"A lot of Europeans – and Americans – don't want to think about close combat these days," David Steele contends. "They prefer 'virtual reality' and an easy life through technology. Even during World War II, some instructors in the art of close quarters combat had trouble selling realistic training to the establishment."

One example that comes to mind is William Pilkington, an instructor for English spies and saboteurs, who admitted "some of my ideas were blacklisted by our War Office as un-British; crude, unthinkable brutal methods."

These days, however, it has been established that in Third World and jungle warfare, close quarters combat is a likely thing. Guerrilla campaigns in the Philippines at the turn of the last century and much later in Vietnam saw frequent clashes at combat distance, especially at night. More recently, house-to-house fighting in Iraq has become a way of life for our troops.

"Particularly in the Philippines, after the Spanish-American War, there developed a style of in-fighting that worked when no guns were available – and it worked even better when in conjunction with firearms," Steele's investigations show. "Actually starting when Lapu Lapu killed Magellan's adventurers in 1521, Filipinos have created new methods of combat called *escrima*, *Kali* or *arnis de mano*. These methods are still useful in modern warfare."



Tim Waid of Survival Edge Systems is a hands-on instructor who teaches CQB to selected clients including the military in the Philippines.

When looking at Filipino efforts, one must remember that these islands have been an almost continual scene of conflict and strife for well over a century. The Philippine Archipelago is made up of 7,107 islands and had been a Spanish possession for three centuries prior to the 1898 Spanish-American War.

With the U.S. taking control of the islands in 1899, 65,000 soldiers were dispatched to put down a native insurrection led by Emilio Aguinaldo. This uprising for independence lasted three years, with sporadic resistance continuing for another decade. Out of this fiasco came the development of the Colt 45 automatic, since the issue Colt M1892 38 New Modern Army revolvers were not sufficient to put down the fanatical Moros.

During World War II, the Japanese occupied the islands, but U.S.-equipped Philippine Scouts acted as guerrillas in aiding landings of U.S. troops and General Douglas MacArthur's much-heralded "return to the Philippines."

The Philippines became independent in 1946 and the Philippine Constabulary became the Philippine National Police. According to Steele "This was a paramilitary unit armed with 50-caliber machineguns, rifle grenade launchers, Thompson submachine guns, selective-fire U.S. M-2 carbines and M-16 rifles."

"Today, the M-16 rifle is still part of the PNP's table of equipment, but there also are Remington pump-action shotguns, Heckler & Koch MP5 submachine guns, 38-caliber revolvers from Smith & Wesson, Taurus and Squires-Bingham, as well as 9mm autos from Glock, SIG-Sauer and Smith & Wesson."

The Philippine National Police are in a continuing process of seeking professionalism, with local and American instructors adding to their expertise, but "as with any Third World country, the agency is constantly short of money and resources. After the U.S. Navy left its Subic Bay base, a so-called economic zone was created to be policed by an American-trained Subic Bay Municipal Authority, which now is under Philippine control.

Several years ago, David Steele was one of those imported civilian instructors. Others on that particular assignment included Bram Frank, who runs Common Sense, an organization devoted to training others in self-defense and street combat. He operates out of Clearwater, Florida. Another instructor was Timothy D. Waid, who makes his home in the Philippines these days and heads up Survival Edge Systems. The mission of his organization is to train Philippine law enforcement, military and security agents.

For this instructional session, Steel liaised with Daniel "Snooky" Cruz, Jr., who is an investigator attached to the U.S. Embassy as well as being a SWAT instructor for the PNP. Among those instructed in this session were two diplomatic security agents, a Philippine special forces major and several other American and Filipino officers.

"We met initially at a Philippine Navy small arms range for a pistol and submachine gun training session," Steele recalls. "One of the instructors put the gathering through a series of Gunsite-style pistol exercises. For this, I was using a borrowed Beretta M92FS."

Following this initial exercise, trainees became familiar with the HK MP5, Colt M635 and the FN P90 submachine guns.

"The FN P90 is a unique personal defense weapon developed for support troops and special operations and is especially suited to the rather small stature of most

Filipinos," Steele noted. "The P90 we fired belonged to the Philippine Army major and probably was an 'orphan import' provided by FN in hopes of an expanded market for what is best described as an unusual gun."

The P90 fires semi- and full-automatic from a 50-round magazine carrying 5.7x28mm ammo. Designated as the SS190 cartridge, unlike the 9mm Parabellum,



The Subic Bay Municipal Authority's SWAT team undergoes U.S.-style training and is armed primarily with U.S. equipment.



Daniel Cruz, observing in the background, spends part of his time training Philippine troops in quick-fire techniques.

this particular round can penetrate a Kevlar helmet at 150 meters.

More recently, the manufacturer has introduced a semi-automatic version of the P90 as well as a 20-round 19-ounce pistol for the cartridge they call the Five-SeveN.

Philippine police practice their exit from a patrol car while under fire.



In David Steele's opinion, "Neither is likely to find much of a market in the Third World, where large procurement contracts may have to be underwritten by the United States. The standard auto rifle in the Philippines is the U.S. M-16A1 with the M193 cartridge, a Vietnam-era combination. These are likely to be replaced by the U.S. M-16A2 rifle and the SS109 cartridge."

Supplementing the PNP for both private and foreign interests are other sorts of armed protection. Hotels, bars, banks and even department stores often hire uniformed security. This usually is a man wearing a white shirt, with a 38 Smith & Wesson K-frame revolver carried in a Border Patrol-style holster. Six 158-grain RNL cartridges usually are carried in a belt loop holder.

"Labor costs are low in the islands," Steele explains, "so an armed security agent is less expensive than the purchase and installation of electronic devices."

He adds that "the 38 revolver has not become obsolete in Asia. Used by PNP, security guards and private individuals in the Philippines, it also is an issue weapon for Marine guards at the U.S. Embassy. By governmental agreement, these Marines are limited to "defensive weapons," which happen to include their S&W 38 revolvers, Remington Model 870 shotguns, Ruger Mini-14 rifles and Uzi submachine guns."

The Marine Corps guards share Embassy protective responsibilities with the PNP, contract security and special agents of the State Department's Diplomatic Security Section. The DS agents carry Beretta MK92FS and SIG-Sauer P228 pistols, as well as shotguns and submachine guns. In addition to protecting the embassy staff, these agents are also charged with investigating passport and visa fraud and providing a protective detail for visiting U.S. and foreign dignitaries.

As might be expected, the U.S. Embassy also houses personnel from other agencies such as the Federal Bureau of Investigation (FBI), Drug Enforcement Agency (DEA) and the Central Intelligence Agency (CIA), as well as assigned military officers. Each of these individuals may be issued sidearms within their own agency's guidelines.

"During the period - September 1998 - when I was training and researching in the Philippines, there were several bomb threats and demonstrations directed at the embassy. These were immediately following the damaging attacks upon our embassies in Kenya and the Sudan," Steele recalls.

"All U.S. Embassies were on alert, especially those in countries with large Muslim populations. A Special Forces team was sent to Manila to reinforce

embassy defenses. Its specific mission at that time still remains classified. It also has been learned that the USMC guards may soon carry standard infantry-issue Beretta M9 pistols and M-16A2 rifles; a slight but image-enhancing increase in firepower."

Since the end of the Marcos regime and martial law, some Philippine civilians have been permitted to carry concealed pistols. Others, according to Steele's findings, "have given themselves permission, sometimes employing homemade pistols and shotguns called *paltik*, a term that also means slingshot. These weapons are especially popular at election time, while the dress code at many bars forbids wearing pistols or other deadly weapons."

It has been found that traditional knife and street fighting have been adapted to modern street defense as well as military training. Civilian instructor Leo T. Gaje, whose style of *arnis de mano* is called *Pikiti-Tirsai*, and his associate, Tom Waid of Survival Edge Systems, have developed a course for the so-called Bolo Battalion and other Philippine Army and Marine units. It is Steele's belief that "the Philippine martial arts are as good as any in the world upon which to base a Close Quarters Battle Course."

It is pretty well established that some Filipino men are characteristically touchy and warlike. "Poverty has created a ready pool of assassins," according to Steele. "It has been found that some of the country's professional hit men practice the draw-and-shoot routine with cocked and unlocked Colt 45 autos. The pistols are concealed down the front of the assassin's pants and pushed up with the left hand in the pocket to present the grip for the right hand."

"Some of these are the same men who, as children, practiced opening and closing the Balisong butterfly knife on barrio street corners!"

The U.S. State Department continues to list the Philippines as a "high risk" area mainly due to the Muslim terrorism and kidnappings in Mindanao. Steele points out that the casual visitor will not have access to firearms, adding that "a good knife is advisable, if one has the skill to use it."

During his own visit, Steele carried a Spyderco Military model wherever he went. He found that one of the Embassy Diplomatic Security agents



Daniel H. Cruz, a DEA investigator attached to the U.S. Embassy, is also involved in training Philippine National Police officers as is the case in this photo.

carried a pair of Spyderco Endura knives, as well as his Beretta M92FS.

Generally speaking, the Filipinos like Americans and there is no reason to fear for one's safety more than in a large U.S. city. However, American travelers and government personnel must be aware of the power changes in the region that have taken place in the century-plus, since Admiral Dewey sailed into Manila Bay.

Daniel Cruz (left) watches a DEA special agent fire the FN P90 submachine gun.



CHAPTER 13

PASSING OF THE SUBGUN

**An Idea, the Time for Which
Has Come...and Gone!**

IN WORLD WAR I, the infantry soldier carried a long bolt-action 30-caliber rifle with either a five or 10-round magazine and a 16-inch bayonet. His officer carried a revolver or pistol, the best of which were the British Mark VI 455 revolver and the American-made Colt M1911 45 automatic. If one should feel the officer was under-armed, keep in mind that he needed to keep his hands relatively free to direct fire, read maps, use binoculars, etc.

"The dominant weapon of World War I – introduced initially by the Germans – was the heavy machinegun, which mowed down young infantrymen as they sought to cross No-Man's Land with their slow-firing rifles, rarely getting within bayoneting distance," David Steele has learned. "Modern, disciplined armies of that era were not impressed by enemy aggressiveness or the spirit of the bayonet. What was called for was mobile fire superiority. While tanks were given credit for breaking up the stalemate of trench warfare, what also was required was a faster-shooting personal weapon for a faster-moving foot soldier!"

The first light weapon capable of suppressive fire was the submachine gun. World War I subguns were manufactured rifle-style with wood stocks and machined metal parts. These First Generation guns worked well enough, but they were heavy – and expensive to produce.

American guns such as the so-called Pederson Device were developed too late for use in the European trenches. J.D. Pederson for whom the creation is named created a device in a self-contained unit that would fit in a Springfield '03 rifle, when the bolt was removed. Once the unit was installed, the gun was capable of firing 30-caliber pistol bullets in the full-auto mode. The device was meant to give the U.S. troops parity with the Bergmann submachine gun developed in Germany. When the war ended, almost all of the top-secret Pedersen Devices were destroyed. The few still in existence are prized collector items.



This female member of the World War II French Underground carries an MP38/40 submachine gun no doubt captured from the Germans.

Steele notes that “even the brilliant 30/06 Browning Automatic Rifle – the BAR – did not enter service until 1918, too late to affect the war or even to hasten its end. That first model was selective fire and weighed 16 pounds; about right for the full-power cartridge.”

Overall, the Browning-designed rifle measured 47 inches with a 24-inch barrel. From the 20-round magazine, it could fire at a cyclic rate of 550 rounds per minute. While not particularly effective during that so-called War to End All Wars, the BAR showed John M. Browning’s design genius on a continual basis. It became an infantry favorite in the Marine Corps’ Banana Wars in Latin America in the 1920, during World War II and through the Korean unpleasantness.

According to Steele’s findings, “The submachine gun was developed first as an aircraft weapon prior to full-power machineguns such as the Maxim and Lewis Gun being adapted for battles aloft. Another subgun, the Italian Villar Perosa, was invented as early as 1914. It had twin barrels that would fire 9mm pistol cartridges at 1500 rounds per minute. It later was adapted for infantry use.”

In Germany, meanwhile, Hugo Schmeisser designed his *Maschinenpistole* in 1916. This particular weapon went into production at the Theodor Bergmann factories at Gaggenau and Suhl, but the gun did not see battlefield service until 1918, thus it is called the MP18. Nonetheless, production reached 35,000 guns prior to the signing of the Armistice.

Steele considers the First Generation Bergmann a classic “with a wood rifle stock and fine machining. Feeding was from the left side by means of a 32-round 9mm Luger ‘snail drum’ magazine. Cyclic rate of fire

was 350 to 450 rounds per minute. Overall length of this gun was 32.1 inches with a 7.88-inch barrel. It weighed 9.2 pounds.”

What Steele calls the archetypical American submachine gun was inspired by reports from the trenches, but the famed Thompson subgun did not see actual production until 1921. The inventor, U.S. General John H. Thompson, died before a simplified version finally was adopted during World War II as the M1A1.

“General Thompson saw the need for such a gun as what he called a trench broom. The Thompson gun finally was developed through the Auto-Ordnance Corporation, but the major military contracts about which the old soldier had dreamed for so long would not come until after his passing.”

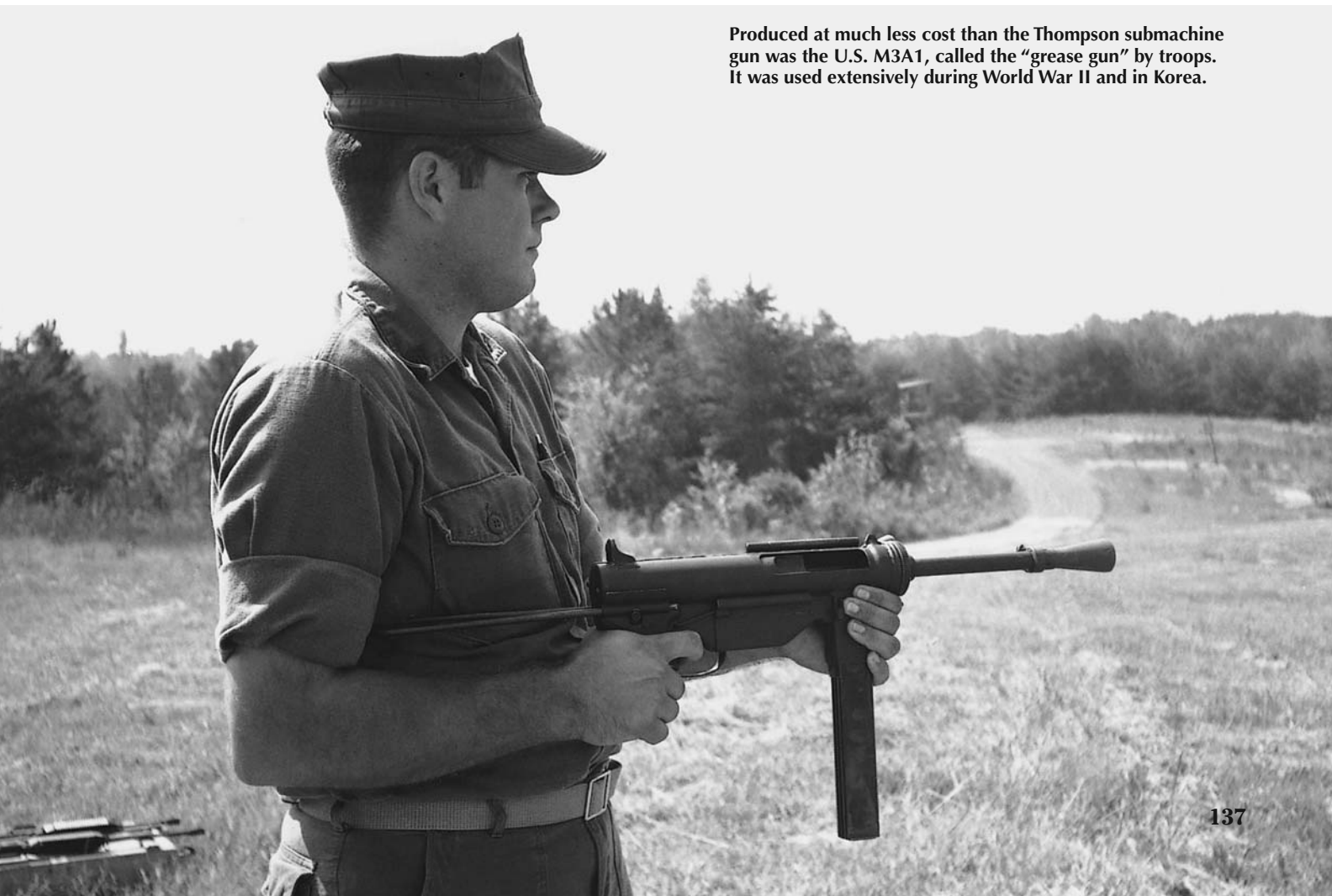
Although it is reported that General Thompson foresaw development of an intermediate cartridge, he was forced to develop his original weapon to handle only the standard 45 ACP U.S. pistol cartridge. Without military sponsorship, he promoted what he was the first to call a “submachine gun” for police work.

“The police eventually did adopt the Thompson,” according to Steele, “but that was mainly because well-heeled bootleggers already had chosen this particular model for their gang wars.”

The M1921 Thompson was what has been described as an “expensive work of art,” with a vertical foregrip, detachable stock, compensator, 50- and 100-round drum magazines, et cetera. With the stock in place, it was 32.4 inches in overall length and weighed 12 pounds.

“It fired at a cyclic rate of about 800 rounds per minute,” according to David Steele. “With the advent of World War II, simplified versions were developed as

Produced at much less cost than the Thompson submachine gun was the U.S. M3A1, called the “grease gun” by troops. It was used extensively during World War II and in Korea.





The British-developed Sten Mark IIS suppressed submachine gun was introduced during World War II and was still being used in Vietnam by U.S. Special Forces. Beneath is the Danish Madsen, another respected submachine gun.

the M1 and M1A1, which used 20- and 30-round stick magazines, a horizontal foregrip and other cost-saving and simplifying measures.”

This was brought about by the fact that the military bean-counters felt that while finely made, the Thompson was too expensive for outfitting mass armies and guerrilla fighters. Fine-fitting, it was felt, could be justified on battle rifles, “but not on 200-yard spray guns.”

Predictably, Germany produced the first Second Generation submachine gun, the MP38/40. Firing open-bolt, full auto only, it launched 9mm Parabellum ammo at 500 rounds per minute. Composed primarily of stamped sheet-metal parts, it had a folding stock and carried a 32-round magazine. Length, with the stock folded, was 24.8 inches, the unloaded gun weighing nine pounds. “G.I.s fighting in Europe called it a ‘burp gun’ due to its comparatively low cyclic rate of fire.”

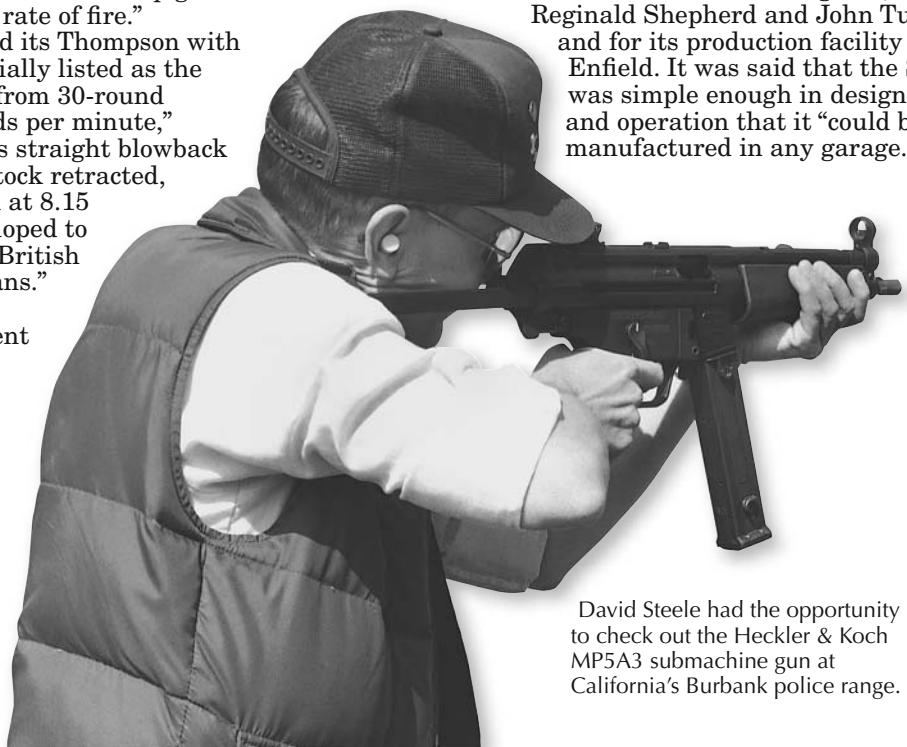
The United States supplemented its Thompson with a stamped metal “grease gun” officially listed as the M3/M3A1. “It fired 45 ACP ammo from 30-round magazines at a leisurely 450 rounds per minute,” according to Steele. “Operation was straight blowback from an open bolt. With the wire stock retracted, it measures 22.8 inches and scaled at 8.15 pounds. A conversion kit was developed to convert the M3 to 9mm for use by British forces and behind-the-lines partisans.”

Jack Lewis never particularly trusted the M3A1 due to an incident he witnessed in the airport at Kimpo, South Korea, during that international fiasco. Troops were gathered in a large metal hut, awaiting air transportation to other parts of the peninsula, when Lewis saw an Army corporal come in, lay his pack on the concrete floor and prop his “grease gun” on it. Lewis noted that the bolt was open and started to say something, but outside, an aircraft roared as it gained

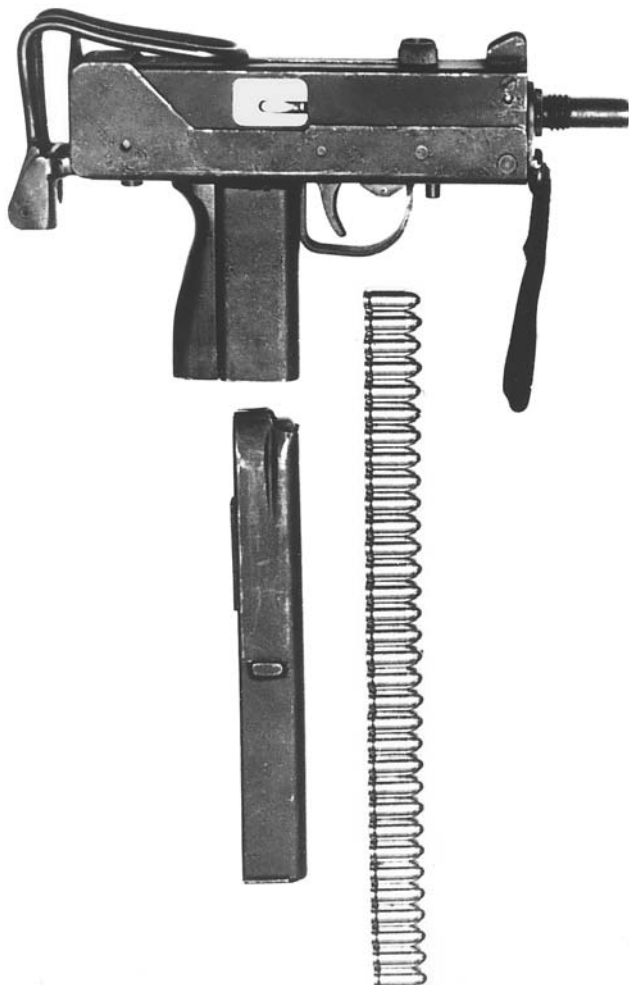
speed for takeoff. The sound literally rattled the entire building and before Lewis could reach the corporal or his weapon, the vibrations had caused the bolt to slam forward and fire the weapon. The 45 ACP bullet caught an unwary Army lieutenant colonel in the back. Lewis’ plane was boarding, so he never did know what happened after seeing the officer surrounded by medics.

Long before the U.S. entered the war, the British had acquired a number of Thompsons under our government’s Lend-Lease program. The guns were assigned to Commando units and considered so valuable that a non-commissioned officer was waiting on the beach to take control of the weapons when Commandos returned from a mission on the Continent.

Eventually, the British developed their own Second Generation “machine carbine” in 9mm and called it the Sten. It was named for its designers, Reginald Shepherd and John Turpin, and for its production facility at Enfield. It was said that the Sten was simple enough in design and operation that it “could be manufactured in any garage.”



David Steele had the opportunity to check out the Heckler & Koch MP5A3 submachine gun at California’s Burbank police range.



The Sten fires from an open bolt at 550 rounds per minute, the side-feed magazine holding 32 rounds. It measures 35 inches overall and weighs 7.2 pounds. "Appearance is crude," according to David Steele, "but it has features such as selective fire and a magazine loader. Reliability is rated as excellent. Roughly 3,750,000 of these guns were made during WWII in various models. One model, the Mark IIS suppressed version, soldiered with American Special Forces in Vietnam.



The Ingram MAC-11 380 submachine gun (*left*) was proposed in the 1970s as a replacement sidearm for the venerable Model 1911 Colt 45 pistol.

"Probably the Second Generation gun produced in the greatest numbers was the Soviet PPSH41. About 5,000,000 were made during the Great Patriotic War for the Red Army and partisans. The troops were generally poorly educated, hastily trained and expendable. Spray fire and mass attacks were standard. The PPSH41 was issued in numbers comparable to the issue of ordinary bolt-action rifles."

Research shows that the gun was designed by one George Shpagin to be simple and cheap to build, yet reliable. It fired 7.62 Tokarev ammo either semi- or full-auto from a 71-round drum magazine to generate a cyclic rate of fire of 900 rounds per minute. Most versions even lacked a forearm, but in spite of its crude, even unfinished appearance, it was found to be as accurate as most submachine guns on the battlefield and was exceedingly reliable. It has been found that German troops operating on the Eastern Front often preferred



Steele contends that the introduction of the Kalashnikov AK-47 (*top*) and the later AKM 7.62x38mm assault weapons marked the end of submachine guns for front line troops in First World armies.



the Shpagin-designed gun to the issued MP40 because of the former's more rapid rate of fire and greater ammo capacity.

Subguns comprising the post-war Third Generation were characterized by their compactness, usually featuring a telescoping bolt and a magazine in the gun's grip. These particular design features seem to have started with a Polish inventor, one Jerzy Podsendkowski. Able to leave his native Poland by secret means, he ended up working with the British to design what came to be known as the MKCEM-2. That was in 1944.

The ideas included in this particular model were ultimately incorporated into post-war Czech subguns for both the 9mmP and 7.62mmTT cartridges. The same ideas became part of the Israeli-made Uzi series, named for the designer, Uziel Gal.

"The Uzi was fielded in 1951 with features that made it state of the art as a military subgun," according to Steele. "It was selective fire, open bolt and utilized a standard 32-round box magazine."

With its detachable wood stock in place, the gun measured 25.2 inches overall and weighed 8.8 pounds. It was designed to fire 9mm Parabellum ammo – ball, tracer or armor-piercing – at 600 rounds per minute. The model also was furnished with a grip safety, thumb selector, L-flip aperture rear sight and was constructed for fast and easy field stripping. The charging handle was on top of the action for easy cocking with either hand.

The Israeli-made Uzi was adopted by the West German military in 1960, but their requirements called for development of a retracting metal buttstock. A reported problem with the wood stock was that it could be removed from the gun accidentally as well as on purpose; not a good thing in a firefight!

The Uzi subgun was a standard frontline weapon in Israel's 1956 and 1967 wars, but the chosen infantry rifle was the Belgian-built FN-FAL. As for the Uzi, "its tactical apogee was probably the fight for the Golan Heights during the so-called Six-Day War of 1967," Steele feels. "Fighting in the close confines of artillery

emplacements, the Syrians were using the 7.62x39mm Kalashnikov – much more powerful and accurate than the 9mm Uzi – but it could not point, fire and be reloaded as fast as the Uzi."

When the Soviets and their client states went to assaults rifles and the intermediate round, the PPSH41 was given to the North Vietnamese and other Third World proxies, history reveals. Eventually, the AKM was provided to these states, especially after frontline Soviet troops were issued the 545mm AKS74 sub-caliber assault rifle.

In 1957, when the U.S. adopted the M-14 battle rifle, the M3 subguns were given to South Korea, South Vietnam and other regimes considered friendly at that time.

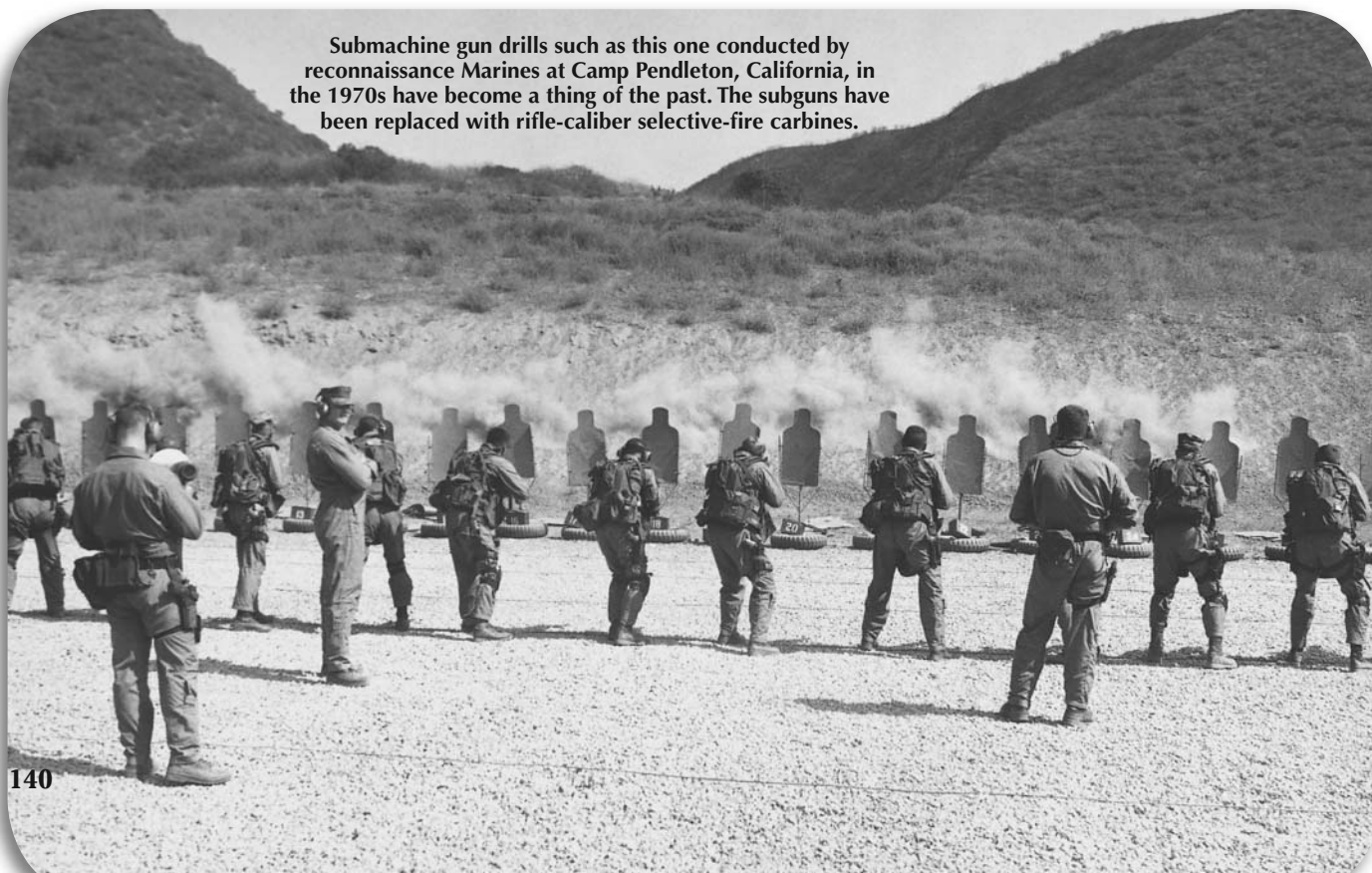
In the early 1960s, the M-16 assault rifle was adopted for use in the Vietnam War and ultimately became the standard weapon for all U.S. troops. Except for Special Forces, subguns no longer were used by U.S. troops.

Israel adopted its own assault rifle in 5.56mm, the Galil, which is named for one of its designers, Israel Galili. Frontline troops were issued this rifle as well as U.S.-made M-16s. The Uzi subgun then was relegated to police, reservists and special operations units.

"Obviously, the days of building 5,000,000 submachine guns in four years were over. The new role for the subgun was as a sidearm, when a pistol was not enough and a rifle was too bulky. One of the first countries to take this approach was Poland, where tank crewmen and others were issued the Rak PM63, which fires 9x18mm (Makarov) ammunition at 600 rounds per minute. This concept is now called the Personal Defense Weapon (PDW) for support troops."

The PDW may be a standard pistol caliber such as the Heckler & Koch 9mm MP5 subgun, the Polish PM63 mentioned earlier, or it may be a necked down centerfire cartridge for greater range and penetration (especially against Kevlar body armor and helmets.) It may be the FN P909 in 5.7mm or the HK MP7 in 4.6mm. The latter cartridge drives a 26.2-grain bullet at 2363 feet per second!

Submachine gun drills such as this one conducted by reconnaissance Marines at Camp Pendleton, California, in the 1970s have become a thing of the past. The subguns have been replaced with rifle-caliber selective-fire carbines.





When folded, the skeleton stock of the PDW is held solidly in place and is not likely to be waving about during serious firing.

“We feel that this personal defense weapon meets the need for such a weapon, using an optimized cartridge for performance in our 10-inch barrel.”

Actually, the piece is available in two barrel lengths – 8 and 10 inches – to fire the Knight Armament-developed cartridge. The KAC 6x35mm cartridge carries a 65-grain

bullet. Fired from that 10-inch barrel, the bullet is traveling at a recorded 2425 fps when it leaves the muzzle. At that point, it is developing 831 foot/pounds of energy (fpe).

“Tests have shown that the current military-issue 5.56x45mm cartridge, which carries a 62-grain bullet has a muzzle velocity of 2400 fps out of a 10-inch barrel. However, energy from this load is down to 792 fpe. Our product will penetrate body armor at 300 meters, when firing our heavier 65-grain bullet,” Lutz contends.

Other claims for the KAC 6x35mm PDW are that it offers “maximum lethality in a minimum size, boasts minimum weight at 4.5 pounds and creates no muzzle flash. Minimum recoil is designed into the weapon for maximum controllability and it can be field stripped quickly and easily without tools.

Apparently, the KAC effort is being made in semi-auto and full-auto modes, but the one Lewis had an opportunity to look over had controls marked only for semi-auto fire.

According to Lutz, “The gun has a unique controlled-motion operating group designed for low recoil and maximum full-auto controllability for increased multiple-hit probability.”

This model carries a 30-round magazine and measures 28 inches overall with the folding stock locked in place. Folded, length is reduced to 19.5 inches. With the folded stock reducing length by some 30 percent, it should make for easier, more effective deployment from vehicles and other confined spaces during operations. It also was noted that the firing controls were situated on each side of the receiver.

The PDW, incidentally, has front and rear sights that can be removed by the operator. At the same time there is a built-on Picatinny-type rail, as well as three other integral Mil-Std 1913 rails that add versatility for mounting accessories.

Several wars back, Lewis recalled, the two most dangerous things in the war were jokingly said to be a second lieutenant with a submachine gun and a communications lineman with a 45 auto.

“It has been pretty broadly publicized that the Army has lowered its standards for enlistments,” Lewis points out. “For personnel who are not going to be dealing with a weapon 24/7, I think the semi-auto version of the Knight gun would be ideal. If the rear echelon area where these weapons are in service should be attacked, there could be better fire control than if a lot of cooks and clerks were running around with full-auto weaponry!”

Enough said.

The downside of the choice is the question of stopping power in a bullet of such small sectional density at close combat distances. The typical 9mm Parabellum NATO pistol cartridge is a known quantity by comparison, but Marines fighting in Afghanistan and Iraq have been asking for a 45-caliber weapon to replace it.

The Chinese are currently doing their own PDW testing, including the bullpup *Jien She* design. David Steele feels that the winning PDW in this series of tests and investigations probably will be the Chinese 5.8x212mm round with a 46-grain projectile. When adopted, the new issue could well replace the 300,000 aging Type 79 submachine guns now in police service throughout Mainland China.

The Russians have experimented with small, hyper-velocity PDW rounds, but have questions regarding stopping power. “It is no surprise,” says Steele, “that the Russians and Chinese would put so much effort into body armor-piercing PDW cartridges, since they see the U.S. as a potential enemy and, so far, the United States is the only nation rich enough to supply a substantial number of its troops with such armor.”

Right now, U.S. troops in the Middle East defend themselves with the M4 carbine and other variations of the M-16A2 rifle, along with the Beretta M9 service pistol. When these issue arms have shown themselves to be inadequate, troops have asked for larger calibers – 6.5mm, 6.8mm, 7.62x51mm and 45 ACP for pistols. None of these troops are particularly interested in sub-caliber PDWs. Only Special Forces has shown a need for submachine guns and the choice for them usually is a compact or suppressed version of the Heckler & Koch MP5.

“While a full-auto PDW may seem like an obvious sidearm for support troops, the problems of training, supply, maintenance and safety are likely to keep it in the orphan category in years to come,” David Steele opines.

However, Jack Lewis has found that his friends at Knight’s Armament Company are doing their best to see that the Personal Defense Weapon does not remain an orphan. In pursuing that effort, they have introduced not only a new weapon but also a new cartridge as well.

The new offering coming out of Reed Knight’s plant in Titusville, Florida, is called the KAC 6x35mm PDW. According to Dave Lutz, a retired Marine lieutenant colonel who now is the outfit’s corporate vice-president,

CHAPTER 14

THE SEARCH FOR SILENCE

**Those Days When Wars Resembled
Noisy Celebrations are Long Over;
Sound Suppressors are the In Thing!**

IF ONE CAN believe history, there was a time long ago when battles were begun with each side's drummers and the rest of the military band urging soldiers into standing in opposing ranks and shooting at each other. However, that European custom came to an end between 1756 and 1770, when the French and Indian War was fought over possession of the Ohio Valley.

The French were allied with the Indians but still tended to fight battles the old way – head-on – while a young Virginia captain named George Washington and others of his breed had learned to take on the approach to warfare favored by the Indians themselves. That meant there were no drummers, no buglers on the American side. A lot of the colonial soldiers of that era were frontiersmen, who had learned to shoot from behind trees and to make their moves upon an enemy site with as little noise as possible. Also, most of them had learned early that it often was better to slit a sentry's throat with a knife than to shoot him with a bullet and perhaps arouse an entire fort.

This last technique still is used in modern warfare and the necessary intelligence-gathering missions and preparations for secret attacks still are carried out with as little noise as possible, including audible gunfire. As a result, most of the major nations of the world – and some not-so-major – have spent hoards of money in developing what used to be called “gun silencers”

in the early days of private-eye novels by such authors as Raymond Chandler and Dashiell Hammett. Today, manufacturers and users are a bit less positive and refer to their wares as “sound suppressors.”

There currently are dozens of manufactures of sound suppressors in the United States alone, although an ordinary citizen will quickly learn that without proper licensing, he is not allowed to own one, let alone attach it to his favorite defensive firearm. There also must be weapons that work well with a suppressor attached, and there are dozens of manufacturers of such tools vying with each other to produce a firearm/suppressor combination that makes less and less noise.

One of the earliest full-auto firearms to handle a suppressor with any great degree of success was what has come to be known as the Swedish “K.” More officially, it is known as the *Kullsprutepisto M45*. It is a second generation 9mm submachine gun that turned up in some of the hottest spots of the 1960s as well as in its neutrality-bent homeland. Produced from a variety of metal stampings, it was the first Swedish-designed and manufactured weapon of this type.

Designed in 1944/1945 by the Carl Gevarsfaktori in Eskilstuna, the M45 was a response to tactics developed for mass-produced submachine guns by both



This Heckler & Koch MP5K-PDW is equipped with a detachable sound suppressor.



The Heckler & Koch MP5K-PDW was designed to provide downed air crew members with a weapon that is especially suitable for survival, escape and evasion.

the Germans and Russians. Since the war ended before production actually got under way, the quality reportedly remained high through the run of several hundred thousand produced.

A special high-velocity 9mm Parabellum cartridge was developed for the M45, but the round was definitely not meant for use in a 9mm pistol. The SMG-only round was designated as the Model 39B and could penetrate steel helmets at as much as 400 meters.

During the Vietnam hostilities, the M45 came to the attention of U.S. Special Forces that were involved in clandestine operations. These moves included early border-crossing missions in Laos and Cambodia, where "sterile" non-American weapons were a requirement. In view of the political situation, if a Special Forces team should have to bug out, leaving behind weapons, it wouldn't do to have any of them show U.S. markings.

For this particular use, a suppressor unit was added before the arms left American ports. This particular device was based on the Bell Laboratory design used during World War II for the M3/M3A1 subgun and the British Sten Mark IIS. Some of those guns also turned up in Vietnam, as well as suppressed 22 rimfire pistols made by Colt and High Standard. The suppressor for the M35 was painted green, the same color as the firearm itself. Addition of the suppressor brought the gun's weight to 12 pounds.

A Swedish-licensed copy of the MK45 was produced in Egypt starting in the 1950s. It was called the Port Said Model. A large number of these subguns were captured from Egyptian infantry during the 1967 war and David Steele saw some Israeli soldiers carrying them in 1969, although the locally produced Uzi had been proven to be more efficient as well as more modern in design. The Egyptians reportedly also made

an additional version of the M45 called the Akaba. This one had a sliding wire stock, a six-inch barrel and no barrel jacket.

Due to Sweden's neutrality status, sufficient M45s were not available for combat in Vietnam. The U.S. Navy expressed interest in a weapon of this type, so Smith & Wesson made its own copy. Called the Model 76, production began in 1967. Only a few thousand of these guns were manufactured and most of those have since ended up in either law enforcement agency gun racks or the hands of collectors.

S&W added a safe, semi- and full-auto selector and made some other changes. Eventually, the manufacturing rights were sold to a small company in Orange County, California.

"What Smith & Wesson didn't add was reliability," says Steele. "I have shot several of the guns and not



David Steele feels that the Swedish "K" model used by Special Operations troops in Vietnam worked well when a suppressor was added. He also tested the weapon – sans suppressor – for an international police organization.

one worked right. They don't compare to the Swedish original. In 1970, I saw a Diplomatic Security agent bring a satchel full of subguns onto the range at the International Police Academy in Washington, D.C. He pulled out a Swedish 'K' that'd had its stock removed and its barrel cut to four inches. Accuracy was limited but reliability was still 100 percent."

Of the U.S.-built Model 76 subguns, Jack Lewis recalls testing one in California at Orange County's South Coast Gun Club in the mid-seventies. This particular subgun was being produced in nearby Irvine, but with California's ever-tightening firearms laws, there wasn't much of a local market for it. Lewis does report, however, that in the few hours he worked with this version he experienced no problems. It functioned, fired and targeted as the then-maker said it would. With a suppressor, the greatest amount of noise came from the rattling of the bolt when fired.

One of the best accounts of the use of the suppressed M45 in action is found in *Secret Commandos*, a book by John L. Plaster. Then a 20-year-old Special Forces sergeant, Plaster was operating with clandestine Special Operations Group teams "across the fence" in both Laos and Cambodia. Because of the ban against leaving anything American-made behind, the M45 served well in ambushes of Viet Cong, snatches of prisoners and elimination of tracker dogs. It should be noted that members of the SOG teams also carried the

Sten Mark IIS and various other suppressed subguns and handguns.

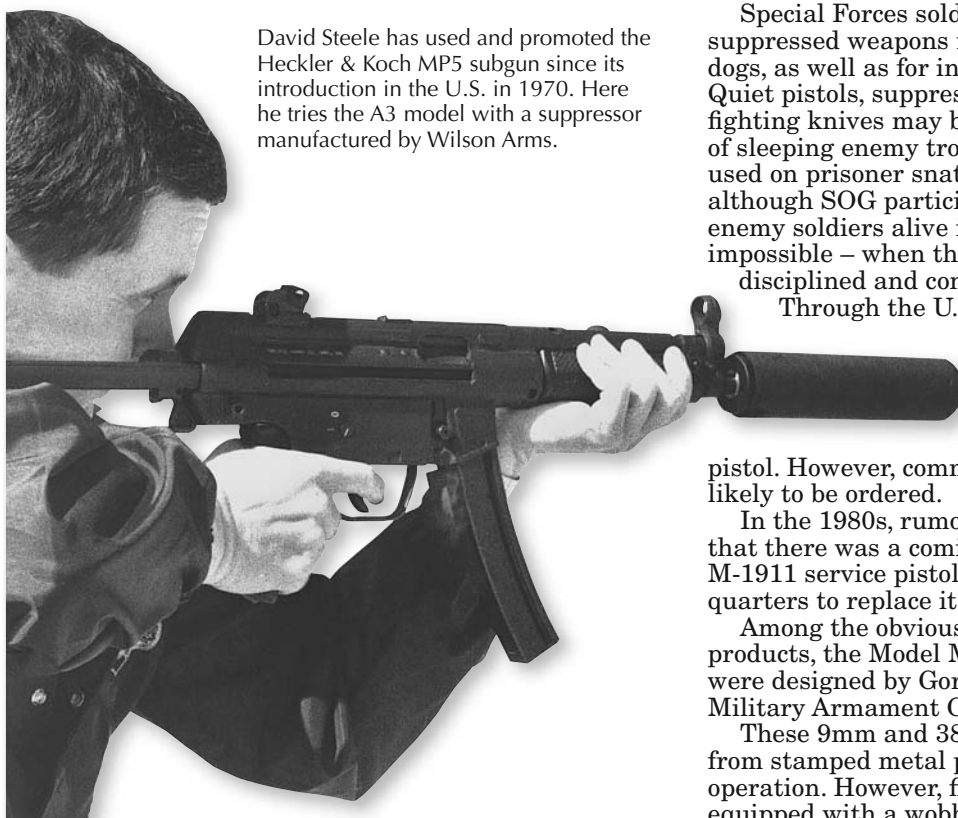
Plaster found the suppressed "K" to be quieter than a "snapping finger," and he could put a 2-round burst into a tin can at 25 yards. He figured it was the perfect weapon for the team member responsible for rear security and taking out trackers. On every patrol, Plaster carried 13 magazines, each holding 36 rounds. Eventually, he said, he stopped carrying a handgun so that he could use improvised pouches to lug along more subgun ammo, plus grenades.

In one extended firefight, Plaster was down to his last magazine and no grenades. The manpower odds invariably favored the North Vietnamese Army (NVA), and SOG members had to fire fast to gain even a temporary advantage. Thus, the sergeant used a 5-round burst to put down one NVA in the open at 25 yards. The enemy soldier obviously did not hear his suppressed rounds in the gunfight, so the Swedish "K" lacked the intimidation of a louder gun.

It also was learned the hard way that a suppressed weapon wasn't necessarily a panacea on prisoner snatches. Records show that SOG took only 50 prisoners during the entire war. Usually the potential prisoner was dead in the ensuing gunfight. Plaster recalled using a suppressed 22 pistol to wound a North Vietnamese Army soldier, then tied him, but a large NVA unit suddenly arrived on the scene. In the subsequent melee, the prisoner tried to get to his AK-47. Plaster had to kill him, using several 22 rimfire rounds.



The 1951 Uzi (*below*) from Israeli Military Industries is compared with the suppressed Swedish "K," which was used by Special Forces in Vietnam raids.



David Steele has used and promoted the Heckler & Koch MP5 subgun since its introduction in the U.S. in 1970. Here he tries the A3 model with a suppressor manufactured by Wilson Arms.

Special Forces soldiers are still trained to use suppressed weapons for taking out sentries and guard dogs, as well as for indoor and outdoor ambushes. Quiet pistols, suppressed submachine guns and even fighting knives may be combined to take out a tent full of sleeping enemy troops. Silenced weapons may also be used on prisoner snatch operations behind enemy lines, although SOG participants have learned that taking enemy soldiers alive is extremely difficult – sometimes impossible – when the opposing troops are well disciplined and control the local area.

Through the U.S. Army's Foreign Science & Technology Center (FSTC) and other sources, Special Forces personnel have been able to obtain whatever they need, such as a Chinese Type 67 silenced pistol. However, common inventory weapons are more likely to be ordered.

In the 1980s, rumors were running wild to the effect that there was a coming phase-out of the venerable Colt M-1911 service pistol. That resulted in a push in some quarters to replace it with a pistol-size submachine gun.

Among the obvious contenders were two American products, the Model MAC-10 and Model MAC-11, which were designed by Gordon Ingram and manufactured by Military Armament Corporation.

These 9mm and 380 submachine guns were made from stamped metal parts, but were reliable enough in operation. However, firing from an open bolt and being equipped with a wobbly wire stock, both guns reportedly lacked pistol accuracy and burst control was difficult.

Mitch WerBell, the president of Military Armament, did his best to promote the use of his guns in Vietnam, but no large production contract was ever forthcoming. Most of the ordnance specialists who tried the guns agreed that the best part of either was its screw-on suppressor, which had been introduced some years earlier when WerBell's company was called Sionics.

As most readers no doubt realize, the Colt 1911 pistol was replaced in general service by the 9mm Beretta M9 (M92FS), although the Navy's SEALs selected the SIG-Sauer P226 as their own and armed services investigators were armed with the SIG-Sauer P228 (M11). Both of these pistols were chambered for the 9mm cartridge.

In the 1980s, Heckler & Koch developed what they called the Mark 23. This was a 45 APC pistol for the new Special Operations Command (SOCOM). All of these pistols were equipped with a U.S.-manufactured sound suppressor. Since that time, the same German-headquartered company has developed a smaller 45 USP Tactical model. This one can mount an optional screw-on Brügger & Thomas stainless steel suppressor called the IMPULS IIA. There also is a UP9 SD suppressed version in 9mm. This one looks like an updated version of the 9mm Smith & Wesson Model 39, with the Hush Puppy silencer used by the SEALs to take out guard dogs in Vietnam.

There has been considerable adverse comment since the 9mm

By May, 1969, the North Vietnamese Army had captured so many U.S. weapons that finding some in Cambodia no longer was convincing evidence of clandestine U.S. teams working there. The result was that the SOG teams no longer had to carry foreign weapons, although the State Department still ruled against fighter aircraft support of friendly troops in the area. That was when Plaster replaced his Swedish "K" with a 5.56mm CAR-15 made by Colt. It had four times the energy of a 9mm.



The La France CBB silencer is mounted on a Colt 45 M1911A1 with an extended magazine. Note that the V-type rear sight is a part of the suppressor. This one would be useful in taking out guard dogs and enemy sentries.

became the service-wide pistol caliber. The more recent controversy centers around performance of the issued pistol in Afghanistan.

"But if the 9mm Parabellums were seriously defective, it seems to me that the British Special Air Service, the German GSG-9 and Israeli special ops units would not use them," is the comment from David Steele. "The problem in Afghanistan appears to be a lack of supporting weapons for Special Forces operations. If they want 45 pistols and 308 rifles, they should have them without the usual one-size-fits-all logistics debate."

Where sound suppressors are concerned, the calibers most often proven are the 22 Long Rifle, the subsonic 9mm and the .45 ACP. Pistols, of course, are available in all of these calibers, while submachine guns tend to be manufactured primarily in 9mm.

The most often proven post-World War II submachine gun has been the 9mm Uzi. However, it was phased out of U.S. frontline units in 1973, since it lacked the power of the growing list of 5.56mm assault rifles. It still is used in support units, police work and special operations.

In the 1976 Entebbe hostage rescue operation, the Uzi was standard, but team leader Yonathan Netanyahu – brother of the former Israeli prime minister and himself a special operator in his youth – carried a suppressed MAC-10. In the warrior tradition, Israeli leaders often carry distinctive firearms.

Although unexcelled in close combat, the Uzi did – and does – lack the accuracy of a closed-bolt design. When Israeli Military Industries (IMI) brought out a closed-bolt version, it seemed to lack the reliability of the original in full-automatic fire. Police and counter-terrorist operations demanded an accurate and reliable weapon. Ultimately, this state of the art weapon for combat teams became the Heckler & Koch MP5 9mm subgun.

"I tested the first two available in this country in 1970," David Steele reports. "I was comparing them to subguns such as the Uzi and Beretta 12, as well as the Sterling, the Swedish 'K' and others. The MP5 seemed perfect for police work, superior by far to the competition's offerings. However, there was resistance to its adoption by U.S. SWAT teams until the 1980 hostage rescue operation against the Iranian Embassy in London. The British Special Air Service troops involved in the rescue carried Uzis."

It should be noted that the MP5 comes in an amazing array of variations. One of the first was the MP5SD3,

which was introduced with an integral suppressor. There now is an optional screw-on suppressor available for this model. The U.S. Navy's SEALs have their own variation, the MP5-N. This gun features what they call the "Navy" trigger group that carries safe, semi- or full-auto markings and settings.

An updated version of the MP5 is now available in a choice of 9mm, 40 and 45 calibers. Called the UMP, this one has a folding polymer stock, a Picatinny rail for optical sights, another rail for foregrips or lights – and a Quick Connect aluminum suppressor.

Even newer is the MP7A1 Personal Defense Weapon (PDW). Although suitable for use by special ops people as well as the police, this particular subgun was designed specifically for military support troops. They needed a compact weapon like the original U.S. M-1 30 Carbine, offering more firepower and better accuracy than a pistol. With a weight of only 3.8 pounds, the MP7A1 folds to less than 15 inches. The most radical part of this particular subgun is its caliber, 4.6x30mm.

Like the FN P90 PDW in 5.7mm, the chambering seems to have been designed around armor penetration. The idea seems to be that all armies eventually will have body armor to match that of the U.S. Army and Marines. In the comprehensive German manner, Heckler & Koch ballisticians have developed 12 types of 4.6mm ammo for use in the MP7A1. The type of military ammo designed for penetration of a Kevlar helmet is not likely to have the same stopping power as their 31-grain police hollow point or the 26.2-grain spoon-nose bullet. To date, incidentally, there doesn't appear to be a need to add a suppressor.

It is being considered by the U.S. military element known as "The Brass" that small caliber, armor-penetrating ammo may not be in sync with our actual close combat requirements. At present, at least, no other country seems to be able to keep up with the United States in equipping a large segment of its infantry with rifle-stopping armor that can cost \$1,500 per copy.

In summary, the Vietnam-era suppressed Swedish "K" was a harbinger of things to come. Special Forces used suppressors on pistols, submachine guns and rifles; they were used for assassination, ambush counter-terrorist operations and sniping. In talking to today's Marine Corps snipers, Jack Lewis has found that they admit feeling a good deal better about the job if an enemy sniper cannot tell where the Marine's bullets are coming from!



The Offensive Handgun Weapons System was designed by Heckler & Koch for the U.S. Special Operations Command. The system includes a 45-caliber pistol, a sound suppressor and a laser-aiming module that combines a flashlight with a visible and invisible laser sight.

CHAPTER 15

HOME DEFENSE IS A PREFERENCE

**Most of Us Have Our Own Ideas as to
What Firearm Would Serve Best to
Protect Life & Property!**

MORE YEARS AGO than either one of them probably want to admit, Jack Lewis and Max Baer, Jr., were on a private jet returning to Hollywood from Oklahoma's Grand National Quail Hunt. Baer, who had been making his mark in the *Beverly Hillbillies* television series, had been a member of the so-called Hollywood team in the annual upland game event. As best Lewis recalls, John Russell, television's *Lawman*, and movie cowboy Rex Allen were the other members of the team.

Russell and Allen were napping in the plush seats of the aircraft that was owned and operated by an Oklahoma oil company. Somehow, Baer and Lewis became involved in a discussion of various firearms and it quickly became evident that the actor was not a handgun fan.

"I don't even own one," Baer declared. "I don't see any reason for a civilian to have one." This, of course, was the line that the Hollywood anti-gunners had been preaching for some years.

"Well, if you live in Beverly Hills with its high-priced police force, you probably don't have to worry about

someone breaking down the door and attacking your wife while you're off somewhere making a picture," was Lewis' comment.

"I don't live in Beverly Hills and my wife does have self-protection," Baer half-snarled. "I got her a 12-gauge shotgun!"

Lewis sat there with his mouth hanging open, wondering whether said wife ever had fired the scattergun, and what her reaction might have been to the felt recoil among other negatives. Eventually, he shut his mouth and asked the lady hostess for a cup of coffee. He felt further word dueling would be a waste of time. He considered joining the other two actors in the nap routine.

There is no doubt that there are countless theories and studies as to what makes the best firearm for a home defense program. Some people prefer handguns, others like the shotgun approach. In the era of the in-air discussion, rifles tended to be a little lengthy for attempting to answer the door to see who was pounding on it, but a lot of that has changed, too.

Mossberg's Model HS410

SOMEONE AT MOSSBERG must have been listening to Baer Junior, for it was not long after the Oklahoma trip that the gunmakers introduced their Model HS410 shotgun. Originally, the piece was chambered for the .410 three-inch shell that could carry a somewhat lethal slug. In more recent years, the little shotgun has been chambered for 20-gauge rounds as well. It doesn't take much imagination to come to the realization that the HS in the model designation stands for Home Security!

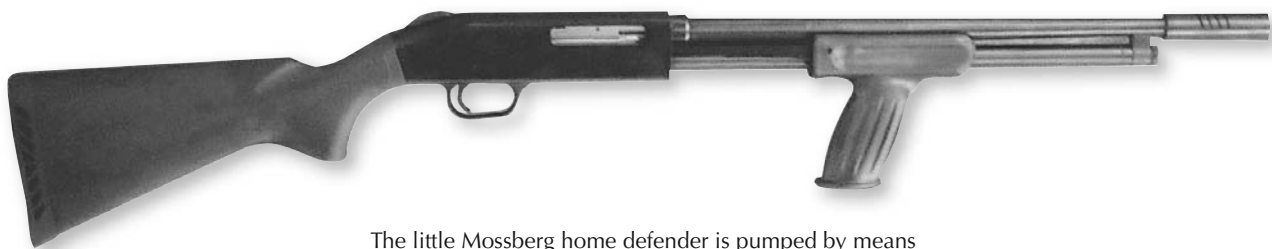
"This little shotgun is similar to Mossberg's Model 500 Persuader pump action, except that the gun is pumped by pulling back on the pistol grip forend. There also is a thick recoil pad, a muzzle brake to ease recoil for the distaff defender and a special spreader choke to make deadly targeting easier, when buckshot is fired," Lewis reports.

Overall length of the HS410 is 37.5 inches, including the 18.5-inch barrel. Weight is 6.25 pounds, metal parts carry a blued finish and the field-type stock is of a tough man-made synthetic.

Jack Lewis lives in a quiet community on Hawaii's Big Island where all of the local mailboxes are grouped at the top of a hill. He was checking his mail the day the man who lives across the street from the mail boxes approached him.

"I understand you know something about guns," the gent said. "I'm worried about my wife being alone in my house while I'm gone."

It should be pointed out that even in paradise there are problems. Hawaii has earthquakes, volcanic eruptions, burglaries, intrusions, rapes and even murders. From where Lewis lives, the nearest police



The little Mossberg home defender is pumped by means of the slanted handgrip beneath the plastic forend.

station is 12 miles away. The man to whom he was talking worked aboard one of the cruise ships that sails the islands for a week at a time.

"I'd like to get her some kind of gun for self-defense," the neighbor added. "What would you recommend?"

Lewis explained that in their state, if one is going to own a long arm, you have to take a hunter safety course. Getting a handgun gets even more involved. Chris, the neighbor, understood this, he said.

"I think I'd get her a Mossberg .410," Lewis told him. "Their Home Security model is simple in design and function. Remington makes slug loads in .410 and Winchester has a .410 buckshot load that carries three 00 pellets, but it's loaded only on special order."

Chris ordered a Mossberg HS410 and Lewis managed to round up several dozen .410 buckshot loads as well as a box of slug-loaded ammo. When the pair got the necessities assembled, they made for a clearing in the nearby jungle, where Lewis erected one of the paper images of a bad guy marketed by Kleen-Bore. This image is life-size and pictures a baddie aiming a handgun.

Most rooms in the local homes measure no more than 20 feet on a side, so Lewis paced off that approximate distance and fired five rapid rounds of Remington's slug

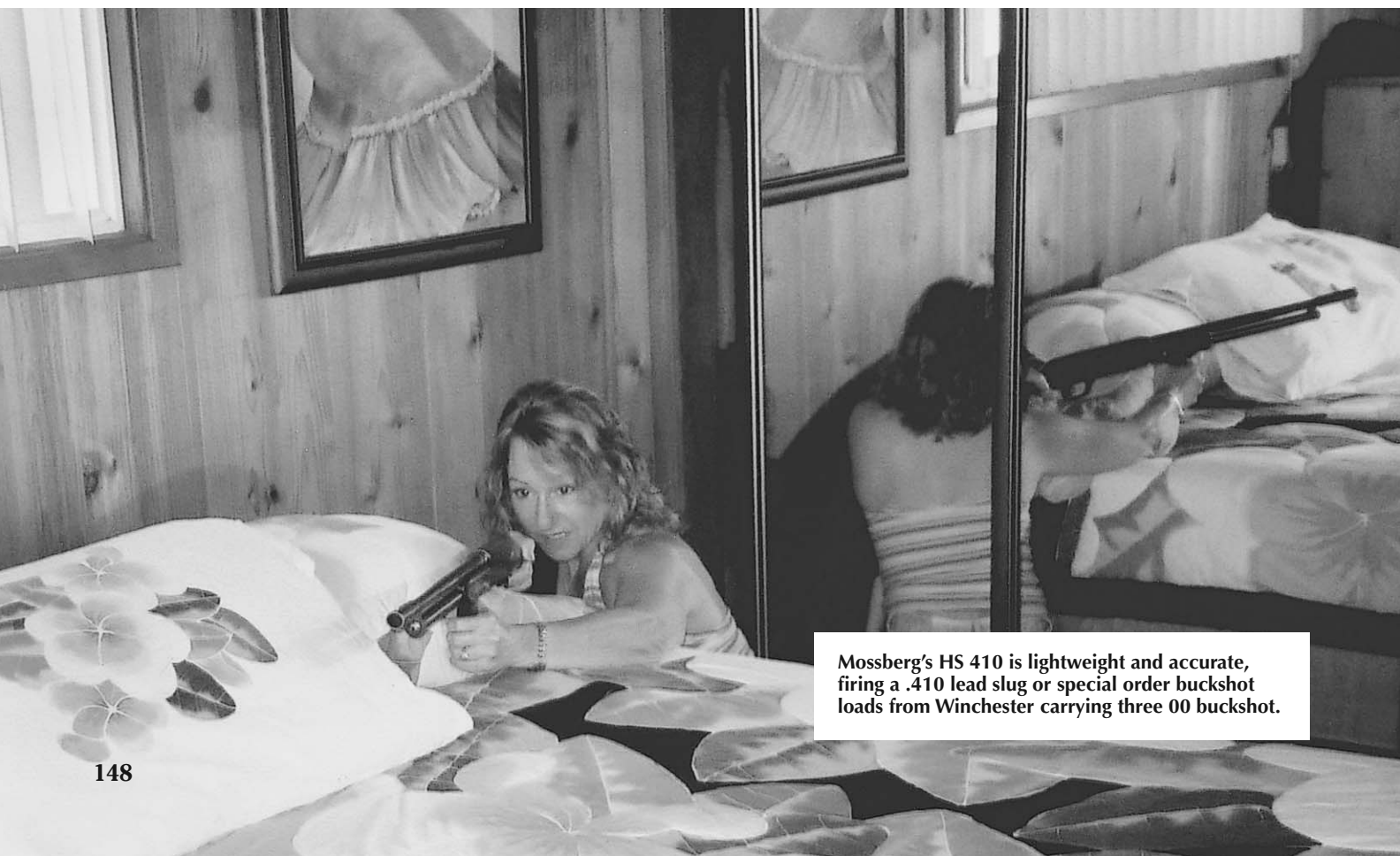
loads into the chest area of the paper villain. All five grouped in less than six inches and all were in the area of the heart.

Close-range accuracy apparently would be no problem, but what of penetration? The interior doors of most homes today are hollow-core creations, each side faced by a layer of wood that is no more than one-eighth inch in thickness. An intruder can splinter the wood with a swift kick next to the lock. In short, such a door offers little in the way of protection.

At the other extreme, such a door doesn't offer much in the way of protection against a .410 slug or buckshot being fired through the door, if an intruder is trying to get into the room.

Lewis had several sheets of 5/8-inch T-111 exterior wall sheathing left from a remodeling project. This type of plywood is composed of five different thicknesses, the grain of the wood running in alternate directions with each layer.

One of these sheets, cut to the approximate size of a male torso, was propped against a bush, and then Lewis retreated to the 20-foot marker, where he loaded three rounds into the Mossberg shotgun. The first round carried a Remington .410 slug. This was followed by one



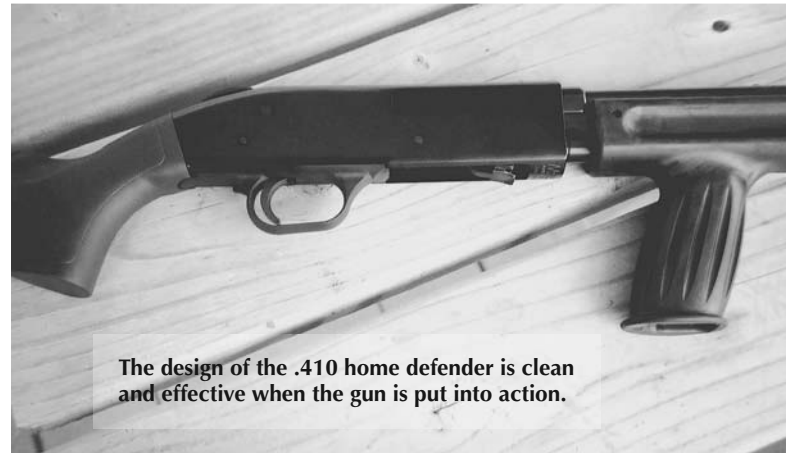
Mossberg's HS 410 is lightweight and accurate, firing a .410 lead slug or special order buckshot loads from Winchester carrying three 00 buckshot.

of the Winchester loads with the three 00 pellets. The third round was another slug.

Aiming at the plywood, Lewis triggered off the three rounds in rapid succession. All of the projectiles pierced the tough wood target, evidence that had it been a real intruder, he would be either dead or ready for an ambulance!

The spreader choke worked well with the buckshot and the six-round magazine would seem to be more than adequate for home protection. The Mossberg HS410 features the company's traditional safety on top, which makes it ambidextrous.

However, in thinking home defense, one must also consider the power of the projectiles being launched. Either the buckshot pellets or the .410 slugs could easily plow through drywall installations to endanger persons in other rooms.



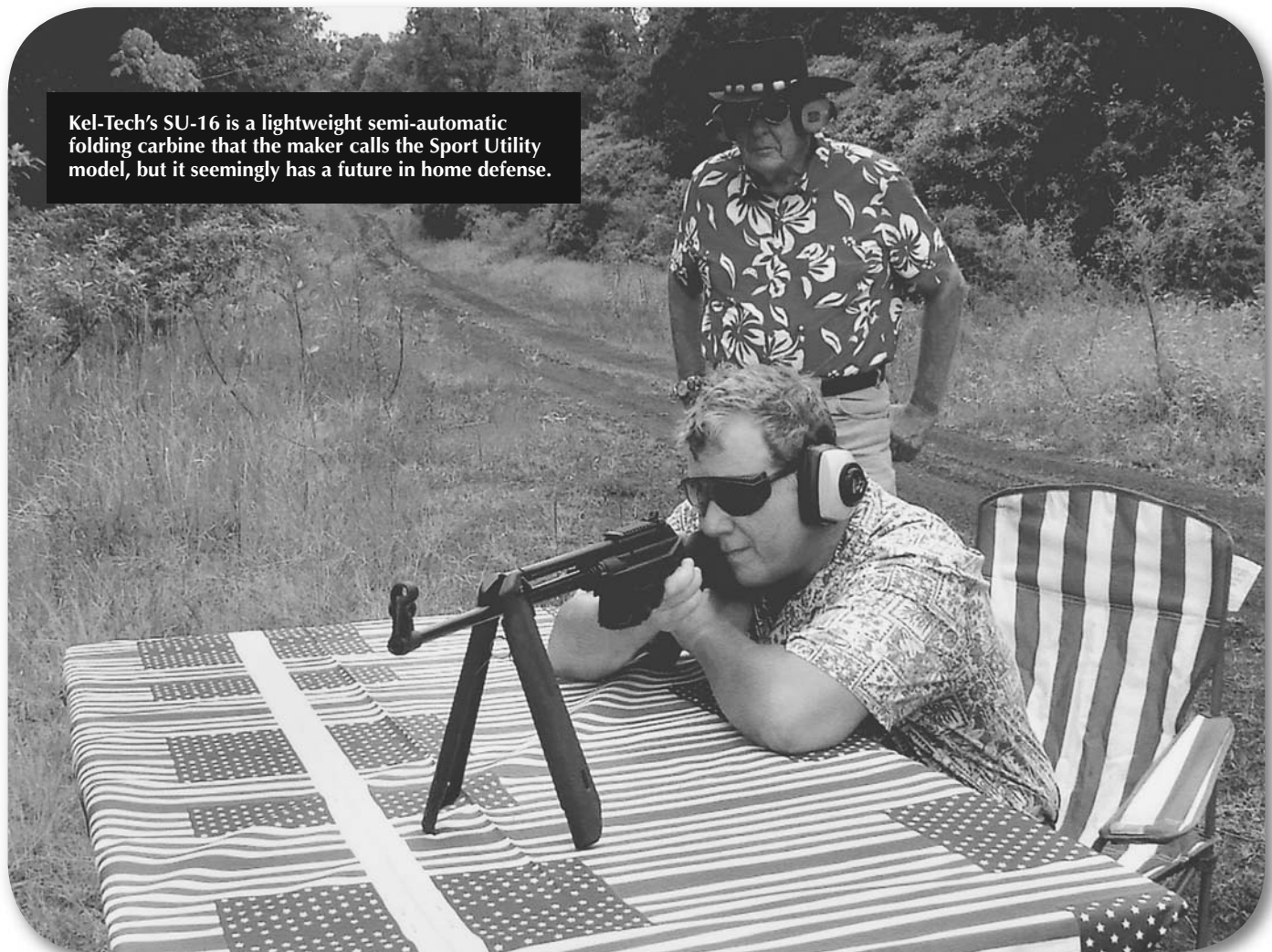
The design of the .410 home defender is clean and effective when the gun is put into action.

Kel-Tec's Sports Utility 223

KEL-TECH CNC INDUSTRIES, Inc., of Cocoa, Florida, produces a line of rifles and handguns that can be afforded by most people with limited budgets. A number of the items in their inventory apparently have been designed with the mission of home defense in the fore.

One such carbine is the ultra-lightweight folding semi-auto 223 Remington that they refer to as the

SU-16, the letters standing for Sports Utility. When extended and the stock locked in place for business, the carbine measures 37 inches from buttstock to muzzle. When a pin is removed, the SU-16 can be folded to a length of 26 inches; short enough to fit in some of the backpacks being marketed today. Length of the barrel is 18 inches.



Kel-Tec's SU-16 is a lightweight semi-automatic folding carbine that the maker calls the Sport Utility model, but it seemingly has a future in home defense.



When a single pin is removed, the carbine can be folded. Dimensions are such that the weapon can be carried in some of the backpacks being marketed currently.

The 223 cartridge is, of course, the civilianized version of the 5.56mm round used in most military carbines today. The folks at Kel-Tec frankly admit that their five-pound product's design has drawn a number of ideas from the military's M-16/M4, including the breech-locking and feeding system. Designed as a gas-operated self-loader, the SU-16 has an integrated Picatinny rail, and a forend that folds down to form a bipod. The stock, incidentally, is designed to store two additional loaded magazines.

According to Kel-Tec's Renee Goldman, the gun's receiver, stock and forend all are manufactured from glass-reinforced Zytel. The receiver, it will be noted, has an aluminum insert moulded into its front to enclose the barrel and also display the serial number. When the carbine is purchased, it comes with a pair of 10-round magazines, but according to Ms. Goldman, it will handle virtually any M-16 or M4 magazine. A soft rubber recoil pad protects the shooter against whatever minor recoil a 223 round can generate.

In working with the carbine, Jack Lewis found that to unfold it to its full length, one must remove the assembly pin from a spring-locked hole in the receiver. The stock is held in place by friction and one unfolds it by simply pulling it away from the barrel in an arc-like swing. With the stock in place, the assembly pin holes are lined up and the pin is pushed through until it is flush with the stocks exterior surface.



As indicated, the ghost ring rear sight is unmovable and adjustments for zero are managed by movement of the front sight. The magazine seen here is of Zytel.



When the SU-16 is unfolded and the action locked in place, it offers an interesting profile. Cuts in the stock allow storage of two additional loaded magazines.

As mentioned earlier, the Zytel forend also can be made to serve as a bipod. For this particular application, one grips the locking tabs on each side of the forend, pressing inward, then pulling rearward until the panels making up the bipod can unlatch themselves and be swung down into position. To turn the bipod into a forend once again, Lewis found that one simply rotates the panels until the locking holes are once again aligned with the tabs, and then squeezes the panels until they latch themselves into position.

The carbine's safety is reversible, and detailed instructions on how to change the position of the safety from one side to the other are included with each rifle. Lewis noted, incidentally, that the manual safety blocks the trigger from rotating the sear. Also, the safety can be activated whether or not the piece is cocked.

Lewis and his shooting pard, Ace Kaminski, ventured into the nearby jungle to set up a couple of bad guy targets, which carried full-size images of a man pointing a gun. Setting up a shooting bench 50 yards away, they loaded up both magazines with Winchester USA 5.56mm ammo, each round carrying a 55-grain bullet with a full metal jacket.

According to Mike Jordan, who was handling media work for Winchester, when fired from a 24-inch barrel, this bullet boasts a muzzle velocity of 3240 fps. Muzzle energy has been recorded as 1282 foot/pounds. According to Jordan, at 500 yards, the bullet still is traveling at 1590 fps.

Going back to the earlier discussion, this cartridge – also known as the 223 Remington – is more than a

bit edgy when it comes to use as a home defense tool, especially if there are other residents in the house. On the other hand, if it's the only firearm you have at hand, it's a good idea to work out a scenario as to how one might handle a home invasion.

The cartridge also can serve as an excellent survival tool in such circumstances as the country's recent rash of community-destroying floods and hurricanes. The bullet is not really designed to down a big buck, but with care, this can be done; and such care could stave off a marooned family's hunger. It also can defend against two-legged predators.

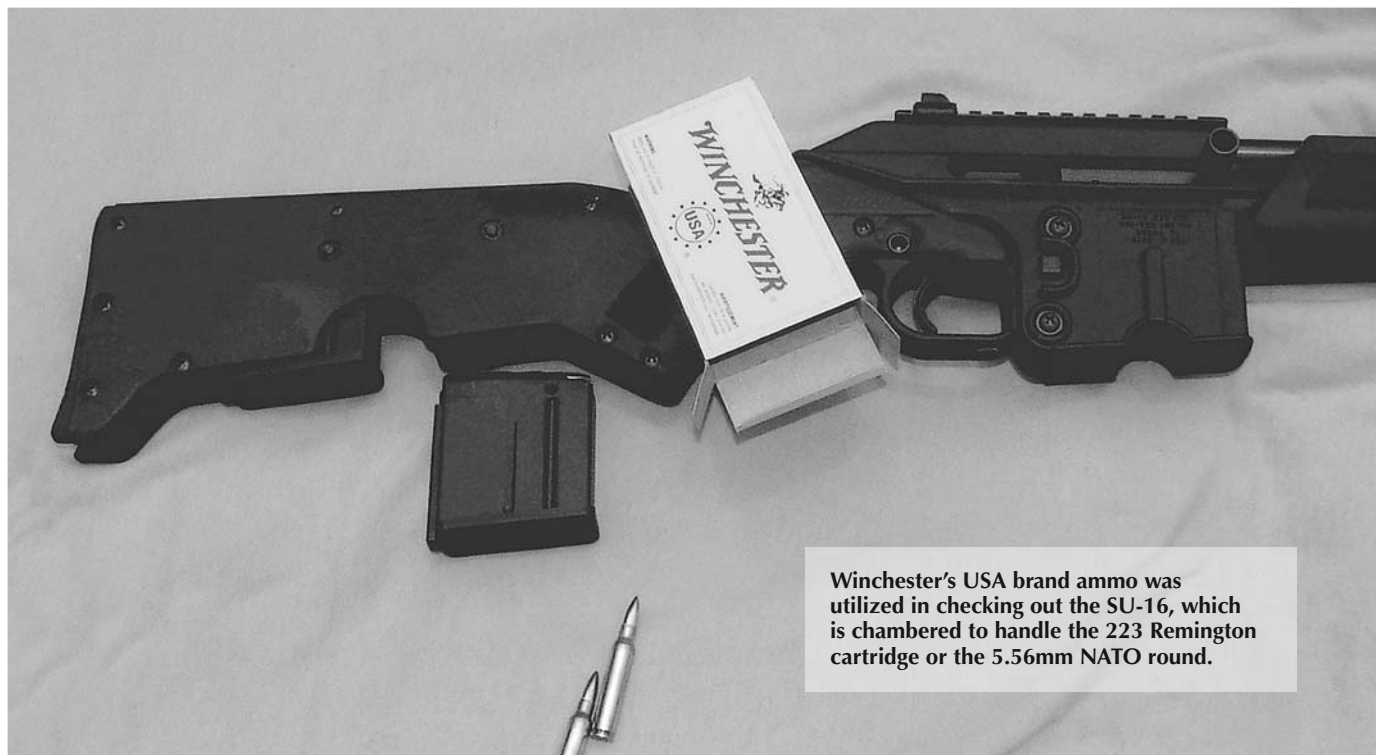
The Kel-Tec SU-16's sighting system is somewhat novel. The rear sight is attached in permanent fashion to the Picatinny rail, while the front sight – actually a piece of heavy-duty red plastic – is affixed between protective wings and can be adjusted for both elevation and windage. According to Ms. Goldman, movement of this sight by as little as .007-inch will move the point of impact two minutes of angle.

The test crew had positioned the targets beyond a patch of brush that was made up primarily of young bamboo. The mission was to shoot through the green growth and attempt to determine what happened to a bullet that was cutting down brush before it reached the intended target.

Lewis loaded one of the magazines with the full 10 rounds, the other with only five of the Winchester cartridges. Firing offhand at the 50-yard range, he expended the 10 rounds in the first magazine, and then exchanged the empty for his second magazine with five



The hand guard of the carbine is of a heavy-duty man-made material. It can be unsnapped and swung down to form a bipod. Note the gases from the muzzle when fired.



Winchester's USA brand ammo was utilized in checking out the SU-16, which is chambered to handle the 223 Remington cartridge or the 5.56mm NATO round.

rounds. Reassuming his position, he squeezed off the rest of his allotted ammo.

"I don't shoot nearly as well as I did back in the days when Moses was a corporal," Lewis admits, "but all 15 fired rounds had made holes in the paper target. Several of them had slight tears as though the bullets may have been wobbling a bit, when they pierced the

paper. Checking the bamboo grove, we found bullet holes in some of the leaves and even a couple of the young stalks."

Again, consideration must be given to this cartridge as a home defense tool, but The Kel-Tec SU-16 does shoot where you point it, the price is reasonable and a great deal of thought has gone into its design.

Hi-Point's 40 S&W Carbine

A QUICK LOOK at Hi-Point's 40 S&W carbine will cause the average shooter to wonder whether it is real or is it something turned out by a maker of plastic toys. However, the distributor for this firearm, MKS Supply, Inc., in Dayton, Ohio, is quick to list the carbine as being more than adequate for deer or varmint hunting, target practice, general plinking...and home defense. A further boast in writing states the unit is "law enforcement-proven."

Having some doubts, Jack Lewis faxed Kelly Walton, the outfit's sales manager, and asked for a list of law enforcement agencies that had bought or at least used either the Hi-Point 40 S&W under discussion or the Hi-Point 9mm, which had been introduced and marketed a couple of years earlier.

It took less than an hour for Lewis to receive the return fax of a handwritten list from Walton. Those

who have found the little carbines effective for the work at hand include the Texas Department of Criminal Justice, which uses the carbines as an escape deterrent in the state-wide prison system. On a Federal level, the Department of Homeland Security has bought and issued the carbines to its agents. U.S. Marshals working out of Denver, Colorado, also have used the little gun, while the police department in Tampa, Florida, ordered 200 guns in the 40 S&W persuasion for its patrol units.



Hi-Point's 40 S&W carbine is an economy-priced blowback semi-auto that measures only 32.5 inches in overall length. It is shown here with the buttstock-mounted carrier for magazines as well as two extra magazines for the chosen cartridge.

The other police agencies listed in Walton's hand-screwed memo appeared, for the greater part, to be law enforcement departments in small communities and cities that most likely do not have the tax-generated funding to furnish patrol cars with \$1500 rifles! Their answer to this lack of funding has led them to a serious shooting machine that is deadly and effective, without a lot of fancy bells and whistles.

Upon arrival of the little carbine, Lewis and his shooting pard, Ace Kaminski, ran across one minor problem. When it arrived, the Hi-Point carried a Picatinny rail; also included with the package was an excellent iron sight of the adjustable peep variety. Kaminski, who always brings his tools to this sort of clambake, went about removing the rail in order to install the rear sight of their choice.

As for specifications, this forearm featured an all-weather black polymer stock, three 10-round magazines and a 17 1/2-inch barrel. It measured 32-1/2 inches overall and was outfitted with sling swivels. The piece had a thumb safety positioned on the left side that was easy to reach with the gun at the shoulder.

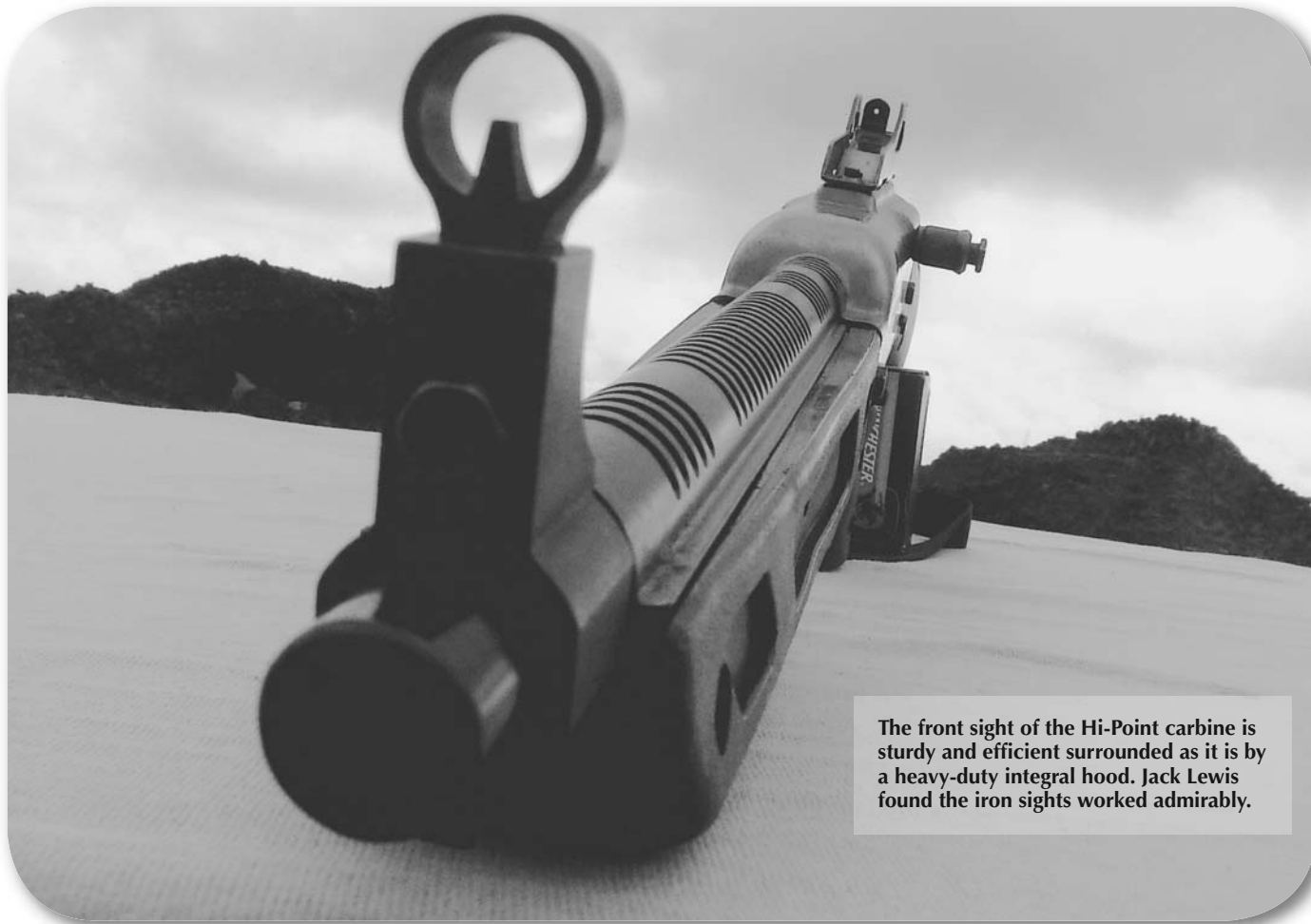
Actual shooting evaluations were carried out in an abandoned lava pit, where a printed bad guy target showing a full life-size figure in a threatening pose was installed, using a target frame fashioned from three-quarter-inch PVC pipe. At the spot where the target was to be staged, Kaminski drove a length of half-inch iron bar into the lava, and then slipped the pipe over this support. It looked like it would work okay; it was not the first time the pair had used this approach, of course.



The controls for the U.S.-made carbine, including the cocking handle and the safety, are positioned on the left side of the firearm, all within easy reach for the shooter.

It is an established fact that most law enforcement shoot-outs are close-range operations. A lot of police training is done on targets only seven yards – 21 feet – from the muzzle of whatever bullet-launching tool is used.

Admittedly, that distance may be standard for a handgun duel, but it seems a bit short for any action involving rifles. The result was that Lewis paced off an approximate 35 yards from the target.



The front sight of the Hi-Point carbine is sturdy and efficient surrounded as it is by a heavy-duty integral hood. Jack Lewis found the iron sights worked admirably.



After adjusting the sights for a proper zero, Kaminski fired a second group of ten rounds, all of which punctured paper in the heart area of the paper villain.

Neither shooter had found the time to zero the Hi-Point carbine, so Kaminski loaded up the 10-round magazine with Winchester's 40 S&W SXT 165-grain hollow-point cartridges. Assuming a firm offhand stance, he quietly and methodically triggered off the 10 rounds. A trip down to the target, though, showed that adjustments of that iron rear sight were in order. The bad guy figure had been missed completely. However, there was a nice 10-round group positioned on the blank paper beside the villain's head.

According to info from Winchester, this particular 40 S&W cartridge boasts a muzzle velocity of 1130 fps. At 50 yards, the bullet reportedly still is traveling at somewhere in the neighborhood of 1050 fps, depending upon barrel length.

At the muzzle, energy is approximately 470 foot/pounds.

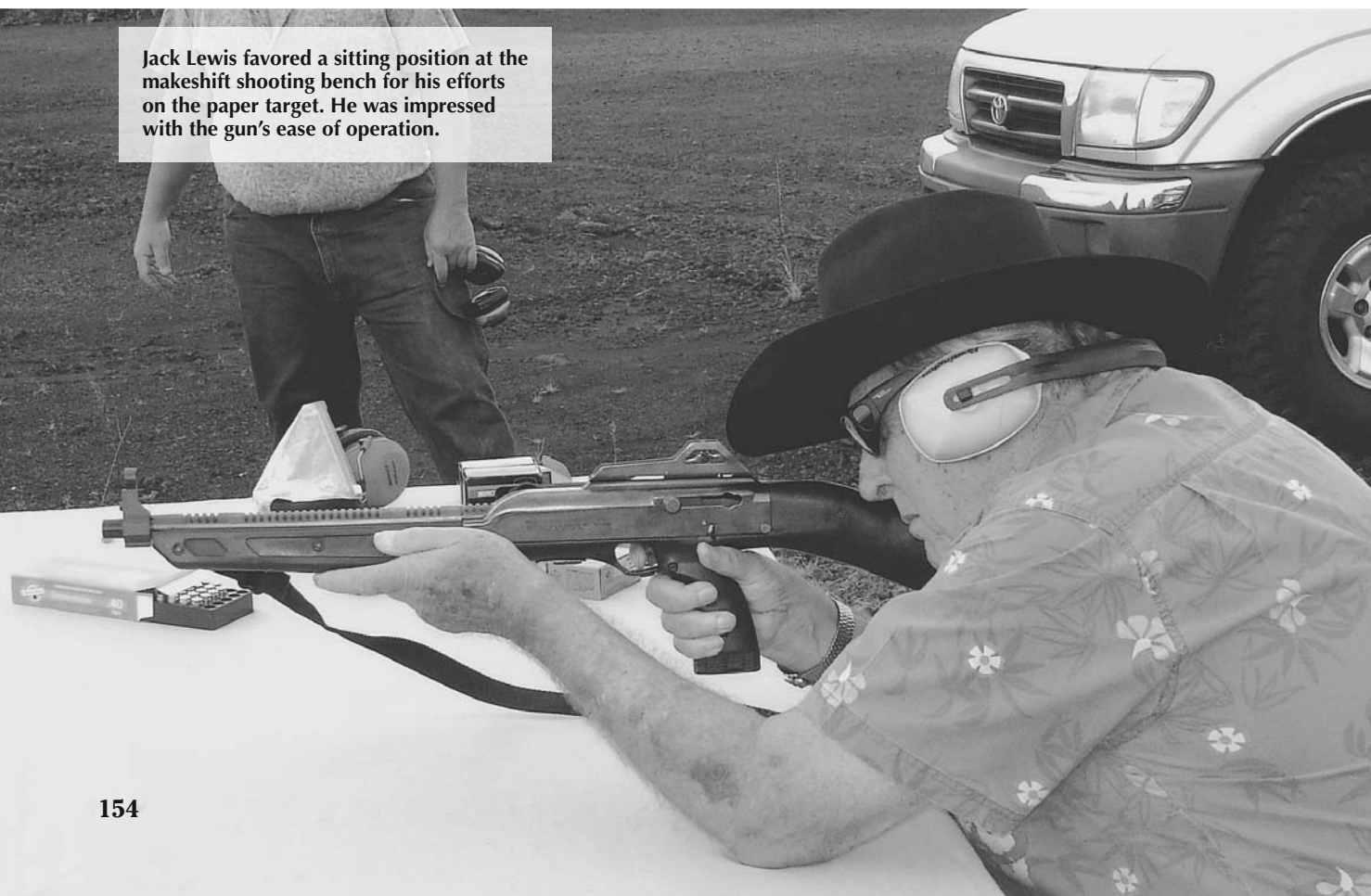
Satisfied with his adjustments, Kaminski stood up from the shooting bench where he had been making adjustments and returned to his offhand shooting stance. Using a stopwatch, Lewis clocked his performance and noted that it took him 12 seconds to empty the 10-round magazine. This time, all 10 bullet holes were in the heart area of the target.

The trade winds had picked up and were blowing a crosswind of close to 20 miles per hour, so Lewis elected to fire on the target from the folding table used as a shooting bench. He loaded up the same ammo

Kaminski had been using: the Winchester SXT 40 S&W cartridges. Before inserting the magazine, he tried the trigger on a pair of dry-fire shots, finding it a bit heavier than he prefers.

With Remington hearing protectors settled over his ears, he jacked a round into the chamber and clicked off the safety, then stared through the sights. The rear sight that had been installed verges on the so-called Ghost Ring principle. The front sight, a thick post type was encircled by a thick hood of blackened steel.

Jack Lewis favored a sitting position at the makeshift shooting bench for his efforts on the paper target. He was impressed with the gun's ease of operation.



Lewis took his time, aiming to the left of the group printed by Kaminski. The artist's impression of a black handgun being held by the paper bandit was clearly visible and he aimed at it. Squeezing off one round at a time, he fired until the magazine was empty, then removed the empty magazine and closed the bolt before laying the carbine on the table and trekking down to the target.

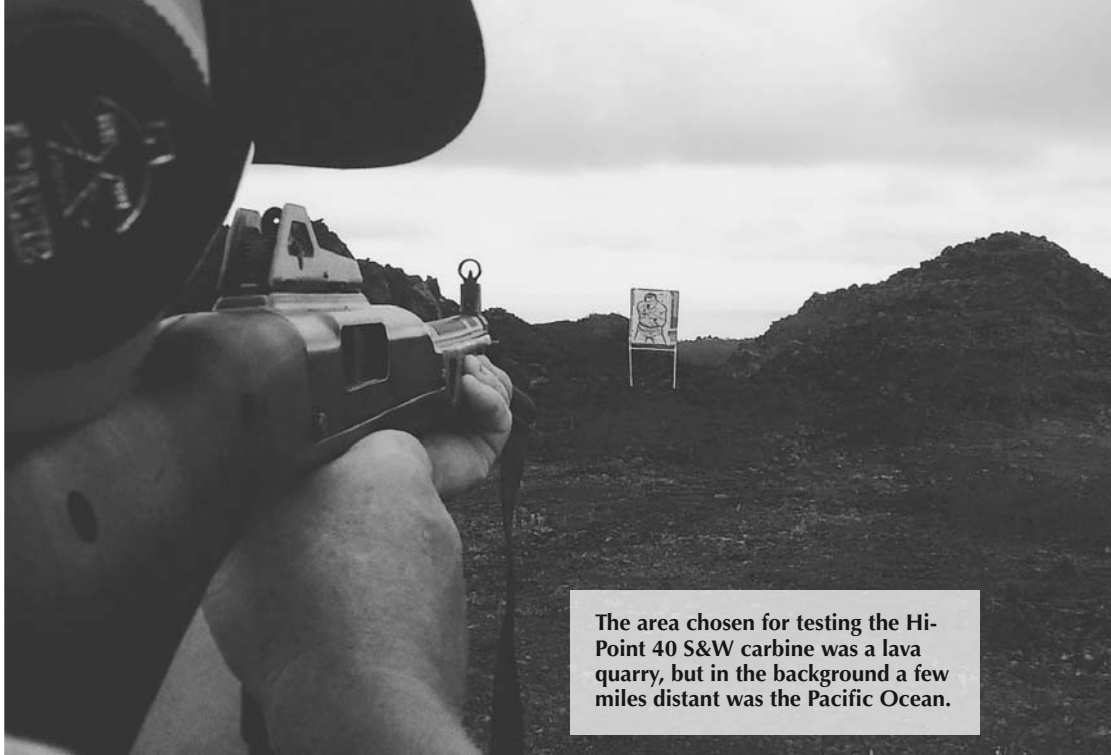
Inspection showed that not one of his 10 bullets had hit what would have been the metal of a real revolver had the target figure been holding it. However, seven of his bullets pierced the printed hand of the figure. Two more bullets had passed over the wrist area to strike the target in the chest area. The tenth round had pierced the subject's jacket cuff and would have continued on to do bodily damage.

During the course of the afternoon, the target was pretty well destroyed by additional firing with ammo from Black Hills and Federal. All three brands of the 40 S&W recipe fired without problems.

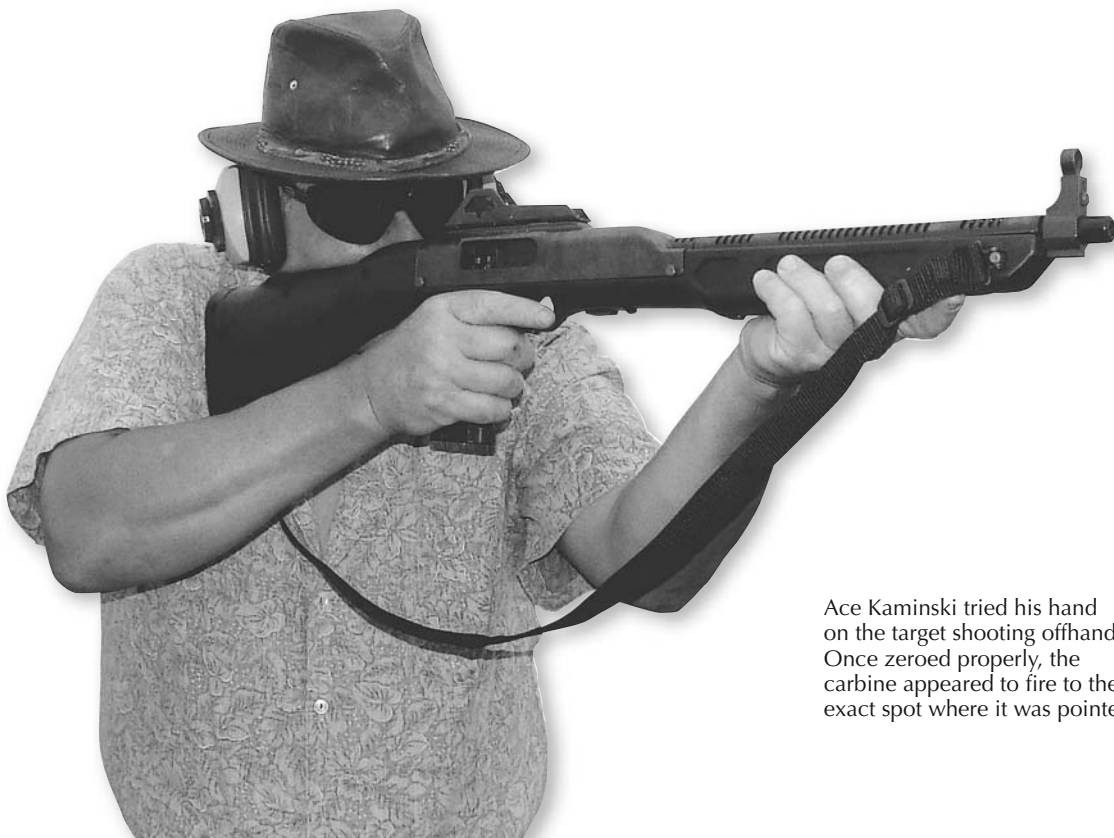
In taking a close look at the Hi-Point carbine, its construction appears to be somewhat crude, when compared to the shooting machines favored by the military that sell for well over \$1,500 each. But as

more than one individual has pointed out, the Russian-developed AK-47 is crude in finish and appearance, too, but it has played havoc with opposing troops from Vietnam to Iraq.

The carbine drawn for testing was listed as the 4095PRO and comes with a magazine pouch and two spare magazines. Actually, the carbine is being marketed in 11 different versions, dependent upon the accessories wanted. The firearm itself is available in the black finish fired for this chapter, but it also can be had with a chromed receiver and shroud or with a camouflage finish.



The area chosen for testing the Hi-Point 40 S&W carbine was a lava quarry, but in the background a few miles distant was the Pacific Ocean.



Ace Kaminski tried his hand on the target shooting offhand. Once zeroed properly, the carbine appeared to fire to the exact spot where it was pointed.

Beretta's 9mm Cx4 Storm

BERETTA HAS A long history of producing firearms for just about any venue one chooses. In addition to the M249 squad assault weapon – a 5.56mm machinegun – they now are getting into the home defense market. In addition to an ever-increasing line of handguns, they have come up with a futuristic 9mm semi-auto carbine that is versatile enough that a wife – or even trained teen-agers – should be able to handle it in a household emergency involving armed intruders.

Jack Lewis had heard of the Storm, but had not seen one until he made the acquaintance of Karl Schmidt and his wife. Schmidt is a professor of astronomy at the University of Hawaii in Hilo and his wife is a registered nurse.

Lewis frankly admits that in meeting Karl Schmidt, he expected a starry-eyed liberal with the opinion that he should be able to own firearms, but most people should not. Instead, our author met an individual who turned out to be a total realist, especially when it came to protecting his home and family.

The meeting took place at the Big Island Gun Club, which lies in the shadow of Moana Loa, one of the island of Hawaii's three active volcanoes. It was here that Schmidt, a full professor in his specialty, and members his family hone their skills with several firearms in their inventory, but the Beretta Storm seems to be the one they favor. It's possible that favoritism is based on the fact that the carbine is their newest acquisition, but its operational capabilities suggest that accuracy and ease of handling have much to do with the feeling.

Heckler & Koch, the manufacturer, describes the 9mm carbine as "a semi-automatic carbine; a sporting or personal defense firearm with a particularly captivating appearance and simplicity of use."

Lewis discovered early on that this carbine features a bolt safety and utilizes the familiar blowback operating system. A bit of a surprise was the discovery that the extractor, ejector and the cocking handle all can be reversed with minimum effort for easier use by either a right- or left-handed operator. The safety button and magazine release also can be reversed, although the supplied owner's manual strongly recommends that such changes be made only by a qualified gunsmith.

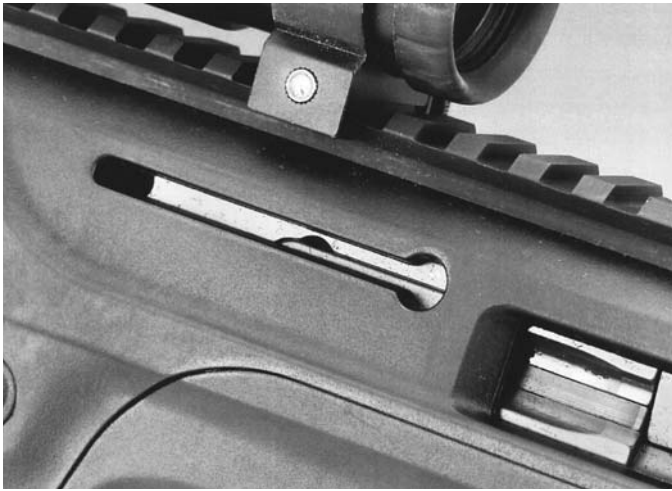
For those who may be unfamiliar with the blowback operating system, when the gun is fired, pressure created by the combusting gases pushes the cartridge case to the rear; this, in turn, drives the bolt to the rear. During this rearward action, the expended cartridge case is extracted and ejected.

The sequence just described recocks the hammer and, at the same time, compresses the recoil spring and moves the bolt forward until it feeds a new cartridge into the chamber. With the Beretta Storm, the designers arranged for the action to remain open after the last round in the magazine has been fired.

The reversible manual safety button blocks the trigger, but the safety can be engaged when the hammer is in either the cocked or decocked position. In working with the carbine, Lewis quickly learned that the button also can be engaged whether the bolt is open or closed.



The simplicity of the Beretta carbine's design is reflected in the array of stripped major components, including the receiver and barrel assembly, the bolt assembly and the buttstock.



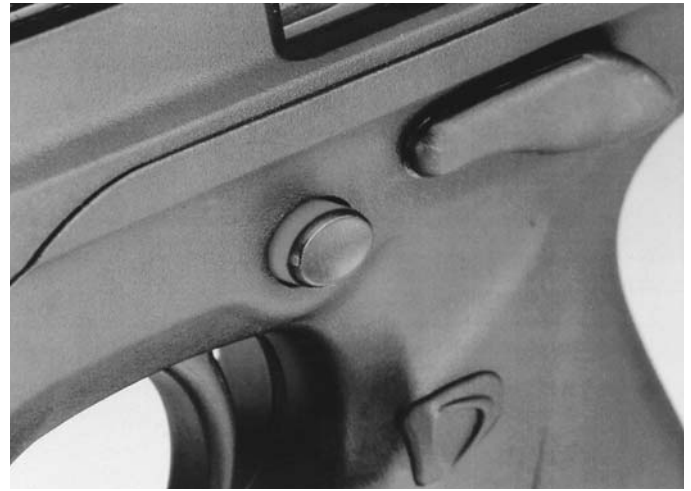
In Beretta's design for an ambidextrous firearm, the Storm is set up so the bolt handle can be installed on the left side of the gun and the fired cases may be ejected on that side of the receiver.

An automatic firing pin block is an added safety feature that prevents forward movement of the firing pin, until the trigger is pulled. This could be a valuable feature in a rough-and-tumble environment, where the weapon might be dropped or the hammer inadvertently dropped without the trigger being pulled.

The Beretta Storm's loaded chamber indicator is a small tab that protrudes from the bolt when a round is chambered. Both Lewis and the manufacturer recommend, however, that one pull back the bolt far enough to inspect the chamber for a live round. This may seem like gilding the lily, but this tab also is reversible.

One fact that the maker emphasized was that in order for the Beretta Cx4 Storm to be used in an emergency scenario, the magazine is not equipped with a magazine safety. Even if the empty magazine is allowed to drop, there may be a round in the chamber. In short, the carbine can be fired without the magazine being in place.

The Beretta's semi-auto mode is actuated by means of a single-action trigger pull. Lewis expressed some



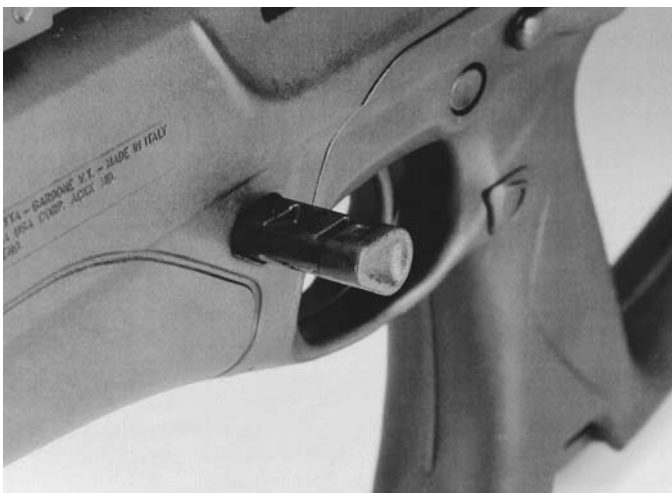
The Storm carbine's safety is the familiar cross-bolt type, which displays a bright red band when the weapon is in the ready-to-fire mode.

doubts about the wisdom of this, but the maker insists the system allows faster and more accurate firing of subsequent rounds.

As suggested earlier, the little Beretta fires the 9mm Parabellum cartridge and the maker can furnish magazines to handle 10, 15 or 20 rounds. However, a buyer also can order the carbine chambered for 9x21mm IMI, 45 ACP or 40 Smith & Wesson. As might be expected, depending upon caliber, magazine capacities vary.

The opportunity to fire the Beretta Storm came when Klaus Schmidt invited Lewis to the Big Island Gun Club, which is located on private property in a cleared strip of virgin jungle. Finding the shooting grounds took a little time, but once there, the university professor introduced Lewis to his wife, Marianne, also a shooter.

Looking over the carbine further, Lewis noted it had a frame and receiver cast from techipolymer, which led to the fact that, unloaded, the compact shooter weighs only 5.6 pounds. Contributing to the weight – or lack of it – is a 16.6-inch barrel of cold hammer-forged steel. Overall length of the Storm Lewis inspected was only



To disassemble the Storm, one need only push the disassembly latch in either direction. This allows the buttstock to be moved to the rear and off of the frame.



The carbine's buttstock also has been designed to be totally ambidextrous. It was noted that the piece even has sling swivels mounted on both sides of the stock.

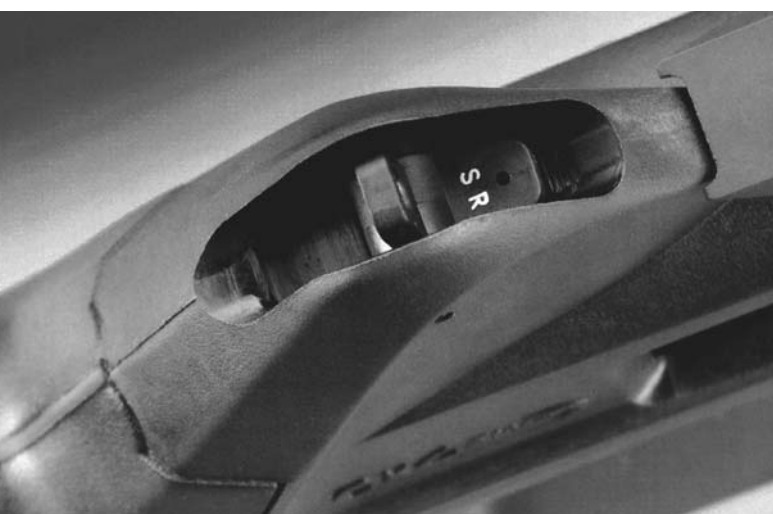


Any number of sighting devices can be mounted on the Storm's Picatinny rail. The Burris Savvy Optics Speed Dot scope can be fitted quite low to the barrel.

29.7 inches. However, the maker furnishes several spacers. If all are installed, overall length is extended to 31.5 inches.

The front sight of the Storm is novel in that it is fully adjustable for both elevation and windage. The rear sight is a two-position peep type. Both of the sights, Lewis found, were foldable so that a scope or other accessory could be installed on the Picatinny-type rail. Sight radius, incidentally, is only 12.9 inches.

Klaus Schmidt has installed a Burris SpeedDot scope, which he had chosen because the sighting device tends to hug the barrel and provide a low profile. Looking through it, Lewis found there were two options: One could sight with the red dot or one could utilize the peep arrangement. Klaus pointed out the red dot no doubt would be a plus in zeroing in on an intruder in a darkened room.



The Storm's rear sight is a folding type that can be positioned for either short or long-range shots. The more precise adjustments are made to the carbine's front sight.

Lewis, of course, was somewhat curious as to the background of the man and wife. He quickly learned that Schmidt had been shooting most of his life, as he was the son of a government forester in his native Germany. In his formative years, he had helped his father in timber cutting, reforestation efforts and game control.

"I hunted some with him when I was a teenager," Schmidt explained, "but my real introduction to firearms was during the period I served with the West German army. That was 1975 and 1976." The Schmidts came to the United States in 1986 and became U.S. citizens in 1998.

When they first began thinking in terms of self-defense for themselves and their two children, the man and wife settled on a lever-action Winchester 94 carbine that fired the 44 Magnum cartridge. As the pair began to shoot in IDPA matches, they found the tubular magazine slow to reload.

"In a fast-moving contest, being able to touch a control and drop a magazine before inserting a fresh one in the magazine well has a lot going for it," Klaus Schmidt declared.

The day Lewis worked with the husband-and-wife team at the shooting range they set up a standard 25 yard bullseye pistol target at that range. Using the more or less standard offhand position, the two of them took turns firing on the target, each one firing five rounds.

"When they were done, their groups weren't prize winners by any measure," Lewis says, "but either group could be covered with Marianne's lady-like hand."

To prove he could do better, Schmidt unrolled a shooting mat and went into the prone position, eyeing a fresh target. He squeezed off the 10 rounds in a matter of seconds and a quick check showed that all could have been covered by a silver dollar...if anyone could find one!

Reverting to a kneeling position, the shooter rammed home a fresh magazine carrying Black Hills 9mm loads, each cartridge bearing a 115-grain hollow-point bullet. With this arrangement, he repeated the dollar-sized group of his prone effort.

Lewis had an opportunity to work with the Storm, firing Winchester's jacketed hollow-point round,



The lever positioned above the trigger has been mistaken for a safety, but actually is the firearm's bolt release.



Jack Lewis had the opportunity to work with the Beretta Storm on the range of the Hawaii Island Gun Club. He found it lightweight and easy to hold and aim. He feels it would work well as a home defense tool.

which also carried a 115-grain bullet. There was no chronograph handy, but Lewis dug into some old records and found that when he had fired the Winchester round from another short-barreled Heckler & Koch model, the muzzle velocity had been recorded



Karl Schmidt, a professor at the University of Hawaii, learned his marksmanship in the modern German army before migrating to the U.S. He chose the Beretta Storm for its simplicity of operation and the minimal maintenance required.

as being 1248 fps, with muzzle energy in the neighborhood of 400 foot/pounds.

One of the things that impressed Lewis the most about the gun and its owners was the fact that they had taught both of their children to shoot, with such training again aimed at self-defense in the home.

Ruger's Auto-Loading Carbines

RUGER'S 40 S&W and 9mm Luger carbines have been around for something like a decade. The 9mm version was introduced in 1996, with the 40 S&W coming out of the factory the following year. At the time, rather than hard-core law enforcement tools, they were being touted pretty much as home defense items.

The two versions of the carbines now are included in Ruger's catalog of law enforcement firearms, but Jack Lewis feels perhaps the pistol-caliber guns still belong rightfully in the home defense arsenal.

"Considering the calibers of some of the other weapons being recommended for home defense, the Ruger carbine in either 9mm or 40 Smith & Wesson may make more sense," Lewis says, then is quick to add, "but that still means great care must be taken in handling

the carbine in either caliber inside a home, for bullets from either can pierce drywall to endanger individuals in adjoining rooms."

In the case of the 40 S&W, one does well to keep in mind that it was co-developed by Smith & Wesson and Winchester Ammunition to duplicate the light load of the 10mm pistol round.

When introduced nearly a decade back, The 40 S&W version of the carbine was known simply as the PC4. Today, with its new law enforcement role, it is officially listed in the Ruger catalog as the PC4GRLE.

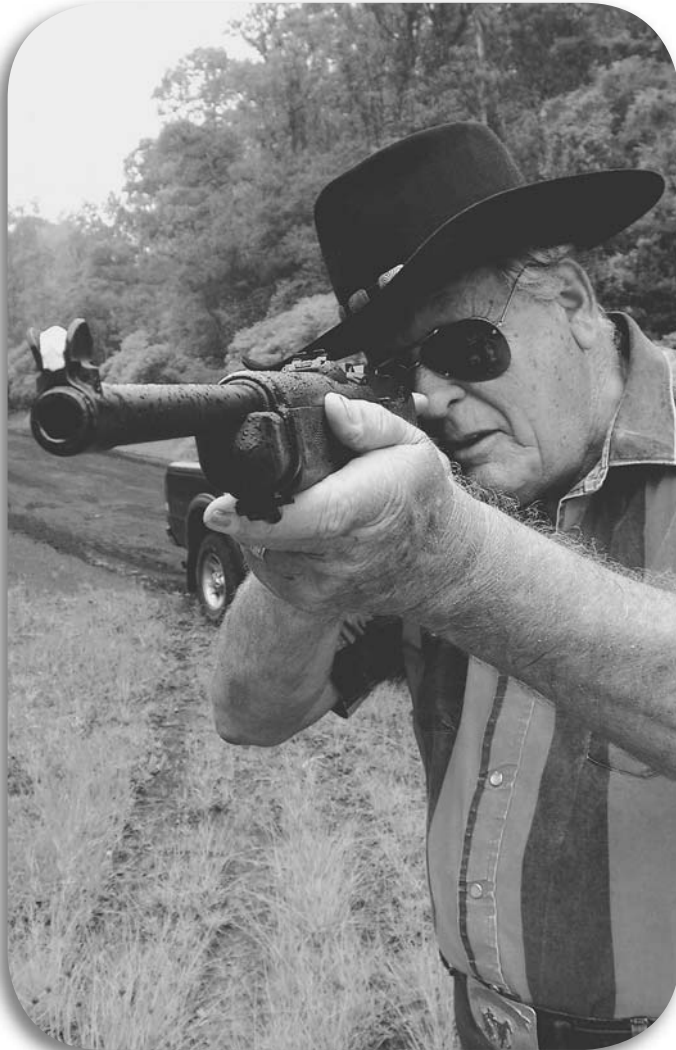
In view of the seeming upgrading to a serious law enforcement role, Lewis decided to check it out, using Winchester's 40 S&W SXT cartridge that carries a 165-grain jacketed hollow-point bullet. Since the area in



The Ruger carbine carries 10 rounds in the same magazine used for the company's auto pistol line. Winchester 40 S&W was used in the gun test.



The front sight of the carbine is protected by wings cast with the blade. The current issue of the carbine carries a ghost ring rear sight.



Lewis had difficulty in seeing the Ruger carbine's front sight against the jungle background. The problem was solved by marking the sight with a piece of masking tape.

which he resides is surrounded by tropical jungle, he was especially interested in the brush-bustin' potential of the caliber and more specifically, the cartridge.

Lewis' shooting pard, Ace Kaminski, had selected a spot in the jungle that offered a fairly clear shooting lane. The carbine being tested had standard iron sights, although a ghost ring rear sight was available as a special item. On the current production carbines, the adjustable ghost ring is standard equipment.

The little autoloader is a true carbine, measuring only 34.75 inches overall with a 16.25-inch barrel. It weighs 6.25 pounds with an unloaded magazine, which holds 10 rounds. Incidentally, this is the same magazine that is used in Ruger's P-series pistol line.

The piece features a blowback action and is equipped with a black Dupont Zytel stock that features non-slip checkering on the grip and forend. If there is a need, the receiver is machined to handle Ruger scope rings, although they are not included. In matters of safe handling, the carbine has a push-through safety mounted next to the trigger guard. In addition, there is an internal firing pin block safety with an automatic slide lock.

A series of plastic dummies from Law Enforcement Targets of Minneapolis, Minn., had been set up, the most distant being about 65 yards from the proposed shooting site. It was a dark, drizzling day and Lewis



The butt of the Ruger carbine features a ridged pattern that is an aid in holding on target. The stock and forend of the firearm are cast from Dupont's Zytel.



The stamping on this carbine plainly shows that it is 40-caliber, but the Auto marking does not indicate it is selective fire; only that it is an auto-loading weapon.

found that the wing-protected front sight was almost invisible against the jungle background. He had fired four rounds before he decided something had to be done. The problem was solved by wrapping a piece of white masking tape around the front sight. He then fired the other six rounds from the carbine.

Checking the three-dimensional cast PVC target, which was clothed in castoffs from a local second-hand store, it was found that Lewis apparently had missed the target completely with the first four rounds. The six fired after the makeshift improvement of the front sight all resulted in chest wounds on the plastic bad guys.

Both Lewis and Kaminski agreed that the trigger needed some work. While it was crisp enough, it took something over 12 pounds of pull to send a bullet downrange. In all, there were five such targets spaced along the trail. In picking them up, Lewis spotted a pair of twigs – actually tree branches roughly .75-inch in diameter – that apparently had been cut off by the 40 S&W bullets.

Later, Lewis checked the trigger of the carbine, using his RCBS Premium trigger pull scale. He was surprised to find that the trigger was tripped at 6-1/4 pounds! After discussion, the two shooters agreed that were they planning to keep the carbine for home protection use, it might be well to have a gunsmith reduce the pull weight to perhaps 4-1/2 pounds.

The brush-busting Winchester ammo exceeded Lewis' expectations. There had been no opportunity to chronograph it, but according to Winchester, out of a four-inch barrel, the 40 S&W SXT cartridge has a muzzle velocity of 1130 fps and a muzzle energy of 468 foot-pounds.

These findings regarding Ruger's carbine left us with mixed feelings. With proper loads and great care in firing, it might well serve as a home defense weapon. Lewis' personal opinion was that the gun probably would be best utilized in law enforcement pursuits.



Jack Lewis checks out the Ruger carbine closely before he gets involved in actual firing. His feelings are that its potential as a home defender is limited.

CHAPTER 16

IT'S NOT GRANDPA'S OL' SCATTERGUN

**The Combat-Oriented Shotguns of Today
Are A Far Cry From the Family Smokepole
of A Bygone Era!**

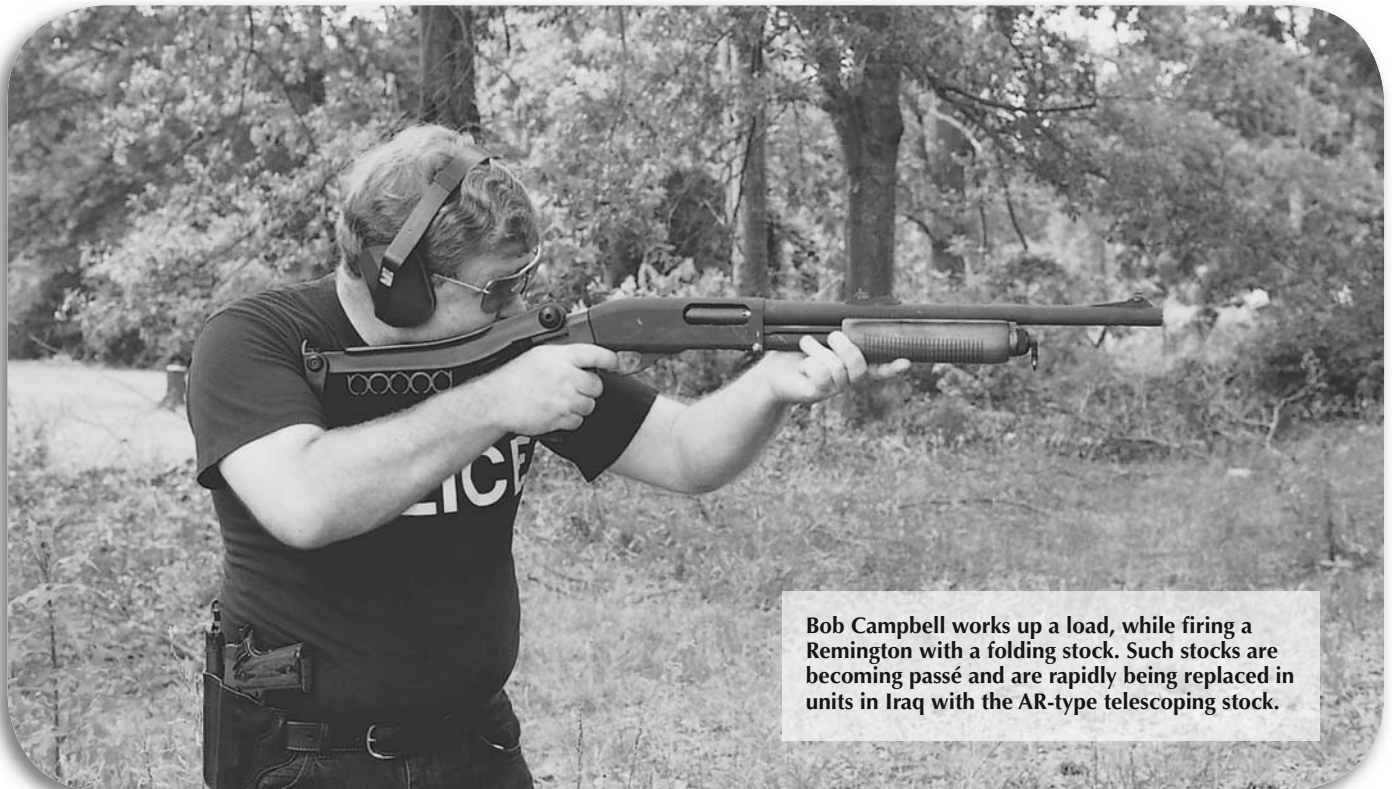
MILITARY AND LAW enforcement shotguns, until recently, have been based upon the sporting models with which most of us are familiar. Now, however, we are seeing with increasing frequency fresh and original designs intended specifically for combat use.

In the past, dependable shotguns such as the Winchester Model 1897 underwent considerable modification to enhance performance in combat. The Winchester trench gun, as it was called, featured a shortened barrel with a heat shield and a bayonet lug.

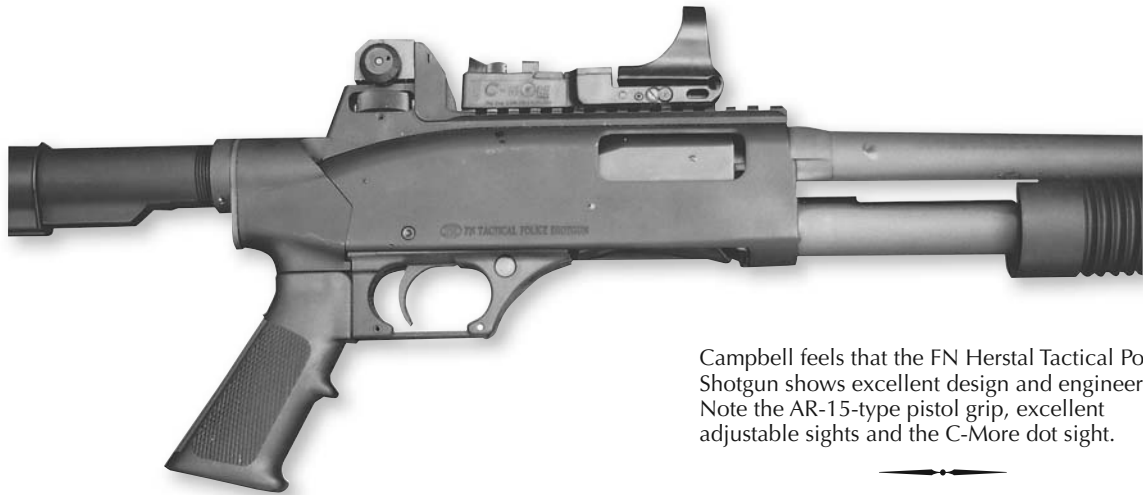
This venerable model saw service in the Philippines at the turn of the century and in Mexico a few years

later when General Pershing and troops went there looking for Pancho Villa. During the First World War, the old scattergun earned a distinctive reputation among the troops of the day.

"Indeed, the performance of the Winchester in the trenches insured a place in the line of battle for the shotgun for many decades to come," according to Robert K. Campbell, who has made a study of such weapons use in warfare down through the ages. "Interestingly, the combat shotgun was introduced into trench warfare before the submachine gun and continues in use long after the decline of the subgun in front line battle."



Bob Campbell works up a load, while firing a Remington with a folding stock. Such stocks are becoming passé and are rapidly being replaced in units in Iraq with the AR-type telescoping stock.



Campbell feels that the FN Herstal Tactical Police Shotgun shows excellent design and engineering. Note the AR-15-type pistol grip, excellent adjustable sights and the C-More dot sight.

For the most part, the combat shotgun has been a pump-action piece of weaponry. The manually-operated feature was chosen early on due to its reliability. While other types of actions have been tried, notably the now out-of-production Browning A-5 semi-automatic, the reliability of the pump action has made it a continuing choice by military and law enforcement agencies.

“A good, clean lubricated automatic may have been just fine, but a dirty pump gun keeps working,” Campbell opines. “Even today, with modern auto-loading shotguns offering good performance, the Remington Model 870 remains the standard by which all other shotguns are rated for reliability. The Model 870 has had over 50 years of hard use and has yet to rest on its laurels.”

As might be expected, the shotgun designed for combat has a shorter barrel than do most sporting arms. Eighteen to 20 inches is the norm, with the longer barrel usually mounted with an eight-round magazine.

Some entry weapons and special concealed-carry types feature barrels as short as 12 inches, but these seldom see military use. The Remington breaching gun has a barrel that is only 10 inches in length. This design gives the firearm the smallest possible profile, but this is meant as a contact range weapon.

“Experienced police officers working burglary/robbery teams rightly figure that the ideal barrel is one that is shorter than the stock, and I agree,” Campbell states. “However, considerable Federal paperwork is involved in order to register such a short-barreled weapon even for police agencies!”

The combat shotgun usually features an extended magazine that holds eight rounds. Campbell’s advice regarding these magazines is to use the factory-produced item. “I have yet to meet a magazine extension that equaled the reliability of those factory-produced by Remington or Mossberg,” he declares, adding, “I have never seen a Remington shotgun malfunction with anything offered by the factory, but that is not true of after-market parts that might be installed.

“The police riot shotgun usually is the same model and from the same maker as the guns used by military forces, but without the bayonet lug or heat shield. We see what is pretty much an even mix of standard and mixed magazine capacities in police work. Some shotguns have the standard four- or five-round magazine, while other agencies order shotguns with extended magazines to handle more rounds. Police scenarios call for fewer shots and the four-round capacity is seen as adequate. After all, the advantage of the shotgun is fire power, and I personally tend to go with the longer magazines.”

The chief advantage of the shotgun is the power of the 12-gauge shotshell. The probability that one not only will strike an adversary but also disable him – or her – with a single shot is higher than with any other shoulder-fired weapon.

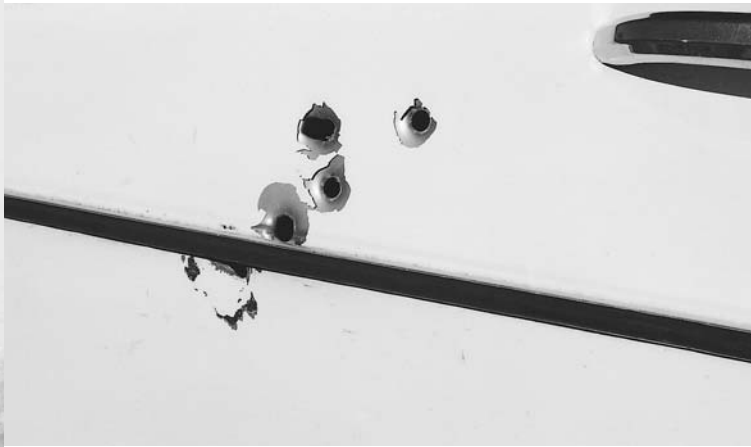
“I have viewed the aftermath of several shotgun shootings,” Campbell reports, “and I was consulted the same week I am making this report by my local sheriff’s department. The wounds are often extensive and almost always deadly.”



This is the stock developed by Mesa Tactical at its longest position. This is a stock that has been designed for a wide variety of tactical uses.

Mounted on a standard Mossberg 500 shotgun, this piece becomes more effective with the folding stock.





Against light cover such as this automobile door, buckshot can be effective, but Bob Campbell feels slugs would be even better.

“Early in my career, the standard load for my agency was Remington 00 buckshot. The familiar Maltese cross pattern of the wad holding the shot often was evident on the bodies of felons shot with this load.”

To 50 yards, Campbell contends, a tightly choked shotgun may be effective, but the more open choke of the typical riot gun is deadly to 20 yards with buckshot loads. After that, solid loads – slugs – are needed.

Until recent years, shotguns invariably carried only a bead-type front sight. This bead was meant to encourage shooting by feel and learning to lead a moving target such as a fast-flying duck or goose. The hunter only needed to land a few pellets on such aquatic fliers, as well as quail and rabbits, to produce a telling hit.

“But a combat shooter wishes to center his load to make certain the adversary is neutralized with a minimum number of shots. For general defense in the home, a bead-fitted shotgun is more than adequate, but for police and especially military use, the so-called



The text points out the versatility of the modern shotgun when it comes to the loads that can be handled. From left is a shell loaded with bird shot. In the center is a low-recoil shell carrying a one-ounce slug, while at right is a shell that can be used for marking with yellow paint!

Ghost Ring or aperture sight is in demand,” this law enforcement veteran feels.

The Ghost Ring sight does encourage rapid engagement of the target. The front post sits in the circle created by the ring, allowing for fast, accurate shots. Campbell has found that, with slugs, it’s not out of the question to place good hits on a man-sized target to 100 yards, using an accurate slug such as the Fiocchi Aereo.

“If you do not have an aperture sight on your weapon, a good source is Wilson Combat,” he reports. “These sights are available in several variations and offer excellent all-around utility. A fighting shotgun simply must have good sights and the Scattergun Express/Wilson Combat sights are a great addition to the piece.”

Readers of this tome probably have noted an increasing number of shotguns carrying rifle-like stocks. FN Herstal led the way with the development of their pump-action Tactical Police Shotgun, commonly called the TPS.

According to Campbell’s findings, “Commonality of feel with the service rifle is a desirable goal as long as the good points of the shotgun are not compromised. I have used the pistol grip shotgun with good results and find it a good choice for several shooting styles, but my personal FN Herstal semi-auto shotgun has the standard stock. The folding AR-15-type stock also is an excellent option for many operators.”

At present, a high-grade conversion unit is available for the combat shotgun. Solving several problems involved in getting dot sights on the shotgun properly, the Mesa Tactical High Tube stock adaptor mimics the stock grip and sight rail of the flat-top AR-15 rifle.

“This can be an aid in cross-training,” Campbell feels. “The buttstock extension tube is fitted high and flush against the receiver. This allows a good, solid cheek weld to the stock when using red dot sights. The top extension of the stock and adaptor work for mounting a quality dot sight such as the EO Tech. This stock offers an advantage not only to combat shooters but to competitive shotgunners as well.”

Campbell has tested the Mesa Tactical stocks on both the Mossberg and Remington pump-action shotguns. “The high tube stock made quite a change in handling my Remington and it took some getting used to. However, when fitted with the EO Tech sight, my range with solid projectiles was increased considerably.”



MK Ballistic’s rubber bird shot has been used in crowd and animal control with good results. Properly used, the shot is fired at the ground and allowed to bounce into the target.

As a home defender, Campbell developed this hybrid. It boasts an extended magazine tube and heat shield, but the folding stock is not strong enough, he feels, for serious military use.



Mesa Tactical also produces stocks that do not need an adaptor, as they are purpose-designed for shotguns and have a low-mount type that allows the use of standard iron sights.

Campbell contends that while there are a number of combat shotguns available, there also are hordes of perfectly reliable shotguns that can be made extraordinary by means of a simple upgrade. Another manufacturer that offers interesting gear is Knoxx Industries, a California firm. The company's Cop Stock is an interesting and effective shotgun stock.

"I have despised and avoided pistol grip shotguns since their introduction," Campbell declares. "I feel they are highly difficult to use and as much of a liability as an asset. I have seen few men who can handle them well, but a good short shotgun is desirable. The modern shotgun with the AR-15-type stock is not in the same class with the previous pistol grip shotgun. The former, with a three-position stock, can be popped out quickly for use or if used in the shortest position, can be used when one is encumbered with heavy gear."

The Knoxx Cop Stock offers another advantage, however. There is a special device in the stock that offers an advanced recoil reduction function. The stock actually moves like a piston, when the piece fires.

"After firing the Cop Stock in both the Remington and Mossberg versions, I find the unit something of a wonder," Campbell states. "Accuracy is not affected, but recoil certainly is circumscribed. Shotguns are synonymous with close quarters action and dynamic entry. The Cop Stock is well worth a look for those engaging in such actions."

The pump shotgun is popular largely due to its ability to launch multiple projectiles in a hurry. In short, the shotgun is a true weapons system with the capability of launching not only the deadliest of munitions but also non-lethal or crowd-control devices. While rubber bullets are available for some firearms of the rifled type, the pump-action shotgun stands alone in versatility and the ability to quickly disperse rubber shot, bean bags, tear gas and distraction devices.

As for personal defense and military-type loads, buckshot is useful to perhaps 25 yards and after that, slugs invariably are needed. At close range – 10 yards or so – the shotgun must be aimed as surely as a rifle, but beyond that range, spreading shot makes hits more likely and will produce one or more severe wounds. With practice and planning, the shotgun slug can be accurate to a hundred yards or a bit more. This, of course, requires a suitable launching platform, but slugs offer extreme penetration against light cover and are even effective against vehicles. Campbell has found that the M&K Ballistics QB slug is made of special composite materials that offer excellent penetration.

Today, there are several makers of munitions that market specific loads suited to special police and military problems. Royal Arms, for example, offers a shotgun-launched flash/bang that offers excellent results. Utilizing the accuracy of the Police Magnum Remington, it is no mean trick to launch a distraction device through a second or third-story window.

"Bean bags can take down suicidal subjects, leaving only a bruise, while disabling the subject long enough to allow him or her to be taken to the proper facility," Campbell reports. "There also are door-breaching loads. The one I tested most recently is from Engle Ballistic Labs and offers entry by shock – knocking the hinges from a locked door."

There are several other types of door-breaching rounds, including what has been called the Hatton round. The round usually is fired at five for six inches from the target and is aimed between the lock and the door jamb. Firing destroys the lock mechanism and allows the door to be pushed open.

A different approach is taken with rounds designed specifically for breaking door hinges. These are frangible slugs that are designed specifically to resist ricochets. Fired at the door hinges, these shells usually use a payload of dense zinc or lead powder that has been bound together, but disrupts upon impact. Some of the slugs are held together by strong wax!

The round is fired at the door hinge at contact range. The payload is not designed to penetrate, but to smash and jolt the hinges off the door. Thus, the risk to someone behind the door, such as a hostage, is minimized, although the hinges, jambs and doorway may be damaged beyond repair.

"These rounds are moderately useful in puncturing the tires of a felon's vehicle," Campbell reports. "I also

have tested these rounds against sturdy fire doors and the like. The degree of penetration can be surprising. However, if the EBR round strikes a solid hinge, it will perform as designed – knocking the hinge off and disintegrating."

As might be expected, there is some controversy concerning the shotgun in combat. Experienced veterans for the most part regard the shotgun as a superior close-range weapon, good for clearing houses and the like. However, many combat soldiers note that if one comes under fire from 100 yards or more, the shotgun is at a great disadvantage. While slugs may be accurate, the conventional shotgun has a low rate of fire.

"In the anti-personnel role, the shotgun remains a specialized weapon meant for close-range encounters, use by point men in urban battles and for guarding prisoners. In these roles, the shotgun remains the best possible choice now and for the foreseeable future," Campbell feels.

Checking Out the Sabre 12

JACK LEWIS AND Don Mitchell sometimes argue over who has been associated the longest with the firearms business. Lewis is considerably older and insists that his history dates back to 1942, when he enlisted in the Marine Corps and was issued his first M-1 Garand rifle.

Mitchell's Police Model Sabre is an auto-loader based upon long-proven design principles. A quality gun at an attractive price, it is configured for police and personal protection uses.



Mitchell's involvement began during his college years, when he was employed on a night shift by Harrington & Richardson to make barrels for the M-14 military rifle, which was the successor to the aforementioned Garand design. Along the way, he also served as corporate president for Colt, High Standard, Ithaca and perhaps a couple of others that don't come immediately to mind.

Regardless of who has seniority, Lewis is quick to admit that Brother Mitchell does know something about firearms. He now owns his own company, Mitchell Manufacturing Corp., in Huntington Beach, California. He may very well be the only chief executive of any gun-making enterprise other than Ron Barrett, who has worked with the tools and the lathe in gaining his knowledge of firearms function.

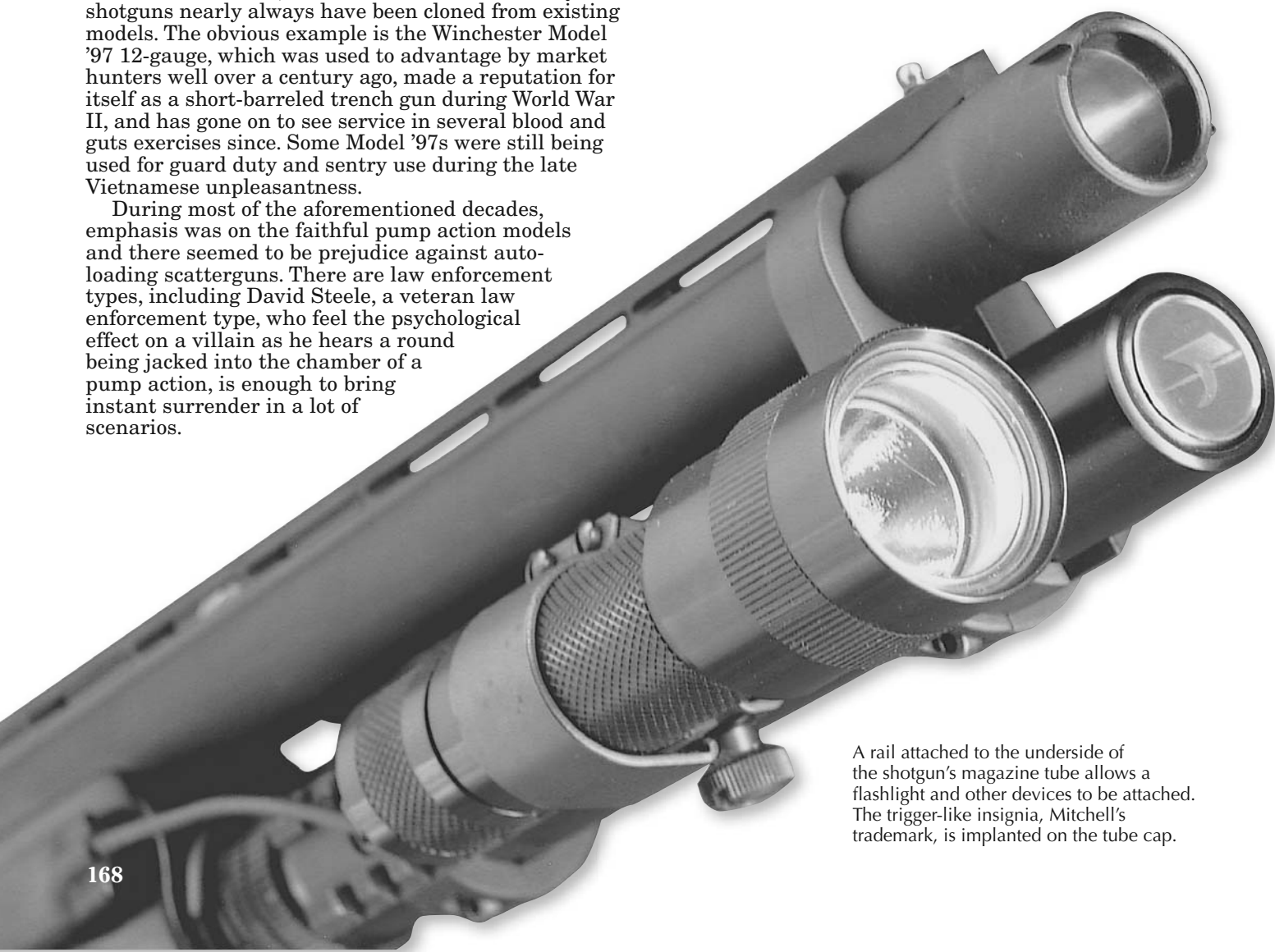
In addition to producing firearms carrying his corporate logo, Mitchell also imports those he feels meet the needs of American arms handlers—be they recreational shooters, law enforcement officers or the individual who feels an armed home is a safe home. This led to his introduction of the semi-auto shotgun he calls the Sabre Police model.

Over the decades, law enforcement and military shotguns nearly always have been cloned from existing models. The obvious example is the Winchester Model '97 12-gauge, which was used to advantage by market hunters well over a century ago, made a reputation for itself as a short-barreled trench gun during World War II, and has gone on to see service in several blood and guts exercises since. Some Model '97s were still being used for guard duty and sentry use during the late Vietnamese unpleasantness.

During most of the aforementioned decades, emphasis was on the faithful pump action models and there seemed to be prejudice against auto-loading scatterguns. There are law enforcement types, including David Steele, a veteran law enforcement type, who feel the psychological effect on a villain as he hears a round being jacked into the chamber of a pump action, is enough to bring instant surrender in a lot of scenarios.



An 18-inch barrel is available for the Police Model Sabre with this precisely adjustable rear sight. Jack Lewis found it an aid to accuracy when firing slugs.



A rail attached to the underside of the shotgun's magazine tube allows a flashlight and other devices to be attached. The trigger-like insignia, Mitchell's trademark, is implanted on the tube cap.



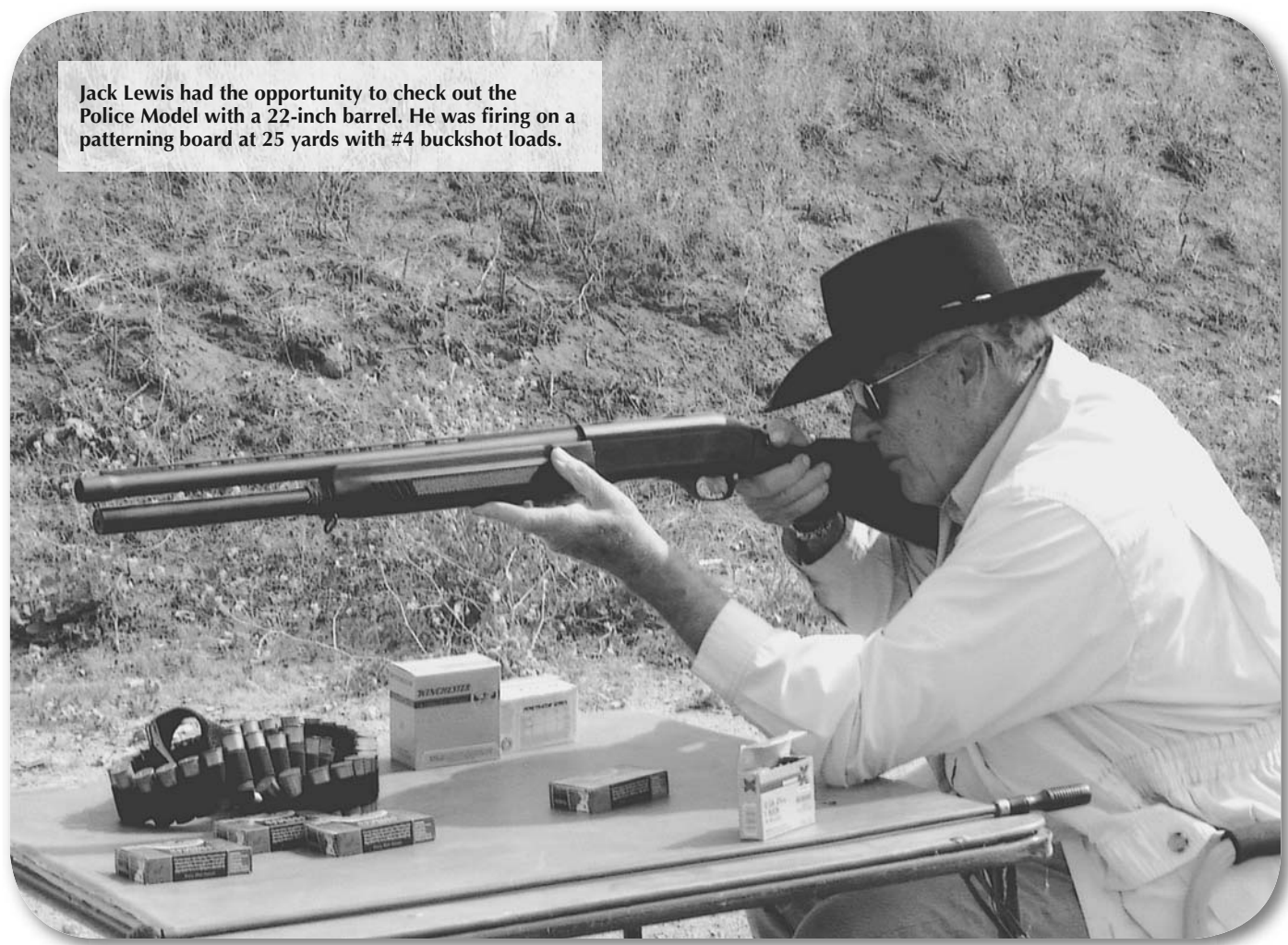
The Police Model Sabre is equipped with various rails onto which can be mounted additional equipment that might help win a firefight.

More recently, the semi-automatic M-1014 shotgun made in Italy by Benelli and marketed in the U.S. by Heckler & Koch, has been adopted by U.S. armed services. With this move, other semi-auto scatterguns gained respectability in the military and law enforcement circles.

Mitchell's Sabre Police scattergun is being imported from Turkey. Jack Lewis, when introduced to the weapon, commented that, "Anyone over the age of 40 who picks up the gun is likely to find it has a familiar feel." This is true, inasmuch as the 12-gauge shooter is derived from the specifications of U.S.-made shotguns that are old enough to have been in public domain status for some years.

"That Don Mitchell chose this particular model to import is based largely upon the fact that the design gained a lot of respect in its heyday," Lewis said.

The sporting version of the Sabre features a barrel-to-bolt locking system, a Turkish walnut



Jack Lewis had the opportunity to check out the Police Model with a 22-inch barrel. He was firing on a pattering board at 25 yards with #4 buckshot loads.

stock and quick-change barrels. The shotgun features dual action bars, as well as a bore, bolt and other metal parts that are chrome-plated.

The Sabre Police version of the shotgun has all of these features, except for the substitution of a black composite stock and forend. The action, barrel and tube magazine are finished in matte black and the chamber will handle either 2 3/4- or 3-inch shells.

With a supply of 2 3/4-inch slugs and buckshot loads, Lewis took the shotgun to a secluded area where there would be no discussion of his choice of test targets. From a local builder, he had obtained a warped interior door that was set up at 25 paces and staked in place. Behind this door was set up a printed target of a bad guy marketed by Kleen-Bore.

Mitchell Manufacturing Co. markets a batch of rails and brackets to facilitate the mounting of scopes, flashlights, lasers and all the other things a devout shooter doesn't really need, but just can't do without. However, the Sabre Police shotgun features a full-length ventilated rib and a bead front sight. At the range chosen, these assists seemed to be sufficient.

The Sabre shotgun is rigged to handle external chokes, but the only one furnished with the Police model was already mounted. Checking its measurement

showed it to be a Cylinder choke, excellent for use with buckshot and slugs.

Don Mitchell's import measures 42 inches in overall length and features a 22-inch barrel. Unloaded, its weight is approximately five pounds. The magazine tube of this semi-auto extends an inch shorter than the barrel and can handle eight rounds of 2 3/4-inch buckshot or slug-loaded shells such as we were using.

"My initial thought in handling the gun and thinking in terms of law enforcement use was that the barrel should be perhaps four inches shorter to make the shotgun easier to handle when getting in and out of a police vehicle," Lewis stated. "However, that idea has its negatives. If the barrel should be shortened, the magazine tube also would have to be cut down in length and that would reduce the load capacity to perhaps six, instead of the standard eight rounds."

The full-length vent rib is a nice touch, but Lewis felt a rifle-type front sight and a ghost ring sight at the rear might be better used in a combat situation. As for the idea of mounting a scope, Lewis felt somewhat negative about that.

"A scoped shotgun in a patrol car would be gilding the lily," he insisted, "and it would be just one more thing to hang up if one was trying to make a quick exit from a



The shotgun's name is etched into the receiver at the Turkish factory, where these firearms are being produced.



Paul Hantke, who helped with the tests, fired this five-round group at 25 yards from the bench. The group was fired with Federal Premium Vital-Shok slugs.

vehicle with the shotgun in hand. Scope-outfitted police guns are better left to SWAT personnel armed with sniper rifles.”

Brass door hinges had been attached to the damaged door and Lewis’ shooting pard, Ace Kaminski, stepped to the marked off 25-pace distance and shouldered the rifle.

“This should be simple enough,” he declared. The mission was to knock the hinges off the door with shotgun slugs. In this instance, the shotgun carried eight rounds of PMC slug loads.

Assuming his best offhand shooting stance, Kaminski triggered off four rounds at the top hinge to discover the feat was less simple than he had expected. The door had four punctures in its wood, but the brass hinges were intact.

After due discussion, Kaminski moved up to within 10 paces of the door and loosed the other four rounds in the magazine. Again, none of the slugs knocked off a hinge, although one apparently ricocheted off the brass surface.

“I think this really calls for a braced shotgun and a scope,” Kaminski decided, his ego slightly deflated.

Loading up the magazine with another eight rounds, this time Federal’s Tactical slugs, we went back to that 25-yard marker. Lewis took over to fire through the hollow-core door at the unseen bad guy target hidden behind it.

Without bothering to check the hidden target, the shooter then loaded eight rounds of Federal Tactical #4 buckshot and riddled the door in the area behind which a villain might be lurking.

The PMC ammo fired initially carried a Brenneke-type one-ounce slug that delivered a claimed 1600 fps

of muzzle velocity. The Federal Tactical rifled slugs were the one-ounce Hydra-Shock hollow-point. Muzzle velocity for this load also was 1600 fps, according to the manufacturer’s claims. Of the #4 buckshot fired, each round carried 27 pellets that boasted a muzzle velocity of 1325 fps.

Not satisfied, Lewis and Kaminski took turns firing some of the #4 buckshot at the brass hinges. There were several hits, but the pellets were not sufficient to knock the hinges loose.

As a finale to info-gathering, a 30-inch square of heavy brown paper was attached to a frame. In the center of the makeshift target a black marker was used to ink in a three-inch aiming spot.

At 25 paces once more, Lewis fired four rounds of the PMC slugs, then followed with four rounds of the Federal Tactical slugs. From his offhand firing position, he managed a group that measured roughly five inches in diameter. However, with the Federal loads there seemed to be slight tears in the paper rather than round punctures. This suggested that the Federal loads may have been tumbling as they struck the paper.

The only objection voiced by either shooter was from Lewis, who felt that the shotgun’s five-pound weight may have contributed to sharply-felt recoil. “The trigger is a real positive with little or no creep,” he said, “and it took about eight pounds of finger pressure to send a round down the barrel.”

Overall length of the shotgun for police use, Lewis still feels, calls for shorter overall length, perhaps sacrificing a couple of rounds in the magazine. As a home defender, the eight-round capacity should take care of any problems regarding unwelcome entrants.

Remington's Model 870 Max

WHEN ONE MENTIONS Remington and its venerable Model 870 pump action shotgun, there are those who tend to raise an eyebrow and let it be known they are not really interested in something that's old hat.

This attitude is heard from time to time in spite of the law enforcement successes of which the old 870 has been a part. More important, today's version of the venerable scattergun has been updated and is the basis for an entire law enforcement scatter-gunning system that offers a weapon to fit almost any situation.

Like a number of other major firearms manufacturers, Remington has set up a special operation to deal specifically with military, law enforcement and federal agencies. Heading up this segment of the arms empire at the time this of this writing was Greg Foster, a long-time corporate executive, who has been one of Jack Lewis' friends for several decades. It was he who convinced Lewis he should take a long hard look at Remington's new lineup. Then, the week that Lewis received the Model 870 MAX shotgun, Foster retired! However, the updated Model 870 was in hand; the important thing!

The shotgun as well as the M24 sniper rifle, another Remington product, were shipped from Fort Lewis, Washington, where they had been undergoing tests by U.S. Army personnel. Quick inspection showed that the shotgun was clean and ready to go!

Anyone who knows anything about shotguns realizes that the Model 870 has been around for decades in one configuration or another. Actually, it was introduced in 1950 as a tool for bird hunting and clay target-downing. However, it was not long before individual police departments across the nation came to recognize the capabilities of the model. A law enforcement version was introduced and soon was an instrument of choice in many a law enforcement vehicle.

The Model 870 MAX is what Foster had called "a true tactical shotgun with everything in place the way the shooter wants it." The law enforcement shotgun Lewis received was Parkerized, measured a handy and maneuverable 37.5

inches overall and boasted an 18-inch barrel. (It also is available with a 20-incher.) The standard stock for sporting guns has disappeared to be replaced by a Speedfeed IV full pistol grip buttstock. This stock features a 3-inch pull, which is designed for ease in handling and making it easy to mount it to the shoulder, even if wearing a protective vest. Weight of the shotgun unloaded was 8.5 pounds.

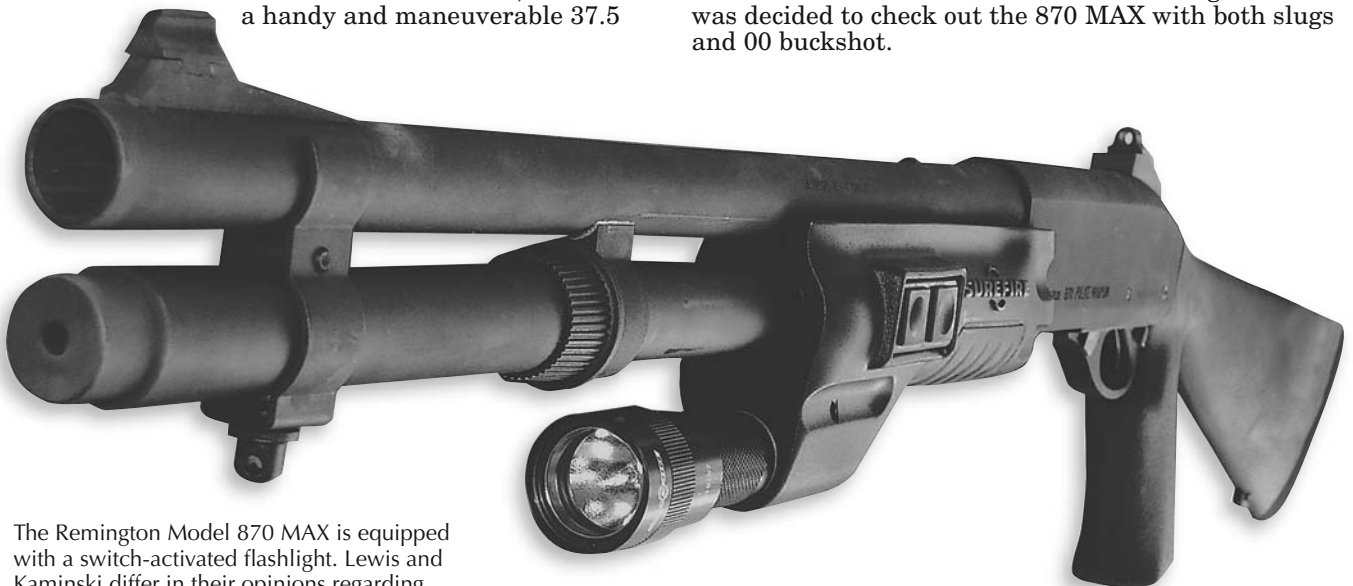
An additional and welcome upgrade is in the sighting system. The shotgun Lewis received wore a Ghost Ring rear sight and the interchangeable XS front sight from Wilson Combat.

The 870 MAX has a two-round magazine extension tube. With its 18-inch barrel, it was possible to load six rounds in the tube magazine and one in the chamber of the piece. There is also a redesigned recoil pad thick enough to cut down on felt recoil and aid in getting back on target for the next shot.

There was one addition that Lewis viewed with a bit of prejudice. That was a Surefire Tactical flashlight attached to the handguard. Having had long conversations with the so-called tunnel rats, who crawled into Vietnam's underground network armed with nothing more than a pistol and a flashlight, he had learned that most of them tended to fire at what might be a target...then turn on the light to see what had been hit.

It has long been his personal feeling that attaching a light to the weapon is offering a definite target for the opposition. Back in the 1960s, law enforcement agencies including the FBI were teaching officers to hold the light at arm's length away from the body. However, Ace Kaminski, Lewis' shooting pard and a working Hawaii law enforcement agent, favors the light on the stock, declaring, "If you can get the light on the suspect fast enough, it blinds him. That allows the officer to get the first shot if that route becomes necessary."

Lewis had recently suffered a separated shoulder in an auto crash and was still nursing the injury, so Kaminski was elected to handle the shooting chores. It was decided to check out the 870 MAX with both slugs and 00 buckshot.



The Remington Model 870 MAX is equipped with a switch-activated flashlight. Lewis and Kaminski differ in their opinions regarding use of such an aid in a combat situation.



Remington's Model 870 MAX is the familiar pump-action shotgun that has been redesigned to be more effective as a modern law enforcement weapon.

Several five-round packets of Remington Slugger loads had been obtained, each shell carrying a one-ounce rifled projectile. Overall length of the slug loads was 2-3/4 inches. Remington as well as others make a three-inch slug round that the 870 MAX is designed to handle, but it was decided not to involve the longer shells in the upcoming tests.

This particular slug load has been a Remington product for some years, but with the new emphasis on law enforcement, design improvements have come to include a larger diameter for the slug, thus offering a better gas seal. Also new to the round is a high-density polymer disk which rests beneath the slug. The purpose, Lewis was told, was to "Produce a perfectly aligned exit from the muzzle for dramatically enhanced accuracy."

Since the 870 MAX offers two possibilities – slugs or buckshot – for putting an outlaw out of business, it was decided to check out both approaches. Kaminski had located a flat area – actually an open plain of hardened lava – located on a friend's cattle ranch perhaps a dozen miles from where the Kilauea volcano has been spewing molten rock into the Pacific Ocean for more than 20 years.

It was at the edge of this area, where grass disappeared and volcanic ash replaced it, that the pair erected three targets. Each one carried the same bad guy image that is printed on the Municipal Police Training Council Combat Target. This image constituted a life-size figure of a baddie pointing a black-printed revolver directly at the shooter.

Using a steel tape measure, Lewis then marked off three positions: 7, 15 and 25 yards from the cluster of targets. All of this was part of the plan to determine

what kind of patterns would result by firing 00 buckshot at each of these ranges. As Shooter-of-the-Day, Kaminski, 870 MAX in hand, stepped up to the seven-yard mark.

"Use the figure of the handgun as your aiming point," Lewis suggested. The thought brought a nod from the man who was standing on the mark, bringing the shotgun to his shoulder. Kaminski triggered off his first round, pumped a fresh shell into the chamber and repeated the effort. The ammo he was using was Federal's Power Shok 00 buck. Each round carries the standard nine pellets, which reportedly depart the muzzle at some 1325 fps.

Stepping close to the target, both the shooter and observer were surprised to see that not one of the 18 pellets fired had holed the image of the black revolver, although three pellets punctured the hand that was not holding the gun. The rest of the pellets were grouped rather closely in the figure's lower chest and stomach area.

"Looks like one should shoot a little higher at seven yards," Kaminski ventured, as he walked back to the 15-yard marker. With four rounds still in the shotgun, he took his time in aiming, then repeated the earlier performance: shoot, pump, and shoot again!

The pellet count of the 18 pellets from the two rounds showed that all had pierced the baddie's figure, including three holes in the head and three more in the immediate area of where the heart would be. As before, Kaminski said he had used the printed reproduction of the black revolver as his aiming point.

The shooter moved back to the 25-yard marker, where two more rounds of 00 buck were fired on the third



The flashlight is mounted in the forward section of the shotgun's slide handle. Note the switches for the light just above it.



A search of the rubble after the shooting sequence turned up just one misshapen slug. Needless to say, it was badly deformed by its contact with concrete blocks.

target. On this one, dispersion was quite broad. Of the 18 pellets from the two shotshells, only 14 were on the paper. Two of the holes were in the head of the figure, while the other eight were scattered across the body. Four of the pellets punctured the paper outside of the printed figure.

There is little doubt that at the 25-yard range, the villain would have been put down and probably killed, but Kaminski shook his head. "At this range, I'd have more faith in slugs," he announced.



Ace Kaminski, who conducted testing of the Remington 870, was impressed with the handling qualities of the firearm. He is a fan of the pump-

A load of cinder blocks had been hauled to the site and 10 of them were stacked up, then a three-dimensional plastic target was erected behind the stack. The dummy was dressed in a heavy war surplus jacket and a cap. Most of this figure was concealed behind the stack of cinder blocks, the shoulders, neck and head being visible.

For this exercise, Kaminski loaded seven rounds of 2 3/4-inch Remington Slugger rifled slugs – six in the magazine and one in the chamber. From the 25-yard marker, he aimed his first shot at the head of the figure. The shot sent the billed cap flying, but seemed to do no serious damage to the figure itself.

The mission was to destroy the stack of cinder blocks – and the figure positioned behind it. Kaminski fired a single round at the center of the stack, and then walked down to inspect this initial damage. The inspection showed that from the front, the chosen block had been split across its center. When checked from the rear side, however, the entire rear section had been blown away, reduced to a pile of chips.

Back at his 25-yard marker, Kaminski fired the remaining rounds in rapid succession, causing the broken blocks to tumble into each other. The bottom tier of blocks remained untouched by the slugs, but were sufficiently chipped to be made unusable for building purposes.

As for the target behind the stack, close inspection of the dummy revealed that the first attempted head shot that sent the cap flying had taken off the plastic figure's ear. The war surplus jacket and the figure beneath were checked out and there was no evidence that any of the slugs had penetrated either.

The test team pondered these results and came up with no answers. Remington also manufactures the Slugger in a 3-inch version and it was decided to repeat the experiment with another shotgun yet to be tested, using the 3-inch magnum slugs.

FN Herstal's Combat Self-shucker

A LOOK AROUND should convince most knowledgeable shooters that there are few purpose-designed fighting shotguns. Every one of the pump-action scatterguns used by the military and law enforcement started as sporting projects and, as mentioned earlier, that statement applies to the Mossberg 500 series and the long-vaunted Remington Model 870.

"That may be one of the reasons the semi-auto has failed to survive in combat situations," Robert K. Campbell suggests. "It has long been unwritten doctrine that the semi-auto shotgun should be given the lion's share of time and care to keep it operating. Meantime, the venerable pump-action scattergun can be neglected and still work."

Understand that your collective authors do not recommend neglecting any type of combat gear, especially in a battle environment, but the fact remains that the pump gun can take it. On the other hand, there would seem to be an obvious advantage for the semi-auto pellet flinger, if the reliability hurdle could be overcome.

"Were that the case, there would appear to be an obvious need for a semi-auto. The advantages are many," Campbell insists. "While a skilled shooter may handle the pump shotgun quickly, the smart money is on the self-shucker when placed in the hands of the average operator. The rate of fire is superior and the semi-auto action allows concentration on trigger press and hold without the need to cycle the mechanism. In certain situations, the auto-loading shotgun can be fired repeatedly with just one hand.

"The pump gun can be fired with a single hand, too, but only once," Campbell is quick to point out. "I am aware of a brave FBI agent, who fired his pump action shotgun repeatedly with one arm – the other arm was wounded – but this was an exceptional man."

The semi-automatic shotgun also offers the advantage of being gas-operated. This operation bleeds a bit of gas out of the barrel to slam that gas against the bolt, forcing the bolt to the rear and recycling the action. These moving parts tend to soak up some of the gun's recoil, making for more comfort.

The disadvantages for the semi-auto scattergun include the requirement for greater maintenance and there is a

recognized difficulty in using specialty loads. For example, rubber buckshot loads, as well as some others, will not cycle the action.

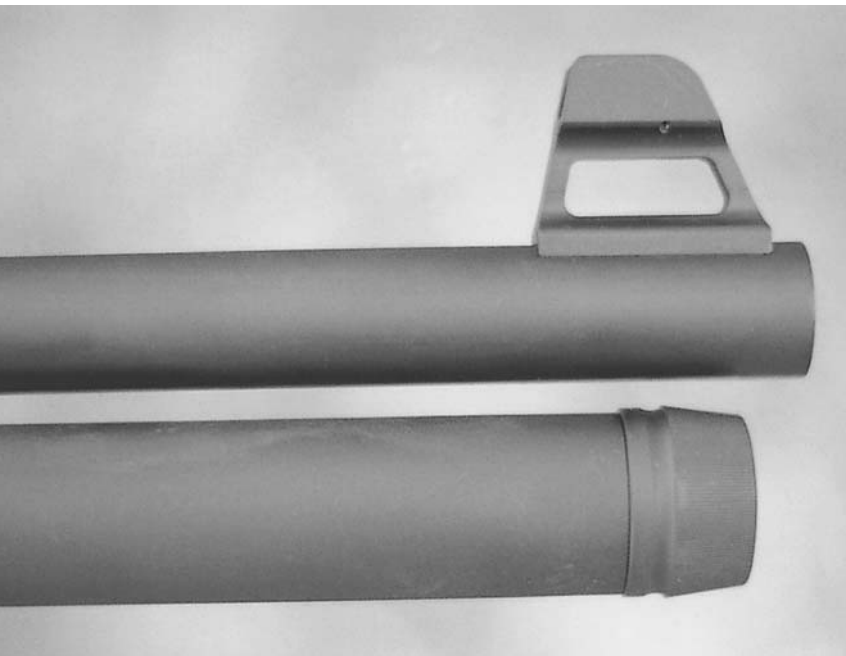
"However, that may be an overrated shortcoming," Bob Campbell contends. "To fire the semi-auto as a single shot, one may lock the bolt to the rear, load the



In a pinch, Campbell found, a round can be loaded quickly directly into the shotgun's chamber. He has more confidence in the SLP than in other autoloaders.



After a round has been loaded, one need only press the bolt release to chamber the round and be ready to rock and roll!



Instead of the usual bead front sight, a sturdy rifle type is installed as standard on the FN shotgun.

shell, then drop the bolt and fire. After firing, simply work the bolt and eject the spent shell. As long as the magazine is empty, it is possible to change munitions quickly without a great deal of complication. After all, non-lethal rounds are used in non-lethal situations, most often these days with a specially marked shotgun, so there is little in the way of controversy that really sticks to the self-loader.”

FN Herstal produces several interesting weapons, including rifles and machine guns that are currently in service with our Armed Forces. FN is credited with introducing one of the first pump shotguns especially equipped with features of the AR-design military rifle. This particular model features an AR-15 stock as well as AR-type aperture sights.

More recently, FN Herstal has been devoting time and resources to introducing a line of semi-automatic shotguns for police and military use. One of these – the FN Self-loading Police Model (SLP) – is more conventional than those that have taken on much of the look of current military rifles, but it is Bob Campbell’s personal favorite.

“This gun,” he states, “retains the handling and general feel of the shotgun that allows incredibly rapid hits at moderate ranges. It appears that the



In working with the Belgian-made autoloader, Campbell found it offered excellent cheek weld on the stock and what he considers excellent sights for getting on target.

features inherent in the design tend to make the SLP superior to anything that has gone before!"

It is wise to remember that this particular shotgun was designed from the ground up as a fighting tool. The shotgun carries a six-round magazine, but allows a seventh round to be carried in the chamber. Length of the barrel is 18 inches with chambering for three-inch magnum shotshells. Overall length is 39 inches. Unloaded weight is 7.7 pounds. Capacity of the magazine is six rounds of 2 3/4-inch shells or five magnum-length rounds.

"Unlike shotguns that are supplied with a simple open Cylinder choke, the SLP model comes with two, both of them the interchangeable Standard Invector choke tubes. One tube provides a Cylinder bore, the other Improved Cylinder," Campbell found in working with the shotgun. "The Cylinder bore is suitable for slugs and most buckshot, but the Improved Cylinder offers a bit more reach when needed. While some experimentation is required to qualify the shotgun's performance with different loads, I found that the piece offers performance superior to other designs carrying the Improved Cylinder choke tube.

"Birdshot, buckshot and slugs work well with this choke tube," he adds, "but one must remember never to fire the SLP without a choke tube installed. This would result in damage to the threads that hold the choke in place."

Campbell found the gas system interesting simply because he did not recognize it as being used in anything before introduction of the SLP. Known as the Active Valve System, it is touted as a gas management arrangement that adjusts automatically to use exactly the amount of gas needed to cause the shotgun to function reliably with a variety of shells.

"The finicky side of semi-automatic shotguns is well recognized," Campbell says, "but this system prevents the battering of a gun that is set for birdshot, then fired with buckshot.

"When a powerful shell is fired, a specific amount of gas is bled off of the discharge by means of a small vent in the barrel. This energy is used to operate the gun's action. In turn, the reciprocating parts absorb some of the energy of the fired shell. The result is less recoil than one would expect."

Considered an advantage of the FN product is cycle speed. The extraordinary speed aids in control. As one shooter commented, "The gun doesn't have time to kick you!"

"Make no mistake," Campbell warns. "The recoil of an eight-pound shotgun firing full power buckshot is noticeable, but the FN SLP is a great platform for harnessing this type of ammo. While the Active Valve System works as advertised, a second gas chamber is provided to allow the use of a broader range of munitions."

As a means of keeping the weight down, the SLP is produced with an aircraft-grade aluminum alloy receiver. The gun's safety is the cross-bolt type that is positive in operation and easily actuated. Campbell found the trigger action to be crisp, breaking at approximately four pounds with little creep and no backlash. Reset he found to be rapid, complimenting the rapid action cycle.

All metalwork on the FN product features a black manganese phosphate finish. The finish is

non-reflective, an important consideration for a gun that as likely as not will see some service in dim light or under dark conditions.

The stock and forend are of a high-impact synthetic that features an aggressive checkering pattern in the pistol grip and forend. Steel sling swivels are installed during production.

"A measuring tape shows a 14 1/4-inch length of pull," Campbell found. "This is a shorter length than for many shotguns and I feel is suited to all-around use for most shooters." The stock carries a heavy-duty ventilated recoil pad. He also noted that sight radius for the shotgun is 17.6 inches.

Campbell has come to believe that one of the great advantages of the FN shotgun is the sight system. The Weaver pattern cantilever optics rail will accept a number of sights, including his preferred EO Tech Red



Campbell felt this target from Law Enforcement Targets was literally "eaten up" by a combination of slugs, buckshot and even bird shot. He found that buckshot spread at the 25-yard range, but all the pellets were on the paper.



The rear sight of the FN auto-loading shotgun is of the Ghost Ring-type that allows one to get on target in a hurry.

Dot sight. The rail is supplied with an adjustable battle sight. This sight is the proven Ghost Ring type, but also is fully adjustable.

"This is an adjustable sight for hard use and offers a degree of accuracy I have not seen in previous efforts," Campbell states. "I have experimented in fitting to this rail not only the EO Tech, but also the Wilson Combat backup iron sight designed originally for the flat-top AR-15 rifle. Overall, the sights are among the shotgun's best features. The front sight is a protected post that is clearly visible and can be acquired instantly, when the eye is centered in the rear aperture."

The shotgun is supplied with two gas pistons. One carries a black rim and is used for heavy loads. The other piston is red-rimmed for standard rounds. Campbell found that changing the piston is a relatively straightforward exercise. One first removes the gun's forearm. This is accomplished by first unscrewing the magazine cap and sliding the forend forward. The forend then should slide off the magazine tube. There is a small part called the magazine sleeve that rides inside the forearm and this also comes forward with the forend.

To change the gas piston, one first locks the bolt to the rear, and then removes the barrel by pulling it forward and off of the receiver. The gas piston, gas piston sleeve and gas sleeve spring will slide off of the magazine tube. The gas piston is slid away and the desired piston replaces it. Assembly then is accomplished in reverse order, but one must remember that the small end of the gas piston fits to the rear side of the gas block.

"As suggested, the two gas pistons afford the shotgun more versatility than is the case with most semi-auto shotguns," Campbell feels. "I have been able to use full-power loads and even some reduced recoil loads, but one must be certain to check the function with the load of choice. Your life could depend on it!"

In testing the FN SLP, he used standard semi-auto shotgunning techniques. By loading the first round into the chamber, then lowering the bolt, then topping the magazine, he was able to keep the gun in action, firing hundreds of rounds of full-power Winchester buckshot

without incident. "The piece is fairly comfortable, especially for a 12-gauge firing Magnum ammunition, and repeat shots were no problem," Campbell reported.

He found the sights well suited to the task of quickly finding and dispatching a threat. As for accuracy with slugs, he admits he was surprised. Firing offhand at 25 yards, on more than one occasion he placed two slugs in virtually the same hole in the target. Not one to be carried away, he credits this success to basic design, good trigger action, excellent sights and quality ammunition. "The Brenneke slugs performed well even at 100 yards," he reports. "The new KO loading was especially appreciated."

Let's face it, though. The semi-automatic shotgun currently remains less reliable than the pump-action and a specific amount of care in lubrication and maintenance is required, but Bob Campbell feels that "with a clean and lubricated SLP and good ammo, one is well armed. Repeat shots are delivered in the blink of an eye and the piece responds well for a practiced shooter."

During his series of tests, he conducted several long-range experiments with buckshot. While dispersion of buckshot more or less fits a familiar pattern, it isn't all that well-known that that buckshot strings out vertically and horizontally, but from front to back as well. Campbell contends that, when firing at a target or a group of threats, "the rearward string may well take out what the first string missed."

It has been accepted that modern-made slugs are effective at close range and reasonably effective beyond a hundred yards. Professionals who know about such things invariably recommend the slug over buckshot whenever feasible.

"The slug certainly has adequate penetration against light cover, which buckshot may not," Campbell feels. "A full-power slug stays in the body more often than not in a critical incident. Reduced recoil slugs often lack sufficient velocity to instigate upset and they do not fly in as flat a trajectory as do the full-power slugs. As for the FN Herstal, I felt it preferred full-power loads and that's what we used for testing. The results were good."

Mossberg's 590 Nine-shooter

O.F. MOSSBERG & Sons, Inc., makes the boast that it is America's oldest family-owned firearms manufacturer and a lot of farm and ranch families had Mossberg shotguns in the family tool inventory over the decades. The company entered business in 1919 with a handgun called the Brownie, a 22 LR that was said to be a clone of the Sharps Pepperbox of the 1800s.

In civilian circles, at least, little note has been made of the fact that Mossberg shotguns have been a primary tool of U.S. Armed Forces through several wars and have been a preferred 12-gauge blaster with numerous law enforcement agencies across the nation. Mossberg refers to this cataloging as the company's Special Purpose line.

Iver and Alan Mossberg still head up the company and with sales manager Dennis Kendall have expanded their combat shotgun representation in recent years. They have two related lines – their Model 500 and the Model 590 – The difference being that the former handles six rounds of 2 3/4-inch ammo, while the 590 guns carry a ready nine rounds, including one in the chamber. The 590's Speedfeed stock carries four more rounds inserted into spring-loaded holders to be ready at hand.

In 1979, after rigorous mil-spec tests, the Mossberg 500 was selected by the U.S. military as their pump-action of choice. In the commercial form the 500

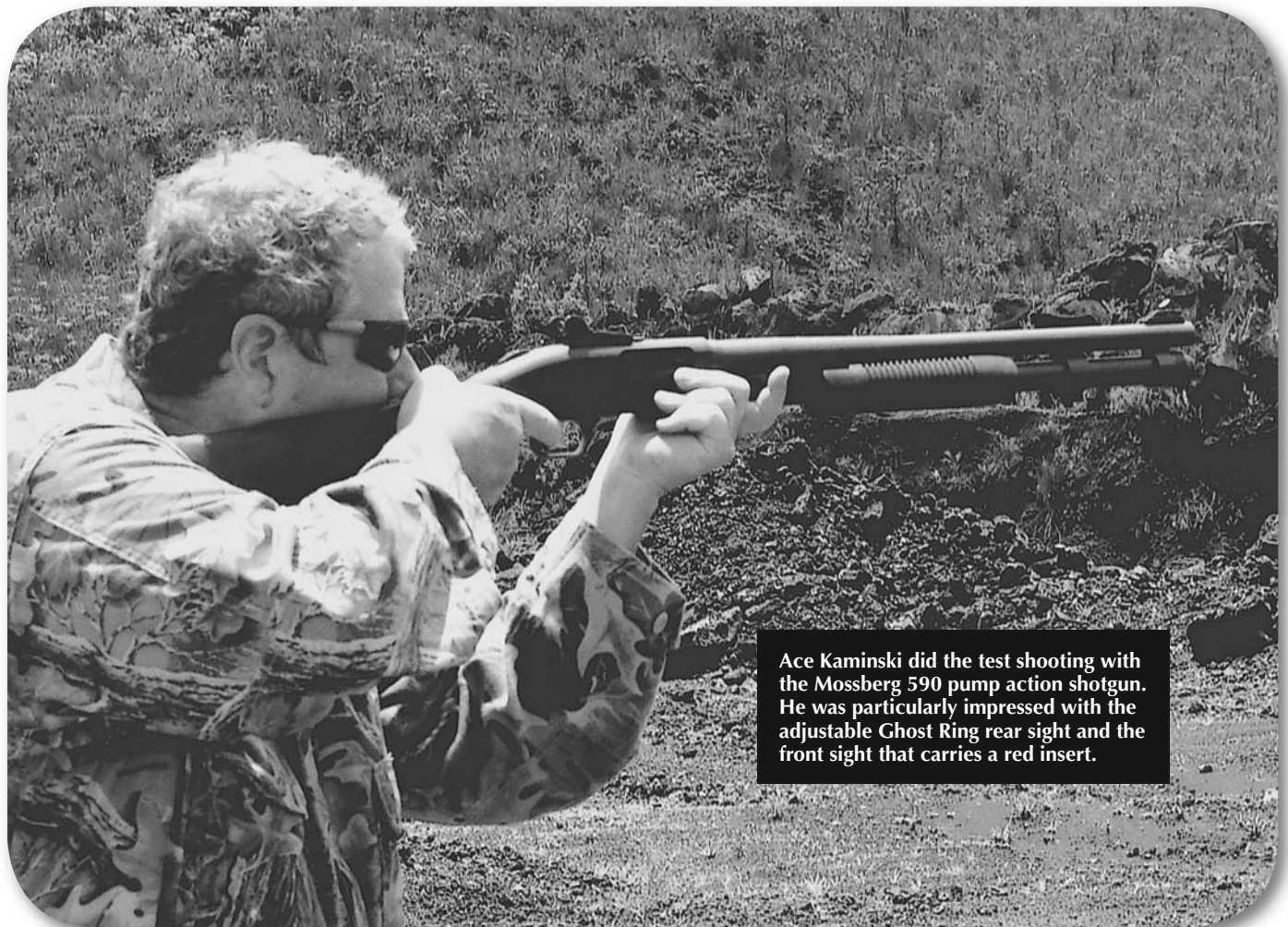
Persuader models are virtual duplicates of the military 500 and 590 models. As the only pump-action shotguns ever to pass all stringent U.S. Military Mil-Spec 3443 standards, the Mossberg-produced combat tool underwent a brutal test which included 3,000 rounds of buckshot loads being fired from the same firearm.

"Randomly selected guns then were frozen, baked and dropped at various heights and angles to ensure functionality, safety and reliability," according to Dennis Kendall. "In addition to that series of punishments, parts interchangeability was checked."

Today, a full range of Special Purpose guns is offered in a choice of 18 1/2- and 20-inch barrel lengths. The guns are available in an assortment of finishes including the traditional blue and a rugged non-glare matte blue.

New to the line in 2006 was the 500 Tactical Cruiser, which has an 18 1/2-inch barrel and a pistol grip; no buttstock. Also new is the 500 Tactical variation, which has a tactical black synthetic adjustable stock. Seemingly odd, but obviously done on purpose is the inclusion of the 500 Tactical Mariner, which has a silver-colored Marinecote finish. In the company's hunting line is the 500 Tactical Turkey model, which seems to have all of the same attributes of the other Tactical models, plus a totally covering camouflage pattern.

Unlike most shotguns, including other Mossberg models, the Special Purpose Series guns in both 12 and



Ace Kaminski did the test shooting with the Mossberg 590 pump action shotgun. He was particularly impressed with the adjustable Ghost Ring rear sight and the front sight that carries a red insert.

20 gauges are each drilled and tapped for a scope base and optics installation. That, of course, includes the Model 590, which we had chosen to check out.

This particular model boasts a blade front sight with a red fluorescent insert that shows up bright and clear through the adjustable Ghost Ring rear sight. Lewis expressed a degree of disappointment in the rear sight at first glance, since the ring proper appeared to be a stamping out of thin flat stock. However the adjustability of the sight to bring it onto a definite target with the aid of the bright red front sight insert offered compensations in his mind. The 590 Ghost Ring sight also boasts protective ears of heavier gauge metal that should serve their purpose. The Model 590 carries the matte blued finish that is anti-light reflection.

Jack Lewis had been reflecting on the earlier test of the Remington's Model 870 combat shotgun. That particular shotgun had been fired with 2 3/4-inch 00 buckshot and slug cartridges of the same length. While the buckshot had performed as expected, the slugs had been launched against a stack of cinder blocks behind which was stationed a life-size plastic image wearing a war surplus field jacket. While the slugs had decimated most of the construction-grade blocks into broken pieces, not one of the 10 slugs fired on the setup had pierced the plastic figure or the jacket in which it was clothed.

Hefting the Mossberg 590 at the edge of the lava field where another stack of blocks as well as a trio of paper targets had been erected, Lewis was staring at the plastic figure that once more had been partially hidden behind the cover.

The shotgun this time was loaded with six rounds of Remington Slugger three-inch Magnum shells, each carrying one-ounce slugs. Ace Kaminski had been assigned to do the shooting, while Lewis and his photographer son observed the shots and resulting damage.

The first round from the Mossberg tore away half of one of the blocks in the center of the stack, but the



The pistol grip area of the 590 has a mottled finish that is meant to offer a more firm hold when firing. The Speedfeed feature holds two additional three-inch Magnum shells on each side of the stock for fast reloading.



The Mossberg Model 590 pump-action shotgun is designed specifically for law enforcement and features a Speedfeed synthetic stock that holds four additional three-inch Magnum rounds in addition to the loads in the magazine.



The Ghost Ring-type rear sight is fashioned from what appears to be a steel stamping, but it is well protected by heavy metal ears. The front sight carries a red insert for fast target-alignment.

others continued to stand. If the plastic figure could laugh it probably would have done so.

As planned, Kaminski then fired the next five rounds at the barrier, sending bits of formed concrete flying. When he was done, the bottom tier of block had not been touched. He drew the remaining four rounds from the Speedfeed pockets and loaded them in the magazine tube, then attacked the still unscathed row of blocks. Four shots later, each had been destroyed. All of this had been accomplished at a measured range of 25 yards.

With the shotgun laid aside, the three participants first dug through the rubble to find two of the misshapen slugs. The coat-swathed plastic image had been hurled aside during the attack on the bottom tier of blocks, but now it was held upright by Lewis, while Kaminski looked over the war surplus jacket, then removed it to inspect the figure's upper torso. Again, there was no evidence of a wound in the plastic surface.

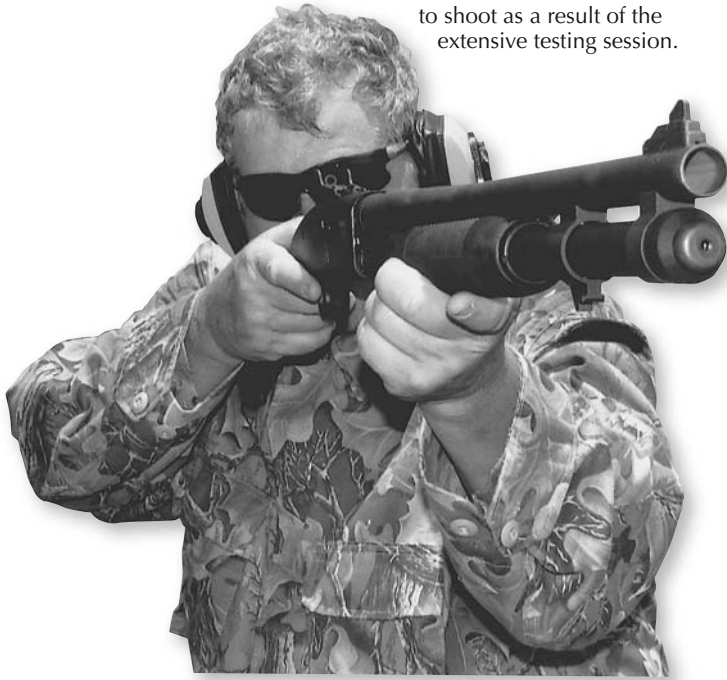
"The fact that the fired slugs were found in the rubble would suggest that all of their energy was expended in breaking up the blocks, none of them managing to pass all the way through the material," Lewis suggested. Checking Remington's statistics revealed that the three-inch Magnum slug traveled only a few feet faster than the ones fired earlier from 2 3/4-inch shells.

The second segment of the test exercise was on the three printed images of a gun-pointing bad guy that had been erected a few yards from the concrete block rubble. For this, Lewis had marked off ranges of 7, 15 and 25 yards. Water bottles had been laid on the ground at each distance to ensure that some degree of integrity was maintained.

At the 25-yard mark, Kaminski levels the shotgun on the last of the three targets on which he is firing. Note the plastic water bottles laid out to mark the various distances.



Ace Kaminski found the Mossberg Model 590 a comfortable firearm to shoot as a result of the extensive testing session.



Firing offhand from the seven-yard marker, Kaminski triggered two rounds into the target on the left, lining up the sights on the clenched hand of the printed figure. Without bothering to check the target, he moved back to the 15-yard distance and repeated the two-round performance on the middle target. From the 25-yard bottle marking the measured distance, it was a repeat performance on the third target.

Laying the shotgun aside, Lewis and Kaminski inspected the targets. From the seven-yard range, all 20 of the pellets were grouped in an area that probably could be covered with a dinner plate. Deadly!

On the 15-yard target, the two rounds – each containing 10 pellets of 000 buckshot – arranged a pattern that widened out to about two feet, all of the holes still in the printed figure of the bad guy.

From 25 yards, the pellets were widely scattered, but enough of them were in the vitals area of the body and the head of the figure to end any criminal career. All of the 20 pellets were on the target paper, which measured 23 by 35 inches. Five of the pellets, however, were outside of the figure of the baddie.

There is no doubt that at any of the three distances, the 000 pellets probably would prove deadly on a human outlaw, but beyond that range, it probably would be smarter to depend upon slugs or even a rifle.



The first slug round destroyed half of one of the cinder blocks, but did no damage to the three-dimensional plastic figure positioned behind it.

CHAPTER 17

SORTING OUT MODERN AMMUNITION

Some Long-Time Respected Cartridges Are About to Lose Their Tenure as Favorites for Combat Scenarios

TODAY, DEVELOPMENT OF a new combat weapon is, in reality, the development of a new weapons system, with a new cartridge being created for the new rifle to demonstrate the greatest potential in a given scenario.

"Gone forever is the progression seen from the 1903 Springfield, the Garand, the Browning Automatic Rifle, the Johnson rifle and the U.S.-issued British Enfields all using the 30/06 as the universal cartridge." This is the opinion voiced by Robert K. Campbell, a veteran

police officer as well as an avid student of cartridge development and use.

At this writing, he is quick to point out that the 5.56mm and 7.62mm NATO cartridges are being joined by the recently developed 6.8mm round, which is designed for special use; there are other cartridges also coming to the fore as special-use tools. "Such big-bore rifle cartridges as the 300 Winchester Magnum have been used by our armed services' snipers and probably will remain in military inventories through the near future. Despite all the watchwords concerning something called commonality of ammunition, special units in particular recognize the fact that the right tool for the job is the right tool and this choice should not be compromised.

"Cartridge development may lead to the retirement of older or less satisfactory calibers. As an example, the development of reliable, capable short-barreled 5.56mm firearms led to the virtual demise of the 9mm and 45-caliber submachine guns in this country. And it hasn't happened just here on American soil. In Russia, the 7.62mm Tokarev burp guns have been replaced by AK variants. We are a nation at war and wartime invariably begets new development and expedients in battle tools."

One trend that Campbell feels already is in force involves the replacement of bolt-action sniper rifles in military operations. "While the bolt-action is arguably the most accurate by a minor margin and has



The HSM 80-grain HPBT Match load with its Sierra bullet was found to offer what was termed gilt-edged accuracy in the test rifle used for this chapter.

been the trademark of a precision marksman, experience has shown that a lone sniper may confront several targets at once.

"Terrorists will never hesitate in murdering innocent women and children. By definition, terrorism is the use of murder and irregular warfare against civilians in order to produce terror and promote a political agenda. In Israel, such raids once were commonplace. The burning or bombing of schools and children being thrown to their deaths from rooftops are part and parcel of the terrorists' agenda."

Campbell agrees that a lone marksman armed with a bolt-action rifle is a deadly adversary, who is able to place his shot with life-saving precision when necessary. "But what if there were 40 or more terrorists in a building and the marksman covering a quadrant has the opportunity to engage only the three or more he has sighted?"

The American public in general never has heard of the firearm, but a quality high-power rifle that is severely accurate such as Alexander Arms' 6.5 Grendel has application. Recently released Federal documents show that during the past 20 years, the average engagement range for a police marksman has been less than 100 yards – including shots at five yards during hostage rescues. However, there also have been shots out to 400 yards.

Campbell feels that "one would think the lay of the land and the conditions would be roughly the same in the event of a terror incident in the U.S. Such a happening is unlike a take-over robbery or an incident in which a gang is cornered. The terrorist may hold

innocents as hostages or his aim may be to murder as many as possible.

"One has to hope that the first responder to such a situation realizes that the best tactic is to attack quickly and take out the adversary. Chances are that person or persons

will not be able to wait for the FBI Hostage Rescue Team or the Los Angeles Police Department's SWAT unit.

"We all pray such an incident will not occur, but as someone has said, America has not yet seen real terror. The future for tactical teams seems to call for a precision semi-automatic rifle in a mid-size caliber with excellent optics. I'm certain the high-powered bolt-action rifle also will be retained. In the worst case scenario, many feel



Wolf Performance Ammunition offers inexpensive loadings in popular calibers and thus constitutes a good training resource. It imports Russian-made ammunitions.



This young soldier found the Howa, with its flat bottom receiver and the synthetic stock, would group at less than MOA at a range of 100 yards.

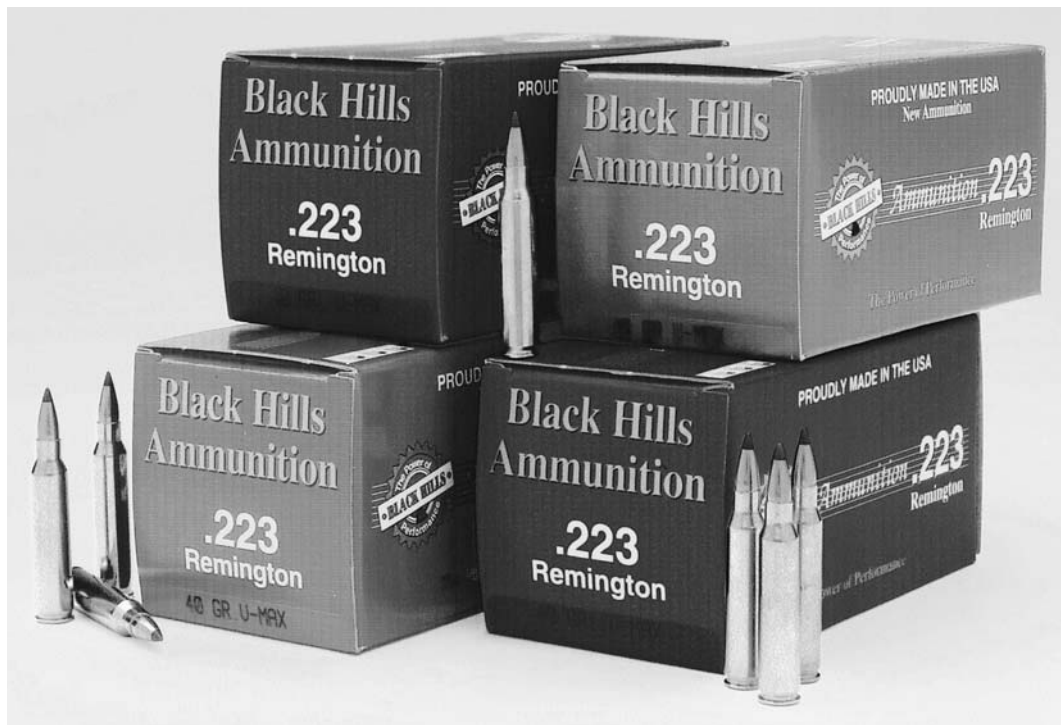
it is the more accurate weapon. However, the new semi-autos are surprisingly accurate and deadly capable."

It should be pointed out, incidentally, that at the time of this writing, the U.S. Marine Corps had ordered a number of Knight M110 semi-auto rifles to be issued to snipers, replacing the specially built bolt-action Remingtons that have been the Marine's tool of the trade for longer than a lot of us have been alive! The reasoning for this change lies in the fact that enemy snipers are seeking our snipers, knowing each uses a bolt-action weapon. Since the Knight-made model has close resemblance to the M-16, it is hoped this new sniper tool will no longer mark a friendly sniper as an obvious target!

Regarding semi-auto rifles, the ammunition is as much a part of the system as the rifle. In the common 5.56mm and 7.62mm loadings, tremendous development in both accuracy potential and wound ballistics has taken place. Special loads in either have given both cartridges outstanding performance, when compared to that of military ball ammunition. The trouble with this type of military ammo is that it is designed to break up at the cannelure – as is the case with the 5.56mm round – but not all of these bullets consistently perform as designed.

Most commercial loadings for the 5.56mm/223 Remington cartridge are designed for varmint hunting. Their performance is less than ideal for police use or by military snipers.

Currently, military snipers are authorized to use open-tip ammunition, as terrorists are not enemy combatants as such; instead, they are considered international



The test staff has found Black Hills ammunition meets strict standards for law enforcement needs. As a police officer, Bob Campbell loaded his alarm arms with it.

criminals and are not covered by international agreements regarding expanding ammunition.

"On the civilian front, tactical teams may virtually tailor a cartridge to the problem," Campbell claims. "High velocity lightweight bullets may be used in a short-range hostage situation. This would call for a



Hornady's Tactical Application Police (TAP) loads have shown themselves to be excellent performers. They currently are in wide use by Federal and local police agencies.



The short, stubby 6.5mm Grendel cartridge (*left*) is compared to the 5.56mm round. The Grendel has been designed specifically to feed into today's AR-designed rifles.

bullet that would penetrate the adversary's body for fear of taking out the hostage as well. On other occasions, it may call for a bullet that offers greater penetration should the captor be wearing heavy clothing, meaning an intermediate barrier is involved."

Campbell feels that "for heavy use, the 308 Winchester (7.62mm NATO) rifle will remain on the front line for police marksmen. However, the 168-grain HPBT bullet that has proved so accurate over a lengthy period of use seems to be passing out of the picture. Law enforcement forces have come to realize that while this loading is very accurate, the bullet was not designed for expansion and seldom expands in the body of the target."

Other loads with equal accuracy and superior wound potential are being adopted. At present, the Hornady TAP 308 is offered in several variations to include a barrier-penetrating load. On the basis of pure accuracy, Black Hills' Gold 308 has proved to be among the most accurate loads Campbell has tested personally.

"Loaded with the Nosler 150-grain Partition bullet, this load has excellent wound potential," he has found. "Loads using the Hornady A Max in the Black Hills Gold series also are an excellent choice."

Experience shows that the police marksman usually will go with what he knows, using the round issued him by his department to the best of his ability. In such a situation, the shooter must be aware of the characteristics and point of impact shift at all ranges. There also is the possibility of a point-of-impact shift dependent on how the rifle is braced or stabilized.



The 6.5mm Grendel is a young cartridge, but it is being offered in a number of loads. The test staff found the potential of this cartridge to be extremely interesting.

In battling terrorism, marksmanship is important, but it behooves one involved to take a hard look at today's tactical cartridge loadings. As has been shown, shutting down an adversary quickly before a bomb can be set off is an immediate need.

Hornady's 5.56mm TAP

The 5.56mm cartridge is currently in heavy use by law enforcement agencies; the arms that fire this cartridge are controllable, accurate and thus effective. At moderate ranges, the 5.56mm has shown itself to have excellent wound potential, being a cartridge that actually creates a void in tissue.

"On those occasions when officers have been able to deploy the 5.56mm rifle, the danger to the public has been reduced simply because few rounds usually are fired," Campbell reports. "With a high accuracy potential and greater wound potential than any pistol or pistol-calibered carbine, the rifle tends to solve problems before they get out of hand."

"Another advantage is that the 5.56mm round offers less penetration potential than many handgun cartridges. In test, it has been found that the 5.56mm bullet tends to break up on hard surfaces far more often than either the 9mm or 45 ACP bullet. With proper ammo, the 223 Remington – *aka* the 5.56mm – is more likely to stay in the body of a felon with a solid torso hit."

Many of the carbines that accept the cartridge, such as Bushmaster's version with a 16-inch barrel,

are lightweight and handle well at gunfight distances. Campbell insists these arms offer a tremendous advantage in a gun battle with armed thugs of any description.

Law enforcement quickly came to realize that full metal-jacketed loads had their shortcomings as did the general run of jacketed soft-point loads. Result was that specific law enforcement loads have been developed. According to Campbell, "Among the most reliable and effective is the one listed as the Hornady Tactical Ammunition Police. I have had extensive experience with this cartridge and found accuracy excellent, when fired in a heavy-barrel bolt-action rifle."

All of Campbell's tests were conducted with that Bushmaster carbine with its 16-inch barrel. The first was the Hornady TAP 40-grain round in a 3350 feet per second loading.

"This loading is best considered a low-penetration low-ricochet resource," Campbell feels. "While a frontal wound would be devastating, penetration against light cover and vehicle glass is limited. The 40-grain loads once had a reputation for sluggish function, but the Hornady ammo worked fine. Fired into ballistic gelatin, this bullet had a penetration of six inches with fragmented expansion."

The next load fired into ballistic gelatin was Hornady's 55-grainer, reported to have a muzzle velocity of 2925 feet per second. This bullet's penetration in the medium was 8.5 inches, again with expansion that was fragmented. Campbell felt the wound potential was ideal.

Next came the 60-grain load with a listed muzzle velocity of 2840 fps. Campbell contends that a police agency seeking a single, all-purpose load might well select this one. He found good results for the round in a weapon featuring a 1-to-12 twist ratio. A rule of thumb among some agencies is to use the 55-grain bullet in carbines and the 75-grainer in precision rifles, but Campbell feels the 60-grain TAP would serve in either function.

Fired into the block of gelatin, the 60-grain bullet showed 11 inches of penetration. This bullet also fragmented, but 25 percent of the bullet weight was retained.

The last of the TAP-type rounds to be checked out had a 75-grain bullet that boasted a muzzle velocity of 1650 fps.

"Frankly, I was surprised by the performance of this loading," Campbell admits. "The .556mm's effectiveness is predicted on velocity and this load gave up velocity, yet accuracy and wound ballistics were excellent. This, of course, is a bullet generating twice the velocity of the fastest handgun cartridge. Wound potential is very good and the round offers good potential against light cover."

To prove his point, this investigator fired the 75-grain TAP round on vehicle glass and construction materials that equated those used on the walls of homes. "Based on this performance, this particular cartridge offers excellent all-around utility without sacrificing wound ballistics." Fired into the ballistic block, the bullet penetrated 14.25 inches with 75 percent fragmentation.

HSM Custom Loads

HSM is a small company that offers custom cartridge loads in a number of calibers, including 5.56mm. Bob Campbell has used their 50-grain 5.56mm round with what he considers good results, but he contends that the big news is the company's 80-grain load which seats a Sierra boattail hollow-point bullet.

"This is probably the heaviest practical weight for the 5.56mm," he feels. "Even with this loading, the round sometimes will not feed from a box magazine and must be fed into the chamber. However, from my Howa heavy-barrel rifle, I've recorded excellent results. It is not unusual for me to shoot a one-inch group at 100 yards with little effort."

Topped with a Nikon scope, Campbell has on occasion fired a half-inch group with this combination. However, by his own admission, this requires extreme



Campbell feels that when top accuracy and ballistic efficiency are weighed against wound potential, the 308 Winchester Match load outperforms some others.

concentration on the wind, trigger compression and a perfect sight picture. Luck may also have a role.

“For dedicated counter-sniper use by those who depend on a precision 5.56mm rifle, this combination could offer an interesting option. Most marksmen will invest a considerable amount of ammunition in preserving the same relationship between trajectory and accuracy time after time. This is a consideration that must be accepted when using custom ammo from a small shop.

“At the other extreme, some of these so-called small shops actually are pretty big enterprises, producing millions of cartridges per year. I’ve found that HSM loads tend to land exactly where I point them and that’s all I ask!”

Black Hills Ammunition

“As a working police officer, I often used Black Hills’ 60-grain JSP loads in the AR-15 or Ruger Min-14, both of which were the property of the agency whose badge I was wearing,” Campbell recalls on a nostalgic note.

These days, Black Hills is actively pursuing contracts for military ammo and has won some based upon sheer performance of the company’s product. However, back in those days of Campbell’s uniform wear, that 60-grain JSP was considered the leading load for tactical rifle use in his vicinity.

“Today,” he admits, “there may be Black Hills loads better suited to certain scenarios, but the 60-grain JSP remains a top choice for all-around use. It is the heaviest

bullet useful in ‘old twist’ long guns, but performs quite well in modern rifles.”

On a somewhat less expensive note, Black Hills also offers the standard 55-grain round as well as bulk FMJ loads for training. “The importance of good training ammo at a decent price is important in law enforcement budgeting,” the investigator points out. Black Hills also offers 52-grain Match loads that Campbell has found offer fine results in AR-15-type rifles.

Currently, there is a good deal of interest in the same maker’s 77-grain BTHP, which Campbell has found, in his personal experience, to be the heaviest bullet weight suitable for AR-15-type arms.

“The 77-grain cartridge has been used effectively in Afghanistan and Iraq with excellent results,” he reports. “The loading has solved some of the problems associated with 5.56mm ammo in an actual combat situation. Even at extended engagement distances, our snipers have reported excellent performance.”

In a particular engagement, according to reports, a scout/sniper team was under attack by an Iraqi contingent. Although in less than squad strength, these soldiers stood their ground and relied upon marksmanship to oppose the heavy firepower being hurled at them. When it was over, there were no American casualties and there were 175 enemy dead.

“This is the kind of news the media chooses not to report,” Campbell is quick to complain, “but it shows that our fighting forces are relying on superior tactics and marksmanship to secure local victories. The majority of enemy casualties resulting from this action



Precision rifles are important combat tools and with good ammunition, extraordinary results can be obtained. This custom rifle carries a Shilen barrel and a Leupold & Stevens scope. It consistently delivers 0.6-inch groups at the 100-yard range.



Campbell feels the hollow-point boattail bullet is no longer the accuracy king, but still is a good choice of ammo when accuracy is the only consideration involved.

were caused with Black Hills' 77-grain load, which has been standard for both Army and Marine Corps snipers."

In the 308 Winchester/7.62mm area, considerable development has gone into perfecting military loads that equal the accuracy of Match Grade standards, while producing exceptional wound potential. Black Hills' Gold 308 Winchester Match cartridge carries either the 155- or 168-grain A-Max bullets.

"I have conducted several tests with these loads, comparing them to the past standard, Federal's 168-



Cor-Bon's dynamic loads afford end users much greater choices in tactical loadings. The DPX with the Barnes bullet is one of the firm's effective offerings. Weighed against wound potential, the 308 Winchester Match load outperforms some others.

grain HPBT Match load," Campbell says. "I have found the Black Hills cartridges generally as accurate as the Federal Match load, occasionally producing a higher level of accuracy in certain rifles.

"As for wound potential, the A-Max bullet has adequate barrier penetration as well as exceptional performance in soft tissue. Black Hills also offers what I consider top flight loads in 25/06, 30/06 and 300 Winchester Magnum."

Alexander Arms' 6.5mm Grendel

Custom-loaded ammunition from Alexander Arms features several bullets for the company's 6.5mm Grendel. One of these is the 123-grain Lapua Scenar HPBT. The Virginia-based firm also turns out a cartridge with a 90-grain Speer TNT bullet, a 120-grain Nosler Ballistic Tip offering and the 129-grain Hornady SST. Bob Campbell had the opportunity to measure velocities on two of these out of a 24-inch barrel. The 123-grain Lapua scored a speed at the muzzle of 2650 feet per second. As might be expected, the lighter 90-grain Speer bullet was clocked at 2900 fps.

"I have not had the opportunity to check out the other loads listed," Campbell admits, adding, "At present, though, the heavier bullets are recommended for tactical use."

In reality, the 6.5mm Grendel owes its existence to benchrest shooters, who developed it for the sake of super accuracy. As a tactical cartridge, it seems to have additional potential. It was found that the 90-grain bullet offers impressive effect in ballistic gelatin.

"One must remember that the rifle being used had a custom Lothar Walther barrel, so accuracy was a given," Campbell points out. "Groups of 0.75-inch at 100 yards are considered the norm. Wolf Ammunition now is importing the cartridge, which should make the load more attractive to shooters."

6.8mm Remington SPC

This cartridge has been developed as a retrofit for the AR-type rifles, a move that allows a larger, more powerful cartridge to be used by means of a new upper receiver and barrel.

The SPC in the round's name stands for Special Purpose Cartridge and that's what it is. The 6.8 has been designed to answer the shortcomings – real or simply perceived – of the 5.56mm cartridge.

The 6.8mm is a short-case cartridge designed for reliable function, accuracy and ballistic effect.

Hornady and Sierra have introduced bullets in this caliber; it probably doesn't need to be said that both companies have excellent reputations for producing quality projectiles.

With Army Ordnance people and the Remington ballistics folks working together, the cartridge was designed to be a close-quarters battle (CQB) round, but testing revealed that when fired in the reworked M-4 carbines, the 6.8mm was capable of excellent accuracy.

"As for long-range shooting, the 6.8mm SPC is at something of a disadvantage when compared with the 6.5mm Grendel. This is particularly true at ranges beyond 300 yards," Campbell has learned. "The 6.8mm shoots well enough with performance similar to that of the 77-grain 5.56mm cartridge, but the Grendel is simply more advanced."

With a 115-grain bullet, the 6.8 reaches about 2600 feet per second at the muzzle. The Silver State Armory

cartridges in this caliber have shown particularly good results. In examining the 6.8mm upper receiver developed by Barrett, the investigator found it “first class in every respect.”

He reports that at this time, the Remington ammunition is available in only small quantities in this country, most of it being shipped almost immediately to the Middle East, but the Silver State Armory cartridges offered better accuracy than did the Remington 6.8mm SPC. “This is often the case when a custom load is compared against a mass-production cartridge.”

Campbell reported that he found recoil with the Remington cartridge to be quite light, adding, “I cannot help but feel we have reinvented the remarkable 6.5mm Swedish Mauser in a lighter, more efficient package.”

Match Grade Loads

While it has little to do with sniper work, Campbell feels he would be remiss if he did not mention the fact that good tactical pistol loads are available these days. At present, the venerable 45 ACP cartridge that is getting on toward being a century old is receiving the lion's share of attention in pistol ammunition. It has been several years, incidentally, since the Marine Corps began removing the 9mm Berettas from the web-belted holsters of its expeditionary forces, replacing the Italian pistol with 45 autoloaders.

On this score, the Winchester 230-grain SXT and the XTP+P are excellent performers, as is Federal's HST in the same chambering. Campbell has found that Hornady's TAP loads offer a margin of error in penetration, offering deep penetration and excellent performance against light cover and heavy clothing.

The Black Hills 230-grain JHP is faster than most and the +P load – once advertised as the Mack Truck of 45 ACP loads – gives good service, the bullet holding together against light cover.

The 9mm Luger, of course, has enjoyed its share of popularity and the sterling record of the Winchester +P+ 127-grain SXT has much to do with sustaining the cartridge. In fact, we learned during our investigations that a number of law enforcement agencies that once used this loading have not been well pleased with the subsonic 40-caliber loads chose as replacements. General opinion among serious lawmen is that the 155-grain

hollow points tend to give the best combat results with the Winchester Silvertip, a popular choice.

Urban Rifle Loads

This report would hardly be complete without mention of the alternative market for rifle cartridges that are loaded to minimize penetration. This invariably means dropping bullet weight and increasing velocity.

“When we do this, we need to be most certain our rifle is sighted in properly at engagement distance with such loads. Typically, these cartridges are not as well suited for long range use and will not have good penetration against even light cover, although the 308 caliber loads are an exception,” Campbell's studies have shown.

The 40-grain 5.56mm loads previously discussed constitutes one option. Another option is what some are calling an outstanding 5.56mm load, Cor-Bon's 53-grain DPX, using the Barnes X bullet. This particular bullet boasts more penetration than some 5.56mm loads, but after exiting a body with a fully expanded profile, the X bullet presents little danger regarding further penetration. “Yet, it defeats light cover better than most 5.56mm cartridges,” Campbell adds.

An urban load that we have found to truly change the entire character of a cartridge is Cor-Bon's 125-grain load in 7.62x39mm and the similar but more powerful 308 Winchester. These two loads expand dramatically in ballistic gelatin, blowing chunks of the medium in all directions and creating a massive cavity.

“These are true urban loads,” opines Campbell. “Penetration against auto glass and light cover is considerably diminished, but the possibility of the bullet exiting an animate target is considerably curtailed. Of course, the old Russian cartridge never would be a precision round, but for alley fighting, the Cor-Bon load is a top choice. It is among the most accurate loads we tested. The 125-grain 308 may prove worthwhile as a Special Purpose Cartridge!”

In retrospect, the modern rifle is much more versatile than ever due largely to the broad availability of high quality loads offering diverse performance. But the man behind the gun still is the most important part of the equation in spite of the fact that modern ammunition is more effective than anything known to us less than a generation back.

CHAPTER 18

OLDIES BUT GOODIES

**Good Guns, Like Old Soldiers,
Never Die...They Eventually Return
as Replicas!**

THE WORLD IS a wide and greatly varied globe with countless areas that seem purposely created to make arms designers feel inadequate. It didn't take long in Vietnam, for example, to find that some highly-touted



In the 1920s, when the Thompson submachine gun was making itself known in law enforcement circles, such drawings as this appeared in advertisements placed by the company. Later, gangsters and outlaws started stealing the subguns from police armories.

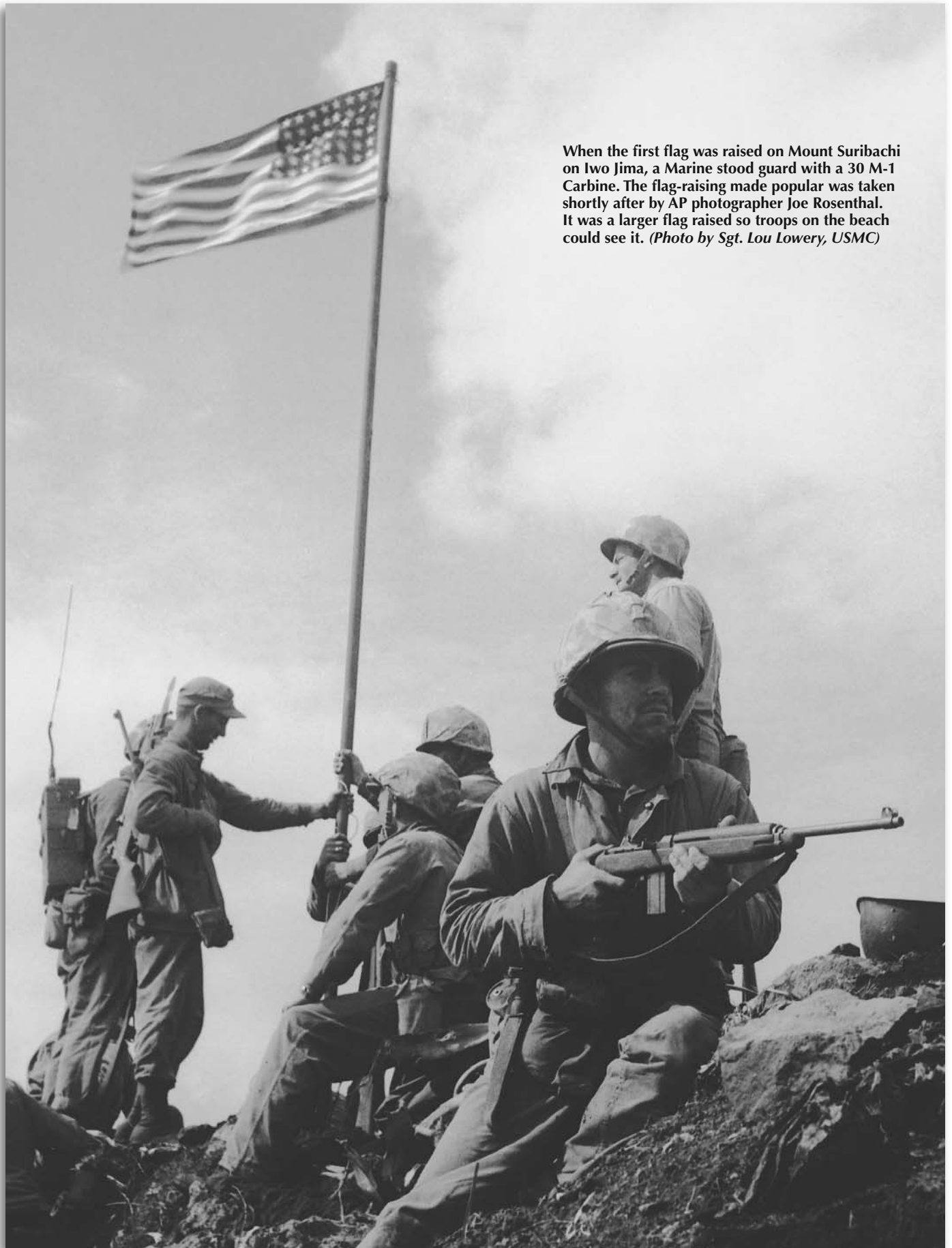
weaponry that proved itself in Stateside tests didn't work at all well in a damp jungle climate.

The result was that any number of troops cursed the early-issue M-16 rifle that fired a smallish cartridge called the 5.56mm NATO. Some of the troops had carried the earlier M-14 with its 7.62mm NATO rounds and favored it. However, they had signed for the M-16 rifles and had to use them, even though they sometimes felt like dropping them into a swamp. The answer to this was that any number of these members of our Armed Services latched onto captured AK-47s and whatever ammo they could scrounge from captives or enemy dead after a battle. The Russian-designed rifle was built with broad tolerances and did not tend to freeze up when filled with dirt, mud and cartridge carbon. As a result – if historians are to be believed – old M-1 Garands and even a few ancient Springfield 1903s that had been outfitted several wars back for sniper work were brought into play for special mission work.

Generally speaking, however, American shooters seem to have a love affair with firearms that have served well in years gone by. As a result, modern manufacture versions of these arms now are turning up; they may look the same as the originals, but more often than not, they are carrying identification that shows they were manufactured in Italy, Spain or even China!

For example, the venerable Model 94 lever action has been sent to the old gun graveyard by Winchester, but replicas of it still are being imported regularly. Most of these guns are produced these days on CNC equipment and turned out overseas at a price the Winchester folks could not match. The Model 94 came along a decade or more too late to have anything to do with the actual winning of the West, as the company's ad motifs often suggest, but the century-old lever action design was carried by a host of law enforcers first in saddle scabbards, then later in racks in police vehicles.

Springfield Armory in Geneseo, Illinois, was formed on a grain farm following World War II, becoming a supplier of war-surplus armament. A couple of decades back, when Jack Lewis first visited the modern factory, a side trip was to the nearby farm where it all started.



When the first flag was raised on Mount Suribachi on Iwo Jima, a Marine stood guard with a 30 M-1 Carbine. The flag-raising made popular was taken shortly after by AP photographer Joe Rosenthal. It was a larger flag raised so troops on the beach could see it. (Photo by Sgt. Lou Lowery, USMC)

There an entire barn was filled with surplus stocks for M-1 Garand rifles and 30 M-1 Carbines. Over the years, the war surplus was used up as a commodity and Springfield got into the serious manufacturing business. There has been some confusion between this incorporated entity and the Federal Government's Springfield Armory, which was closed down in 1968 due to so-called "budgetary concerns."

The original government-owned installation had been established in 1777 by George Washington for the purpose of storing Revolutionary ammunition and gun carriages. In 1794, this original armory began manufacturing military muskets for our young nation's military units.

Today, the Springfield Armory of Massachusetts is a National Historical Site under the direction of the National Park Service. The original 1840s arsenal now houses what is considered the world's largest collection of American military firearms, with year-around public programs, exhibits and public events.

It was in 1974 that the Reese family virtually rescued the name "Springfield Armory." With reverence for the legacy of the original armory, the Reese family resurrected what was considered the most historically significant designs produced by the original armory: the M-1 Garand rifle, the 1911 auto-loading pistol and the M-14 rifle. The Illinois community was an ideal location for such an enterprise, since the nearby Rock Island Arsenal also had been closed down and there was plenty of highly qualified gunsmithing talent available for staffing.

One of Springfield Armory's earliest offerings out of its own production facilities was a "civilianized" version of the M-14 rifle, which was issued to U.S. troops between 1954 and 1964 as the interim rifle bridging the passing of the Garand and arrival of what became the M-16. The M-14 clone was – and is – listed as Springfield's M-1A1, but about the only difference between the Illinois-produced rifle and the original military version lies in the fact that the M-1A1 is not a selective-fire weapon that can be fired in the full-auto mode.

Springfield, headed now by Tom and Dennis Reese, sons of the late farm owner and company founder, has expanded its product line to include variations on the original models, as well as a line of scopes and other equipment aimed at improving marksmanship. The M-1 Garand rifle that saw action in World War II and Korea has recently reappeared among Springfield's offerings, while the venerable 1911-A1 pistol has undergone considerable modification to appear in the firm's current catalog in several variations.

Another firm, Intra Arms with headquarters in Knoxville, Tennessee, is producing what it called the IAI M-333, an immediate clone of the Garand M-1 rifle. Also included among the company's

products is a replica of the 30 M-1 Carbine, which is listed as their M888. This one is available in the standard 30 M-1 Carbine chambering, but it also is being produced in 22 rimfire caliber.

With the Russian-designed AK-47 proving itself in several wars as a serviceable tool, there are currently a number of importers, most of the guns being made in China rather than the land of origin. Of interest to some is a line of AK-47s being marketed by Arsenal USA. The Arsenal SSR-56 is chambered for the Russian 7.62x39mm cartridge and is built on a Hungarian-manufactured receiver, but uses enough U.S.-made parts to allow for legal importation.

In the same caliber, this company markets the SRR-85C-2, which is built from unused parts made in Poland, with enough U.S.-made parts to meet legal requirement for importation. Arsenal USA's SRR-74-2 is another AK-47 assembled mostly from unused parts made in Bulgaria.

An "oldie but goodie" that has been civilianized is the Auto-Ordnance-made 1927-A1 Thompson. This originally was the famous – and perhaps equally infamous – submachine gun favored by Marines during the Banana Wars of the 1920s in Latin America... and by gangsters during the lawless era known as Prohibition. The Thompson fires semi-auto and carries a 16.5-inch barrel and is chambered for the same cartridge: the 45 ACP.

And if you're looking for a replica of an ancient shotgun that saw more than its share of duty in the trenches and in police work, a replica of the Winchester Model 97 pump-action is coming out of China these days. This and a World War I pump-action trench gun, also made in China, are being imported by Interstate Arms Corporation of Billerica, Massachusetts.



Several million of the so-called Tommy guns were turned out by Savage and Auto Ordnance during World War II. Here, a Marine fires a 30-round magazine at an enemy position during the battle for Okinawa. (Photo by Private First Class L. Griffin, USMC)

Revival of the Thompson

THERE IS NO doubt that Jack Lewis has a long-established love affair going with the Thompson submachine gun. During his second outing in the Korean unpleasantness of more than half a century ago, he packed one around the rice paddies for 13 months.

This particular Thompson had been taken off a dead Chinese soldier and Lewis had traded a bottle of *Old Granddad* whiskey he had been hoarding in order to become the possessor of the somewhat battered subgun.

"After doing my first tour in Korea armed only with a 38 Smith & Wesson Victory Model 38 revolver, then at the beginning of the second go-round being issued a 30 M-1 Carbine, the old Thompson offered a feeling of real security even if it seemed it took three men and a boy to carry the ammo for it," Lewis recalls with exaggeration.

The Thompson 45 submachine gun had been a valued weapon throughout World War II, but when that fracas ended, the Department of Defense, in all its wisdom, apparently turned over most of the Thompsons to the Chinese Nationalist Army. The Thompsons and a lot of other U.S.-made arms eventually ended up in the hands of the Communist-led Chinese People's Army and that undoubtedly is how it came to find its way to Wonsan, North Korea. That particular subgun Lewis recalls as being the Thompson M-1A1, a simplified version of a first-generation Model 1921.

John T. Thompson, born in 1860, was an officer assigned to the Army Ordnance Department. During the Spanish American War of 1898, he was promoted to the rank of colonel; up to that time in history, the youngest American ever to be awarded that rank. It was during this war that Thompson had his first involvement with automatic weapons, arranging for a unit with 15 Gatling guns to be shipped to Cuba. Reportedly, the guns later played a significant role in the capture of San Juan Hill.

Following the war, Thompson was appointed chief of the Ordnance Department's Small Arms Division. As such, he oversaw the development of the Springfield bolt-action rifle and headed the board that approved the Army's purchase of the M-1911 pistol. In 1914, when war broke out in Europe, Thompson retired from the Army and became chief engineer for Remington Arms.

By 1916, John Thompson was experimenting with automatic small arms, seeking a weapon that could be used to clear enemy trenches. With a retired Navy commander, he formed the Auto Ordnance Company and began working on what would be the first Thompson submachine gun.

When the United States entered the war in 1917, Thompson returned to the Army and was promoted

Kahr Arms/Auto Ordnance is turning out three versions of the 1927 Thompson but the A1 Deluxe version is the only one equipped with a factory-installed compensator.

almost immediately to the rank of brigadier general, then assigned to serve as Director of Arsenalns throughout the balance of the war. After the Armistice, he was awarded the Distinguished Service Medal, then again retired from the military and went back to work on his subgun.

Thompson had been impressed with performance of the 45 ACP cartridge in the Colt Model 1911 handgun and decided to use the cartridge in his own invention. The weapon finally was patented in 1920. With no war, he began marketing his submachine gun to law enforcement agencies across the country. However, in 1928, the company was in trouble and the retired general was replaced as head of Auto Ordnance. He did not live to see the mammoth orders for his invention that came with the advent of World War II. He died in 1939 at the age of 79 and was buried on the grounds of the U.S. Military Academy at West Point from which he had graduated more than five decades earlier.

The new gun was a delayed-blowback design, which fed from a drum magazine. Other quickly recognizable features were the finned barrel, the short, thick buttstock and two pistol grips. It was Thompson who called the new offering a "submachine gun," but the marketing folks at Auto Ordnance called it the "Tommy Gun" and registered that name with the Trademark Division of the U.S. Patent Office. This particular trademark actually was stamped into the metal receiver of the early guns. The first guns off the production line reportedly had a cyclic rate of fire of approximately 1,000 rounds per minute. A prototype was tested by Army Ordnance in 1920 at the Springfield Armory, where the gun fired more than 2,000 rounds without a single stoppage. A few months later, the Marine Corps tested the weapon.



The Deluxe version of what was advertised as the 1927 Thompson Semi-Auto Carbine is as close to being an exact duplicate as time and materials allow. Specifications are the same as those of the original manufactured 80 years ago.

From the beginning, this first production was listed as the Model 21. For this, the barrel jacket meant to protect the shooter's hand was dropped. According to history, enough parts for some 15,000 guns were produced, but the Model 21 did not sell in great quantities and was not adopted by the U.S. military. Tests were conducted in both England and Belgium, but neither country was sufficiently impressed to make mass purchases.

The Model 23 was a short-lived effort to introduce a new cartridge called the 45 Remington-Thompson. This version featured a detachable stock and sling swivels. Optional accessories were a bayonet and a bipod. The sale effort ended almost before it began.

The Model 28 was often referred to as the Navy Model. In 45-caliber, the Navy ordered 500 guns, most of them going to U.S. Marines, who were fighting bandits and revolutionaries in Latin America. These users termed the Model 28 as being "very effective in jungle fighting."

Prior to the opening of World War II, the U.S. Army had bought no more than 400 Thompson subguns. When Hitler's hordes went on the march across Europe that changed. In addition, in 1939, the French ordered 3,750 Model 28s as well as four million rounds of suitable ammo.

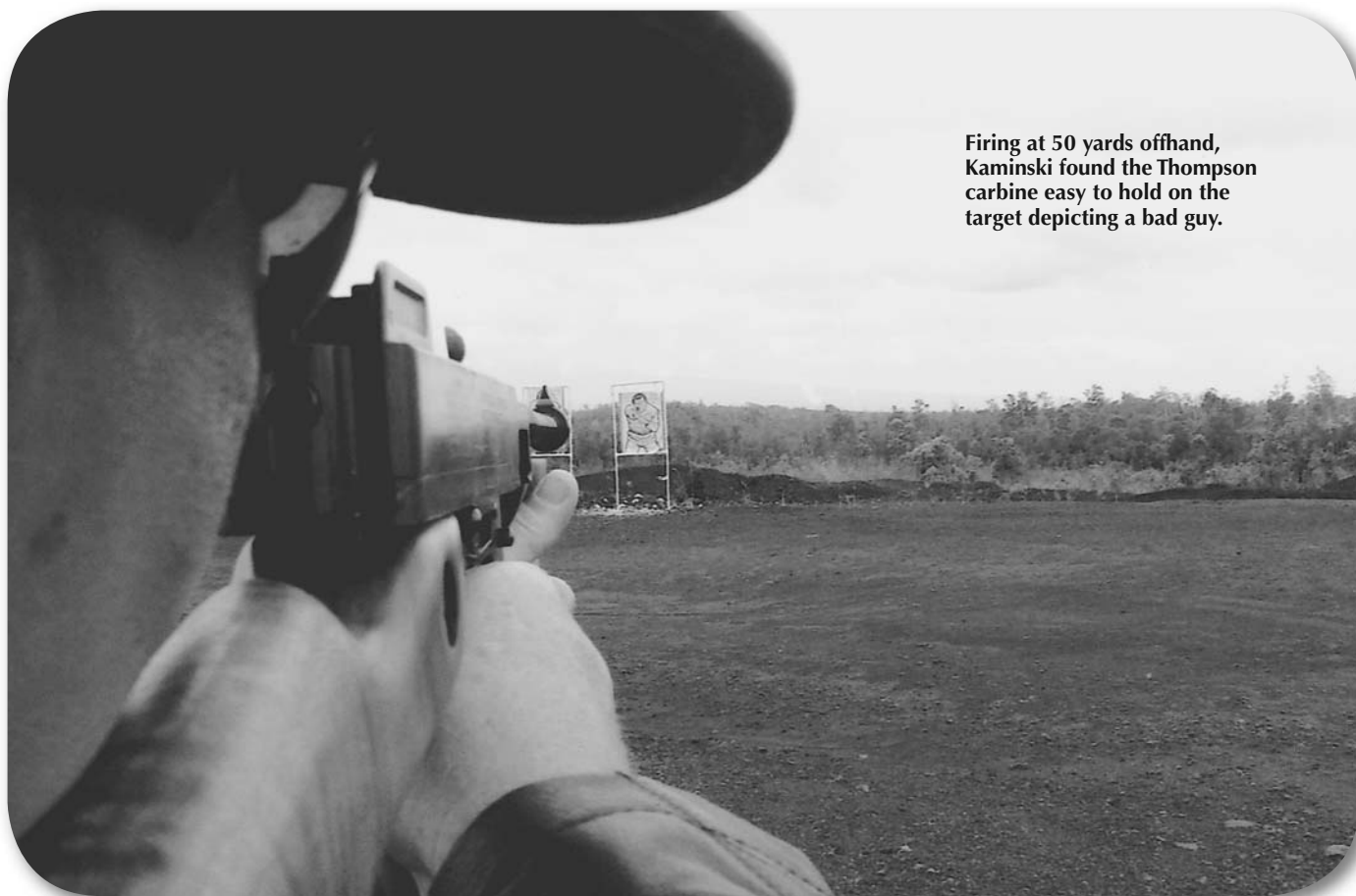
For mass production, the Model 1928 was simplified with the elimination of the barrel fins, the compensator, the breech oiler and other non-essential items. The gun could be fired single-shot or full auto. In 1942, for a reason never explained, the government redesignated the shooting tool as the "Thompson Submachine Gun, M-1." Guns produced in 1943 and thereafter carried that identifier.

The Auto Ordnance Company changed hands a number of times over the years, but the Thompson trademark and design continue even today as an asset. Auto Ordnance began to concentrate on selling gun parts rather than firearms for a time. The so-called Tommy gun had received plenty of bad publicity due to the gang wars of the Prohibition era and the bank robbers of the 1930s. Then in 1959, Robert Stack, invariably armed with a Thompson subgun, hit the nation's television screens in *The Untouchables* series, which ran four seasons and has since been made in two feature versions.

As a result of the sudden television exposure and revitalized interest, Auto Ordnance cleaned up the machinery and began producing a Thompson they are calling the Model 1927. For what it is worth, this product is a direct copy of the original semi-auto Model 1927, which was manufactured in the late 1920s. Built on the same machinery as the subguns for the most part, this model utilized the same stick magazines or the drums of the full-auto guns, but it was limited to semi-automatic fire.

Jack Lewis' investigations show that this particular firearm was nothing more than the original Model 1921 without the full-auto fire capability. Auto Ordnance's early sales literature listed it as the Thompson Model 1927 Semi-Automatic Carbine. In recent history, the assets of Auto Ordnance have been taken over by Kahr Arms and with the acquisition came the Thompson name.

"Nostalgia has few boundaries and when I learned of the current availability of the Model 1927-A1, it seemed a logical candidate for inclusion in this chapter," Lewis states.



Firing at 50 yards offhand, Kaminski found the Thompson carbine easy to hold on the target depicting a bad guy.

Coming from today's Auto Ordnance via Kahr Arms, like the originals, this carbine is chambered for the familiar 45 ACP cartridge. The Deluxe model with which our test team worked measures 41 inches overall and has that 16.5-inch finned barrel. Other features include a vertical pistol-grip forend of walnut. With the compensator attached to the muzzle, overall length of the carbine is 41 inches. The gun delivered for testing came with only the 30-stick magazine, but the firearm also will accept the 100-round drum magazine that the manufacturer offers as an alternative. The front sight is a sturdy blade type, while the rear sight is adjustable. The charging handle is a knob positioned atop the receiver.

Kahr Arms/Auto Ordnance also now offers the Model 1927 in two other configurations. One is the 1927M-1, which carries a blade front sight and a fixed battle rear sight. The other model is the 1927M-1C, a lightweight that weighs only eight pounds and has a receiver milled from a solid aluminum billet. Neither of these guns is equipped with a compensator, so overall length is reduced to 38 inches. It should be noted that none of the Tommy guns are legal for civilian ownership in California or Connecticut.

For test firing, Lewis and Ace Kaminski chose a section of the lava quarry where they usually shoot on Sundays when the operations are on hold. By his own admission, Kaminski is something of a frustrated actor and showed up for the shoot wearing a fedora and knee-length leather coat that had the appearance of something left over from the 1920s when the Thompson was becoming popular with lawmen and outlaws alike.

Firing the Thompson from the bench was considered, but it became obvious that the 30-round stick magazine



The bolt of the Thompson was actuated by the knob on top of the receiver. The 30-round magazine snaps into position easily.

would interfere with a proper seated shooting position. It was decided, instead, to fire offhand from 50 yards on a pair of life-size bad guy targets that are marketed by Kleen-Bore, Inc. Before leaving his house, Lewis had gathered up two boxes of Black Hills ammo as well as a box of CCI Blazer fodder. The two targets were set up side by side by Kaminski, while Lewis loaded the magazine with the Black Hills cartridges carrying 180-grain hollow-point bullets.

Kaminski paused in his targetry to clear a stoppage caused by a cartridge that failed to feed.



With the loaded stick magazine in place, Kaminski stepped to the 50-yard mark and aimed at the head of one of the targets. He fired several rounds, then suffered a jam. With the unfired round removed from the works, he continued to fire, but experienced another stoppage on the sixteenth round. Again the offending cartridge was removed and he finished out the string.

Walking down to the target, Kaminski explained that he had fired half his rounds on the head of the printed villain and the balance had been torso shots aimed at the chest and belly areas. At the target, the holes were circled with a green marker. Including the rounds that had failed to fire, all of the bullets were accounted for. There were 14 holes in the figure's head and neck and an equal number in the body area. Both of the efforts would have been death-dealing on a for-real outlaw.

Lewis and Kaminski looked over the Thompson, seeking a reason for the unexpected stoppages, but came up with no obvious answer. For the second target, the magazine was loaded with a full 30 rounds. Lewis, who was handling the loading chore, found the magazine spring to be stiff and loading becoming difficult after the twentieth round. Note was made that in a continuing action sequence, it would be wise to have plenty of pre-loaded magazines at hand.

Snapping the fresh magazine into the magazine bracket, Kaminski again took his position on the 50-yard marker and began triggering off rounds at the fresh target. Again, there were stoppages from rounds that failed to chamber. In spite of that distraction, his bullets went pretty close to where he wanted them. A handful were in the paper figure's head, the rest in

the lower body. The stoppage problem had both men concerned. During the second target firing, Kaminski had been forced to pause four times due to a hung-up cartridge. Lewis and Kaminski promised to think on the problem, as they packed up and left.

It was 6:30 the next morning, when Ace Kaminski's phone rang. Lewis was on the other end of the line.

"Are you old enough to remember when manufacturers first started marketing hollow-point ammunition?" Lewis wanted to know.

"I've heard about it," Kaminski admitted. He's 30 years younger than his shooting partner. "Back in the early Sixties or thereabouts, wasn't it?"

"Right. And there were all sorts of trouble problems with hollow-points not feeding in the auto-loading pistols of the day. The loading ramps weren't shaped to handle hollow points. I think that's our problem."

The pair had to wait a week to check out the validity of this theory, but the next Sunday morning, Lewis joined Kaminski on the shooting rounds with the unopened box containing 50 rounds of CCI Blazer ammo. Each of these cartridges carried a round-nose bullet with a full metal jacket.

The pair didn't even bother to set up a target. Instead, the magazine was filled, and then each of them triggered off 15 rounds of the Blazer ammo. Every round fired. Hefting the Thompson, Lewis offered a grin.

"This is an old-fashioned piece. It was patented in 1927 and no one had ever heard of commercially loaded hollowpoints, so the guns of that day weren't made to handle something that didn't even exist."

That problem solved, it was time to get all these facts on paper to become a part of this book.



Kaminski and Lewis inspect one of the targets, finding that the 45-caliber bullets went pretty much where they were aimed.

Return of the Mauser

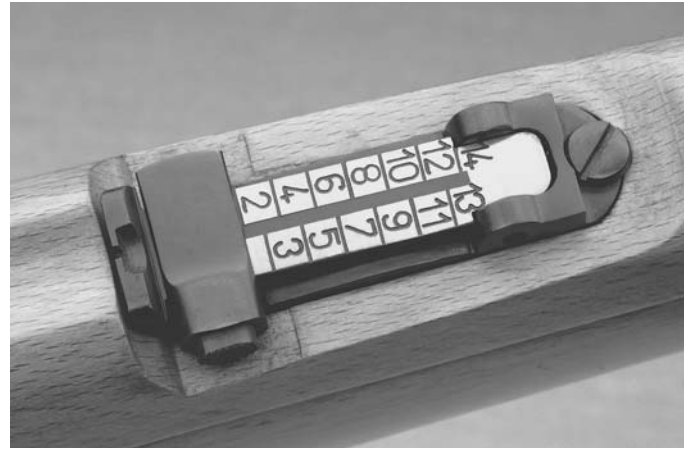
OVER THE DECADES of warfare following the turn of the last century, the influence of the first bolt-action rifle eventually became worldwide. The Mauser 98 was developed by two brothers, Paul and Wilhelm Mauser, and production of this particular model began in the late 1890s, continuing until after World War II. More important, perhaps, is the fact that virtually all of the world's bolt-action firearms owe their design to the Mauser brothers.

Actually, the Mauser design is still being manufactured in Europe and Don Mitchell, honcho of Mitchell Arms in Huntington Beach, California, has introduced on U.S. soil a newly manufactured rifle he lists as the Mk-63 Tanker model. Development began during World War II, but "after the Nazi occupation of what then was Yugoslavia ended, the citizens of the country wanted to maintain their independence from both the East and West," according to Mitchell. They broke away from the Russians and eventually became an independent non-aligned nation. As a result, they were able to maintain their own military industries."

Not long after the end of WWII, the Yugoslavians adopted as their own the Russian-built T54/55 battle tank. This treaded vehicle was used for roughly a decade before the people came up with their own tank, which they listed as the M-84. According to Mitchell, "This tank design was an advanced version of the Russian T-072 tank."

During this period, the Yugoslavians were producing Mauser-licensed rifles in Kragujevac, Serbia. This armament was used to train virtually the entire population of the nation against the possibility of future invaders.

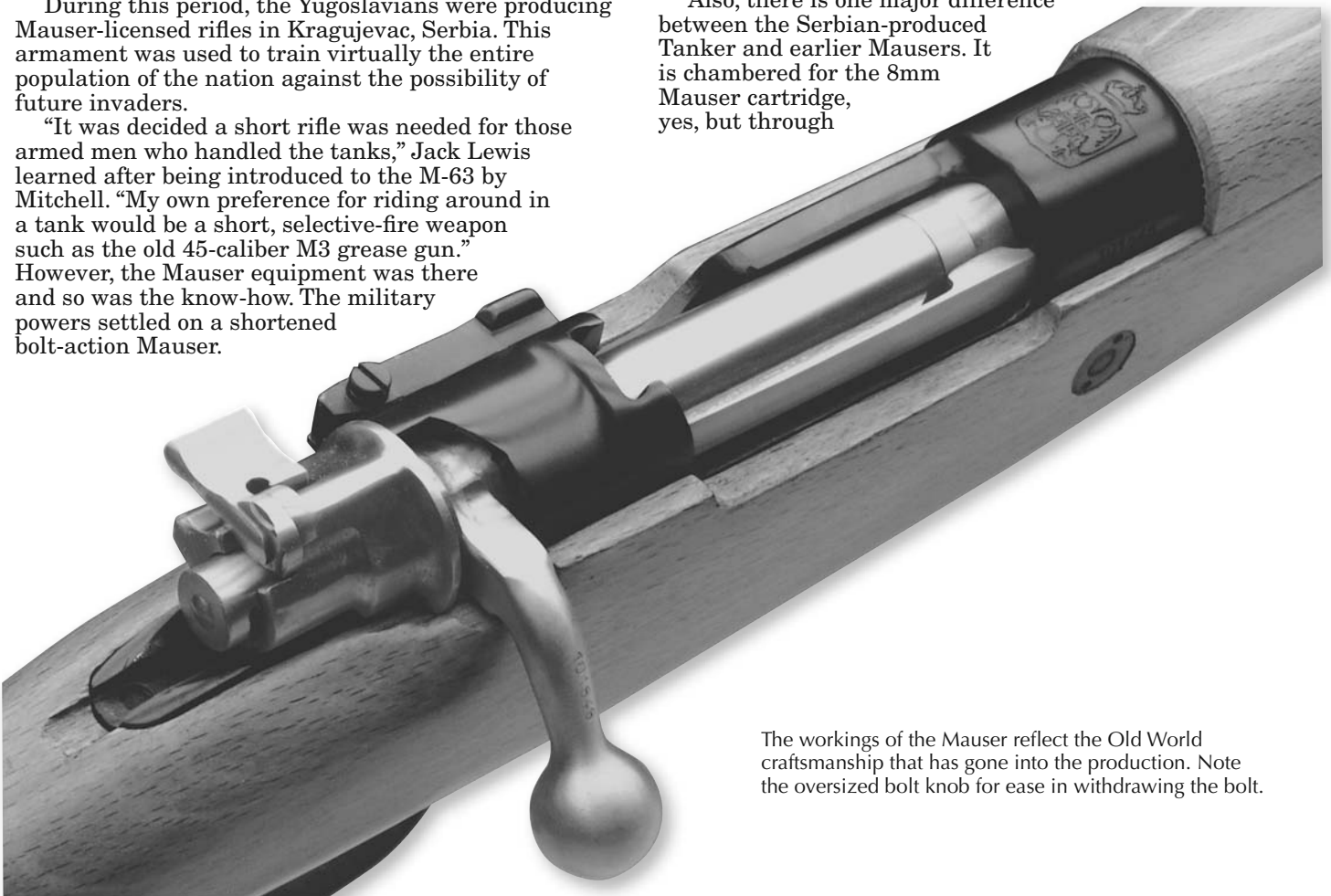
"It was decided a short rifle was needed for those armed men who handled the tanks," Jack Lewis learned after being introduced to the M-63 by Mitchell. "My own preference for riding around in a tank would be a short, selective-fire weapon such as the old 45-caliber M3 grease gun." However, the Mauser equipment was there and so was the know-how. The military powers settled on a shortened bolt-action Mauser.



The ladder-type rear sight for the M-63 is graduated for ranges out to 1400 yards. Lewis feels this may be a selling point, but doubts the accuracy and power of the bullet at so long a range.

Listening to Mitchell, Lewis learned that "virtually everybody in the country was trained in the use of the Mauser K98/M48 rifle. The new Tanker model is operationally the same as the older, longer models and fires the same 8mm ammunition."

Also, there is one major difference between the Serbian-produced Tanker and earlier Mausers. It is chambered for the 8mm Mauser cartridge, yes, but through



The workings of the Mauser reflect the Old World craftsmanship that has gone into the production. Note the oversized bolt knob for ease in withdrawing the bolt.



The Tanker Mauser (*below*) is compared to a full-length '98 Mauser to offer an idea of the variations in overall appearance.

Mitchell, one also can order the shortie in four U.S. calibers: 243 Winchester, 270 Winchester, 308 Winchester and 30/06 Springfield.

According to Mitchell, who obviously had done his own research, "The Tanker model is dramatically shorter in overall length than full-length Mauser rifles and is comparable to the U.S. M-1 Carbine or the Winchester lever-action." It should be noted that the M-1 Carbine bears an 18-inch barrel, while the Winchester Model 94 saddle ring carbine's barrel is 20 inches long. Barrel length of the M-63 Tanker wins by only a fraction, since it measures 17.3 inches.

Now is the time, of course, to point out that the Winchester saddle ring was chambered chiefly for the 38-55 cartridge, while the M-1 Carbine fired a specially designed 30-caliber bullet. Speaking in generalities and assuming equal talent by the rifleman, neither of the U.S.-originated rounds would prove as battle-effective as the aging 8mm Mauser cartridge.

Lewis, of course, was properly curious as to just how Don Mitchell got involved in the act. As it turned out, Mitchell is descended from Yugoslavian stock and has many in-country relatives and friends.

Through these connections, he learned that a foreign power had contracted the Serbian factory to produce the shortened Mauser, but had never taken delivery due to some unexplained internal strife. As a result, Mitchell was able to contract for the entire run and import the carbines into the United States.

Inspecting examples of the run in Mitchell's California warehouse, Lewis found no fault with the M-63 carbines he inspected. The Tanker model accepts stripper clip loading in its five-round magazine. Included with each carbine is a blued steel cleaning rod that extends from the forward end of the stock. It was noted that there also was a milled steel lug on each carbine that would accept the K98/M48 bayonet should there be reason for such use.

Close inspection showed that the action of the MK-63 is exactly the same as that of the original K98 to include the controlled round feeding system and the claw-design extractor. As with the original Mausers, these Serbian-built clones have the trigger guards,

floor plates, magazine box, cross-bolt recoil lug and the buttplate fashioned from steel.

While inspecting a batch of the rifles in Mitchell's California warehouse, Lewis noted that all of the rifle stocks were of the same almost lemon cream-colored wood. Lewis asked several workers what kind of wood had been incorporated in the finished rifles, but none seemed to be certain. One man – not long from one of the New England states – ventured that the wood might be beech.

Whatever the almost grainless wood might be, its blond surfaces were beautifully worked with what seemed to be a semi-gloss finish. Each carbine, incidentally, comes with a muzzle guide and a new, never-before-used two-ply stitched leather sling.

Handling the M-63 Mauser, Lewis found that balance was excellent, but it seemed to be a bit hefty considering its shortened length. Curious, he checked the weight on a set of scales in the warehouse and found that the firearm weighed exactly 7-1/4 pounds. In dry-firing the shortie, Lewis felt that the surface of the trigger was lacking in some way.

"The trigger had no flat surfaces. It was just a round piece of steel about the same as a short stub of #9 galvanized wire," he said. He learned rather quickly, however, that the trigger does not bend like a piece of wire. It has been fashioned from well-tempered steel.

For those who don't like this type of trigger and Lewis admits he's one of them — Don Mitchell has come up with what he called a special hunting/competition assembly that he says he will supply at cost to the buyer of one of his shortie Mausers.

Mitchell explains that "the new trigger assembly simply drops in to replace the original unit." He also is quick to point out that the M-63 Mauser can be converted to status as a Scout rifle by adding his company's long eye relief scope which comes with a special mounting system. He insists that the sighting system is user-friendly and should be no problem for the gun owner to install at home.

The safety lever on this rifle, as with most Mauser-influenced bolt actions, is mounted atop the rear of the bolt with three positions: full left, straight up and full

right. When the lever is thumbed to the right, the rifle is placed in its safe mode. It cannot be fired and the bolt cannot be opened. When the lever is standing straight up, the rifle cannot be fired, but the bolt can be opened for unloading. That leaves the far left position. When the lever is in that position, the Mauser will fire when the trigger is pulled.

One can tell whether the rifle is cocked simply by glancing down at the rear of the bolt, incidentally. If the firing pin protrudes about half an inch, the rifle is cocked. If the pin protrudes only a quarter-inch, it is not cocked. Mitchell points out that "the difference is easy to feel even in the dark."

"However," he was quick to add, as we checked out the shortie, "a decocked rifle with a live round in the chamber is not safe. An accidental hard blow or dropping the piece on a hard surface could cause it to fire."

Mitchell offers another warning regarding care of the rifle. He furnishes a well-written owner's manual with each gun. The text includes simple instructions for disassembly of the weapon for cleaning, including the bolt. Mitchell warns that the rifle's upper handguard should never be removed. He adds that, if such is done, the offender probably will break the wood.

"There is no reason to remove the upper hand guard," he declares, and then orders, "Just let it be. Leave it alone."

The M-63 barrel features four grooves with a right-hand twist. The rifle's action is pillar-bedded with locking screws, plus a cross-bolt recoil lug. Overall length of the M-63 is 37.2 inches.

Carrying an 8mm bore, thousands of the 98 Mausers came home from Europe with troops who had taken them as war trophies. Probably the greater number of these owners-by-capture were hunters who figured the trophy and some war-surplus 8mm ammo would put a lot of meat in the family freezer at minimum cost.

The rifle Lewis had the opportunity to test chambered the 8mm Mauser round. For actual firing, he and his shooting pard, Ace Kaminski, chose an area that was being bulldozed for a coming tract of tropical homes. The area directly behind where they placed the target was the Pacific Ocean, which made an excellent backstop.

Lewis paced out an estimated 60 yards and set up the target which was a foam cutout of a feeding doe. The

figure had been stapled to a green-painted section of plywood to hold it against the offshore breezes.

The ammo chosen for the test was Remington's 170-grain softpoint 8mm Mauser round. When chronographed, this round showed a velocity of 2172 fps and muzzle energy of approximately 1780 foot/pounds.

Gun magazine editor Jan Libourel, who had tested this same cartridge a year earlier, told Lewis that he was greatly disappointed in it, since the figures recorded showed that this load was in the general vicinity of the performance of the 30-30 or the 32 Special.

"A sad emasculation of a cartridge that when loaded to its full potential is hard on the heels of the 30/06," Libourel commented, but added, "Mitchell offers 8mm loads that bring out the potential of this cartridge much better. For example, a 175-grain PSPBT chronographed at 2620 fps."

Lewis had noted earlier that the ladder-type rear sight was graduated to handle ranges out to 1400 yards. There was no way he was going to be able to test the rifle at such a long range, and he had come to recognize that there were other limitations as well. For example, at 500 yards, the bullet's velocity drops to 997 fps, muzzle energy diving to about 370 foot/pounds.

In looking for a better U.S.-loaded 8mm cartridge, Lewis eventually checked out loads from Federal, Winchester and PMC. From what he could find, all three makers loaded the round with the 170-grain bullet.

Kaminski zeroed the rifle on a paper target set at 25 yards, then Lewis took over to fire an off-hand group from the paced-off 60-yard marker. He fired three rounds, all of which could be covered with the palm of his hand. He considered that adequate meat-getting performance.

He had been dubious, however, regarding that solid steel buttplate and the likely recoil. He was pleasantly surprised to find that the impact against his shoulder went almost unnoticed.

Kaminski wanted to know why he hadn't fired all five rounds, the number the magazine holds. Lewis' alibi was that if you don't down a deer on the first shot, you surely are not going to hit it with the fifth; it'll probably be in another county by then!

As for a combat tool, the M-63 follows the same path of success that Mausers have seen in battles all over the civilized world.



The Tanker Mauser (*below*) is compared to a full-length '98 Mauser to offer an idea of the variations in overall appearance.

Return of the Old '97

JACK LEWIS HAS been known to claim that he and the late John Wayne had two things in common: Both were born in Midwest farming communities and both started their shooting with a Winchester Model '97 pump-action shotgun.

During a discussion between the two of them one afternoon in Wayne's offices at Paramount Pictures, the Duke let it be known that he left Iowa early on and spent most of his youth in the Mojave Desert, where he learned to shoot quail for the family cooking pot.

Lewis, on the other hand, frequented the rivers and creeks of Iowa County each fall to harvest ducks and geese for the home larder. In other seasons, there were plenty of rabbits that needed a population reduction. In those early hunts, he was often accompanied by his father, a former soldier who had chased Pancho Villa around Mexico with the U.S. Cavalry, then had reenlisted during World War I and done a batch of guard duty with the Model '97 Winchester scattergun as his constant companion.

However, the family shotgun that resided most of the time behind the kitchen door had belonged to our man's grandfather, who had purchased it shortly after the model came on the market.

There was a touch of nostalgia involved when Lewis learned that a Model '97 clone was being produced in China by Norinco and being imported by Interstate Arms Corporation of Billerica, Massachusetts. The result was that he arranged to borrow one of the scatterguns on consignment to be discussed in these pages.

The gun that arrived was outfitted with a 20-inch barrel and a fixed Cylinder bore. Lewis was somewhat surprised at the stubbiness of the barrel, for the old '97 with which he had hunted ducks in his youth had boasted a 32-inch barrel. On the other hand, it was reasoned, the short barrel would make the gun a better choice as a home defense tool.



While overall machining of the Norinco clone was adequate, Lewis found tool marks on small parts like the hammer. He recalls his family's original as being perfect, of course.



As with the original Winchester-built gun, the front sight of the '97 is a gold-colored bead.



The Norinco clone was chambered for the 12-gauge 2 3/4-inch shell as was the original Model '97. A Cylinder choke was part of the test gun.



Lewis and Kaminski were unable to identify the wood used in the stock and forend, but it was finished to resemble walnut. Real walnut was used in later imports.

In reality, Lewis soon learned that the importers had been thinking of the Cowboy Action Shooting market when they first decided to handle the Chinese-made import for the U. S.

Taking the time to do some research, Lewis soon learned that Winchester – the originator of the Model '97 – never had turned out the gun with a 20-inch barrel. Standard tube lengths as long as the gun was being produced in New Haven, Connecticut, were 26, 28, 30 and 32 inches. The scattergun was produced by the New England factory for 60 years, being phased out in 1957. During the era of production, more than a million Model '97s were sold.

This particular shotgun was manufactured in two gauges — 12 and 16 — with all of the 12 gauges being chambered for the 2 3/4-inch shotshell. The early 16-gauge Winchester guns were chambered for the long obsolete 2 9/16-inch shell.

The original Model '97 was made by Winchester in both solid-frame and take-down configurations. The gun with which Lewis grew up was the latter type, but there is no choice wherein the modern day clone is concerned. It is strictly a solid-frame product.

It has been half a century since the original Model '97 was discontinued and, as might be expected, originals are in short supply. Most of those still in functional condition are in the hands of collectors, so Norinco would appear to have a likely market for those who enjoyed the handling characteristics of the old favorite.

Inspecting the Chinese-made replica, Lewis was somewhat surprised at how closely the original had been copied and the care that had been taken in creating a true look-alike. He quickly learned, however, that the parts are not interchangeable between the original Winchester product and the Chinese reproduction.

The stock of this new Model '97 is fashioned from some type of hardwood that the test crew has been unable to identify, but it has been stained to take on the near-look of walnut. At the time Lewis asked to try the gun, he was told that an upcoming version with a real

The shooters fired both 00 buckshot and a variety of slugs on the plywood to get some idea of penetration potential of the various commercial brands.



walnut stock was in the offing. The butt is capped by a checkered, concave-shaped buttplate fashioned from a modern plastic. That's a step removed from the flat plate Lewis recalls on his family-held gun.

Like the original Winchester product, the Norinco scattergun is designed to be functional and there is no checkering on the woodwork. At first glance, the metal parts of this replica show a polished blued finish and wood-to-metal fit is excellent. However, closer inspection of the trigger group suggested that machining was not up to the quality of the shotgun's larger parts. It was found that the bolt and the carrier could use some additional polishing, too.

Functioning of the Norinco is the same as that of the original Winchester model. The external hammer has the standard full-cock and half-cock notches, but the manual supplied by the importer suggests one not attempt to fire the gun in the half-cock setting. It is further suggested that in the field, the gun be carried with the chamber empty and the hammer down. It would seem this would be a good practice in the event the shotgun is used as a home defense tool, too.

The Interstate Arms '97 has a button on the right side of the receiver that serves as the slide action release. This allows the shooter to empty the gun's chamber if there should be reason for such an action. There also is the shell release device — buttons on each side of the receiver that will release the shells from the magazine tube.

The magazine holds five rounds when the wooden plug has been removed and loading is pretty much the same procedure as with other tube-magazine scatterguns, shoving the shotshells into the tube one at a time and allowing the shell latch to process each round.

To chamber a round, one simply cycles the action by means of the deep-grooved slide handle. This done, the hammer is in its full-rearward position and the Model '97 is ready to fire.

The point should be made that the trigger must be released fully after each round is fired. Like the original Winchester '97, this clone does not have a disconnect feature. This means the shotgun will fire when the action is closed, if the trigger is held in the depressed position. This was something Jack Lewis learned in ages gone by with his family's original Winchester model.

Lewis' shooting pard, Ace Kaminski, had rounded up some threat-type paper targets that carried figures of baddies aiming guns and holding hostages. These, incidentally, are marketed by Kleen-Bore, Inc., out of Fort Worth, Texas.

Two of the targets were erected with a red lava cliff as a backstop, while a section of 5/8-inch, five-layer plywood was stationed upright close by. Lewis had assembled a batch of Federal 00 buckshot and another box from Remington, as well as rifled slugs from Federal, Brenneke-type slugs from PMC and sabot slug loads from Lightfield.



At 25 yards, the 00 buckshot fired on the target depicting the late Bonnie Parker showed a wide spread from the shotgun's Cylinder bore barrel, but the wound would have been instantly fatal!



When the rear of the plywood test target was checked, it was found that the sabot-type slug damaged the wood badly after passing through.

The exercise began with Kaminski firing buckshot loads from Federal, then those from Remington on the female outlaw target that had been dubbed Bonnie Parker after the infamous female bank robber of the 1930s.



The male baddie target was punctured with a variety of slugs from the '97 clone, but the first round shown was fired by Kaminski – which would have ended any confrontation.

At 25 yards, with the Norinco's Cylinder choke, the pellets were pretty widely scattered, but all were on the paper. Half of them hit the target in what would be vital areas. On the male target, Lewis fired five of the Lightfield sabot rounds, all of them hitting vital areas, including one shot in the head. The other brands of slugs were fired on the same target with similar results.

Satisfied with the accuracy and patterning on a totally villainous paper target, the shooters turned to the

section of plywood that had been braced to stand erect at about 25 yards.

Initially, the plywood was attacked with single rounds of the Remington 00 buck, then with the same nine-pellet load from Federal. As expected, all of the pellets plowed through the five-layer plywood with no obvious trouble.

Next, the slug loads – one each from Lightfield, PMC and Federal – were fired on the woodwork. Each round cut a clean hole all the way through, but when the back of the sheet was inspected, it became obvious that the Lightfield load, with its sabot, had done a pretty good job of shredding the wood around the hole.

Similar experiments were conducted with the balance of the ammunition brought for the test before the remnants of the targets were picked up, fired shotshell cases were gathered and the area was returned to its normal status – except for a lot of lead now buried in the red lava ledge that had served as a backstop. As the two of them sat on the tailgate of Lewis' truck, he related to Kaminski an incident from his teen years.

"We had a big chicken house with maybe a couple of hundred egg-laying hens and some of them kept disappearing a few at a time. Finally, one night my Old Man thought he heard a sound in the hen house and used the family '97 to blast five rounds of 00 buckshot through the one-inch pine wall from his bedroom window.

"We ate a lot of chicken for about a week and my mother always claimed the Old Man had been paranoid about the supposed chicken thief. About 10 years later, though, a guy who lived on a nearby rental farm was swimming naked in the local English River with a batch of other males following a major beer outing, when someone spotted an ugly scar on his butt and asked about it.

"That's where that bastard, Lewis, shot me the night he caught me in his hen house," was the beery reply. After a decade of being told he had killed a batch of hens for no good reason, my Old Man never let my mother live down the fact that he had been right on that particular night!

"Only one wound out of five rounds doesn't say much for the Old Man's accuracy, but it was a dark, moonless night."

Rebirth of A Memory

BETWEEN 1941 AND 1945, approximately 6.5 million weapons, each known officially as the U.S. Carbine, Caliber 30 M-1, were manufactured by 10 different contractors. Some of these manufacturers seemed unlikely candidates except, perhaps, in times of armed stress. Among the contractors for a portion of these diminutive arms were Rock-Ola, a builder of coin-operated juke boxes and the National Postage Meter Company. Receiving little credit were dozens of smaller companies that were contracted to turn out the individual parts that would be needed in assembling these shooting machines by the prime contractors.

In spite of the number of M-1 Carbines produced originally, it is almost impossible to find an original today that is even semi-pristine. The civilians who own them apparently mean to keep them, since only scattered, ill-kept examples turn up occasionally at gun shows, swap meets and on the Internet.

Following the Korean War, this carbine was exported to South Korea and later to Israel for carry by the police forces of the two nations. In the mid-1950s, thousands of what were declared surplus M-1s were sold to members of the National Rifle Association for \$20 each.

Looking back, it was noted early in World War II that the troops doing duty in the rear of the combat types – medics, engineers and communications, for example – were required to carry additional equipment in order

to carry out their specific military missions. This led to the contention that for these folks, the M-1 Garand was too heavy and wieldy and issued handguns were not accurate enough for defensive combat use. The airborne then was in its infancy, but a like complaint came from that entity. Thus came the acknowledged need for a new, lightweight firearm that could be accurate and effective out to 300 yards.

During the ensuing hassle over the caliber to be matched to this as yet unproduced weapon, Winchester Arms hired an ex-convict, who had invented a short-stroke gas piston while serving a term for murder. This individual, David M. Williams, later came to be known as “Carbine Williams” and was the subject of a 1952 movie starring James Stewart. Truth is that Williams’ only contribution to development of the carbine was the use of his short-stroke piston.

The prototype was chambered to handle a new cartridge, the 30 Carbine, which was a direct descendant of Winchester’s 32 Self-Loading cartridge. The great difference was that the “new cartridge” carried a round-nosed bullet rather than the spitzer type used in most high-power rifles of the day. (It also should be noted here that this particular Winchester 32 cartridge had been dropped in 1920 and has been described by cartridge guru Frank C. Barnes as candidate for the title of “World’s Most Useless Cartridge.”)



In an effort to re-create the circumstances of a long-ago night in Korea, Jack Lewis fired on the target by ignoring the rear sight and using the front sight to guide his shots. All but one of his 10 rounds pierced the mid-section of the target's body.



The 30 M-1 Carbine tested by Jack Lewis and his crew duplicated the military issue gun in every respect other than the fact that it carried a walnut stock rather than the original birch woodwork. This gun also was shipped with a 10-round magazine other than the standard military-length 15-rounder.

On the plus side for those to whom the new carbine would be issued was the fact that unloaded it weighed only 4.5 pounds, less than half the weight of the M-1 Garand. The first M-1 Carbines were delivered in July, 1942, the initial shipment being sent to troops fighting in Europe.

Apparently the initial complaints concerning the 30 M-1 Carbine cartridge came from the Pacific theater after troops there were supplied with the weapon and its ammunition. There were numerous reports concerning Japanese troops who had been shot several times in the chest and other parts of the torso without the 30-caliber bullet taking them out of the fight. In the thick jungles facing island-hopping Marines, the charge was that the 110-grain bullet would not penetrate light jungle cover let alone take down small trees.

During World War II, Jack Lewis packed the M-1 Garand and had great faith in it. Late in the war, he was commissioned as a second lieutenant and issued a 45 1911 pistol. It was not until a war later, when he ended up in North Korea and the hostilities there that he was packing his first M-2 Carbine, considered a selective fire improvement of the M-1 Carbine.

"It was the winter of 1951 and I was assigned as one of the Marine Corps' so-called 'fighter-writers' to cover

activities of a forward air control team, which was on the front lines to direct air strikes on enemy positions," Lewis recalls now more than half a century later.

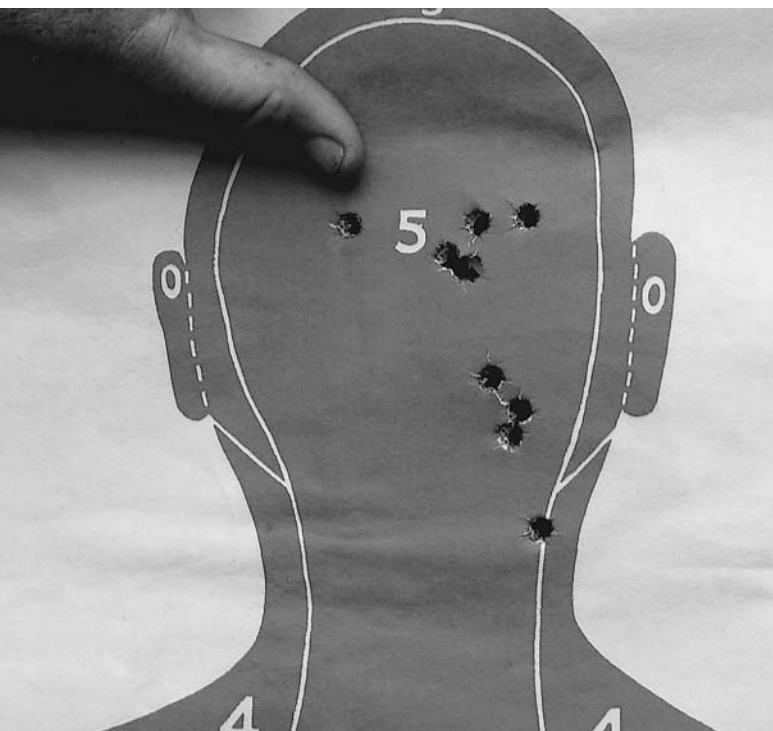
"We had an attack during the night and I was out there shooting at shapes in the blackness with every other Marine. In the darkness, I couldn't see the sights, but I fired off eight rounds at a figure coming through our barbed wire at no more than 20 yards. The 30 Carbine bullets didn't even slow him down. The corporal next to me finally took him out with a 45 Thompson submachine gun." The next day, Lewis learned that six of his eight fired rounds had hit the attacker. He went looking for a Thompson.

Some years later Lewis learned a number of adverse official reports had been made regarding both the M-1 and M-2 Carbines. Qualified ordnance specialists reported that both models tended to jam in sub-zero temperatures. This problem ultimately was said to be caused by what was termed "inadequate recoil impulse" and weak recoil springs. The official reports also noted that the supplied cartridge failed even at short range to stop North Korean and Chinese soldiers who were heavily clothed – and in some instances, heavily drugged.

History shows that the M-2 Carbine was issued to some reconnaissance troops during the early stages of the Vietnam experience. Some of the Korean-era complaints were repeated and all variations of the carbine were withdrawn from active service. Most of them later were given to the South Vietnamese army.

Still, the original mystique surrounding the little weapon was sufficient to have at least three manufacturers reproduce civilian-legal versions to meet the sales demand. Plainfield Machine Co. in New Jersey produced a version of the carbine that was assembled primarily from spare parts. This particular offering was chambered not only for the 30 Carbine round, but later for the 5.7mm pistol cartridge and the 256 Ferret loading. The company produced these carbines starting in 1960, continuing until reportedly going out of business around 1975. Examples of the Plainfield carbines occasionally turn up at gun shows or on the Internet. Prices seem to range from \$170 to \$250, depending upon condition.

Starting in 1965, Universal Sporting Goods produced their version of the M-1 Carbine. The Universal Model 1000 faithfully followed the design of the original to include the bayonet lug. Later versions varied primarily with metal finishes that included a "super" blue, nickel-plating, a fake gold finish and Dupont's Teflon in either black or forest green. All of the Universal variations were chambered for the standard round except for the last model to be introduced before the company went out of the carbine business. Called the Universal Model 1256 Ferret, it was chambered for the 256 Ferret, this particular package including a Universal-marked 4x scope.



From the 25-yard marker, Kaminski fired the carbine on a thick paper-bound book in an effort to get some idea as to penetration.

Collectors apparently show some interest even today in the Ferret version, since a clean copy will sell for around \$300. Prices on the other Universal offerings vary from \$320 to as little as \$150, depending upon condition.

Iver Johnson introduced a model the company called the PM30HB carbine in 1983. It followed the design of the original military carbine quite closely, except for being chambered for the 5.7mm MMJ cartridge, as well as the 30 Carbine round. It also had a click-adjustable peep sight and could be ordered in a choice of blued finish or stainless steel. Not too many were made during this version's short production cycle.

When World War II ended, a lot of veterans saw the M-1 Carbine as a handy little hunting tool. However, it didn't take long for 35 of our United States to pass laws that ban the 30 M-1 Carbine cartridge for use on deer and other game animals of similar or larger size.

Jack Lewis has always contended that interests are cyclic and he was not surprised to see a growing interest among collectors and those involved in weapons nostalgia. He has long felt that the United States Carbine, Caliber 30, M-1 would rise again – and it has!

Currently, at least two manufacturers are reproducing the M-1 Carbine to its original military specifications. One such firm is Itrac Arms International, Inc., which is headquartered in Knoxville, Tennessee. The other company producing an honest replica of the M-1 Carbine is Kahr Arms, marketing the shortie under the corporate-owned Auto-Ordnance banner.

According to Frank Harris, vice-president of the company, "The Auto-Ordnance M-1 30 Caliber Carbine is produced by Kahr Arms' state-of-the-art manufacturing plant in Worchester, Massachusetts. These Auto-Ordnance carbines are produced using newly manufactured parts made on high-precision computerized equipment."

Actually, the Auto-Ordnance production is devoted to four models. The one designated as the AOM-110W is closest to the original of World War II issue, since it carries a birch stock and handguard, as well as a 15-round magazine. The AOM-120W is precisely the same gun, except that it is sold with a magazine that holds only 10 rounds, thus complying with the laws governing sales in California. Both carbines feature a flip-type rear sight comparable to the original as well as a Parkerized finish of all of the metal parts.

The model listed as the company's AOM-130 is the same as the AOM-120W, except that it carries a walnut stock and handguard. This model also is marketed with the 15-round magazine, while the AOM-140, also with walnut woodwork, is delivered with the California-legal 10-round magazine.

In keeping with the original design, overall length is 35-3/4 inches including the 18-inch barrel. The front sight is the protected blade type of the original. Rear sights on all of the models carry a Parkerized finish.

Serious arms collectors, of course, are aware of the efforts often made to pass off reworked replicas as the real thing. To avoid this possibility, the serial number



An obsolete copy of MODERN GUN VALUES, with nearly 600 pages, was pierced by all of the bullets fired from the Auto-Ordnance made carbine. Cartridges used carried 110-grain bullets.

is stamped on the left side of each carbine's receiver. Other stamped markings list the manufacturer as *Auto-Ordnance, Worcester, MA*, thus offering assurance that the carbine is of current manufacture. Stamped on the receiver of each piece in front of the bolt is *U.S. Carbine, Cal. 30 M-1*. One point made by Frank Harris is that the 10-round magazines are produced by the manufacturer, while the 15-rounders are not new, currently being procured from military surplus sources.

After an exchange of calls and e-mails, one of the carbines arrived at Jack Lewis' digs in Hawaii. Only hours, not days, after that, Lewis, the carbine, Ace Kaminski and Zack Lewis were in a lava pit that was closed down for the weekend. During the week, lava ash is hauled out for driveways and other building needs across the Big Island, where Lewis now lives. The high walls of the pit make it a natural for testing firearms. The fact that there is not a residence within three miles makes it a super-safe testing site.

Although he was still suffering from a separated shoulder, Lewis insisted on trying out the carbine first. The firearm had been shipped with the 10-round California-safe magazine, so it was filled with Winchester-made 110-grain hollow-softpoints. Winchester states the muzzle velocity with this round is 1990 feet per second, the same as the ammo fired in the original military version in a combat scenario. At the muzzle, this creates energy of 967 foot pounds. However, experience has shown that at 300 yards, the velocity of the bullet has dropped to 1030 foot/pounds and energy has been recorded as 262 foot/pounds.

A blue-shaded human-size silhouette had been set up at 25 yards and Lewis, who had not shouldered any M-1 Carbine since 1951, assumed the position. Instead of looking through the aperture of the battle sight set for 50 yards, he looked instead over the top of the rear sight, concentrating on the front sight, as he quickly triggered off all 10 rounds.

"What was that all about?" questioned his son, Zack Lewis, who was this chapter's photographer.

"At night, there's no way to pick up a target with an aperture that shows you nothing but black. You sort of have to shoot by feel. I was simply trying to put bullets into the body of the image. I wasn't shooting for group. To make it totally realistic, I probably should have done it with my eyes closed!" He appeared to be serious.

A check of the target showed that all but one of the 10 bullets had landed in the blue-printed figure. Lewis declared that he was satisfied, his point having been made, although the photographer and Mark Kaminski were not quite certain what the point was supposed to be.

Rather than worry about it, Kaminski reloaded the 10-round magazine, then stood at the 25-yard marker. With his eye close to the rear aperture, he called, "Hand on the right side!"

His bullets were not squeezed off as rapidly as Lewis had done, but inspection of the target showed that he had an off-hand group measuring about three inches across, nine of the 10 bullets in the figure's hand, and the other was close.

During the inspection, the younger Lewis had been reloading the magazine. "Your turn," he was told. The



A cartridge is ejected from the M-1 Carbine as Jack Lewis looks over the rear sight rather than through it. He was attempting to re-create a situation in which he was involved during the Korean War.

young man, who makes his living as an electrician these days, strode to the firing line and shouldered the weapon like a pro. Not surprising, since he had built up a backlog of experience with the little carbine 20-plus years earlier as a student at the Marine Military Academy, a Texas educational institute run primarily by retired Marine Corps drill instructors.

Kaminski and Lewis watched as the younger man went through the triggering exercise, then turned to look at them with a grin.

"I was shooting at the head," he announced. Inspection showed that all 10 holes were in the figure's head.

Short-range killing accuracy of the carbine appeared to speak for itself, but there was another step in the

test. A day earlier, the Lewises – father and son – had built a special target stand. It consisted of a frame of 2x4s with a half inch-pipe running through for the purpose of hanging wet telephone books as targets to check penetration.

On short notice, no one was able to come up with a pair of thick telephone directories without disrupting personal communications systems. As a result, Jack Lewis noted that two of his personally owned publications were on the point of being replaced by new editions. One was the 2006 GUN DIGEST, the other a companion publication, the 11th edition of MODERN GUN VALUES.

The original thought had been to soak the books overnight in water, but the idea was killed when it was pointed out that the pages were glued to the spine. Wet, they no doubt would simply fall out of the binding when the books were hung on the rod.

Again, the shooting was done at 25 yards. First, 10 rounds of the Winchester 30 Carbine ammo were fired on the used gun values book. All of the rounds penetrated the nearly 600 pages. The holes were cleanly cut going through the cover, but the rear cover and adjacent pages verged on confetti.

"Next time we'll try about a foot of wet newspapers," Lewis promised the others. "Maybe that'll trap some bullets."

For the sake of comparison, Kaminski then fired a personal 9mm carbine on the GUN DIGEST volume which had a page count almost identical to that of the initial target. Again, the holes going in were relatively clean, but there was little left of the last half of the book. Bits of paper were being blown down the canyon-like location.

Comparing the back-of-the-book damage of the two, it was apparent that the 9mm had created a good deal more damage. However, it should be noted that the 9mm ammo being used carried 115-grain hollow-point bullets.

"I didn't think five grains could make that much of a difference," Kaminski muttered as the team gathered up the residue and the rack, which would be used again.

A day later, Lewis received a call from Kaminski. "I have four people who want to buy that carbine," he declared.

"The company address is on the paperwork," Lewis told him. "Have them call. We're not in the gun business!"

But maybe they should be!



A last year's copy of the GUN DIGEST also served to check penetration, but this damage was created by a control weapon firing 9mm rounds carrying 115-grain bullets.

A Short-lived Replacement

EVEN BEFORE WORLD War II ended, our military thinkers were pondering the weapons for the next go-round. It had been decided that the then current U.S. military weapons were just too heavy and these thoughts were directed primarily at the M-1 Garand, the Browning Automatic Rifle and the Thompson submachine gun!

These planners wanted a weapon that would replace all of these, as well as the 30 M-1 Carbine; one that would be lighter in weight and provided increased firepower. To that date, full-automatic fire from a shoulder-mounted weapon had proved to be feasible only with pistol calibers and intermediate-range rifle cartridges. Ignored went the fact that the BAR, as an infantry support weapon, was heavy for a reason.

As a result, work got under way to modify the Garand M-1. In this effort, the eight-round en bloc clip system was replaced by a detachable box magazine for full-auto fire. John Garand personally designed a prototype that worked well enough in testing, but was not the ultimately adopted design.

"The military planners also were seeking a shorter cartridge that would offer less bulk – and weight – than the 30/06 round," Bob Campbell's research has shown, "but the 7.62x51mm cartridge that finally was adopted is not an intermediate power cartridge. Now known as the 7.62mm NATO round, it is slightly shorter, but about as powerful as the 30/06."

The new rifle, during its various experimental and test stages, was called the T20, the T25 and eventually the T44 and was chambered for the new cartridge. While the rifle resembles the Garand M-1 in outward appearances, the new rifle used a shorter operating rod and piston, as well as a shorter gas expansion system.

"There also was a gas cut-off feature that would allow the rifle to be utilized as a grenade launcher, an important feature prior to the introduction of the 4mm grenade launcher.

"Actually, the T44 concept, in its final form, featured a receiver that was somewhat shorter than that of the

Garand. Other differences were substitution of that 20-round magazine as well as a bolt stop for locking the bolt to the rear or releasing it. Actually, the first rifles were modified Garands that looked much like the Italian's BM59 rifle," Campbell reports. "The rifle's identity became the M-14 and the then still active Springfield Armory in Massachusetts began tooling up for the rifle in late 1950. However, the first rifles were not delivered until 1959."

Jack Lewis recalls that somewhat later the Marine Corps rejected a number of the rifles that had been contracted to Harrington & Richardson. Reason given by the gurus at Headquarters Marine Corps was that the receivers were not properly tempered.

"Sharp historians will note that when we became involved in the early days of the Vietnam War, the troops were armed with a lot of Garands and a few M14s. At that point, the M-16 was still in the thinking stages. The first unit to receive the new M-14 was the Army's 101 Airborne. The Marines began to issue the new rifle to troops in 1962."

Reviewed combat reports show that the M-14 served well in Vietnam during its brief tenure, although admittedly too long and too heavy for maneuvering in the thick brush and jungle growth, but its absolute reliability could not be faulted. The power of the cartridge afforded the foot soldier great penetration against light cover and at extended ranges, the M-14 proved to be one of the most accurate rifles ever issued.

"During the 1960s, I heard many military men praise the Garand and many felt that the M-14 was not needed," Campbell recalls. "They noted that M-1 ammo was delivered in loaded clips. When the last round was fired, the clip leaped out of the hold-open action and one didn't have to worry about removing an empty magazine and feeding a fresh one into the magazine well. The fresh eight-round clip was simply jammed into the receiver, the bolt slammed home to load a fresh round and firing continued.



The Springfield Armory M-1A1, with its 20-round box magazine is compared to the rifle it replaced, the M-1 Garand. The latter rifle loaded the eight-round en bloc clip.

“Those who favored the Garand also noted that the clips were much less expensive than magazines that would be discarded in some combat situations. All of this is true,” Campbell admits, “but realistic comparison shows that the M-14 was an improvement over the Garand. Today, the remaining M-14s in the military inventory are coveted as sniper tools used by many Special Forces units.”

The last military variant of the M-14 rifles were produced by Taiwan for its forces between 1969 and 1980. More than a million rifles reportedly were made there. Other than that, there have been several efforts to produce an M-14 for commercial sales. Norinco, the company that is based in communist China but imports into the U.S., imported a variant several years ago.

“That product was rough and resulted in broken parts at a high round count, but it was affordable,” Bob Campbell recalls. “With proper heat treating of selected parts, the Norinco might be an acceptable shooter.”

Another alternative is being marketed currently to civilians by the Illinois-based Springfield Armory (not to be confused with the closed Massachusetts government operation). This maker does not call their rifle the M-14; instead, it is catalog listed as the Springfield M-1A1.

“This is a rifle of superb quality that exhibits excellent fit and finish,” Campbell has found. “The M-1A1 is a close replica of the M-14 rifle, but is without the selector switch for full-auto fire.”

The Illinois-produced clone carries virtually the same specifications as the original M-14, the only difference being in the stock choices. The original carried a

hardwood stock, but the M-1A1 offers the buyer a choice of a black fiberglass stock, one with a Mossy Oak camouflage finish, woodwork fashioned from walnut or what the Springfield folks call the Collector GI stock.

In keeping with the original, the rifle is chambered for the 7.62mm NATO cartridge or the 308 Winchester if one wants to be civilianized about your choice. Overall length of the rifle is 43.3 inches, with a 22-inch barrel of carbon steel that features one right-hand turn in 11 inches of the four lands and grooves. A compensator adds an additional three inches to the length.

Without a scope, weight of the rifle is 9.2 pounds, evidence that the effort to reduce the weight of the Garand didn't really work. The rifle, using the familiar rotating bolt, is a gas-operated and air-cooled semi-automatic that is magazine-fed. The rifle can be ordered with a choice of a 10-round California-legal magazine or the traditional 20-round. Pull of the two-stage military trigger is factory set at five to six pounds.

The front sight is a military square post with protective wings, while the rear sight features a military square aperture with minute-of-angle adjustments for both windage and elevation. Sight radius for this rifle is 26.75 inches. The receiver is drilled and tapped to handle a furnished B-Square scope mount.

Bob Campbell has fired a number of different M-1A1 models and found each of them a comfortable rifle to fire. He reports that the butt pad is well shaped for comfortable shooting and the hardware is positioned for comfort, while the controls are easily manipulated.



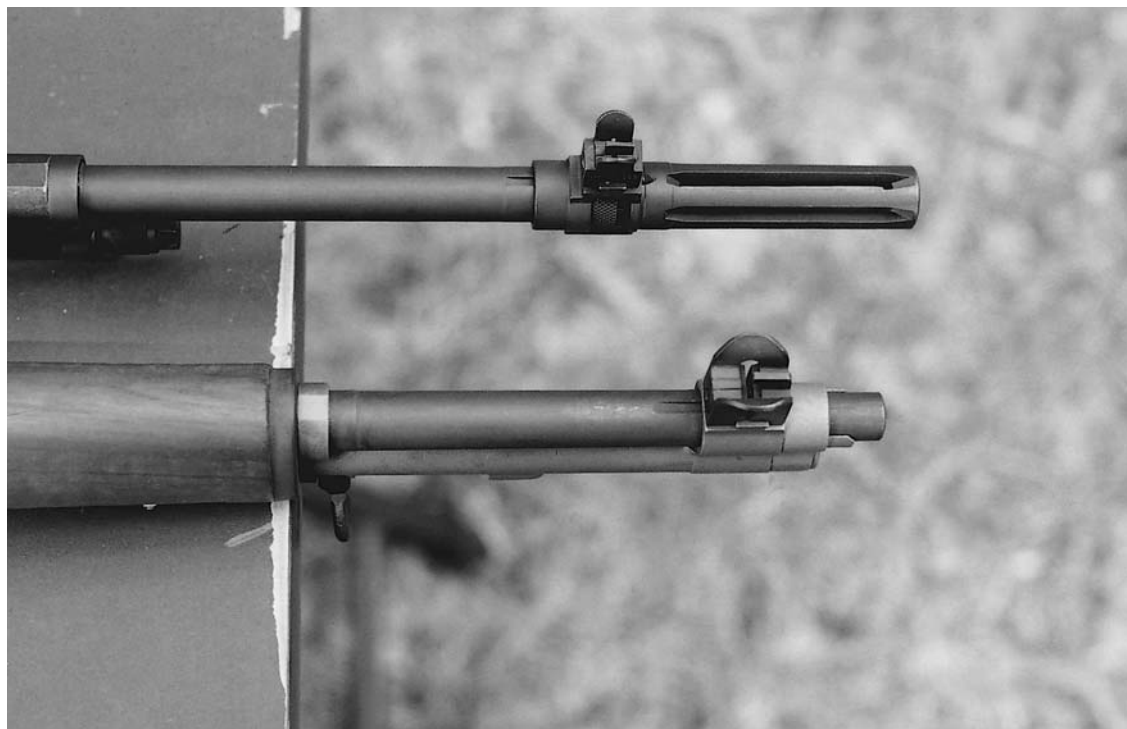
The Springfield Armory clone of the military-built M-14 is marketed with a B-Square scope mount. The rifle's receiver is drilled and tapped to handle the mount.

"The sights have been proven in both combat and match use and are no problem for an old hand with the Garand rifle," he states. "I do not own an original M-14, but the modern reproduction from Springfield Armory offers excellent results."

"For the most part, I have fired Winchester's USA full-metal jacket rounds with excellent results and have found the Black Hills Match 168-grain BTHP to offer accuracy at a per round price most of us can afford. For ultimate accuracy, though, I favor the Winchester 308 Silvertip round, since it usually gives me groups of one-inch or less at 100 yards."

Campbell also has checked out the Lapua full-metal jacketed cartridges imported by Graf & Sons of Mexico, Missouri. "This load lives up to its reputation," he says, "but the most accurate load I've fired to date in the M-1A1 has to be the one from Black Hills."

Another load that he has fired in his testing is the Cor-Bon 125-grain JHP, which is designed as a close quarters battle round that "Gives up its considerable energy quickly. A real sizzler, this is a viable option for urban use. I have found that with concentration on the



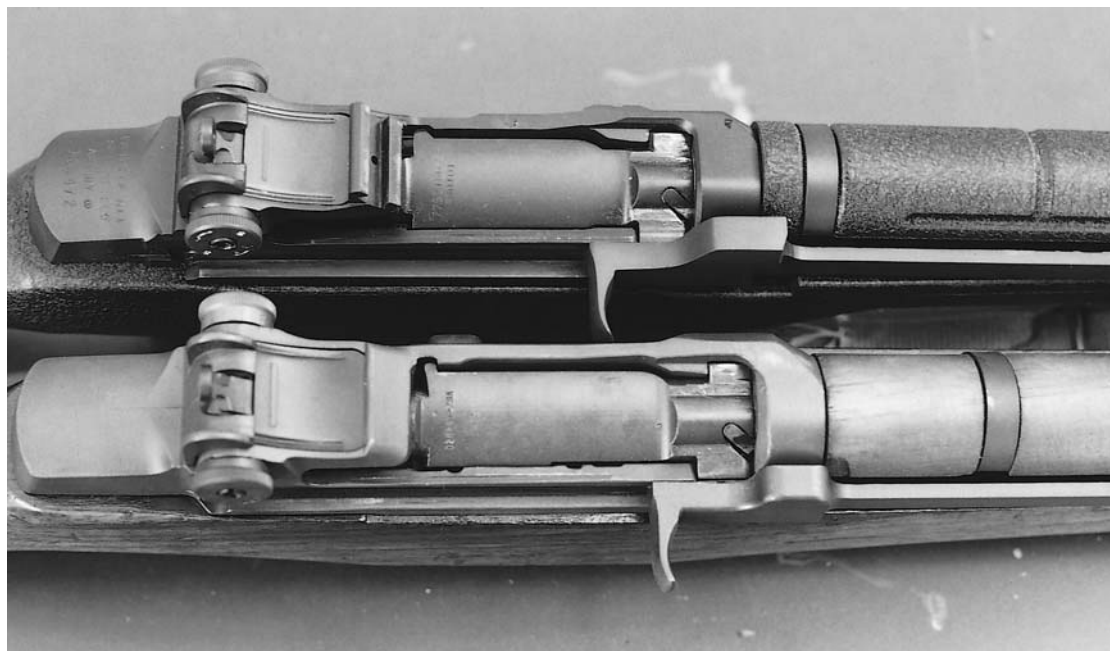
Front sights on the Garand (below) and the M-1A1 model are only slightly different. The flash suppressor on the muzzle of the M-1A1 also serves as a recoil reducing device.

front sight, truly rapid shooting can be done."

The safety for the M-1A1 is the same as that on the Garand – a lever inset in the front trigger guard that is pressed forward to take the piece off its Safe status. Campbell has fired the rifle from the bench but also finds it excellent for offhand shooting.

"The rifle is suitable for both competition and hunting in a civilian environment," he feels. "Some commercial semi-autos tend to be finicky, but the M-1A1 is not. I have fired a full magazine of Hornady's 7.62 light magnum rounds with excellent results."

Campbell concludes that "The M-14 rifle is deserving of more than a footnote in American history and I for one am happy that Springfield Armory is keeping it alive with this efficiently shooting replica!"



This photo shows that there are great similarities between the M-1A1/M-14 rifle at top and the older M-1 Garand. Note the rotating bolts, similar operating levers and rear sights.

John Garand's Italian Connection

ONCE THE ARMED forces around the world adopted repeating rifles it was probably inevitable that there would be efforts to devise and adopt a semi-automatic type of firearm. However, it was a generation or more after the bolt-action became a common item that service-grade semi-auto rifles became available.

There had been a number of semi-automatic sporting rifles developed, such as the Remington Model 8, which was introduced in 1906 in calibers ranging from 25 through 35. As early as 1908, a semi-automatic military rifle in 7x57mm chambering had been invented and patented by a Mexican general named Mondragon. The general was the military attaché in the Mexican Embassy in Paris and a few of his rifles were manufactured by SIG. It was moderately successful, but probably ahead of its time. The Soviets were making efforts in the semi-auto direction, but their moves seem to have been slowed by poor gunpowder produced in the country. Thus, the first successful issue semi-automatic military rifle is the M-1 Garand.

The Garand is an older design than many of us realize. It made its appearance on the European battlefields early in 1942, but John Garand had begun working on the design at Massachusetts' Springfield Armory as early as 1924. Working on various prototypes during the 1920s and 1930s, he reviewed criticisms of the detachable box magazine and decided to use an internal box in its rifle, which would be fed cartridges from an en block clip.

"As it turned out the en block clip decreased the combat load weight considerably," according to Bob

Campbell. "The bandolier carrying a dozen clips for a total of 96 rounds of ammunition would have been much heavier had a detachable magazine been used instead. In addition, the en block clip proved to be much quicker to load and considerably more reliable than the stripper clips used by both the Germans and British."

The original Garand project included a variant chambered for the 276 caliber round. This particular prototype was somewhat lighter in weight than the M-1 and featured a magazine that carried 10 rounds rather than the M-1's eight.

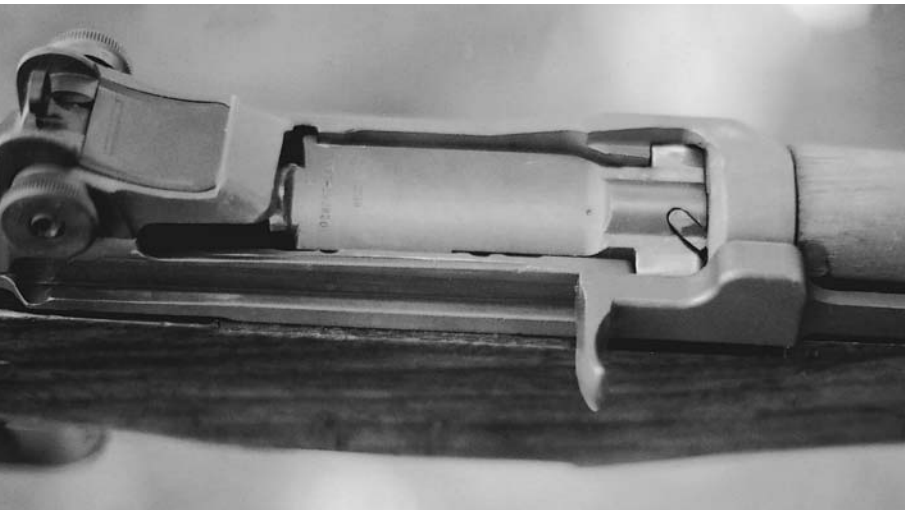
During the 1920s, a great deal of research was being allotted to cartridges that would retain lethality, while offering the shooter less recoil. One must keep in mind that in those days powder technology was a limiting factor. Copper jacket construction was sometimes a problem, with the alloys of the day tending to produce excess fouling with small-bore high-velocity cartridges.

It was Army Chief of Staff Douglas MacArthur who vetoed use of the 276 cartridge. The round definitely had its good points, but the general realized that his forces had the Browning Automatic Rifle and numerous light and heavy machine guns that fired the 30/06 Springfield cartridge. There also were tremendous stocks of 30/06 ammunition in service warehouses and shooting competitions between the wars had shown the 30/06 to be a highly accurate cartridge at long range.

MacArthur realized that the Springfield 1903 and the Enfield 1917 would be the usin' rifles for years to come for ourselves and our allies. It would be decades before the new rifle was ready for issue to the troops.



National Guard marksman Matthew Campbell checks out the sights on his father's M-1 Garand, which was constructed from parts, most made in Italy by Beretta.



The rotating bolt of the Garand M-1 rifle set the pattern for many designs in later years, including that of the M-14 rifle.

“I suspect that the great penetration and effect of the Garand would not have been so praiseworthy had it been chambered for that 276 cartridge,” Campbell states. “MacArthur obviously made the right decision for his army.”

The 30/06-firing Garand was officially adopted in 1932, but final development lagged and the first production rifles were not delivered to the Army until 1937.

When World War II began, a majority of U.S. troops were still armed with the bolt-action Springfield rifle. Most of the units armed at that time with the Garand were held on the U.S. Mainland. Such was the fear of invasion on our vulnerable West Coast that actual combat zones suffered for equipment well into the

winter of 1942. As a further example of fear, the best-trained troops and best equipment such as the P-38 Lightning fight aircraft were on Stateside duty.

“Once production was on a war-time footing, the Garand replaced the bolt-action rifle in front line units,” Campbell states, but history shows that initially the Garands went to Army troops, while the Marines fighting on Guadalcanal still had their 1903 Springfields.

Legend tells of an occasion when a big shipment of Garand M-1s arrived on the ‘Canal to be issued to fresh Army troops who had just arrived. The Marines were looking on with longing, until someone started an air raid siren blaring. The fresh Army troops hurriedly dispersed to the jungle cover nearby.

According to the legend, when the air raid proved to be a false alarm, the Marines had disappeared into the jungle – and so had most of the Army troops’ brand new, yet-to-be-issued Garands.

Offering more firepower and an instant second shot, Garands were produced by Springfield Armory and Winchester Repeating Arms. The battle sights on the new rifle were superior to anything being used by Axis troops and the rifle was devastating when the Germans attempted *Blitzkrieg* tactics or the Japanese made their *banzi* charges.

According to Bob Campbell’s investigations, “When enemy troops bunched up or were caught in ambushes on single-file trails, the powerful 30/06 Garand could penetrate three soldiers in line. Two Garands were said to be worth an enemy squad in action. The Garand was considered to be the only successful semi-auto battle rifle of the war. Neither the Russian nor the German effort were comparable.”



The Garand was still the primary infantry rifle when the Korean War broke and during that period, new weapons were manufactured under government contract by both Harrington & Richardson and International Harvester. Winchester, which had been involved in producing the original M-1s for World War II service, reportedly had sold its tooling for the rifle to Beretta in Italy.

With this tooling, the Italians adopted the Garand as their standard rifle, while they rebuilt their army and were admitted to membership in NATO. Their version of the Garand went through several changes, most of them centering around the gas operating system.

The first variations used a gas trap system, but later versions went to a more simple gas port. Quite simply, gas is bled off from the barrel when the rifle is fired and pressure from this gas operates the action.

"It is no wonder that war-time experience led the Italian army to the Garand," Bob Campbell insists. "After all, their much maligned Carcano rifle had been designed and initially issued in the early 1890s. At that time, even our antiquated Krag-Jorgensen was a better rifle!"

"The Beretta-produced Garands are among the best-fitted and finished Garands to come off of any production line. Beretta also developed a rifle they called the BM-59, basing it on the Garand design. On the outside, the BM-59 tends to resemble the M-14, but inside, it's still pretty much Garand-designed parts."

Today, the M-1 Garand remains a shootable, collectible and interesting rifle. It is used in competition with great frequency. In view of the ever-increasing prices for one of the rifles in good condition, modern sport shooters have been seeking alternative sources.

"If one should purchase a less expensive Garand these days, performance may not match the rifle's reputation. After all, some of the original rifles had had thousands of rounds run through them in war and in peace," Bob Campbell points out.

Today, there are at least two companies building copies of the M-1 Garand to the original factory specifications. Intrac Arms International was the first to start turning out new rifles, which are manufactured to the original factory specifications, including a stock of an unidentified hardwood. The manufacturer lists this rifle as the IAI M-333 M-1 Garand.

Illinois' Springfield Arsenal took note of the demand for working M-1 rifles and began adding them to their line which depends largely upon the M-1A1, their civilianized M-14.

The Springfield M-1 differs in one respect from the original Garand in that it is chambered for the 308 Winchester cartridge as well as the traditional 30/06. All other specifications meet those of the original and should, since factory sources say the rifles are assembled from original U.S. Government parts on a new walnut stock.

Adding funding to the Springfield coffers during late 2006 was a contract with an organization called America Remembers. For a number of years, this organization has commissioned ornate weapons that commemorate an individual, a place or a historic happening.

In a joint effort with the Marine Corps Association, the commemorative marketers commissioned Springfield to produce an unknown number of Leatherneck Tribute M-1 Garand rifles. Much of the non-moving hardware on this model is gold-plated, including the front sight, barrel bands and part of the rear sight. The walnut stock is laser-etched with the Marine Corps emblem, the Iwo Jima flag-raising and other Corps-related artwork.

When he learned of this project, Jack Lewis offered a shake of his head. "That rifle is going for right at \$3,000 a copy and probably never will be fired. In the days when I was slinging one, if you lost your M-1 or damaged it beyond salvage through your own doing, they took \$120 out of your pay and suggested you not plan on being promoted until probably the Third or Fourth World War!"



The Garand en block clip could be loaded from either side, a feature that was considered laudable for faster reloading of the rifle in combat.



The Garand constructed from Italian-made parts featured the original type of buttplate with the spring-loaded trapdoor that opened to store cleaning gear.



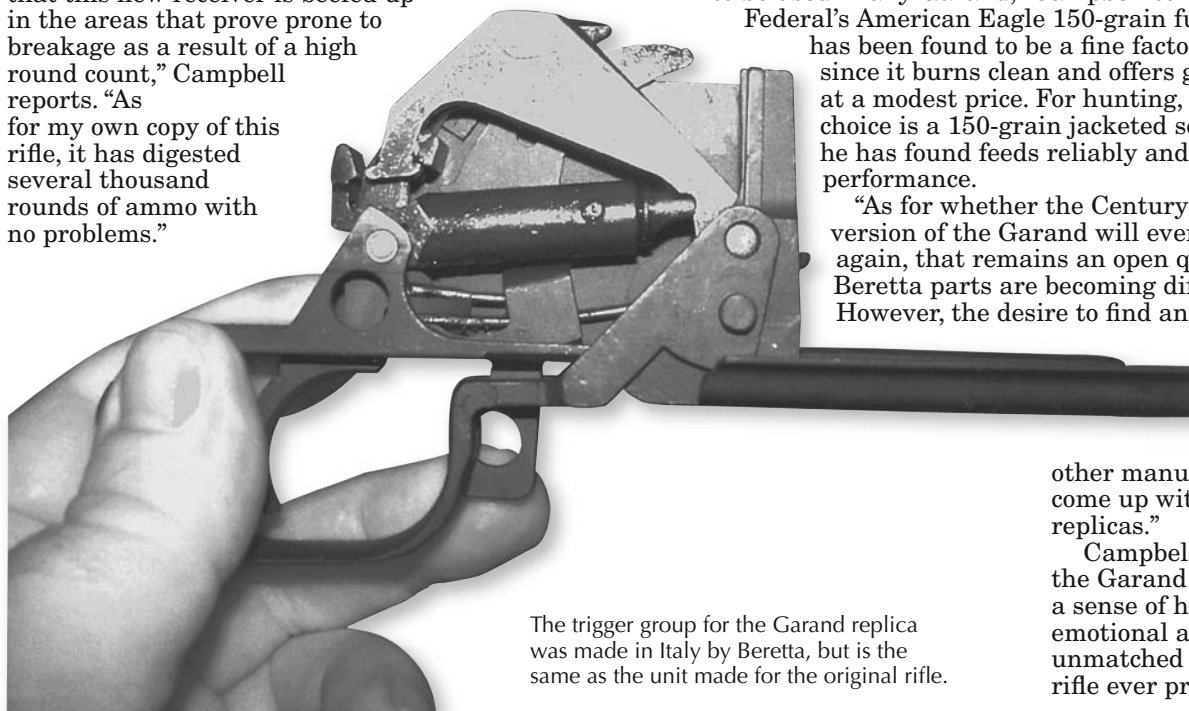
As designed by John Garand, the trigger guard swung open so the stock could be removed. Note the safety with the hole in it for inserting a padlock during storage.

In obtaining a Garand M-1 of his own, however, Bob Campbell took a different tack. He found that Century International Arms was offering a rifle that was composed largely of Beretta-made parts from the days when the Italian army was armed with the rifle.

For those unfamiliar with CIA as the company sometimes is called, two and coming up on three generations have run the operation first in Canada, then in Miami. It deals primarily in war surplus from other countries.

The Century International folks had cornered a batch of the Beretta-made parts, but no receivers. They solved that problem by contacting a leading U. S. armsmaker that must remain anonymous to come up with quality castings of the M-1 Garand receiver.

"I have been told that the drawings specify that this new receiver is beefed up in the areas that prove prone to breakage as a result of a high round count," Campbell reports. "As for my own copy of this rifle, it has digested several thousand rounds of ammo with no problems."



The trigger group for the Garand replica was made in Italy by Beretta, but is the same as the unit made for the original rifle.

In his personal rifle, the Italian-made parts show good fit and finish. Campbell insists that "this rifle is not really a reproduction, but an original rifle with a cast receiver. In fact, I have found that my Beretta hybrid is a bit more accurate for me than most of the original GI rifles, usually delivering near-MOA at a hundred yards."

"Like all Garands, it has excellent battle sights that give excellent performance in the field. Precision shooting is possible well past a hundred yards, but it would require several improvements to be a true Match grade rifle. As it is, I find it a fine all-around rifle, with reliability and accuracy.

"As with other Garands – and other gas-operated rifles, in fact – care must be taken in selection of ammunition. If we use too heavy a load, the operating rod may be damaged and slow-burning powders are not to be used in any Garand," Campbell contends.

Federal's American Eagle 150-grain full metal jacket has been found to be a fine factory offering, since it burns clean and offers good accuracy at a modest price. For hunting, Campbell's choice is a 150-grain jacketed soft point that he has found feeds reliably and offers good performance.

"As for whether the Century International version of the Garand will ever be offered again, that remains an open question, as Beretta parts are becoming difficult to find.

However, the desire to find and fire a Garand is common among riflemen and chances are that still

other manufacturers may come up with respectable replicas."

Campbell feels that the Garand offers both a sense of history and emotional attachment unmatched by any other rifle ever produced.

CHAPTER 19

TO KEEP IT SHOOTING...!

The Basics of Firearms Care Don't Change Much, but Some of the Needs & Equipment Used Do!

"I OWN GARANDS, AKs and ARs – several of each – and none have ever malfunctioned during my firing thousands of rounds of ammunition."

That may sound like a boast, but Robert K. Campbell is quick to admit that none of these combat-type firearms have been subjected to the harsh use they would see in an overseas battle environment.

"The trunk of a police cruiser is hardly an ideal environment, of course, but certainly not as abusive as the deserts or jungles where all of our engagements of the last half-century seem to have been fought. Nonetheless, it is possible to tie up and render ineffective any service rifle by using improper ammunition, poor lubrication—or simply exposure to harsh conditions," Campbell contends.

When we have plenty of time and the equipment at hand, firearms maintenance is simple. Run a brush through the bore and wipe the piece down. Strip and lubricate it, cleaning the bore of powder residue and copper fouling. If one fires high quality ammunition, these last two steps may not be much of a problem. Most civilian shooters attempt to save personal firearms from abuse, but in a military situation, such abuse comes as a matter of course whether during an uninvolved training exercise or in the heat of actual combat.

"In spite of the problems, the smart, well-trained soldier whose life depends upon the weapon he carries is likely to look for any and every advantage," Campbell says.

"Cleaning a rifle is about as exciting as doing the laundry, no one looks forward to the task. With the right tools, though, the chore will be easier and the time required will be shorter and well spent. Working hard is fine, but working smart is better."

Campbell's army veteran son is in the habit of cleaning and lubricating his personal AR each time he goes to the range. By his own admission, Bob Campbell occasionally allows his rifles to "loungue a bit longer."

The son, he has found, performs the chore quickly and correctly in the manner he learned during active Army service, while the senior Campbell does it "the police way and the two systems are pretty different."

When assembling tools, one must decide what he will be doing with the rifle. On a long outing, such as an extended hunt or a field campaign, one can carry a cleaning kit in the rifle's stock, or use a range bag. There will be preventive maintenance involved, which might well call for replacing springs when necessary.

For maintenance at home or in the field, a few things will each have a definite



This is the trigger group of the AR-15 rifle, which can accumulate dirt and residue that can tie up the weapon. Be certain to clean the piece thoroughly.



One also should be sure to clean the bolt face. Foreign matter may work its way into the firing pin channel and cause a weak strike.

purpose. Included are a cleaning rod of the proper caliber, barrel brushes and attachments for cotton patches, pre-cut patches and spare brushes and, depending upon the environment, solvents for both power and copper residue, lubricants and, perhaps, a thicker grease. Tooth brushes or similar items, as well as specific tools are a must.

"All fighting weapons need to be clean and lubricated before the fight starts," Campbell points out. "Since we don't know when that fight will develop, that means keeping the weapon ready at all times."

The first consideration is the environment. There are general purpose lubricants, of course, but others are better suited to the jungle than to the desert. Some of the lubricants counted on in Vietnam would not work well in Iraq. As for law enforcement personnel, officers serving in Alaska and Montana have different opinions as to the best lubricant for a patrol rifle.

"A patrol car trunk can expose a rifle to condensation. Air-conditioned cruisers were largely responsible for the introduction of stainless steel pistols, and long guns – even with a heavy blued or anodized finish – remain vulnerable," Campbell has found.

"As for the desert environment, sand varies in different parts of the world. I am familiar with beach sands, while my Western friends have to deal with desert sands. Much of our desert sand is of a coarse granular nature."

Campbell recalls field-stripping a surplus rifle that had come from Egypt and was surprised to find sand imbedded in the barrel channel of the stock. "The Egyptian sand was a bit different from our own sand.



In what he considered an extreme test of this autoloader, Campbell cleaned and lubed it properly, then had no difficulty in firing it.

The rifle had been clean and greased when I received it, but somewhere along the way, the grains of sand had worked their way into the stock."

In some parts of the world, sand is more like powder. This type of sand is light and invasive. That means it can penetrate the action of virtually any firearm. Thus, there is much to be said for covers, including muzzle covers.

"I have a number of plastic muzzle covers for the original Bushmaster carbine. They don't have to be removed before firing; just shoot it off," Campbell says, adding, "But commercial covers of that type are best used in a civilized environment. In desert sands, soldiers often tape the muzzle of their rifles to protect the muzzle and the bore."

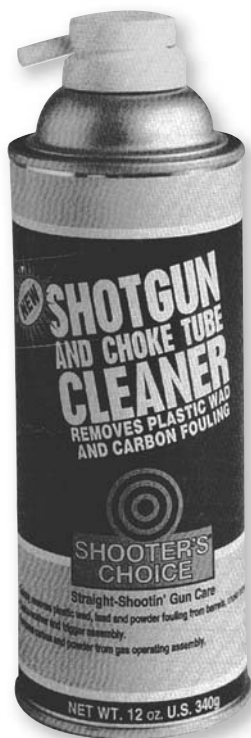
When involved with blowing sand, soldiers attempt to keep the rifle buttoned up. The action cover is snapped shut and the magazines properly seated. Nonetheless, a weapon exposed to blowing desert sand can quickly become a relatively worthless tool!

Some of the brushes being used by soldiers and Marines in Iraq today are unconventional, but they work. As mentioned earlier, old toothbrushes can be effective on handguns but longer, more complex purpose-designed tools are needed for rifles.

According to Campbell, the cleaning rod designed and made by the late John Dewey works well, since it is nylon-coated and has a muzzle guide to prevent damaging the bore. This particular rod still is being made by Dewey's sons, George and Bryan, at their plant in Southbury, Connecticut.



Such commercial items as Quick Scrub III attack lead and powder residue. Campbell feels that while it is a great product, it does not remove lead deposits or lubricate. This, he insists, requires a bit more work.



Some of the same problems are found in cleaning rifles, handguns and shotguns; give the shotgun chamber special attention, and the choke tube as well.

"In the field, even the long, thin under-barrel cleaning rod of the AK can be a nuisance," Campbell has found, "but the bore snake, a simple pull-through, is probably as old in design as breech-loading rifles and is neat, light, handy and effective."

Experience has shown there is also a need for tools to get into tight areas, including the bolt and trigger group. The AR series, for example, often dumps powder into the trigger group, and this fouling is multiplied when sand gets into the action. Picks of various sizes and descriptions, as well as strong swabs, are needed.

It can be assumed that a professional soldier will be totally familiar with his weapon. Sadly, the same cannot always be said of law enforcement personnel, since some officers go through an entire career without ever firing a shot in anger.

In cleaning, detail-stripping is not necessary in most cases, but in cleaning a rifle, one should be able to lay out the major components: bolt, receiver and trigger group. In the case of AR-type rifles, which seem to be most popular in today's law enforcement inventory, the bolt, charging handle and the upper and lower receivers should be disassembled for a thorough cleaning.

"Some of us are understandably reluctant to disassemble the trigger group," Campbell admits, adding, "This is where the hobbyist usually gets into trouble. Unless the function or ability of the trigger to reset has been affected, this group is best left alone. A quality spray that dries quickly is recommended for cleaning the trigger group."

When Campbell breaks down his personal AR or AK, he sprays all parts extensively and allows the guns to sit for twenty minutes or so. He then hooks up the Dewey rod and carefully cleans the bore with a pass by the copper brush, then alternates cotton patches until one comes out clean.

"There is no black, no copper, no green that shows on the patch when I'm done," he boasts. "However, should one decide to store the rifle for a time, it's best to run that last patch carrying oil. That's true even for a chrome-lined barrel. Also, one should make a note and remember to run a dry patch through the bore prior to firing it."

Campbell states that he is very careful in cleaning the chamber. A good, slick chamber often will aid in feeding ammunition that is less than top quality. Nor should the locking lugs be ignored. They tend to collect a great deal of unburned powder as well as lubricant. This build-up can create a varnish-like substance, and the carbon build-up found on many bolt carriers seems to collect there less than on the bolt proper. A special tool available from Brownell's, a Montezuma, Iowa supplier, costs less than \$10 and takes the worry out of this chore.

In reassembling the gun's parts, Campbell is careful to see that longer bearing surfaces are well-lubricated, although he tries not to leave lubricant on the face of the bolt.

When it comes to magazines, Campbell verges on the paranoid; that's by his own admission. For serious duty, he contends only the highest quality magazines should be carried. He has used all manner of magazines for the AR. This generally has been with proper results. However, he owned an original Colt magazine that would not lock the bolt on the last shot.

"Qualify your magazines," he insists. "A few years ago, one American-based company produced magazines of horrible quality. Some did not have the proper specifications and others would lock into the magazine well, but fall out the minute the rifle was fired. Thankfully, they're no longer in business."

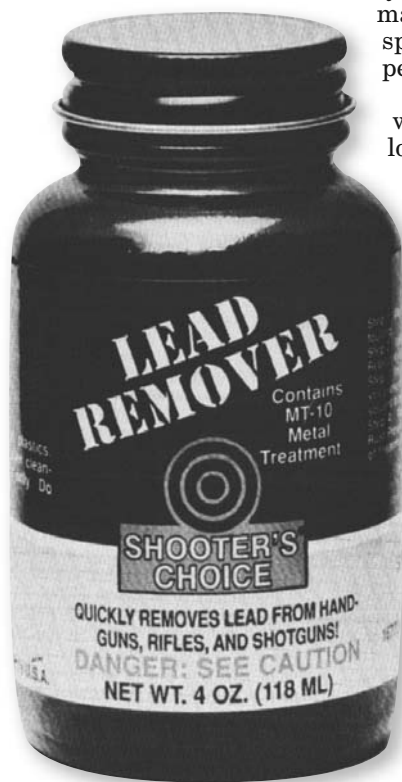
The South Carolina native adds that when his soldier son launches on an operation or answers an alarm, he carries personal Heckler & Koch magazines with his rifle.

"I have replaced the springs in a number of magazines bound for duty use," he reports. "I have not had to worry about the HK magazines, but for others, I'm big on the quality of springs supplied by ISMI. I have fitted these springs to magazines that have had thousands of rounds run through them."

"It is asking a lot for a magazine to feed from full compression to almost no compression. I load 30-round magazines with 28 cartridges and I load 20-rounders with only 18 rounds. Engineers tell me that taking only two rounds off either magazine can reduce spring pressure by 20 percent."

Most magazines will seat with a full load if the bolt is in the closed position, but some will not lock and seat if fully loaded and the bolt is closed. Thus, downloading by two rounds should be considered tactically smart. Magazines should be disassembled

Lead remover, such as that from Shooter's Choice, is designed to truly get to the lead and copper deposits developed when the firearm is shot extensively. Unburned powder also turns into a hard deposit.



and cleaned from time to time, but must never be lubricated. These items are made to run dry and clean.

Buffer Technologies of Jefferson City, Missouri, offers an extractor upgrade for the AR-15/M-16M4 family that delivers more power to the claw and is thus dedicated to improving the function of these firearms. Campbell installed one of these parts on his personal rifle with good results.

Taking another look at lubrication, he feels that moderation is the answer. A rifle that will be involved in a lengthy range-shooting session could be heavily lubricated, but simply for carrying, some thought should be given. Excess lubrication may run into the ammunition or collect dirt and sand.

"Still the AR and the AK rifles are designed to be lubricated," Campbell admits. "If one of these fires a magazine or so and begins to malfunction, a lack of lubrication is probably the culprit. Long bearing surfaces and hard-wear surfaces should be lubricated, but care should be taken to not allow lubricant to run across the receiver and collect foreign matter."

One problem that plagued Campbell had to do with breakage of locking lugs on AR-design rifles. The problem is not widespread, but didn't make much sense considering the reputation and design of the rifles.

"My preference for a combat rifle or carbine tends to be a simple, fast-handling shooting tool," Campbell says. "This preference has been based upon use of combat-type firearms over a career in police work."

After some scattered weeks of investigation, Campbell came to the conclusion that some rifles have too much weight riding on the forend. "Integral rail handguard mounting systems with various lights or other accessories have placed too much weight on the forend. The bolt of the AR-15 locks into the barrel extension, and the barrel extension can be canted by the weight on the mounting systems."

"An even further intrusion is a vertical foregrip, which may not be that severe where weight is concerned, but when the rifle is fired, considerable force is often applied to the foregrip while holding the weapon steady. Thus, the barrel extension is flexed in the receiver and, as a result, undue stress is placed upon one part of the rifle, while the other load-bearing parts are moved out of proper alignment.

Campbell suggests the point of impact in relation to the sight picture may be changed by this flex and resulting accuracy limited. All in all, careful consideration should be given integral rail over-burdens, and the vertical foregrip deserves a cautious look.

CHAPTER 20

FROM BAYONET TO MULTI-TOOL

**Future Infantry Rifles will Probably
be Bare, While Good Field Knives will
Always be in Demand**

THE MILITARY BAYONET is said to have been invented in Bayonne, France around 1647. At that time, a dagger was plugged into the barrel of a musket as a substitute for a pike for the apparent purpose of defending against cavalry and charging infantry. In the days of single-shot muskets, cold steel could well prevent military disaster.

With later, better attachment systems such as the socket bayonet, the weapon also proved effective in the offense. In 1746, the British forces used asymmetric bayonet tactics to defeat Scottish warriors, who were wielding broadswords.

The bayonet developed a legend to the effect that it could influence the outcome of a close battle, especially with the armies of France and Japan. However, the writing was on the wall when entire regiments of French soldiers with bayonets fixed were mowed down by German machineguns in World War I. Fanatical

Japanese were able to use the bayonet to slay Chinese and other Asians in the 1930s, but after the United States entered World War II, the firepower developed by U.S. Marines in the islands of the Pacific made *banzai* charges suicidal. The last recorded bayonet charge by U.S. Army troops was in Korea. In Vietnam, bayonets were rarely fixed, except to herd prisoners or check for Viet Cong in rice paddy dikes.

Jack Lewis recalls one incident that took place in Vietnam and created an international furor. Apparently, a civilian news photographer paid a Marine to stand over a prisoner, who was bound and helpless. The Marine was to attach his bayonet and shove it toward the prisoner as though threatening him. The whole thing was a phony setup by the civilian photographer, but it made the wire services and the next thing that happened was some Congressman with little else to do demanded a full-scale investigation. The number

of man-hours used on that fiasco could probably have financed a few more hours of artillery bombardments. Close combat in 'Nam, particularly at night, was done with sheath knives, entrenching tools, rifle butts and barrels and, on occasion, even swinging a steel helmet.

In the 1960s, the U.S. Army was teaching bayonet techniques with the M6 mounted on the M-14 rifle. The M-14, essentially an M-1 Garand with a box magazine, was our last full-size battle rifle. The M6 bayonet used the blade design of the World War I M3 trench knife,



The Soviet AKM bayonet is shown with leather wrist loop, wood handle and a Bowie-type blade with a serrated back.

as did the M4 made for the M-1 carbine, the M5 for the M-1 rifle and the M7, the last designed for the then-new M-16.

Eventually, the whole Army was issued M-16s, but the M-16A1 was found to be too delicate for traditional bayonet training, so a "rifle simulator" was issued to the troops for such exercises. Meanwhile, the Old Guard at Arlington National Cemetery continued to be equipped with a modified but full-size M-14. The M6 bayonet was attached for the drills and ceremonies at the Tomb of the Unknown Soldier.

In the 1980s, with an increased budget, the Army contracted for the M9 survival bayonet, which David Steele calls "an over-engineered version of the Soviet wire-cutter bayonet. In the meantime, the Marine Corps more recently adopted its own OKC 3S, which many of us consider superior to the M9. Eickhorn, which has

made knives in Germany since the 13th century, has its own bayonet for the M-16, as do other commercial manufacturers."

The current M-16A2 rifle and the M4 carbine still are not the ideal platform for what is actually nothing more than an improvised pike. The next issue infantry rifle is likely to be even shorter in length and feature more plastic in its design. The feeling is that the bayonet will be dropped from the assault rifle just as most armies of the world have dropped it for the light machinegun and the submachine gun. During World War II, the Japanese light machinegun was equipped with a bayonet and the original Uzi subgun also was equipped with a bayonet. At one time, some combat shotguns also carried a lug for mounting a bayonet.

It has been noted that in Iraq and Afghanistan issue bayonets are commonly employed by the troops as

sheath knives. However, some soldiers – particularly support troops – prefer multi-tools and tactical folders. Surveys have shown that of the so-called multi-tools, they prefer the Gerber 600, Leatherman, SOG and Buck products. When it comes to knives with either fixed or folding blades, preferences are those by Cold Steel, Emerson, Ka-Bar, Camillus, Gerber and Buck.

Folding knives are among the most prized of GI possessions, but regulations can limit or ban their use. "Combat units in remote areas of Afghanistan could carry Viking swords with less concern than a support unit in Baghdad carrying Ka-Bars," David Steele has found.

"There is nothing more popular among the troops than a quality multi-tool. It not only carries pride of ownership among combat and support troops, but is incredibly useful in a zone filled with soldiers, Third Worlders...and few trained mechanics."

Tool knives have been around for more than a century, mainly in the form of the familiar Swiss Army types. The new Wenger Evo-18 has a can opener, bottle opener, nail file and scissors packed into a new ergonomic shape.

In 1975, Tim Leatherman decided there were not enough tools on typical European-designed knives to repair his bicycle on the road, so he invented a new style that included pliers. This design has spawned the multi-tool as we know it today.

Gerber has two dozen different multi-tools in its line, but if one should focus on the maker's 600 series, there are six variations. Each is available in a black or silver finish with blunt-nose or needle-nose pliers. There are plain-edge and serrated blades, slot and Phillips screwdrivers, a can and bottle opener and optional tool bits.

As the original inventor and maker, Leatherman has become a synonym for multi-tool, with an entire catalog of quality variations, all of which could be useful to troops. "If I were buying



A French soldier during World War I was equipped with a trench dagger in hand as well as a Lebel epee-style bayonet attached to his rifle.

The U.S. M9 survival bayonet is in current issue to U.S. forces, but the last bayonet charge was during the Korean War, more than half a century ago.



their folding saw, crosslock folders and carabiner knives would certainly be useful in a combat zone.

Oregon's Kershaw Knives also makes a carabiner attachment knife, but they also still make a Multi-Tool with needle-nose pliers, locking main blade, can and bottle opener, slot and Phillips screwdrivers, a file and hacksaw blade as well as a sturdy nylon sheath.

As for tactical knives, David Steele suggests that one not send a sheath knife without a request from a service member. Combat infantry units already have the M9 and OKC 38 utility bayonets, as well as Ka-Bars. Both combat and support units have regulations on potential personal weapons.

"When I was in the Cold War Army serving in Korea, only units in Vietnam were authorized sheath knives, and then only in the field," Steele recalls. "Bayonet training was conducted with M6 bayonets that were duller than tent pegs."

Cold Steel produces a number of well-publicized fighting knives. We would tend to recommend the 4.5-inch-bladed Carbon V Master Hunter with a Kraton handle and Concealex sheath. Its conventional shape is unlikely to attract negative attention. Cold Steel's lockblade tactical folders are well known in the current Middle East war zones. The AUS 8A Land & Sea Rescue model has a four-inch blade and is a pure utility tool with a serrated edge and sharp point. The Zytel handle is like that on the four- and five-inch Voyager Gunsite models with sharp tanto points. They all have rocker locks and pocket clips.

It is agreed that a four-inch folder can be used as a weapon if absolutely necessary and it is more likely to be at hand than an issue bayonet. It has been reported that on April 4, 2004 an El Salvadorian corporal named Samuel Toloza held off Iraqi terrorists at Najaf with a 4-inch lock-blade folder, when they attempted to take as prisoners wounded El Salvadorian soldiers. Apparently, both sides had run out of ammo after an ambush turned into a small-arms battle.

California's Emerson Knives, Inc. catalogs a number of fine tactical knives, but they are expensive. Steele says, "If I were to mention only two, they would be the 3.6-inch Police Utility Knife, a fixed blade, and the 3.6-inch CQC-10 spear-point folder." This manufacturer has recently introduced

one for myself, I would settle on a small, easy-to-carry version such as the Mini-Tool," Steele says. "But if I were choosing just one variation for desert warfare, it would be the Crunch, which has locking pliers, wire cutters, a serrated sheepsfoot blade, several screwdrivers, a ruler, bottle opener and lanyard ring. This model would be especially useful for vehicle maintenance and repair."

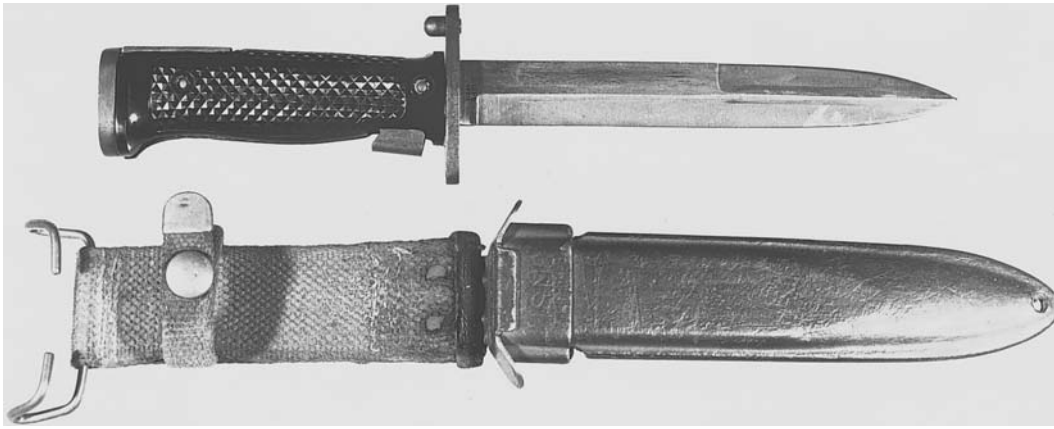
SOG Specialty Knives, based in Washington, was started by veterans of the Army's Special Operations Group who had seen Vietnam combat service. Their knives originally were literally weapons of war, but the outfit now is including a wide range of multi-tools in its inventory. One model that is especially popular is the small CrossGrip, which measures only 2.5 inches when closed. Like the Swiss Tech tool, it can provide a spare set of small pliers to hold the job steady while one is working with another tool.

SOG's flagship multi-tool is the 4.6-inch PowerLock, which has a compound leverage plier, combined with a wire cutter, wood saw, serrated blade, file and screwdrivers, as well as an awl, bottle opener, can opener, scissors, rulers, lanyard ring and a leather pouch. There also are non-reflective versions available for battlefield use.

Buck Knives marketed an excellent multi-tool, but this company now has largely deserted this particular market. However,



Early production of the U.S. Army's M9 bayonet had a wire-cutting feature. A dubious tool at best, it required two hands to operate it.



The U.S. M5 bayonet, with the M3 blade, replaced the Korean War-era cut-down M-1905 blood groove model made for the M-1 Garand semi-auto battle rifle.

a line of economy-price rocker-locked knives in the Hard Wear series. The knives in this line are called the Reliant, Endeavor and Traveler.

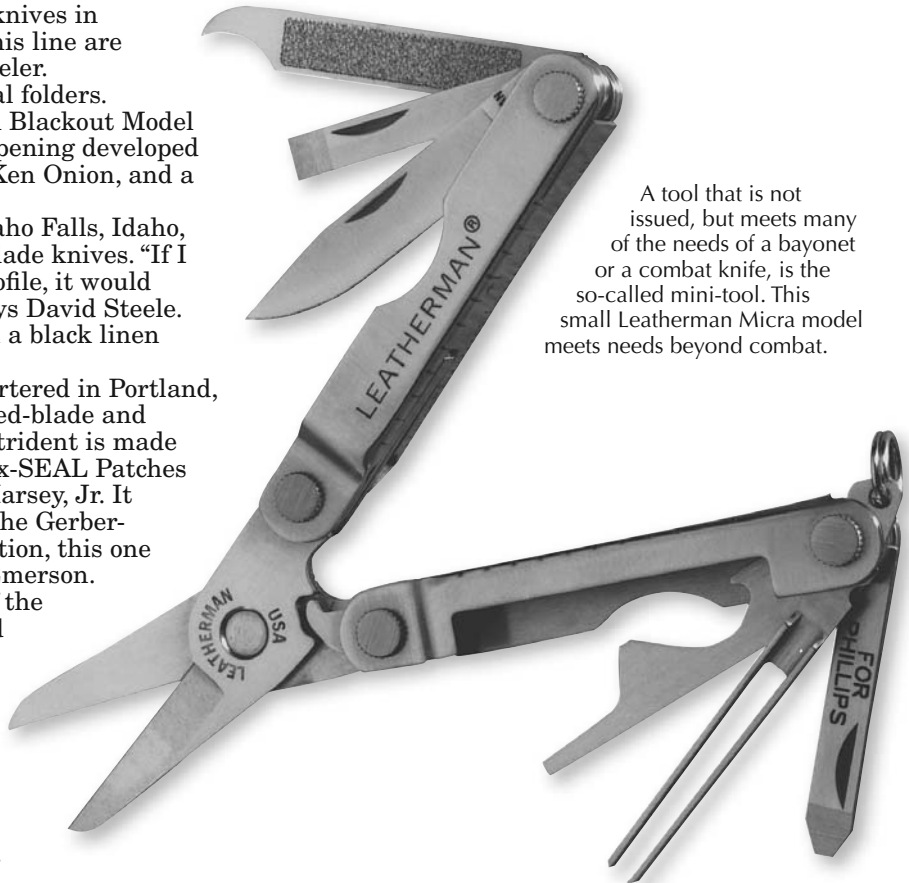
Kershaw makes a number of tactical folders. One of the best known is the 3.25-inch Blackout Model 1550. This one features a SpeedSafe opening developed by Hawaii-based custom knifemaker Ken Onion, and a handle of Polyimide.

TOPS, an outfit operating out of Idaho Falls, Idaho, has a complete line of military fixed-blade knives. "If I were to recommend one that is low profile, it would be the 5.25-inch Comanche Hawk," says David Steele. This one has a Wharnecliffe blade and a black linen micarta handle.

Gerber Legendary Blades, headquartered in Portland, Oregon, offers a number of tactical fixed-blade and folding knives. The 6 1/8-inch Silver Strident is made of 154CM steel and was designed by ex-SEAL Patches Watson and custom knifemaker Bill Harsey, Jr. It is considered a superb combat knife. The Gerber-Emerson Alliance is another collaboration, this one a tactical automatic design by Ernie Emerson.

"However," Steel warns, "because of the spring-loaded construction, one should check any applicable laws before shipping this model overseas."

"Any Buck knife would be useful in the sandbox. If I were to recommend a fixed-blade and a folder, they both would be designed by Mike Strider and Duane Dwyer of Strider Knives. The 888 Strider Solution has a 4.75-inch fixed blade of



A tool that is not issued, but meets many of the needs of a bayonet or a combat knife, is the so-called mini-tool. This small Leatherman Micra model meets needs beyond combat.



Beretta, the firearms manufacturer, has entered the field of combat knives with such models as this Airlight lockblade folder. Note the skeletonized thumb-open blade. The larger model weighs only 3-1/4 ounces, the smaller knife is 2-1/4 ounces.





Emerson Knives produces the CQC9 Eagle, which is designed for close-quarters combat. Length of the ATS-34 steel blade is 3.2 inches. The knife has a titanium frame to hold down weight and add strength.

ATS-34 steel and a G10 handle. The Strider-Buck 887 SBT Police Advocate folder has a 3.5-inch blade and a glass-reinforced nylon handle."

Columbia River Knife & Tool of Wilsonville, Oregon, produces an extensive line of quality folders at bargain prices. Favorites are the MK16-14 skeletonized 3-inch lockblade designed by Kit Carson and the 2.625-inch Point Guard designed by award-winning custom maker Pat Crawford.

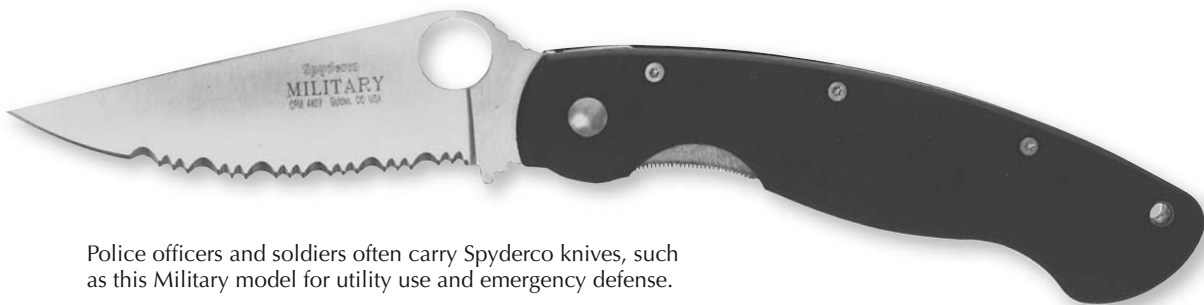
Spyderco, out of Golden, Colorado, makes the Endura C10BK designed for police and military use. The folders Steele favors for service in combat climes are the Military C36 and Para-Military C81, which are 4- and 3-inch versions on the same theme. If there should be need for a fixed-blade, the 4 7/16-inch Temperance FB0-5 would be his choice.

Benchmade Knife Company of Oregon City, Oregon, claims to offer the "absolute toughest and best-performing knives in the world." Of the numerous tactical styles, Steele favors their Nimravus 140

fixed-blade model. An example of their new, value-priced Red Line is the 3.94-inch Ambush 10200, a tactical folder designed by Mel Pardue.

SOG Specialty Knives builds a series of tactical fixed blades, including the relatively new GOV-TAC S21T, a 6.1-inch Bowie style. This one has an AUS 8 tactical fixed blade and Kraton handle accompanied by a Kydex sheath. Their line of tactical folders is equally diverse, the four-inch Pentagon Elite with AUS 8 blade and Zytel handle a leader.

All of this brings us to the fact that ground troops of all nations are progressing away from the bayonet. It is likely that future infantry rifles will not be equipped to handle them, but the field knives will still be in demand.



Police officers and soldiers often carry Spyderco knives, such as this Military model for utility use and emergency defense.



This is the RT6 folder made by custom cutler Howard Viele. It has a 3.5-inch blade, a titanium frame and bolster. As a handmade knife, it is expensive.

CHAPTER 21

IT'S A REAL GAS!

**Actually, There is Nothing Humorous
about Gas Mask Drills Conducted
by Troops These Days!**

MODERN SOLDIERS AND most law enforcement officers may have more equipment resources than ever before, but they also have more weight to carry and more danger connected with their missions. Yes, tactical vests are bullet-resistant, but they may interfere with

movement of the wearer. In short, one may become a larger and slower-moving target.

"This presents a problem that needs solving," Bob Campbell feels. "We must develop a procedure that allows us to operate safely, while we deploy the



The recognized handling qualities of the M-1911 auto pistol make use of the handgun with partially occluded vision somewhat easier than with other weapons.



The standard Remington Model 870 Police Magnum shotgun offered excellent results when fired by a masked shooter. The stock was not allowed to contact the mask in some positions and recoil was a consideration.

necessary gear. This sometimes is a brutal equation, but movement, maneuver, combat and success may be dictated by our gear and how we use it."

In modern times, gas masks and respirators have become a fact of life. Chemical weapons, fall-out—or something as simple as smoke from burning buildings, can quickly make unaided respiration nearly impossible. Thus, the mask becomes an important part of an individual's tactical gear.

"Considering the fact that the unlikely may become the likely in modern warfare, we must have a mask at the ready, as we attempt to determine how much gear we really need. We don't wish to drag a boat anchor into a land battle, but one should keep in mind that the supply source may not be as close as we'd like."

In considering what's important and what isn't, the gas mask has been a discarded item in many a battle over the last century. Jack Lewis recalls a discussion in the mid-1940s with a Marine sergeant, one Ray Hammons, who had made the landing on Guadalcanal against the entrenched Japanese. According to the sergeant—who went on to serve 30 years—the South Pacific beach was covered with discarded gas masks, although most of the Marines had kept the carrying bag to stuff with dry socks and rations. Hammons, himself, also discarded his pack, keeping only the rations, socks and a spoon.

"Oddly, this happened less than a quarter-century after Germany had unleashed the horrors of mustard

gas that had decimated front-line Allied troops," Lewis notes, "but we tend to have short memories. Also, the Geneva Convention had ruled against the use of such chemicals."

Gas masks also were issued in some situations in Korea, but were seldom unpacked, since there was no evidence of chemical warfare capabilities by the enemy in that lengthy shoot-out. In spite of the fact that the U.S. has been destroying nerve gases and similar tools in recent years, one has to keep in mind that the Iraqi dictators used gas to slay thousands of Kurds before the opening of the current conflict in that country. One old soldier pointed out that the reason gas has not been used in many recent wars lies in the fact that both sides have such weapons, which could eventually wipe out both friend and enemy.

Gas mask drills are disliked by most military troops, but they are an obvious need. The world of today is simply not a clear and friendly place. The gas mask may not be especially heavy, but it can represent a special burden when deployed.

"When engaged in violent action, one may come to realize that the mask was not built for any great degree of comfort," Bob Campbell points out. "Function comes first and the mask is built primarily to filter dangerous chemicals from the air the wearer is breathing."

Moving, training, fighting or simply breathing with a respirator is not easy. The mask is designed to shield the face in neoprene or a similar skin-hugging material.



Campbell's soldier son, Matthew, uses his fingers to indicate the increments of adjustment required in firing the AR-15 while wearing a gas mask. Using only the front sight for reference, the rifle tends to fire high.

This tight seal is meant to keep out contaminated, caustic air, but it also limits natural air intake into the lungs.

"I have had several instances reported to me that involved trained operators collapsing from overheating during training," Campbell says. "Each had performed the same tactical drills many times before without masks, but adding the mask immediately affected the individual's performance. In high temperatures, the face being constricted during heavy exertion can cause heatstroke to be a real likelihood. When a team begins to practice with respirators, the possibility of reduced performance must be considered both in training and in actual operations."

Campbell feels that a team should take a hard look at the types of gas masks they may have to use, matching the mask to the threat. As an example, a simple OSHA-approved respirator involving a half-face mask with a set of ESS goggles may meet most needs. Less-lethal weapons can be countered by this simple setup. In fact, the team's own tear gas can be handled by this sort of gear.

"But if you invade a smoke-filled building, you may want more capable gear," Campbell warns. "With chemical and even biological warfare a continuing possibility, more sophisticated gear may be needed. When there is a likely threat of this magnitude, a full protective suit is necessary. Even a minute amount of some toxins can be deadly."

The different types of respirators available, along with their strong points and weak points, could fill this book, so we won't get into that. However, Campbell has had experience in training with a gas mask in place. The results are interesting and perhaps educational.

"Take a hard look at the various types of equipment available and, in researching your needs, consider what could really happen during a critical incident," he

suggests. "Choosing the right mask is less difficult, of course, than learning to operate tactically while wearing one. Operational training introduces heat and in many of us a feeling of claustrophobia. Even the best lenses reduce vision to some degree. If you are a scuba diver, you are ahead of the game. If you wear eyeglasses, the problem may be insurmountable."

In addition to peripheral vision being limited, as well as losing some distance vision, the mask wearer must become accustomed to breathing by an artificial means in a hostile environment. In a real-life incident, the mask becomes essential to one's survival, so each person should learn to use the tool properly. In a truly hostile environment, no matter how hot or uncomfortable one may become, he or she cannot simply doff the mask.

The only means of measuring one's ability to use a gas mask in an operational situation is to undergo modeled operational training. As an example, a participant may be called upon to drive a vehicle when nearing a scene.

"Driving with a mask can be an exciting experience to the uninitiated," Campbell promises. Before this type of action, one should be trained in regular inspections of the mask with which he is equipped. The mask's straps can decay and thus become less effective. The body of the mask can dry out and crack. The seal, like that on a door or vehicle, can dry out and crack, allowing foreign material to enter the mask. Modern gas masks have ports for communication devices and these ports require special attention. They may become a problem as a result of hard use. Actually, hard use or rough handling may damage the device.

As mentioned earlier in passing, among the greatest liabilities of the mask is the reduced visibility that creates the problem of tunnel vision. With lens distortion and structure that further reduces visibility, the problem can add to stress and aggravation during training.

"The best tactic to use when wearing a mask is to keep turning your head to prevent surprises from a blind spot," Campbell has found. "Unfortunately, the lens may fog as one moves. For example, it is almost certain to happen if moving from an air-conditioned vehicle to a humid staging area. These fogging actions can and do occur during movement, so one must be aware of the problem."

A thin coating of soap applied to the lens may help and there are several brands of purpose-designed anti-fog sprays. In spite of this, one's mask may fog no matter what steps have been taken, but it is best to have made some type of preparations.

While wearing a mask, one's sight picture and sight alignment are affected. One cannot achieve a good cheek weld with his shoulder-mounted weapon. Even with a well-fitting mask and clear lenses there still will be difficulty in firing accurately.

"There are different procedures in learning to use different weapons while wearing a gas mask and there are both advantages and drawbacks for each," Campbell contends. He recently conducted a test program with rifle, shotgun and pistol with what he terms, "interesting results. First off, everyone should remember that personal comfort levels and competency differs with each individual."

He feels the weapon least affected by use of a mask is the pistol. His personal 45 auto began life as a GI-type pistol from Rock Island Armory. To the original purchase he has added a Bear Coat finish from Rocky Mountain Arms, a Smith & Alexander magazine guide and other improvements, including an Ed Brown trigger and a Bar-Sto barrel.

"But perhaps the greatest single improvement is in the sights," Campbell states. "They are from Unertl and are of the self-luminous type. They feature three radioactive tritium dots to provide a true around-the-clock capability."

Campbell fired approximately 500 rounds of Black Hills 230-grain hardball ammo in addressing the idea of using a pistol while wearing a mask. He reports that the pistol was always relatively easy to bring on target and, even in rapid-fire, he was able to maintain what he considered a good sight picture and correct sight alignment.

"The mask was uncomfortable," he admits, adding, "but I was able to use the 45 auto about as well while wearing the mask as without. When pivoting to address threats to one side or the other, I was able to line up the pistol quickly. While my vision was circumscribed to an extent by the mask, the proper use of the pistol was not curtailed."

As with the handgun, Bob Campbell limited his experiments with the shotgun to 25 yards. He considers the scattergun a premier short-range weapon "with many good traits. The shotgun is used mainly by feel and it is possible to make good hits quickly, using only the front sight."

Modern doctrine sometimes demands that shotgun exercises be conducted with both iron sights and aperture sights. Campbell's favorite Remington carries an Ashley Express sight, which allows him to center his short-range shots as carefully and efficiently as though using a rifle.

"This is a good concept as far as it goes, but one that abrogates some of the fine points of combat



Campbell found that acceptable results can be obtained by tilting the AR-15 rifle to bring the sights into alignment. Considerable practice is required.

shotgunning,” he insists. “The shotgun is not a rifle and can be handled at moderate ranges mainly by feel. As the range increases, we may use the gun’s sights.

“There are three ranges to which we refer in shotgun training: A, B and C. The A range is the distance at which the pattern of the shotgun has not begun to spread. At this range, it is required that the gun be aimed with some care in order to produce a hit. Basically, one is firing a 72-caliber weapon with a solid payload.

“At B range, the spread of the shot results in easier hits and the true advantages of a shot load are realized. At what is termed C range, dispersal of shot is such that a solid hit is problematical. At this range, it’s time to forget the buckshot loads and use slugs, at the same time reverting to careful aiming on the target.”

Considered as B range is the space from 10 to 15 yards from the muzzle of the shotgun. The distance designated as C range is 25 yards or slightly beyond, depending upon the individual weapon and the choke being used.

“For my test series, I had on hand a healthy supply of Winchester’s Reduced Recoil Law Enforcement loads, which I have found to be excellent for shotgun training sessions,” Campbell reports. “I also fired the Winchester Reduced Recoil slug. With these, at 25 yards or so, accuracy is excellent.”

However, Campbell is quick to advise against using full-power slugs while wearing a gas mask or other respirator. “Shotgun recoil may move the mask and affect the airtight seal. When operating at close range, the underarm method of firing may work well for the operator who has had sufficient practice time. That, of course, is the key with any combination of law enforcement or battle tools: Practice!”

When it comes to firing rifles and carbines while wearing a mask, what one sees initially is enough to make the instructor want to seek other employment. Students crunch the stock and hold the weapon at odd angles in an attempt to use their sights while wearing

the gas mask. The problem only increases if the target is at long range.

“I use both the AK-47 and AR-15 rifles in conducting such firing instruction,” Campbell says. “The results have been interesting. A popular method is to tilt the rifle stock so the rifle does not contact the mask. While this looks odd and even cinematically inspired, good results can be had. This is not an ideal firing position and cheek weld is non-existent, but a clear picture of the sights can be achieved by moving the sights to the eye. One must take care, too, not to get the lens too close or recoil will smack the mask.”

Accuracy was degraded in this approach, but the instructor and his staff were able to qualify the results. One student, for example, was normally capable of placing four rounds of Winchester USA 223 inside a four-inch circle while firing offhand at 50 yards with his Bushmaster carbine. When wearing the mask, this same shooter sometimes had his rounds within a five-inch circle, but more often the spread was closer to six inches.

“Conclusion was that accuracy is degraded by avoiding a cheek weld, but on the other hand, the AR-15 is easy to use and fair results were recorded.”

According to Campbell, “A tremendous advantage for those serving in our battle zones is the Vitor stock. This replacement is especially designed to allow the use of gas masks and can be considered a Godsend to those going into harm’s way wearing respirators. The stock also is well suited to use without the gas mask.”

In his investigations, Bob Campbell found the AK-47 carrying the folding stock option was somewhat user-unfriendly when working with a gas mask. This particular rifle was of Romanian manufacture and obtained through Century International Arms of Del Ray Beach, Florida.

“With both the AR and AK, I used an approach that works well at close range,” he reports. “This calls for using the front sight only. The rifle is held firmly but with no cheek weld and no effort to use the rear sight. The tall post-type front sights of both rifles are readily seen in this situation.

“The front post is held near the bottom of the mid-section of the threat. The front post held on the belt line at 10 yards will deliver rounds to the mid-section. When the sight is held on the target’s mid-section, it delivers rounds to the heart area. This is a tactic that could be used for room clearing; for quick down and dirty work. If the threat is behind cover with a small section of the body exposed, this is not the ideal tactic.”

Campbell tends to repeat himself by concluding: “There are many problems in operational use of the gas mask that must be considered. Any team or unit that is likely to use masks operationally must train with the equipment. One must learn the weak and strong points of the mask and its use—or be woefully unprepared in a critical situation.”



Cheek weld with the AK-47 is far from ideal, but when equipped with a folding stock, the position becomes more acceptable.

CHAPTER 22

SPECIAL LOADS FOR SPECIAL FOLKS

There Has Been Much Discussion Concerning Improvement in Combat Weapons, but Ammo Has Been Improved, Too!

ALL THREE OF the basic combat weapons – the shotgun, the rifle and the handgun – have seen tremendous development over the past decade, but the ammunition that feeds them also has been improved by leaps and bounds.

“While accuracy and lethality have improved, there have been developments in less-lethal loads, as well,” Robert K. Campbell has found. “The shotgun shell has taken on properties that are most interesting.”

Shotgun Shells

During the 19th century, shotgun shells were fashioned from solid brass, but soon a combination of a

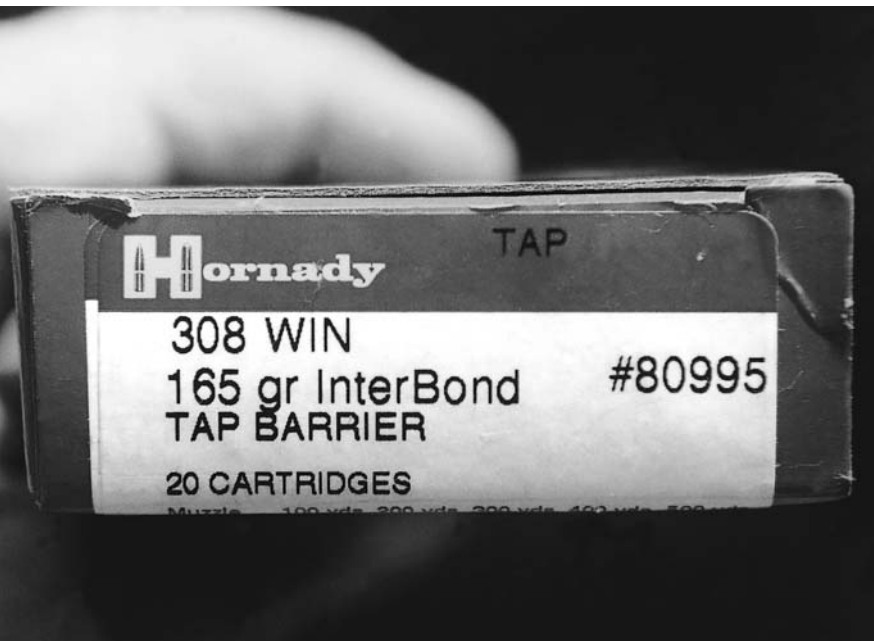
brass head and a paper casing and cardboard filler was developed. This replaced the expensive brass case. The overshot wad was roll-crimped in place to create a better shot pattern.

Remington introduced the plastic shotshell case about 1960 and Winchester followed in 1964, with Federal beginning plastic case production the following year. Winchester’s protective shot collars were introduced in 1965, providing shotgunners with a significant improvement. As early as 1961, Federal introduced color codes for shotshells, an important safety feature. The 12-gauge shells were – and are – colored red, with yellow for the 20-gauge breed and purple for 16-gauge shells.

“Much of the development budgets have been spent on solid shot,” according to Campbell. “The shotgun was intended originally to launch multiple projectiles, so the chamber is a full-length model of the shell that tapers into the gun’s forcing cone. The forcing cone is designed to constrict the shot charge, while the gun’s barrel proper is choked in order to control the overall length of the charge.”

“The choke is located from one to six inches from the gun’s muzzle and is configured in Cylinder bore in conventional riot guns. Sporting shotguns usually feature changeable choke tubes these days, but such tubes may find favor in law enforcement in the not-too-distant future.” This design tends to work against a solid projectile, but Campbell has found that some shotguns show exceptional accuracy with slug loads to 50 yards or so.

The Brenneke slug, still popular, was developed in 1898. This particular projectile, continuing to be made today, features 12 angled ribs meant to create a stabilizing spin to the slug. The present slug weighs about 491 grains.



This Hornady offering is a specialized load. One must take care in selecting the proper combination of cartridge and firearm. Keep looking for the perfect combo for your intended duty.



Today, reduced recoil loads are available that use the same weight slug at less velocity. According to Campbell's findings, "These slugs are okay as far as they go, but I have found that they often do not expand and will penetrate the body. Also, at longer ranges, their trajectory is noticeably rainbow-like. Nonetheless, they are more effective than any handgun cartridge and offer some utility within their limitations."

Notably, the reduced-recoil buckshot loads have a denser pattern than do the full-power loads and perform well at moderate ranges. These loads are much lighter on the shooter's shoulder and will offer a good, dense pattern at close range. Campbell

When looking at rifle ammunition, terminal effect is not the whole story. Quality, accuracy, a clean powder burn and minimal flash can be

"The effect on deer, boar and bear is immediate," Campbell has found in his own experience. "The so-called Foster slug sometimes is criticized as being outdated, but always shows good effect. Delivered with a hollow base, the heavy nose creates good balance while the projectile is in flight. When striking an animate object, the Foster often is effective and destructive. In viewing police files, however, I have noted the slug often tends to pancake. There will be two to four comma-shaped shavings from the main slug often leaving a trail in the wound cavity."

considers them the top choice for pump-action shotguns.

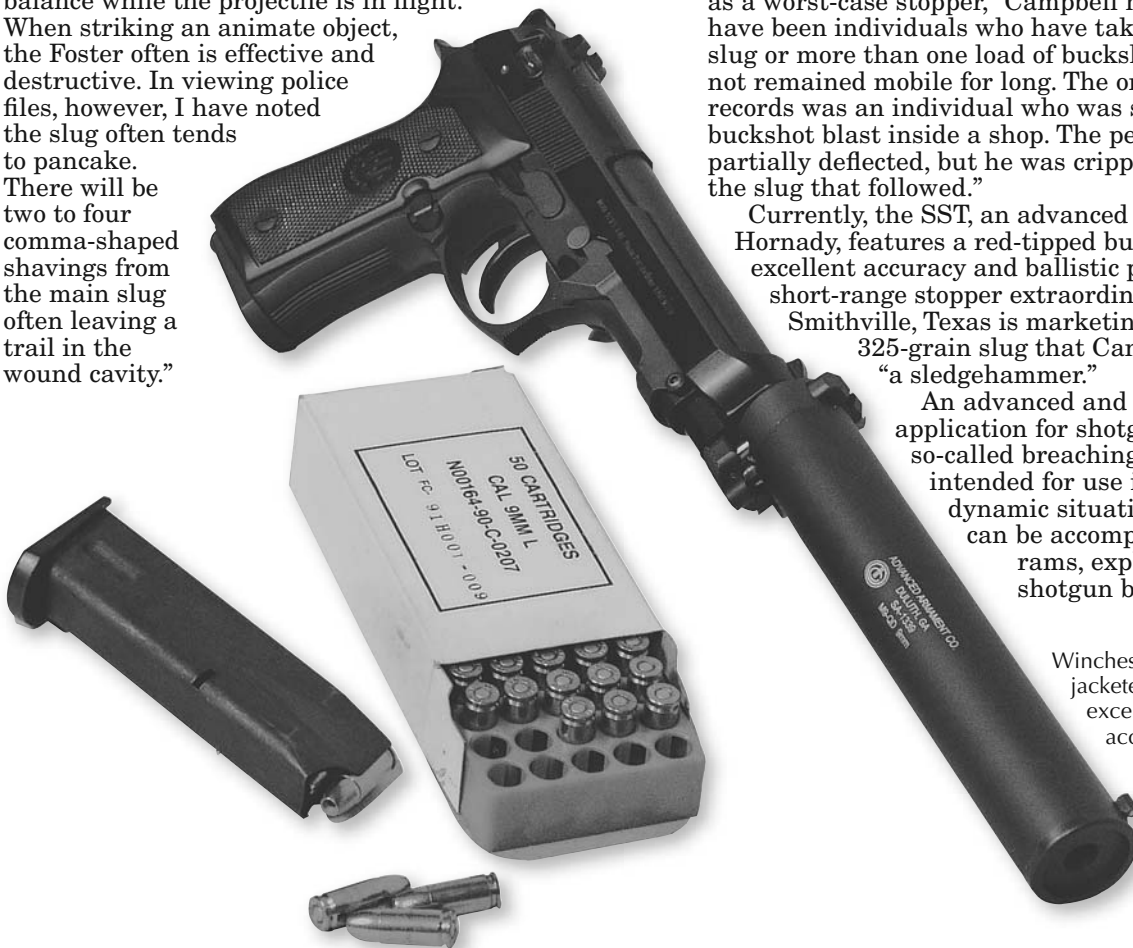
As for buckshot, the payload has been found to be about 480 grains with 00 pellets. A Cylinder bore shotgun will place half of that weight on the target at 25 yards and only a quarter of the load – perhaps only two pellets – at 40 yards. Slugs have rapid fall-off in velocity relative to their weight and the same is true of buckshot.

"The shotgun slug is useful to 50 yards in riot guns as a worst-case stopper," Campbell has found. "There have been individuals who have taken more than one slug or more than one load of buckshot, but they have not remained mobile for long. The only survivor in my records was an individual who was struck by a buckshot blast inside a shop. The pellets were partially deflected, but he was crippled for life by the slug that followed."

Currently, the SST, an advanced slug design from Hornady, features a red-tipped bullet that offers excellent accuracy and ballistic properties. As a short-range stopper extraordinaire, EBR, Inc., of Smithville, Texas is marketing a round carrying a 325-grain slug that Campbell describes as "a sledgehammer."

An advanced and interesting application for shotgun slugs is the so-called breaching load, which is intended for use in gaining entry in dynamic situations. Door breaching can be accomplished by battering rams, explosives – or shotgun breaching.

Winchester's proven 147-grain jacketed hollowpoint offers excellent results so far as accuracy and penetration are concerned. Both are prime requisites for munitions meant for silenced weapons.



The breaching shotgun is widely used by the military and has found its use among special law enforcement teams. The 50-pound battering ram is difficult to move quickly and requires several men to operate. "The ram is best in some situations," Campbell contends, "but the shotgun is a better choice for many entries."

Ballistic breaching is accomplished with a 12-gauge shotgun. While there are numerous products available, Campbell has tested the EBR round with good results. The slug features a payload of compressed zinc powder.

"The art of door breaching must be understood to achieve proper results with this round," according to Campbell. "The purpose of the door-breaching round is to direct all of its energy into the bolt of the door, thus unlocking it and allowing quick entry. Speed is critical, but in the case of an apartment with many doors, the breaching shotgun can be used to open door after door."

Law enforcement specialists feel that the proper breaching shotgun should be as short as possible. The muzzle is pointed downward toward a locking bolt or a hinge. As there is a possibility of over-penetration, by aiming the muzzle downward, into the locking bolt, the possibility is avoided. Properly angled, the breaching tool blasts material away from the shooter, but one should not allow the muzzle to make contact as the trigger is pressed.

"I cannot offer a generalization," Campbell says, "but a few inches is the minimum. Also, one must remember that a dedicated breaching round must be used. It would be dangerous to attempt to shoot a locking bolt loose with a conventional slug. Over-penetration is guaranteed. After all, even the breaching round would be lethal if used in a defensive situation."

Special Rifle Cartridges

Tracer rounds may not have much application for civilian shooters, but they are great for guiding full-automatic fire to a target. Another advantage concerning the use of tracers is that an adversary may hesitate for a moment when he sees them coming and take his finger off his own trigger.

EBR, Inc. currently offers tracer rounds for the 7.62x39mm rifle. These are accurate and, as Campbell puts it, "certainly light up the night."

Unlike military surplus rounds that may be of questionable origin and age, he considers the EBR



In specific law enforcement and military situations, the 325-grain 12-gauge shotgun slug is highly effective. It is an accurate, hard-hitting round.

cartridges to be of high quality, pointing out that tracers can be valuable training aids in demonstrating angles of fire and trajectory.

"Some research has gone into producing ultra-high velocity rifle cartridges," Campbell has found. "At the same time, the advantages of subsonic loads are being realized. These loads offer outstanding accuracy and are especially well suited to sound-suppressed weapons, since these weapons must fire a cartridge that will not break the sound barrier. The supersonic *crack* of standard cartridges would defeat the purpose of the suppressor."

Simply reducing the powder charge is one option for producing low velocity loads, another is to drop the powder charge and drastically increase the weight of the bullet. This, it has been found, invariably results in a high energy, but low velocity cartridge. "A heavy bullet at moderate velocity can be quite effective," Campbell states.

He feels that among the most accurate handgun cartridges of all time for suppressed weapons is the Winchester 147-grain jacketed hollowpoint. "While much maligned in the personal defense role, this cartridge has been found to be accurate enough for head shots at advanced ranges. The balance and accuracy of this cartridge are excellent."

What Campbell considers an extremely interesting load on the same level is the 220-grain subsonic cartridge developed by EBR, Inc. for the 7.62x39mm rifle.

"I have fired this load in several SKS and AK-type rifles with excellent results," he states. "Function is good and accuracy is among the best for this caliber. Only a few AK rifles are accurate

It is important to know what you are buying. Hornady clearly marks this reduced-recoil buckshot as being strictly for pump-action shotguns. The ammo will not function with a semi-auto model, but Hornady manufactures another shotshell that does work well with today's auto-loading scatterguns.





In looking for the right cartridge for the specific mission, the choices are many. These rounds carry several different types of hollowpoints, an advanced fragmentation bullet and a lead bullet for practice at the range. All are useful.

enough to demonstrate good accuracy with special loads, but the Krebbs Custom AK is among the better choices. This 220-grain subsonic is accurate and intended for suppressed weapons, but offers respectable momentum and should afford proper penetration.”

EBR also produces what they call the 180-grain Thumper for the 308 Winchester. This bullet has good sectional density for penetration and good balance for accuracy, it has been found. “When a full-power long-range loading is not specifically indicated, the EBR 308 may be the ticket.”

Also from EBR, Inc., an interesting subsonic load uses the Sierra 63-grain Match bullet in the 223. This subsonic loading is reported to produce half-inch groups at 50 yards and as small as 0.65-inch at 100 yards. These groups, incidentally, were fired from Campbell’s heavy-barrel Howa 1500 rifle.

“We have to remember that the subsonics rely upon proper placement, not power, for effect. The possibilities are limited only by the imagination. Elimination of pests such as feral dogs is one possibility. Taking out flood lights in covert operations offers another possible use.”

Frangible bullets can hardly be considered new, but there have been great advances in recent years in making them more effective. According to Campbell, EBR’s 125-grain 308 frangible and the 55-grain frangible have offered top results in the respective rifles involved.

The nose of the EBR cartridge is configured to resemble a diamond point for more efficient break-up when fired against a hard surface. Frangible composite bullets tend to break up easily on hard surfaces, but are comparable to jacketed bullets regarding penetration when it comes to encountering flesh, blood and bone.

Delta Frangible Ammunition is a company headquartered in Stafford, Virginia. Campbell states that he has used their high-volume production loads with excellent results. Specifically, he has used this company’s DFA 9mm Luger cartridges extensively in training sequences. “Results have been good, with no malfunctions, a clean burn and acceptable accuracy. It should be remembered, however, that for the most part, any type of frangible ammo is for training and certainly not intended for duty use.”

A negative lies in the fact that if a round is chambered but not fired, the bullet nose may break off under the stress of being removed from the chamber. Bob Campbell reports he has seen this happen on two occasions. In both cases, the bullet broke off flush with the mouth of the case.

“In both cases, the nose of the bullet came out of the cartridge, but could have lodged in the chamber with disastrous results,” Campbell cautions. “Frangible bullets work just fine for the intended purpose, but one should keep his – or her – eyes open when using them.

“I should point out that I was unable to get the Black Hills 175-grain frangible 45 to break up in the manner described. The Black Hills bullet is slightly different in design from the norm and there is a different cast to the color of the bullet, as well as a wide, flat nose. The Black Hills 45 frangible also was quite accurate. My best advice is to check the chamber and try to fire chambered rounds that have broken rather than trying to remove them.”

The Hornady-developed TAP line of cartridges was mentioned in an earlier chapter insofar as law enforcement use is concerned. However, there are certain applications in which a bullet carrying a polymer tip to induce expansion may be less than ideal.

Thus, Hornady has also introduced a number of cartridges that are intended specifically to offer superior penetration of barriers. One particular cartridge is loaded with the Interbond, a bullet designed originally for hunting use.

This Interbond bullet features a hardened base that limits expansion of the base as well as a special belt that effectively retards expansion beyond this point. Campbell insists that “in this relatively heavy full-power 165-grain 308 Winchester load, this addition to the TAP lineup leaves nothing to be desired.”

It is his thought that there is a certain dual thread involved in police ammunition, with some loads designed to limit penetration, while others are meant to increase penetration.

“This certainly gives tactical officers much more in the way of flexibility,” he contends. “The availability of versatile cartridges such as the Hornady TAP allows an officer to be prepared for a variety of situations calling for top bullet performance.”

CHAPTER 23

SHORT-RANGE MARKSMANSHIP

Introduction of the M4 Carbine to U.S. Forces Brings About A Range Potential of 300 Yards or Less!

BACK IN THE 1960s, the M-16 selective-fire rifle was introduced as the replacement for all that had gone before. At that time, there was a lot of discussion about the “soldier’s load,” which concerned how much he could carry into a firefight. The gurus in the Pentagon were elated that one now could pack a lot more 5.56mm

ammo for this new rifle than the old hands of other wars had been able to handle with their 30/06 rifles, such as the Garand M-1 and the '03 Springfield before that.

It didn’t take long in Vietnam, however, to find that the lightweight rifle and the lighter-weight bullet were not the answer in a lot of combat situations.



This young shooter has cheek weld, sight picture and sight alignment down pat. With practice, he should become a good marksman.

Back in the 19th century, a batch of U.S. battles was won through long-range rifle-fire. By that time, powerful and accurate rifles had replaced the muzzle-loading musket and the ability of soldiers to concentrate fire on masses of troops at 500 yards and beyond had become a reality. In that long-ago era, such accuracy was realized with blackpowder rifles firing large chunks of lead at what today are considered moderate velocities.

While bullet drop was measured in a man's height or more at extreme range, the sights available even then could compensate for the bullet's seeming rainbow-like drop. The rifles were made of quality materials for the era and the soldiers were well-trained in their use and capabilities.

"The Turks gave the Russians quite a problem with their Martini Henry rifles, having carefully marked and staked varying distances prior to the initial battle. On other fronts, the Boers in South Africa and the Spanish in Cuba and the Philippines, armed with new high-velocity Mauser rifles, gave their opponents pause while introducing a new range of effectiveness into the equation," reports Bob Campbell, a devout student of shooting history.

"New rifles, with muzzle velocities of well over 2,000 feet per second afforded soldiers of the day a tremendous advantage when firing at unknown distances. The ability



Robert Campbell contends that peace officers and soldiers alike will find the carbine an effective tool for personal defense or for taking out enemies of the republic.

to engage masses of troops – if not individuals – at extreme range was considered important well into the First World War."

That war, however, introduced a whole different set of problems. Trench warfare invariably was a short-range situation and the shotgun and pistol became suddenly



The 30 M-1 Carbine is considered a plinker today, but this young soldier gets in his practice at little cost in ammunition.

important pieces of equipment. Soldiers armed with long-barreled rifles found themselves greatly handicapped in clearing farmhouses and conducting house-to-house attacks in built-up areas.

The U.S. military and forces of most other major nations conducted seemingly endless competitions with long-range rifles to develop accuracy potential. While these matches were being shot, however, such individuals as then-Colonel John Thompson were thinking in terms of weapons specifically suitable for short-range combat. "This meant quickly firing at targets at moderate ranges," Campbell translates.

Today, the M4 carbine has pretty much taken the place of the battle rifle and the submachine gun. In well-trained hands, this particular carbine has been found to be useful at ranges from zero to 300 yards. There still are M-16s and M-14s in use by our military forces, but most marksmanship these days is centering on the M4 carbine and its variants.

"Those familiar with the basics taught at the finer military institutions realize that the basics are what carry us through. Trigger press, sight picture and sight alignment are always important," Bob Campbell states, "but new training programs are interesting and effective."

Among these programs are the Short Range Marksmanship and Squad Designated Rifleman venues. The latter program, Campbell feels, is important in that it provides training for a qualified soldier, whose talents bridge the gap between the infantryman and the sniper.

"The Short Range Marksmanship course – or SRM, as it is called – has become standard training for all

soldiers and I have discussed and debriefed several who have taken this course," Campbell reports. "In one case, I instructed two soldiers, who then managed to do quite well on the official Army qualification day."

While trigger squeeze, sight picture and alignment count for the most, the recently introduced Army program stresses fast shooting. This training segment is not intended to replace the basic marksmanship course taught in initial training, but is an addition to this training.

The course begins with a safety lecture, as might be expected, then the instructors take on soldiers who have their basic training behind them. These men begin the new training segment by getting comfortable with various firing positions and running the course in a dry-fire exercise. Later, some of the shooting is done at as close as five yards, reflecting street-fighting conditions.

"Learning to fire rapidly and accurately from the kneeling and prone positions is emphasized," Campbell says, "and the sequence of fire often calls for a double tap – two rapid shots into the center mass of the target."

"Safety discipline is paramount throughout the course, the carbine's safety being moved to the fire setting only when the firearm is at the shoulder and the safety is engaged after the target has been fired on."

As an observer, Campbell feels that those involved in this particular training segment should use the firearm and sling with which they are likely to deploy to a combat area.

In the firing phases of the course, the essentials of combat are constantly emphasized. Students learn quickly that at close range, the point of impact and the



Sizing up the sights of the AK-47 gives this young soldier a good idea of the capabilities of this rifle should he ever have to use one.

point of aim can differ considerably. Each rifle used in the course is sighted for 50 to 100 yards and, at closer ranges, the standard iron sights produce a lower strike.

"My own Bushmaster 223 carbine, loaded with the 60-grain Black Hills JSP load, is sighted for 50 yards, reflecting my personal scenarios," Campbell reports. "At 10 yards – considered hostage rescue range – that particular load strikes six inches low. That means that in a hostage rescue, if one fired an aimed head shot at such short a range, the bullet would strike low, perhaps entering the body of the hostage. We must understand these differences."

The Short Range Marksmanship course usually is conducted in a single day and stresses handling and manipulation of the rifle. "If there is any shortcoming almost universal to shooters coming to any marksmanship course, it is a lack of total familiarity with the weapon. Knowing the location of the controls, the safety, the magazine release and the cocking lever are vital. The basics of trigger squeeze, sight picture and sight alignment follow."

The main component of short-range training is teaching the student that a solid firing position is necessary to maximize marksmanship skills. However, the shooter also must be aware of available cover and take advantage of it. Where possible, the firing position should provide good visibility of the target, while presenting the least exposure.

Students are taught that they should not lock into any position, but should be prepared to move instantly to another position. As Campbell points out, "Getting into a comfortable prone position may aid the shooter's marksmanship, but the survival factor may be reduced if

he cannot move quickly. It also is important to know the difference between cover and concealment. Either may be important, but cover is more vital."

In tactical movement with the rifle in a combat zone, one may find himself firing around walls, vehicles and other obstacles. The student is taught that he must retain his steady platform, which involves the manner in which he should lean. When firing comfortably, one invariably leans forward. Thus, the weak side leg should be put forward first. One can quickly bring that leg to the rear and move backward if necessary.

"Footwork is almost as important as trigger work in this effort," Campbell declares. "Blading the body during movement, presenting a low profile is important. While I have taught primarily handgun classes in this regard, I find one can get small even if armed with a rifle, thus presenting a lesser target. The handgun actually offers no advantage at any engagement distance."

For police work, Campbell prefers the AR-type rifle or the AK-47, if working out of a vehicle. He is a devotee of the M-1 Garand and the M-14, but feels the shorter weapons are best.

"Civilians on a critical budget might want to invest in a carbine that fires a pistol cartridge. The Hi-Point carbine in 9mm or 40 S&W not only is protecting a lot of modest households but also serves a number of civilian police agencies."

Based upon his own experiences in the law enforcement field, Campbell states that when engaging targets, he tries to "avoid firing once or twice simply by rote at each target. I am a firm believer in the double tap, but one must remain lively in his – or her – thinking."



Bob Campbell takes an aggressive stance in working with the 40 S&W Hi-Point carbine. He has fired more than 2,000 rounds through this weapon and has found it highly reliable for personal defense purposes.



This young soldier is working up familiarity with the Thompson Model 1927 semi-auto. Firing Winchester hardball ammo, this carbine is a reliable and accurate rendition of a classic fighting piece.

When one fires and the threat drops or falls, it is time to regain cover or move. By firing two or three rounds into a baddie, then observing, one is likely to present a target to the original target's lawless companions. If one's shots have missed or the subject has been hit but not disabled, the threat is still there.

"The static range and mindless qualifications found on some courses in no way mirror the reality of such exotic destinations as Iraq," the veteran officer declares. "One must keep his mind flexible!"

Campbell feels that use of the sling obviously is a great



Whenever possible, Campbell says, cover should be used to advantage. Anything that will stop a bullet is considered cover.

aid in precision marksmanship, but even in short-range rifle fire, the sling can perform an important function. This, he contends, is particularly true if one has been on guard duty for a lengthy period, on patrol – or even stalking an escaped convict.

The ability to deploy quickly and use a rifle or carbine at short range seems to be increasingly important. For police and correction officers – even threatened civilians – in this country, virtually any scenario these days is likely to be a short-range operation.

The essence of short-range marksmanship is being able to fire quickly but accurately. For example, if the adversary is running from cover to another point of cover, one cannot leisurely drop into that favored kneeling position and take steady aim. The time the shooter has to effect successful trigger compression is the time that the adversary allows. The enemy dictates the shot, not one's own preference.

"We may have to press the trigger very quickly, while attempting to maintain a proper sight picture," Campbell has learned over his years of experience. "When an enemy is running, the only choice is to place the front sight on the leading edge of the body and keep it moving with the running target, not breaking movement of that sight as the trigger is squeezed. At normal combat distances, this is all the lead required to make a telling hit."

At extremely close range – three to ten yards – a good sight picture usually is denied the marksman. "At this range, a good tactic is to forget the rear sight and set the front sight on the bottom of the outlaw's body, then fire. Invariably, the bullets will impact above belt level, often in the region of the culprit's heart. If one cannot see his rear sight, this also is a good solution."

Campbell teaches that there are three levels of skill required in acquiring a rapid, sure sight picture. He contends that the skills are not complicated but are specific to the type of sight being used.

"We all know the aperture sight is superior to the open sight, but if forced to use a captured AK-47 or some other foreign weapon with crude iron sights, we have to go with what we know."

With open sights, the front sight is acquired first in one's vision and the post is dragged into the rear notch for proper alignment and sight picture. With aperture sights, the eye goes to the rear ghost ring first, then the eye acquires the front post. With the EO Tech model and similar dot-type sights, the eye acquires the sight and looks thorough it to the target – all on one plane!

With the optical sight, such as the standard tube scope, a good method of quickly acquiring the sight picture is to look over the top of the scope and sight over the top knob and onto the target, then lower the eye to pick up the target through the scope tube. Campbell admits this effort meets with varying degrees of success, but seems to work well with practice.

One never should overlook the practice needed in mounting the rifle. The shooter should move quickly to the firing position and bring the rifle to the cheek, not the cheek to the rifle stock. Tied in with mounting practice, one also should learn to disengage the safety on an instant's notice.

"One also should not overlook alternative stances. Taking cover comes first, but one should consider a kneeling stance to be ready to move on to another point of cover," Campbell states. "There is nothing wrong with going prone, if one is able to fire from behind and around good cover. But one should stay fluid and be ready to break out when the enemy suddenly has your number!"

"The short-range rifle abilities of our troops have been proven. Not long ago, when we were considered a Nation of Riflemen, we prided ourselves on the ability to strike small targets at long range. Today, we are producing soldiers to be deadly quick with a short, light firearm that is remarkably effective. Again, we have met the needs of the times."

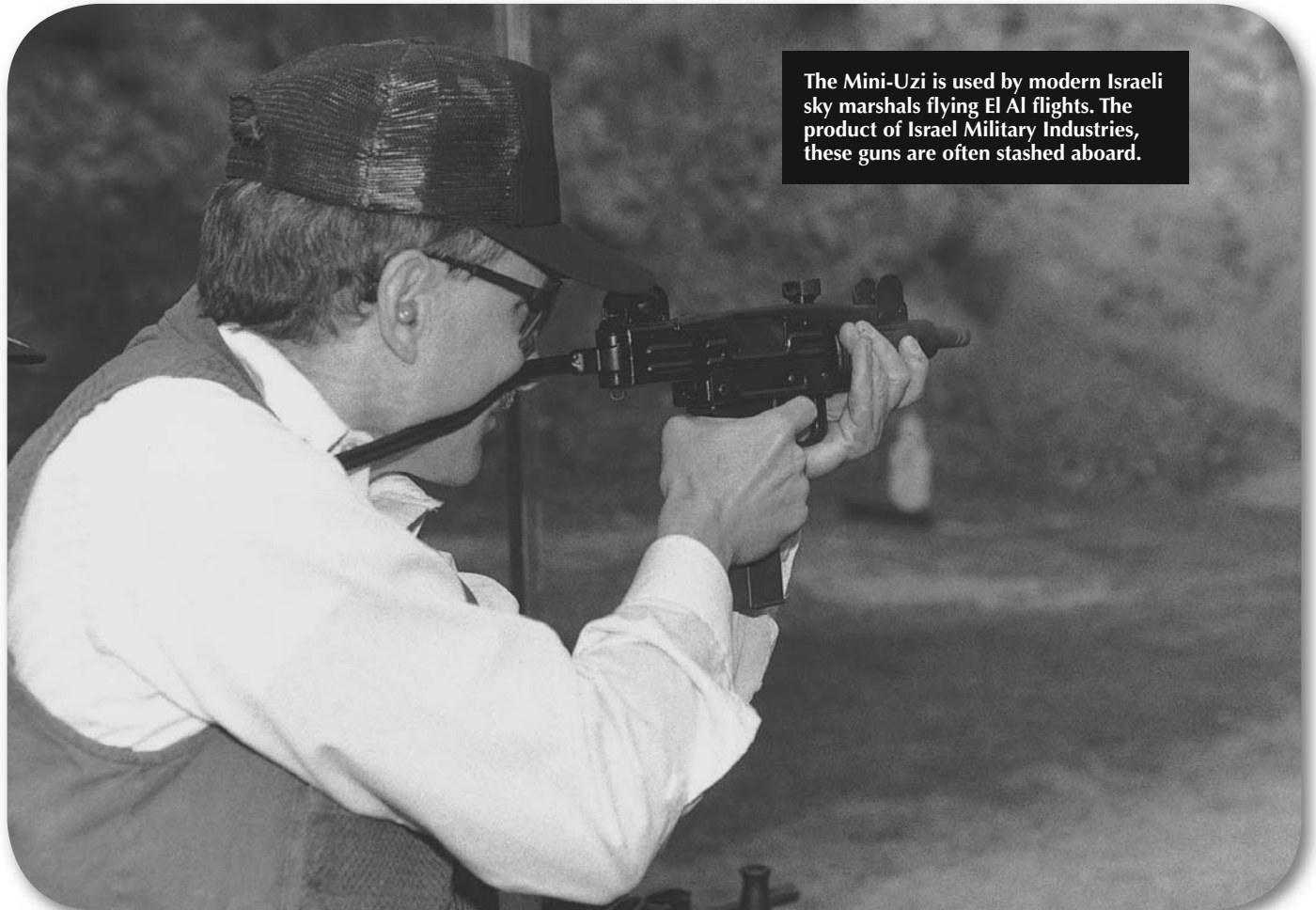
CHAPTER 24

FROM UZI TO CORNER SHOT

**In Its Short History as A Nation,
Israel Has Had to Depend Largely
Upon Its Own Military Industries**

ISRAEL WAS ESTABLISHED as a nation in 1948 by a United Nations mandate, and then was attacked on all of its borders almost immediately by the surrounding nations including Syria, Jordan, Iraq, Egypt and Lebanon.

Since that time, Israelis have been on the defensive almost continually. In 1956 came the Suez War between Israel and Egypt. The so-called Six-Day War took place in 1967 to be followed by the Yom Kippur War against Syria and Egypt in 1973. More recent has been the short



The Mini-Uzi is used by modern Israeli sky marshals flying El Al flights. The product of Israel Military Industries, these guns are often stashed aboard.

war between Israel and elements in Lebanon, following the kidnapping of a pair of Israeli soldiers.

The battles of the early days were fought with what one historian describes as “pick-up armament,” meaning anything the Israelis could lay hands on that would shoot. The original Jewish settlers and later immigrants fought hard and long for the right to govern themselves on what amounts to a sliver of land facing the Mediterranean Sea.

“In those early days, Israel did not have a standard pistol,” David Steele reports. “Small arms texts may say that they eventually issued the Beretta M1951 Brigadier autoloader, but these were rare. After the 1967 War, the captured Egyptian-made Helwan model was more commonly carried.”

Uzi submachine guns became far more common as self-defense weapons than the Beretta, although the Beretta M70S 22 rimfire was carried by sky marshals on El Al, the Israeli airline, starting in 1969. The same rimfire auto was issued to Mossad hit teams after the 1972 massacre in Munich of Israeli Olympic athletes. However, this model was never established as a standard defense pistol.

The Jericho

Out of an obvious need, reflected in suicide bombings and other terrorist attacks on the tiny nation’s civilians, Israel Military Industries was soon established and

quickly developed a defense pistol that could be used by the country’s *Duvdevim* special forces in what was termed the Occupied Territories. The handgun also soon found an international market.

Known as the Jericho model inside Israel, the pistol also was known as the Model 941, because it was chambered originally in 9mm and 41 Action Express calibers.

Inside the boundaries of Israel, the 9mm Parabellum cartridge is the standard round for pistols and submachine guns, other calibers usually being intended for the open market. The Jericho is known in the U.S. as the Baby Eagle and is currently manufactured in four different versions. This is a comparative reference to the massive Desert Eagle pistol chambered in 357 Magnum, 44 Magnum and 50 Action Express for the U.S. markets. The makers are well aware of the “bigger is better” attitude of some U.S. gun buyers. The 41 Action Express-chambered pistol is no longer made, but the 941 is being produced these days in 40 Smith & Wesson for American shooters. The 9mm version still is issued routinely to Israeli special forces, but it also is available these days in 40 Smith & Wesson and 45 ACP chamberings.

“These combat specialists often mark the slide on either side of the front sight with luminescent paint to make it easier to see in fast-moving, low-visibility confrontations,” David Steel reports. “I have seen Mini-Uzis marked in the same manner for use by counterterrorist teams.”



David Steele fires the IMI Jericho Model 941. This 9mm pistol is now standard for Israeli special forces. In the U.S., it is known as the Baby Eagle.

The idea of a high-visibility front sight apparently dates back to W.E. Fairbairn, who served with the Shanghai Municipal Police in the 1930s. It is said that he used a large silver bead as a front sight on his M-1911 pistol. Fairbairn also recommended carrying the automatic pistol chamber-empty.

"Since Palestine was a British Mandate in the 1930s, when moves were underway to establish a Jewish nation, I believe both of these ideas, now standard in Israel, were picked up from the British," Steele states.

Currently, there are a half-dozen variations of the 941 Jericho, including a compact model. This particular effort is a conventional recoil-operated pistol that relies on the Browning-devised cam-dropped barrel for unlocking the breech. The slide moves on internal rails and reportedly works well, although *Duvdevim* members tend to prefer the Glock 17 or the SIG-Sauer P226, when they can get them.

"This appears to simply be the cachet that attaches to foreign weapons, which are extremely expensive with Israel's high import duties," David Steele reports.

The Uzi Subguns

It is generally agreed among serious law enforcement and military pros that if there is one weapon that gave Israel its reputation for excellent small arms design, it has to be the various Uzi submachine guns.

During the so-called 1948 War of Independence, a number of Czech designs such as the Model 23 and the ZK476 were imported and a designer named Eziel Gal used the basic ideas for the benefit of his homeland.

Fielded originally in 1951, then prominent during the 1956 and 1967 wars, the standard Uzi was considered a Third Generation submachine gun with its grip feed and telescoping bolt. This combination radically reduced the gun's overall length.

"The Uzi had a removable wood shoulder stock that worked quite well when attached," Steele recalls. "When carried as a personal defense weapon, some soldiers removed this stock. The result was that accuracy suffered and its fire came to be called spray-and-pray." At such time in 1960 that the West German Army adopted the Uzi, they insisted that their purchase be equipped with a permanently attached folding metal stock.

The Uzi fires blowback from an open bolt and features a grip safety, thumb selector and a top cocking knob. It can be fired either semi-auto or full-auto, the latter offering a cyclic rate of fire of approximately 600 rounds per minute.

"I personally prefer the open bolt for reliability, especially in Middle East desert conditions," Steele says. "In the late 1960s, the Uzi was adopted by the U.S. Secret Service on their protective details, thus retiring the Thompson 45-caliber guns from that role."



The mini-assault rifle known as the MAR is Israeli-made and a reduced-size version of the 5.56mm Galil. Both are variants of a Kalashnikov design.

Realizing that they were onto a good thing, the Israeli gunmakers introduced the Mini-Uzi variation in the 1980s. The idea was that it would be more practical for dignitary protection and counterterrorist teams. This Uzi version has a folding wire stock, with the barrel length and overall length reduced substantially from the standard version. Steele found this particularly helpful when carrying the gun in a concealed shoulder holster such as the old Seventrees type. The Mini-Uzi, incidentally, is produced in closed-bolt as well as open-bolt versions. As might be expected, tests show that the closed-bolt operation can assist accuracy considerably in semi-auto fire.

Then there is an even smaller version: the Micro-Uzi. This one has a wire stock and is offered sometimes with a vertical foregrip. It fires either semi- or full-auto from a closed bolt.

"This gun's cyclic rate of fire is 2,000 rounds per minute," Steele points out. "That means it is best used only at extremely close range."

The Micro-Uzi has been used as a personal defense weapon by military air crews and other Israeli support units that are short on space. A semi-auto version of this Micro-Uzi was sold in the U.S. for a time without a stock, thus being advertised as an Uzi pistol. This version, however, has been banned in this nation under our various "assault weapons" laws, along with the Heckler & Koch SP89 pistol and other pistols that didn't look totally conventional.

More recently, an Uzi pistol has been introduced with an overall length of 9.45 inches. Unloaded, it weighs

3.75 pounds and carries either a 10-round or 16-round magazine that will handle 45 ACP ball and hollow-point ammunition. Barrel length is 3.5 inches, offering a muzzle velocity of approximately 790 fps. Firing is from a closed bolt with a floating firing pin; it utilizes the blowback method of operation.

The front sight on the Uzi pistol is a post type that is adjustable for elevation, while the square-notch rear sight is adjustable for windage. Sight radius for the pistol is seven inches. The fire selector can be set for safe and semi-automatic while another safety device, a grip safety, blocks the sear and breech.

Galil

David Steele feels that "the second biggest jump in international publicity and resultant interest for Israeli-manufactured weapons came in the 1970s, with the introduction of the Galil assault rifle, which was named for its designer, Israel Galili.

The Israeli government had contracted earlier for the Belgian-made FN FAL 7.62mm battle rifle and the nation's troops fought the 1967 and 1973 wars with that weapon, but the military leaders were calling for a lighter, more modern AR-type piece that could fire the 5.56mm cartridge being used in the American M-16. The Galil used the ultra-reliable Kalashnikov action in the manner in which it was utilized at that time in the Finnish-made Valmet 62.

"The original Galil was reliable, but somewhat heavy by modern standards," according to David Steele.



The Corner Shot unit has been checked out in the field by such law enforcement agencies as the Miami (Florida) Police Department. Participants found the versatility factor a surprise.

“Due to an infusion of low-cost American-made CAR-15 carbines – a shortened version of Colt’s AR-15 rifle – most frontline Israeli combat units were equipped with this variation of the M-16. In the same time frame, the Galil rifle ended up as a support weapon for tankers, artillerymen and anti-aircraft forces.”

The Galil is made in several versions. There is the AR, which serves as a squad support weapon firing the 5.56mm NATO round; the SAR, designation for the short assault rifle in the same NATO loading and the MAR, which is more popularly known as the Micro Galil, since it has a short barrel and a wire stock. The same system is issued for the Galatz sniper rifle, which is chambered for the 7.62mm NATO cartridge.

The Galil also has been made by the South African Vektor company and issued to Republic of South Africa forces as the R4 (Galil AR), the R5 (Galil SAR) and R6 (Galil MAR.)

“In modern urban warfare, a short maneuverable 5.56mm assault rifle, firing from 30-round magazines, is the way to go for fast-moving attack units,” Steele contends.

Magal

In 2000, Israel Military Industries developed a police carbine based upon the workings of the Micro-Galil and called it the Magal. This particular firearm offers intermediate power between the 9mm Parabellum cartridge and the 5.56mm assault rifle round.

The Magal cartridge was based upon the U.S. M-1 30-caliber carbine round. In fact, it can be equipped with

magazines from the M-1 and M-2 Carbines, as well as those designed specifically for the firearm.

“A number of surplus M-1 and M-2 Carbines had been used by the Israeli police for some years, so the round seemed a natural choice,” according to David Steele.

“The M-1 ball round has been found to penetrate light Kevlar body armor. It has substantially less flash and blast than the 5.56mm cartridge, which makes it more comfortable to use inside of buildings.”

The Magal carbine is considerably shorter than the M-1, and features polymer furniture. The first 1,000 were delivered in 2000, but there was a problem of overheating during intense firefights. Some 4,000 units were manufactured, but the Israeli police units stopped using the Magal in 2001.

The Magal was developed originally with the idea of using it to replace the U.S.-made M-1 Carbines. That did not happen. The M-1 Carbine as well as Colt’s AR-15 Commando, a compact assault rifle, now are being issued by police and Civil Guard units.

Negev

The Israel Military Industries-developed Negev lightweight machinegun fires the 5.56 NATO round at a selectable rate of fire ranging from 650 to 950 rounds per minute. This belt-fed, bipod-mounted weapon is the standard light/medium squad assault weapon (SAW) for today’s Israel Defense Forces. It saw heavy service during the 2006 Israel-Lebanon conflict.

The machinegun employs elements in common with the Galil AR and there is a short Commando version



The Corner Shot device can handle a handgun that has been equipped with a sound suppressor.

that uses Galil magazines. The Negev features a quick-change barrel capability, a bipod and a folding stock. On the Commando version, a foregrip rather than the bipod can be installed. To produce this compact little weapon, a shorter barrel is installed, a box magazine is fitted and the stock removed.

The standard version of the Negev is belt-fed and includes what David Steele refers to as “a soft assault drum,” actually a nylon bag for carrying 200 belted rounds into the assault. This version has a top-mounted carrying handle. The machinegun fires from the open bolt and has a three-position gas regulator to control the rate of fire. According to Steele, “It also can be fired semi-automatic and can be used to launch grenades. Elite units use the Negev in the same manner the U.S. SEALs used the Stoner 63 light machinegun in Vietnam for serious suppressive fire during the assault.”

Unloaded, the standard model Negev weighs 7.5 kilograms. Add a 150-round pouch-type magazine and total weight becomes 10 kilograms. Overall length of the standard version is 1020mm with the stock extended, but it is reduced to 780mm when the stock is folded. The barrel length alone is 460mm.

The Negev has proven sufficiently successful in combat that, to date, Israel Military Industries has received orders from Estonia, Columbia and Costa Rica.

Tavor

Competing for attention among Israeli military decision-makers is the ultra-modern Tavor assault rifle,

which is comparable to the Galil MAR and the CAR-15.

Named the TAR-21 (standing for Tavor Assault Rifle – 21st Century), the rifle already has been superceded by the Tavor 2, an advanced model that is the future assault weapon of the Israel Defense Forces, but it will be a number of years before it becomes the nation’s standard infantry weapon.

Chambered for the universally familiar 5.56mm NATO cartridge, the TAR-21 is built around a bullpup design that favors that of the Austrian-made Steyr AUG. The rifle features a short polymer stock and an optical sight. David Steele reports that it is available actually in three-different barrel lengths. The standard length is 460mm, while there also is a shorter Commando barrel and an even shorter barrel for the so-called Micro model. There also is a sharpshooter variation of the rifle with bipod and telescopic sight.

The designer’s boast is that the TAR-21 “Offers rifle accuracy with carbine length.” A plus lies in the fact that ejection ports are installed on both sides of the weapon. Thus, it is easy to reconfigure for either left- or right-handed shooters.

“That sounds good,” Steele agrees, “but the fact is that to reconfigure the rifle to be fired from the left shoulder, it becomes necessary to partially disassemble the rifle, thus taking it out of action for a time.”

Ergonomics for comfort and composite materials for strength were given great consideration in design of the TAR-21. It is waterproof and carries an advanced red-dot sight, although the weapon also can be mounted with a variety of scopes and other devices such as night



Various military units also have been checking out the capabilities of the Corner Shot device.

vision systems. The bullpup utilizes standard 5.56mm NATO magazines and it is possible to install the M203 40mm grenade launcher.

The Tavor TAR-21 got its introduction to warfare during Israel's Operation Defensive Shield in 2002. In March of that year, 135 Israelis were slain in attacks by Palestinian groups such as Hamas, Islamaich Jihad and people calling themselves the Al-Aqsa Martyrs' Brigade. On March 27, a suicide bomber killed 30 people at a hotel in Netanya. This came to be known as the Passover Massacre and within 24 hours, the Israel Defense Forces had called up 30,000 reserve soldiers. Part of the operation involved the much publicized siege of Yassar Arafat's compound.

The TAR-21 proved its worth during that operation and added to its reputation during the 2006 invasion of Lebanon. Modern support weapons are designed to cover distances up to 300 yards and the ranges involved in typical urban battle are even shorter. Thus, the TAR-21 was designed to be shorter and lighter than the M-16 rifle and it now is replacing the Uzi and the M-16 in some frontline Israeli units. It can be equipped with a 30-round magazine and fires 800 rounds per minute.

Military worth of the rifle probably is best reflected in the fact that Portugal, Georgia and Germany have ordered supplies of the weapon for their military, while the government of India has successfully negotiated for a license to manufacture the TAR-21.

Barak

These days, the small arms division of IMI has been privatized and renamed as Israel Weapons Industries. In addition to the weapons listed above, there has been a new addition to the line-up: the SP-21. This pistol is also known as the *Barak*, the Hebrew word for Lightning.

This pistol is available in 9mm Luger, 40 S&W and 45 ACP. It was developed originally for issue to the Israeli Defense Forces, replacing the Jericho. Instead, it was decided to introduce it to the international market in 2003. In Europe, the pistol is known as the Barak, while Magnum Research – the exclusive U.S. importer – markets the handgun as the Magnum Research SP-21. As a result of this sales approach, it has become uncertain what the future holds for this specific model insofar as issue to members of the IDF is concerned.

This pistol features a double-action trigger, plus a separate ambidextrous safety that allows it to be cocked and locked simultaneously. There also is a separate decocker button positioned at the top of the slide, just forward of the rear sight. The pistol also features a polymer frame as well as an accessory rail positioned under the barrel.

Corner Shot

As long ago as World War I, some now-forgotten individual constructed a Springfield 1903 rifle with a split stock and a periscope sight. The purpose of this device was to be able to sight from below the berm of the trenches in which American troops were holding forth. During World War II, Germany developed an St44 with a curved barrel that was meant to shoot around corners or over the turret of a tank. The U.S. Army developed a similar curving barrel for the M3A1 submachine gun.

"The problem with curving barrels turned out to be exploding barrels, the problem caused by bullets

that didn't want to curve as well as bullets sometimes fragmenting inside the barrel," David Steele has learned.

"In spite of such long-ago problems, the next generation of U.S. service rifles may have a 5.56mm rifle barrel, a launching barrel for a 20mm grenade with a computerized time fuse – and an optional video screen sight." David Steele adds, "Just how this device will function in thick jungle terrain is something to look forward to."

Currently, however, there is a functioning SWAT and counterterrorism weapon that will shoot around corners. Developed by Amos Golan and Asaf Nadel in Israel and backed by U.S. investors, this weapon is called the Corner Shot, the name now being properly registered.

The unit currently is capable of firing pistols chambered for such cartridges as the 9mm Parabellum, 40 Smith & Wesson, 45 ACP, the 5.7mm FN and the Heckler & Koch 4.6mm. Recently introduced has been the Corner Shot 40 for launching 40mm grenades. Recently demonstrated for law enforcement personnel has been a 5.56mm rifle version.

According to Asef Nadel, the pistol version of the invention is meant mainly for urban combat by SWAT teams and counterterrorist personnel. The device makes it possible for the operator to observe – and even engage – targets from around corners, while remaining safely behind cover. If you're thinking of buying one for your deer blind, don't bother. The unit was designed specifically for government agencies and will not be sold on the open market.

The Corner Shot has a rifle stock with a pistol grip, a video camera and a hinged frame that can point a pistol to the right, left or straight ahead. If there is a problem, it is that rather than a 90-degree turn in either direction, the swing is limited on each side to 60 degrees. With this limitation, the detachable video camera allows the operator to scan around the corner, into the next room or down into a window, then allows immediate engagement. The device can be used with Glock, SIG-Sauer, CZ, Beretta or any other standard service pistol. Length of the Corner Shot is 32.7 inches, while weight is 8.5 pounds. Remote linkage from the weapon to the triggering mechanism in the rear of the unit has a let-off of approximately 4.7 pounds.

The Corner Shot 40 grenade launcher unit can do the same things, but instead of bullets, it can launch either 37mm or 40mm grenades containing such items as tear gas, smoke, high explosives or non-lethal substances.

Recently, Dynamit Nobel Defense of Germany and Corner Shot combined talents to produce what they termed the Corner Shot *Panserfaust*. "As one might suspect," says David Steele, "the CSP is based on the RGW-60 recoilless grenade system. It can use shaped-charge warheads to engage light vehicles, structures and armored vehicles – all from around the corner."

According to David Steele's findings, "The secret of the Corner Shot is its real-time video system. It can be equipped with a variety of detachable cameras, including zoom, day/night and thermal or an audio/video transmission kit. Visible lasers as well as a tactical flashlight are part of the kit. With normal issue pistol rounds, the unit is reported to be accurate to 100 meters or, with the 5.7mm rounds, accurate to 200 meters."

There are those who feel the Corner Shot is a unique weapon that should be part of the special operations arsenal in every friendly country. The team scout can allow operators to enter hidden areas safely. It also can provide real-time intelligence to unit commanders.

CHAPTER 25

THE PERSONAL DEFENSE WEAPON

Just Another Name for A Carbine, Subgun or Assault Rifle?

AT LEAST 60 percent – and probably more – of the modern army is made up of soldiers designated as something other than infantry. These individuals include tankers, artillerymen, helicopter and fixed-wing crews, medical and communications specialists, headquarters staff and all sorts of support troops, including the cooks and bakers.

For these soldiers, carrying a full-size infantry rifle presents a problem because it is too bulky for efficient performance of their primary duties. Obviously, a medic, pilot or whatever, could be issued a service pistol. However, it has limited firepower and an effective range of about 25 yards, making the handgun a less-than-ideal choice.

“The last time pistols could turn the tide of battle was during the War Between the States,” David Steele

contends. “Until the mid-1960s, the main battle rifle was of substantial length and weight. In modern times, the unit most inconvenienced by a typical musket or rifle was the cavalry. The horse-mounted soldiers used pistols, revolvers, sabers, shotguns and carbines. A traditional carbine was simply a short-barreled infantry weapon.”

In 1940, as stated elsewhere in this tome, the 30-caliber M-1 Carbine was developed to replace the pistols used by non-commissioned officers, special troops and company-grade officers. With well over six million of these carbines being produced, this added up to more than any other U.S. weapon utilized in World War II.

The M-1 Carbine has been called by many the most successful personal defense weapon (PDW) ever

The Colt-made Model 633 Compact submachine gun was based upon the design of the M-16. David Steele used this model for firing the Gunsite subgun course.



developed. It had greater range, accuracy and firepower than the 45 service pistol.

“It was as easy to carry and shoot as the 22 rimfire rifles with which a lot of service members grew up. While it never really replaced the pistol, it did make a superb sidearm,” Steele feels. “The problem came when troops were called upon to use it as their primary weapon. This was particularly true of frontline airborne troops, who almost always were short of support weapons.”

As stated in an early chapter, the M-1 Carbine remained popular through WWII in both the European and Pacific actions despite its known shortcomings. As something of a competing weapon, the Marines took on the 45-caliber Reising submachine gun. In making their Pacific beachheads, the Marines soon found the Reising to be unreliable in dirt and mud.

Jack Lewis recalls an unsubstantiated tale following the battle against the Japanese for Saipan and Tinian. When the islands had been secured, the Marines were loaded aboard ships to continue to their next target. However, the Reising guns allegedly did not go with them. Marine General Holland M. (“Howlin’ Mad”) Smith ordered all of the offending subguns thrown over the side of the troop ships.

“For modern police work,” Steele opines that “the M-1 Carbine is best used with a 110-grain softpoint round to increase expansion and the wound channel. Post-war carbines also were chambered for the 256 WM cartridge, which was a necked-down 357 Magnum case loaded with a 60-grain bullet. It was found to be more effective in police work than the 30 Carbine hardball bullet.”

The carbine and its round still can be found in many parts of the world. It was so popular in Israel that its cartridge and 30-round magazine were chosen for their 2000 Magal police carbine. “This is a modern design with a folding stock, optical sight and pistol grip. It tends to resemble the Micro-Galil, but the Israeli police wanted a round that was midway in power between the 9mm pistol round and the 5.57mm. The Magal carbine weighs only 7.7 pounds.”

During World War II, the Russian army reportedly used as many submachine guns as infantry rifles to provide suppressive fire. “However, the subguns lacked much in the matter of range, as well as accuracy and power,” Steele points out. “The Russians couldn’t help but notice the effectiveness of the German *SturmGewehr* 44 assault rifle, which fired a 7.92mm intermediate cartridge in either full- or semi-automatic mode. The Soviet version, however, was to be a different and more cost-effective design.”

Around 1947, Mikhail Kalashnikov was able to perfect his selective-fire rifle to handle the 7.62x39mm Soviet intermediate cartridge. His AK-47 – eventually simplified in design to the AKM – was produced in most communist countries and has been adopted by terrorists and revolutionaries around the world. Ultimately, more than 50 million AKs were produced and, according to David Steele’s findings, “This is the most common threat American troops are likely to face. Today, it is even the standard ‘sidearm’ for the Palestinian police in the Gaza Strip.”

In 1974, the Soviet army began issuing a 5.45mm sub-caliber version called the AKS-74. “Kalashnikov,



This law enforcement agent tried out the Heckler & Koch VP-70, a machine pistol that fire three-round bursts of 9mm Parabellum ammo from an 18-round magazine. The stock was cast from a synthetic.



The Heckler & Koch MP5K personal defense weapon is a 9mm subgun. Here it is compared to the M92F auto pistol which now is standard for the U.S. Army. Both firearms are used by law enforcement SWAT teams.

prefer the 7.62x51mm M-14 rifle or ArmaLite-produced rifles that have been converted to 6.5mm or 6.8mm. Should another land war break out in the mountains of Korea or a similar area, the feeling is likely to remain the same."

Around 1970, Heckler & Koch developed the selective-fire VP70 (*VolksPistole*: People's Pistol) with the reported hope that it would be chosen to arm village militias in Vietnam. The problem with such a wish was that there were plenty of M-1 Carbines and Mossberg semi-auto shotguns for this purpose. A semi-auto version called the VP70Z was developed for the civilian market, but sales reportedly were less than expected.

"The VP70, however, did pioneer the injection-molded frame. This technique was used in manufacturing the Glock pistol beginning in 1985. This particular pistol became issue for the Austrian army as well as various cost-conscious police departments," David Steele recalls.

In that same era, Heckler & Koch developed the MP5 9mm submachine gun in fixed stock and sliding stock versions. It was not until 1980, however, that this particular subgun gained any great stature. That year, the Iranian Embassy in London was taken over by insurgents. It was retaken by 22 members of Britain's Special Air Service who were armed with the MP5. The weapon quickly became the Gold Standard for SWAT and counter-terrorists teams that included the U.S. Navy's SEALs.

Heckler & Koch eventually developed a folding-stock PDW version of the subgun, which Steele evaluates as being "as good as any 9mm select-fire sidearm anywhere."

Firearms companies, both here and abroad, that lost business with the end of the Cold War were looking for new markets such as SWAT, counterterrorist teams and military support units. Starting about 1990, development was toward a submachine gun-size weapon that could fire a sub-caliber bullet that would penetrate modern Kevlar helmets and body armor.

"The best known of these is the FN-produced P90 personal defense weapon, which fires a bottleneck 5.7x28mm cartridge at 2400 fps," Steele reports. "Using a unique 50-round plastic magazine, the P90 has been adopted only recently by the protective detail of the U.S. Secret Service.

"These days, it is totally possible that a potential assassin may be wearing body armor, so it makes sense to have something more than a 9mm subgun. However, there are questions regarding terminal ballistics for the steel-cored armor-penetrating round. The answer is there are five other bullet styles available, depending upon the requirements of the user."

Most recently, Heckler & Koch have developed an MP7 PDW that fired a proprietary round, the 4.6x30mm. Here, too, there are half a dozen types of bullets to make it possible to match the piece to the target. The steel-cored round weighs only 26.2 grains and travels at

himself, opposed this change, apparently feeling that his nation's army was simply attempting to keep up with the Americans, who had adopted designer Gene Stoner's 5.56mm M-16 for use in Vietnam."

The Russians used the AKS-74 during their 1979 invasion of Afghanistan. This particular firearm and its cartridge reportedly caused crippling wounds at a rate far greater than did the 7.62x39mm cartridge.

"The most interesting version of this firearm is the AKSU-74PDW," according to Steele. "It is currently used by Russia's police, bodyguards and special forces. It has a folding stock, a short barrel with a flash hider and a 30-round magazine. It has a cyclic rate of fire of about 800 rounds per minute."

Looking back, when U.S. officers or support troops needed a personal defense weapon during World War II or Korea, there was usually the much-discussed M-1 Carbine or the M3 grease gun, the latter firing a 45-caliber pistol cartridge. These guns were simple in design and easy to learn to use effectively.

The high-tech AR-15 – predecessor to the M-16 – replaced the M-1 Carbine with U.S. Air Force security police, then was adopted by U.S. Army advisors in Vietnam. Eventually, it replaced the M-14 for soldiers and Marines in-country, and then became the standard rifle service-wide.

"Interestingly, the 5.56mm NATO cartridge and the rifle that fires it have not earned any kudos with Special Forces fighting in Afghanistan, since it is neither a long-range weapon nor a sure stopper with the SS109 NATO round," Steele reports. "Lacking a panoply of support weapons, Green Berets still tend to

2460 fps. The MP7 carries an optical sight, a 40-round magazine and comes with a holster, as well as what Steele calls “a variety of other Teutonic refinements.”

Not satisfied with a single weapon aimed at the PDW market, FN also has come up with a civilian-legal carbine called the FS2000. It fires the 5.56x45mm NATO cartridge and offers the buyer what company officials call a “compact, reliable and accurate firearm for security, personal defense or competition.”

Jack Lewis, who has not had an opportunity to fire the FS2000, but has handled it on several occasions, has his doubts as to just what kind of competition would be planned for such bullpup-designed weaponry.

The gas-operated system utilizes a rotating bolt lock-up and fires from standard M-16 magazines. Visual inspection of the chamber condition is performed with a hinged access port positioned at the rear of the gun's receiver. The fired cases are ejected through a forward port that spins them away from the shooter. The piece has adjustable iron sights, as well as a top-mounted M-1913-type rail for mounting a scope or other accessories. A plus in the design, Lewis feels, is an angled-face muzzle brake meant to help minimize recoil. Lewis tends to agree with the maker's claim that the broad, well-formed buttplate and short length of pull should be comfortable to most shooters.

As mentioned earlier in these pages, Knight's Armament has entered the PDW race with its own

model, which fires the Hornady 6x35mm cartridge from a 30-round magazine at 2425 fps. Using a 65-grain bullet, this firearm can penetrate body armor at 300 meters. The gun has iron sights, a 30-round magazine and a side-folding stock.

All of this information brings us back to the question of whether a personal defense weapon is really appropriate for support troops. Manufacturers hasten to offer positive thoughts. Since support troops outnumber infantry in large numbers in First World armies, the supposed PDW need represents a potentially gigantic market.

“In the U.S. Army, of course, there also are the expected drawbacks of extra cost for guns, ammunition, training and maintenance,” Steele points out.

“Judging by the performance of the 507th Mech, the unit from which Jessica Lynch was taken prisoner in 2003 in Iraq, support units need both more weapons and more training. The Army now has increased both for their co-ed support units, but training time is still limited and the warrior spirit is not easy to inculcate even in the 13 weeks of Marine Corps basic training.”

Also, those who have served on active duty with any of our armed forces have to be somewhat aware of the effort made by commanders to control their own troops' access to weapons and ammunition.

“There is no Second Amendment for enlistees, and even their personal knives may be ordered kept in the



The FN-made P90 personal defense weapon is being used currently in the Philippines by that nation's special operations units. Note the short barrel.



No longer produced, this Bushmaster carbine utilized 5.56mm M-16 rifle magazines. The receiver was held against the right forearm and fired in the manner of the U.S. Air Force's IMP survival weapon.

company arms room," Steele contends. "Other than in an active combat zone, every round has to be counted and accounted for. The unit commander assuredly does not want his career stalled because of a murder, suicide or accidental shooting that involves an issue firearm and ammo."

The Swiss trust their soldiers to keep pistols and automatic rifles in their homes and the Israelis trust other Israelis to carry pistols, submachine guns and assault rifles on the street. Crews of Israeli's commercial airline commonly carry the Micro-Uzi as a PDW and variations of the Uzi subgun



The FN FS2000 fires the 5.56mm NATO cartridge from either a 10- or 30-round magazine. Semi-auto only, it carries a civilian-legal 17.4-inch barrel and measures 29.1 inches in overall length.





In 2006, the P90 was redeveloped as a carbine, measuring 26.23 inches overall with its 16.04-inch barrel. It operates with a 30-round magazine firing a 5.7x28mm cartridge.

are common among civilians who live, work or travel in hostile areas.

“U.S. combat units are well-armed, but support units must rely on M-16 variants for protection. This is minimal, considering the fact that the enemy usually is equipped with the AKM assault rifle or the RPG-7 rocket grenade launcher,” Steele notes. “It stands to reason that a more convenient-size assault rifle is more practical than a sub-caliber PDW for support troops.

“The currently issued M-4 carbine is a step in that direction as was the Vietnam-era Colt-made CAR-15. Bullpup assault rifles such as the Steyr AUG, the French FAMAS and the new Tavor from Israel are even more compact. They appear to be the wave of the future for support troops who have their own job to do, but may suddenly have to match the terrorist’s 7.62x39mm Kalashnikov.”

Looking at the future, one must realize that the U.S. military is a huge operation with attendant logistical problems. Standardization of small arms and ammunition has been a goal since 1945, but the absurd effort in 1957 to replace the M-1 Garand, the 30 Carbine, the Browning Automatic Rifle and the Thompson submachine gun with one weapon – the M-14 – leads one to believe that for any all-encompassing decision, there will still be unmet needs.

Realistically, our U.S. military services are called upon to operate in many climates and terrains, all of

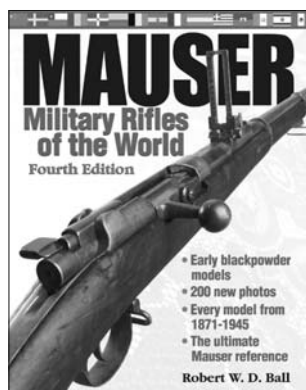
which can have an adverse effect on the issue weapons. At the moment, the 9mm and 45 ACP are standard pistol calibers, while 5.56mm and 7.62mm are standard for rifle units. “New weapons for personal defense would require study and determination of new weapons and new calibers,” Steele points out, “but at the moment, the real problem is having a gun when you need one. Terrorists can find the AKM on any Third World street corner. The good guys – support troops or civilian infrastructure – may not have the guns they need when they need them.

“Israel has gone farther than any other country in supplying protective equipment to both its military and its citizens. Recently, Thailand has started supplying pistols and shotgun – most likely U.S. aid items from the 1970s – to school teachers and others endangered by Muslim militants along the Malay border due to the murder of two teachers in recent months.”

Demographics project that by the year 2050, 70 percent of the world’s population will be living in cities. Steele feels this means military units will have to use shorter, more maneuverable weapons.

“At the moment, pistol-calibered submachine guns such as the MP5 and the Uzi have been tested and proven in actual combat. The 5.56mm and 7.62mm rifle calibers also have been proven,” Steele points out, adding, “Right now, a shorty Armalite-type 5.56mm is probably the best PDW support troops can find in Iraq.”

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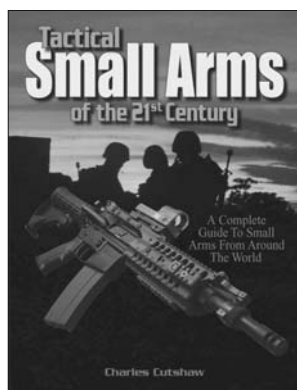
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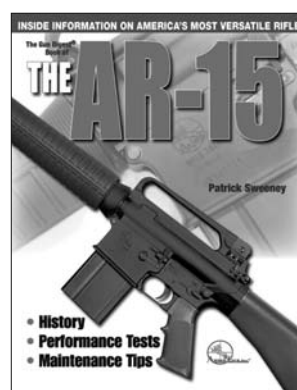
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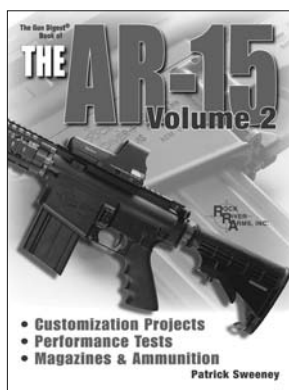
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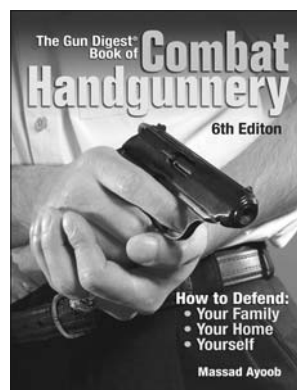
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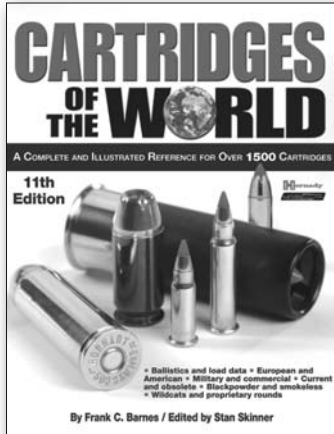
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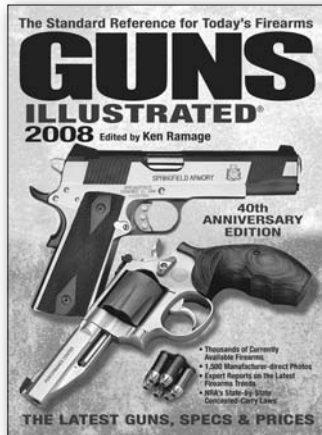
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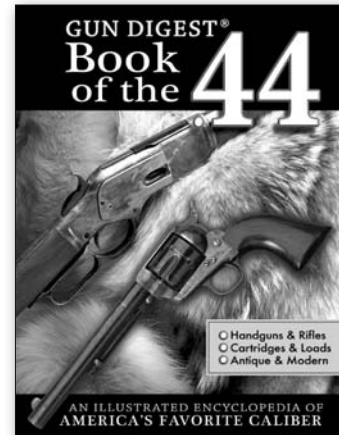
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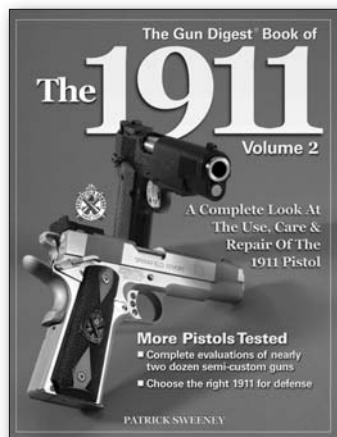
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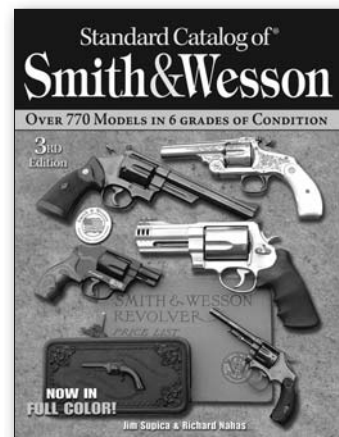


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