

Muskets to Missiles

by Colonel Brooke Nihart, USMC (Ret.)

The foot soldier's— and the Marine's—weapon from the American Revolution through the War of 1812 was a smoothbore flintlock musket. It began as any one of several models of the caliber .75 British "Tower" or "Brown Bess" musket ("Tower" was for the Tower of London where the muskets were made and stored and "Brown Bess" for the color of the stock). Continental Marines preferred the "short sea service" version, when they could get it, since it was handier in the confines of a ship. To protect against salt water corrosion at sea, the fittings of muskets were of brass, and the barrels and locks were tin-plated whenever possible.

Through the efforts of Benjamin Franklin and Silas Deane, the American representatives in Paris, the colonies received large numbers of French caliber .69 Charleville muskets, and by the last years of the war they more or less replaced the Brown Bess.

With independence, national arsenals were established at Springfield, Massachusetts, and Harpers Ferry, Virginia. The first musket they produced was the M1795, a copy of the M1763 Charleville. The arsenals closely followed French developments and copied each change through the U.S. M1842 musket. Marines used them all.

For the most part, Marines have used the same weapons as the U.S. Army in order to be assured of the availability of the weapon and its ammunition. However, when a more effective weapon became available, the Marines have always been ready to test it and, if found suitable, to adopt it.

Marines did not use rifles in the Revolution and did not become known as expert rifle marksmen until many years later. Close range combat of the day did not require the longer range and precision (nor justify the cost) of the rifle. A trained man could get off only two to three shots a minute with the cheaper smoothbore; but the more expensive rifle took even longer to load. The musket's range of one hundred yards or less made it effective against massed formations in land combat. For seagoing Marines, in the fighting tops or in boarding parties, the action was at fifty yards or less. At that distance, a trained man could be expected to hit a man-sized target.

To board an enemy ship or in a final assault on land, Marines relied on the Brown Bess's bayonet and on a short, brass-barreled flintlock blunderbuss. In the confusion of combat, the latter's flared muzzle made it easy to reload with a charge of powder

followed by a handful of buckshot, rocks, nails, or whatever nastiness was available. The blunderbuss evolved into the shotgun, and in the 1847 attack on Mexico City, Marine Major Levi Twiggs carried his favorite double-barreled shotgun. For the trench assaults in France in World War I, Marines adopted repeating shotguns, and used them again in the close combat of jungle fighting in World War II and Viet Nam.

The seven-barrel topman's musket, built first by a London gunsmith named Nock, gave Marines another competitive edge in close ship-to-ship combat. A Nock flintlock fired all seven barrels at once and the effect against an enemy's fighting top, officers and helmsman on the quarterdeck, or a gun crew was devastating. The recoil against the Marine firing the Nock was less deadly—but nevertheless painful.

The slow firing muskets made edged weapons a necessary last resort. For close combat, enlisted men's muskets were fitted with bayonets, officers carried a brace of pistols and a sword, and boarding parties from the ship's crew brandished cutlasses and short pikes. The sword for officers was not prescribed until 1829 when the Mameluke sword was authorized. It had become popular with Marines from their service in the Mediterranean against North African pirates. A similar sword is still today a Marine officer's ceremonial sword.

The inventive genius of America blossomed during the first half of the nineteenth century, and much of it centered around firearms manufacture. The Hall breech-loading rifle, developed at the Harper's Ferry armory, was used briefly by Marines in the Seminole wars of the 1830s. Samuel Colt's revolver was first produced at about this time, and a Colt revolving rifle was tried by the Marines. Ignition of both, as well as the M1842 musket, was by percussion cap. Neither the Hall nor Colt rifle had the power of the musket, and powder gases leaking at the breech made their use uncomfortable at best. Colt's revolver, held at arm's length to fire, was more successful. A Navy model six-shooter in .36 caliber was adopted for Marine officers in the 1850s.

In 1859, the Marines who entrained from Washington for Harpers Ferry to put down John Brown's rebellion were armed with the .69 caliber M1842 percussion musket, even though it had already been made obsolete by the .58 caliber M1855 rifled musket. In 1861, the Marines from the Washington Barracks fought at Bull Run with the M1855, although many units on both sides continued to use smoothbores during the first two years of the Civil War.

The Marine Corps quartermaster, Major William B.

Slack, pleaded for rifled muskets for the expanding Corps but was forced to accept old smoothbores until supplies of rifles, now the new simplified M1861 .58 caliber rifled musket, caught up with demand. Ships' detachments got the rifled muskets while Marine barracks in Navy yards made do with the old .69 caliber smoothbores. Eventually, when government arsenals and private contractors tooled up for full production, the Marines got the further improved M1863 rifles.

The Civil War inspired American inventors to produce breech-loading and even repeating rifles firing metallic cartridges. Many designs were tried by the Navy and some saw use by Marines. Most favored were the Sharps .52 caliber single shot using a special paper cartridge and the Spencer seven-shot repeater firing a .52 caliber rimfire copper cartridge. A tube containing seven cartridges was inserted into the butt of the Spencer's stock. Cartridges were fed into the breech by a lever which was also the trigger guard. The steel parts of both the Sharps and the Spencer were tinned to protect against salt water corrosion at sea.

Breechloaders were easy to load and fire rapidly, and repeaters were designed for even more rapid firing. The repeaters created an argument still heard today: Troops so armed, it was asserted, would waste ammunition. However, First Lieutenant John Green, who tested the Sharps for the Marine Corps, reported to Civil War Commandant John Harris that the ease of loading, even while moving forward—without the Marine taking his eye off the target—resulted in considerable tactical advantage.

Despite the effectiveness of the breechloaders, the muzzle-loading rifled musket stayed in service for several years after the Civil War. Postwar military budgets discouraged the greater expense of the more complicated breechloaders and their ammunition, and the heavier bullet and greater powder charge of the .58 caliber musket packed a stronger punch at longer ranges.

Erskine S. Allin, the master armorer at the Springfield Armory, converted huge stocks of muzzleloaders to breech loading. The result was the "trapdoor" Springfield, named for its upward hinged breechblock. It ultimately was made in .45 caliber with a brass center-fire cartridge powered with 70 grains of black powder. The trapdoor continued in .45 caliber through a number of improvements until the M1884 which armed Marines until the 1890s.

During this same period, the first successful machine gun, also the result of American inventive genius, appeared. The Gatling gun was invented by

Richard J. Gatling in 1862, and Admiral David D. Porter reportedly used a few to drive Confederate riflemen from the banks of the Mississippi. Its ultimate success had to wait for the mass production of metallic cartridges.

Gatlings were produced in subsequent years in many models and calibers. Typically, they had ten barrels around an axle and a breech mechanism that loaded cartridges from a hopper or magazine. A hand crank revolved the ten barrels and fired them sequentially. The Gatling passed many Navy tests and was finally adopted in .45 caliber as the M1876. The ten barrels were encased in a bronze jacket and the gun was mounted on a light steel-wheeled carriage for ease in landing.

Another weapon that was adopted for some ships' Marine detachments was the Remington-Lee bolt-action five-shot .45 caliber rifle. It was fed by a Lee vertical detachable box magazine, and the name Lee, taken from the magazine, would have a long life. The box magazine was adopted by the British for their Lee-Enfield rifles which continued in service through the Korean War.

Smokeless powder was developed by 1880 and permitted small-caliber high-velocity rifles with longer range. Marines first used smokeless powder in the M1895 Winchester-Lee 6mm (.236-inch) straight-pull five-shot rifle. A Browning machine gun, also called the M1895 and using the same 6mm cartridge, came into service at the same time. These two weapons, plus the M1876 3-inch landing gun, were used by Lieutenant Colonel Robert W. Huntington's First Marine Battalion in the seizure of Guantanamo Bay, Cuba, in the Spanish-American War.

Marines in the 1900 defense of the Peking legations and the China relief expedition—known popularly as the Boxer Rebellion—carried a mixed bag of rifles. The Legation Guard, made up of two ships' detachments, used the 6mm Winchester-Lee. The 1st Marine Regiment, coming from the Philippines, had the .30 caliber Krag-Jorgensen made at the Springfield Armory. Ships' detachments, organized into a second Marine regiment, used the older .45 caliber trapdoor Springfields and five-shot Remington-Lees. Ammunition resupply was a quartermaster headache.

During the Philippine Insurrection that followed the Spanish-American War, the trusty Krag-Jorgensen was immortalized in the clear but brutal phrase: "Civilize 'em with a Krag." The Marines lagged behind the Army in skillfully using the accurate .30 caliber Krag. This was brought out painfully when Marines finished low at early National Matches. After that, serious marksmanship

training began for all Marines, and the Corps' rifle team soon became competitive.

By 1912 the Corps was fully armed with the new Springfield M1903 rifle firing the .30-'06 improved cartridge. "Oh Three" and "Thirty Ought Six" entered the Marine vocabulary. The Springfield '03's accuracy was superb, and Marines, both in combat and match shooting, would be well served by this peerless bolt-action rifle for the next thirty years.

The opening guns of World War I spurred further modernization, and when America joined the war in April 1917, rifle marksmanship was the Marines' primary training goal. Group photographs of World War I Marine companies show almost all the men wearing the marksman badge, with many displaying sharpshooter and expert rifleman badges. The payoff came on 4 June 1918 in the Marines' first real battle. The Germans advanced through the wheat field in front of Belleau Wood, and Marine riflemen stopped them at up to eight hundred yards with aimed rifle fire. Gunnery sergeants called out the range, the men set their sights, and the command "Commence firing" was given, just as if on a rifle range. On that day, the accuracy of the Springfield '03 and the Marines' skill in its use became legend.

The 4th Marine Brigade took the excellent drum-fed Lewis machine gun to France but never got to use it. The guns were badly needed to arm Army Air Service planes, or so the story went. The U.S. 2d Army Division, to which the Marine Brigade was assigned, was given French Hotchkiss heavy machine guns and Chauchat automatic rifles, both firing the French 8mm cartridge.

When the United States went to war, American gun designer John Moses Browning was ready with two exceptional automatic weapons: the water-cooled M1917 Browning machine gun and the M1918 Browning automatic rifle or "BAR." Although the last twelve of the forty-three American divisions sent to France were armed with these weapons, the Marines didn't get theirs until just after the 11 November Armistice. The BAR would be a Marine Corps favorite infantry weapon until after the Korean War.

After World War I, the Marines returned to their not-very-peaceful peacetime duties: little wars in Haiti, Santo Domingo, and Nicaragua, and peacekeeping in China. The post-World War I years were a time of experimentation and some rearmament. The Marines were the only American forces actually in combat during this period. They quickly adopted the .45 caliber Thompson sub-machine gun (a favorite with G-men and gangsters of the era) and gave one to the corporal of each eight-man rifle squad. There was also one

Browning automatic rifle in each squad, plus one man designated the rifle grenadier. In effect, the squad comprised two four-man fire teams; the BAR and rifle grenadier team provided a base of fire and the team with the Thompson were to "close with and destroy the enemy."

In the late 1930s, the Springfield Armory's designer John Garand developed the eight-shot rifle that became the M1. While the M1 was still in the experimental stage, one Marine battalion on each coast field-tested it. Meanwhile, Marine Captain Melvin M. Johnson, Jr., invented a competing rifle. The Johnson was accompanied by a light machine gun (LMG) version which had the same recoil action, making possible identical mechanical training for its users. The M1 was adopted for general use by both the Army and the Marine Corps. The Johnson went into limited production and was used by Marine parachute units because both the rifle and LMG could be broken down into a short package convenient for a parachutist to carry during a drop.

At the beginning of World War II, Browning automatic rifles became M1918A2s, which gained 2.5 pounds in weight with the addition of a bipod (often discarded during close-in combat). Rifle squads increased from eight to twelve men but continued to have only one BAR. By mid-war a squad numbered thirteen Marines with a squad leader and three four-man fire teams, each with a BAR.

There were not enough Thompson submachine guns to meet the needs of the rapidly expanding Marine Corps. As a wartime expedient, Harrington & Richardson Arms developed and produced the Reising SMG submachine gun for the Marines. Unfortunately, on Guadalcanal, this cheap and easily manufactured weapon jammed often from the dirt of battle and rusted readily in salt air and tropical humidity. The Reising was relegated to stateside guard duty. Later in the war, both Thompsons and Reising were replaced by M3 submachine guns—"grease guns"—inexpensively stamped out of sheet steel.

After Guadalcanal, the 1st Marine Division gave up its venerable Springfield '03s and rearmed with M1 Garands for Cape Gloucester and later campaigns. All units of the 2d Marine Division were armed with the M1. A lightweight shoulder weapon, the M1 carbine, replaced the .45 caliber M1911 pistol carried by weapons crews and company grade officers. By the end of the war a fully automatic version was issued as the M2 carbine. Despite its convenience, Marines never liked the carbine.

Heavy machine guns were still Brownings, now the slightly improved M1917A1 with a new tripod and cradle

and with more precise adjustments in elevation and traverse. They were employed by the battalion weapons companies, each of which had a four-gun (later six-gun) platoon. A new light machine gun, designated the M1919A4, was also a Browning, mechanically identical to the M1917 but air-cooled rather than water-cooled and thus weighing but thirty-one pounds. It fired from a low-profile tripod, and a platoon of four (later six) guns was included in each rifle company.

Antitank grenades were fired from spigot-type launchers that could be attached to rifle muzzles; they provided a short-range capability against tanks and bunkers. The 2.36-inch rocket launcher (nicknamed "bazooka") was a lightweight sheet-metal tube that fired an antitank projectile up to two hundred yards. By the time of the Korean War, it would be replaced by the more powerful, longer range 3.5-inch rocket launcher.

The disliked .30 caliber M1 and M2 carbines were found to be useless in the extreme cold of North Korean winters, as any oil in the mechanism congealed and froze. They were replaced by pistols for junior officers and M1 rifles for most weapons crews. Tank crews and some others continued to carry M3 submachine guns. One irony of the Korean War was that many Thompson submachine guns, which had been American gifts to the Chinese Nationalists, were captured from the Chinese Communists and put back into U.S. service.

In the early years of Viet Nam, Marines used the M14 rifle, an improved version of the M1 Garand. It was replaced in 1967 by the M16, a lightweight 6.3-pound weapon firing a high-velocity 5.56mm (.223 caliber) cartridge from a 20- or 30-round magazine. It could be fired either semi-automatic or full automatic. The rationale was that modern close infantry combat did not require the range of the .30 caliber weapons, and the lighter weight of the M16 and its ammunition enabled a man to carry and fire much more ammunition in the assault.

For longer range, the 7.62mm (.30 caliber) M60 machine gun replaced the esteemed Brownings, but they would be found wanting. By 1969 the new M79 grenade launcher was supplanted by the even newer M203 grenade launcher attached to the M16 rifle—adding three pounds to its weight. But the M79 launcher, called the "blooper," continued to be a favorite with Marines in Viet Nam. Both fired a 40mm grenade.

The M60 machine gun was never deemed fully satisfactory by its users despite efforts by both the Marine Corps and the Army to correct its many deficiencies. In the 1980s the M60 was replaced by the Belgian Fabrique Nationale 7.62mm MAG-58 general purpose machine gun, re-designated as the M240. At the

same time the 5.56mm Fabrique Nationale squad automatic weapon (SAW) came in as the fire team automatic. A new crew-served weapon also appeared in these years, the 40mm Mark-1940 automatic grenade launcher. It fired the same grenade as the M79 and M203 but with a greater propelling charge. All these weapons were used in the Gulf War.

The 9mm Beretta pistol replaced the M1911 Colt .45 in the 1980s because it was easier to shoot and the large stock of .45s was worn out. Recently, special operations units brought back the old but respected Colt .45 because of its greater stopping power.

Non-lethal weapons have been developed for use in peacekeeping operations, including such imaginative devices as projected netting and "sticky bombs" to entangle opponents.

Marines at Quantico's Weapons Training Battalion improved the M16 rifle into the M16A2 with a heavier barrel for greater accuracy and faster twist rifling to stabilize the longer, heavier, bullet in a new Belgian-designed cartridge. The new bullet gave both increased long-range accuracy and greater penetrating power. Full automatic fire was eliminated in the M16A2, but a change lever shifts the single-shot mode to a three-round burst that is more likely to assure hits in the confusion of close combat. An interim rifle under consideration is the Close Quarter Battle (CQB) weapon based on the M16, but is more compact, has a shorter barrel, selective fire, and is capable of being fitted with accessories such as a sound suppressor and various sighting options.

Other small arms in development are the Objective Individual Combat Weapon (OICW) and an Objective Crew-Served Weapon (OCSW). The first is expected to weigh fourteen pounds and is intended to replace some M16 rifles; it will fire the same 5.56mm cartridge, and will also shoot a 20mm explosive shell. The crew-served weapon will fire either a 20mm or 25mm round. These weapons will have electronic ranging and imaging sighting systems. They will not be fielded until at least 2006.

Newer, more capable 60mm and 81mm mortars, the M224 and M252, have replaced older models. The M30 4.2-inch mortar has been dropped and a new 120mm mortar is under consideration.

The Javelin—a medium-range, man-portable, fire-and-forget homing missile—will supplant the TOW and M47 Dragon as the infantry battalion antitank weapon early in the twenty-first century. To replace the M198 155mm howitzer, a new lightweight 155mm is being developed by Textron and Vickers for operational testing by the Army and Marines. Procurement is

scheduled for year 2000.

As the history of Marine Corps development and use of weapons continues, Marines will select or develop the best weapon for the tactical task at hand and use that weapon with skill. Marines with eye- or image-intensified-sighted rifles and automatic weapons backed up by such sophisticated weapons as telescope-sighted sniper rifles, homing missiles, artillery, armored vehicles, and Marine close air support can be counted upon to dominate the battlefield well into the twenty-first century.