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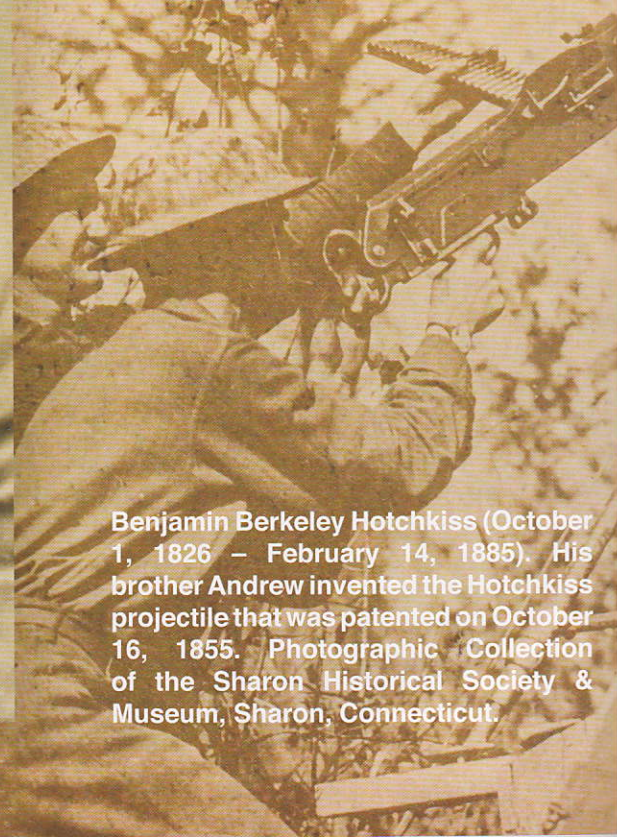


UNUSUAL FINDS IN A 6-POUNDER CANNON BORE • CONFEDERATE TRAVIS-STOCKTON CANNON
WHO AND WHAT FIRED 4.38-INCH DIAMETER SCHENKLS • THE STRANGE EARLY HISTORY OF AMERICAN MACHINE GUNS
RUSSIAN DAHLGREN GUNS, CONTINUED

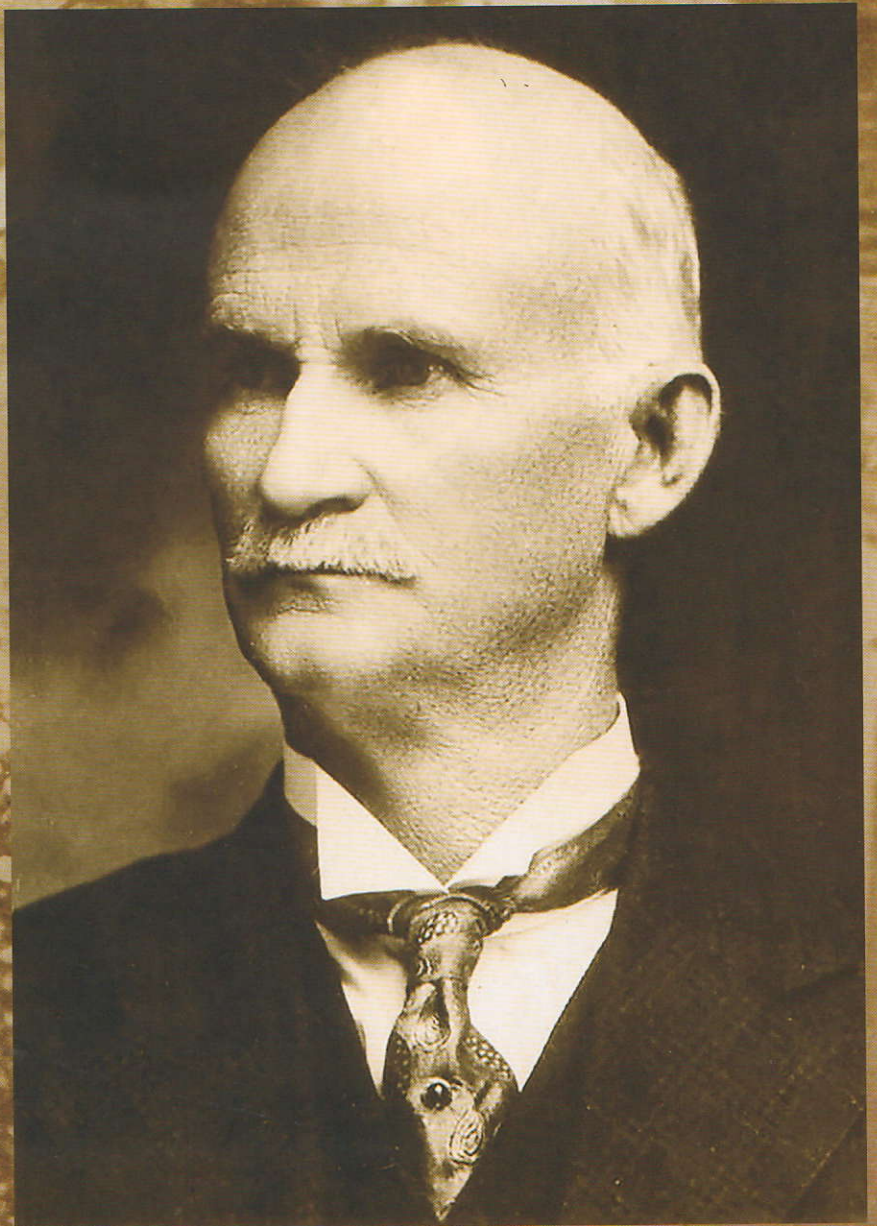
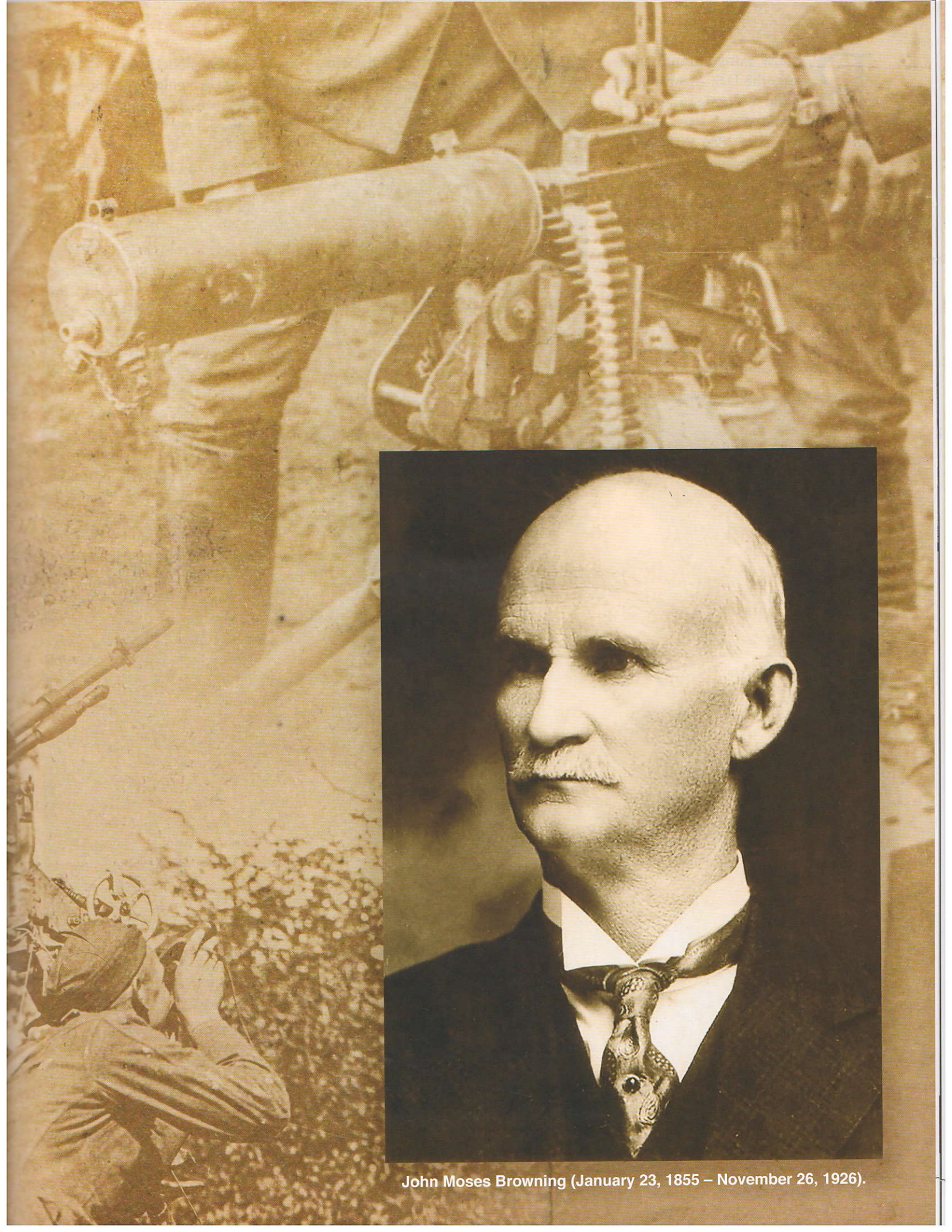
THE STRANGE EARLY HISTORY OF AMERICAN MACHINE GUNS:

Hotchkiss Browning

BY GENE FAX



Benjamin Berkeley Hotchkiss (October 1, 1826 - February 14, 1885). His brother Andrew invented the Hotchkiss projectile that was patented on October 16, 1855. Photographic Collection of the Sharon Historical Society & Museum, Sharon, Connecticut.



John Moses Browning (January 23, 1855 – November 26, 1926).

By any conventional measure, the U.S. Army's automatic weapons program in World War I was a failure. For 30 years, from 1884 to 1914, inventions such as those of Maxim and Lewis languished in the U.S. because, in the absence of a definable threat, the authorities could not decide what they needed. At most, planners envisioned small wars against poorly armed adversaries; no one expected war on a European scale. As World War I approached, the Army's myopia, inertia, and internal divisions prevented it from even committing to models

that were readily available. President Wilson's policy of strict neutrality that forbade anything that even looked like preparations for war until 1916, didn't help. As a result, the Army went to war with a paltry collection of obsolete models and had to rely on the French for almost all of their automatic weapons.

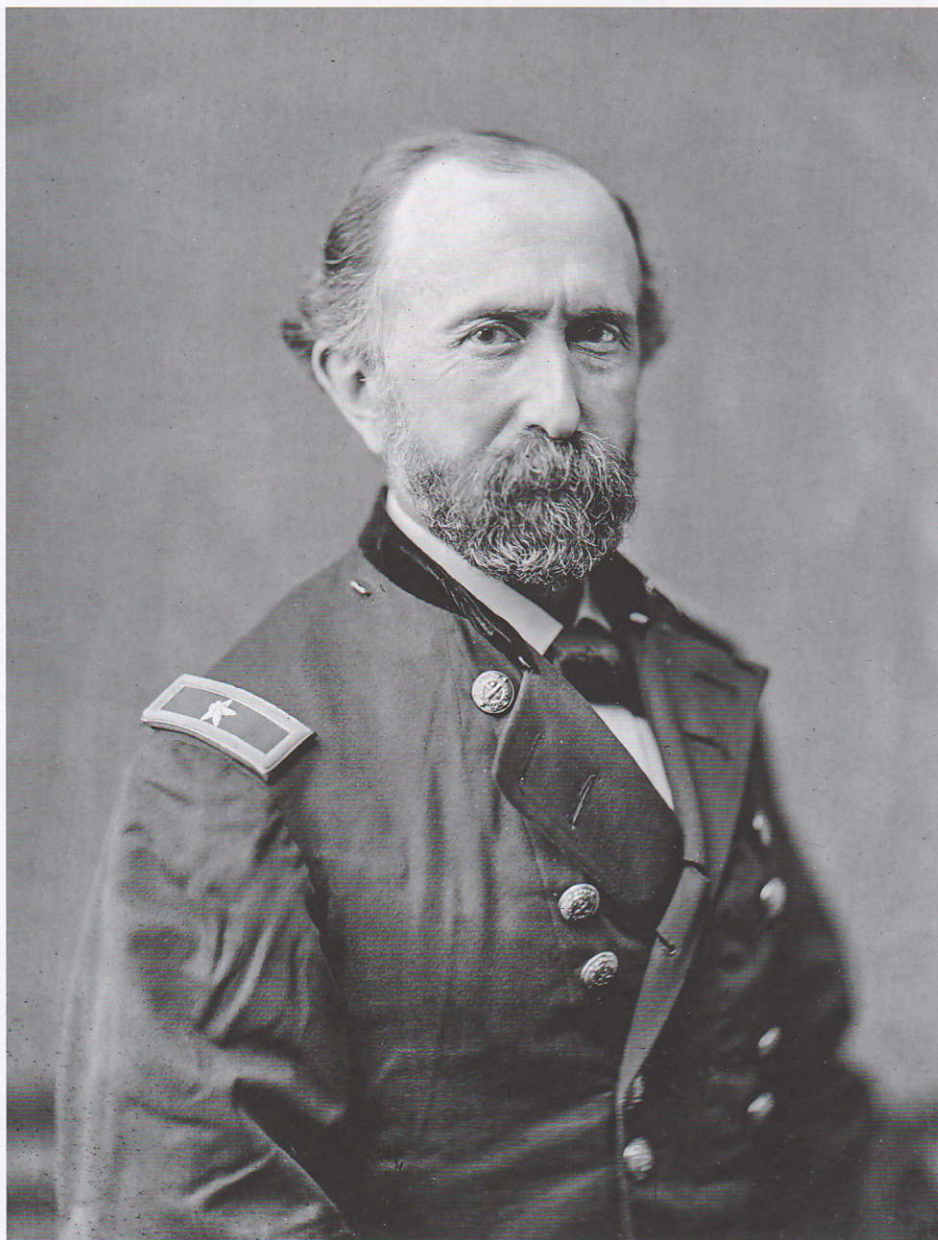
That much is well known; less well known is that the machine guns used by the Allies, and lent or sold to the American Expeditionary Forces, were almost all derived from American designs. This article deals with the two heavy machine guns used by the AEF,

the Hotchkiss model 1914 and, late in the war, the Browning .30 caliber.

Benjamin B. Hotchkiss was born into a Connecticut family of machinists and started his career designing arms for Colt and Winchester. He and his brother Andrew invented a line of shells and fuses for rifled artillery that became the one of the most widely used rifled projectiles in the Civil War. When the U.S. government lost interest after the war, he moved to Paris, where he founded Hotchkiss *et cie*. There he was joined by another American, Laurence Benét, an engineer and artillery expert. Benét's father, General Stephen Vincent Benét (not to be confused with the poet of the same name) had been the U.S. Army's Chief of Ordnance and realized that the future of weapons development lay in Europe. He urged his son to seek out his old friend Hotchkiss for employment. Hotchkiss was delighted to receive Laurence and assigned him the task of developing a fully automatic machine gun to compete with the recently introduced Maxim. In 1885, before plans for such a gun could be formulated, Hotchkiss died; two years later the shareholders appointed Benét chief engineer and director of promotion.

In 1893 an Austrian army captain, Baron Adolph von Odkolek, approached the Hotchkiss Company with a design for an automatic machine gun. Benét and his engineers didn't think much of the weapon, but they liked the operating principle, a gas-actuated reciprocating piston that avoided patents already awarded to Maxim and Gatling. They bought the rights from Odkolek and in 1895 tested their prototype gun. The mechanical features worked well, but the barrel overheated. To compensate, Benét added large toroidal fins at the barrel's base; these became the weapon's visual trademark, making it immediately identifiable.

The air-cooled design obviated the need for a water jacket around the barrel and a reservoir to supply it. This made the gun more portable than



General Stephen Vincent Benét (January 22, 1827 – January 22, 1895). Library of Congress.



American officer, Montdidier Front, firing a Hotchkiss MG at German airplanes, May 20, 1918. WWI Signal Corps Collection, United States Army Heritage and Education Center, Carlisle, Penn.



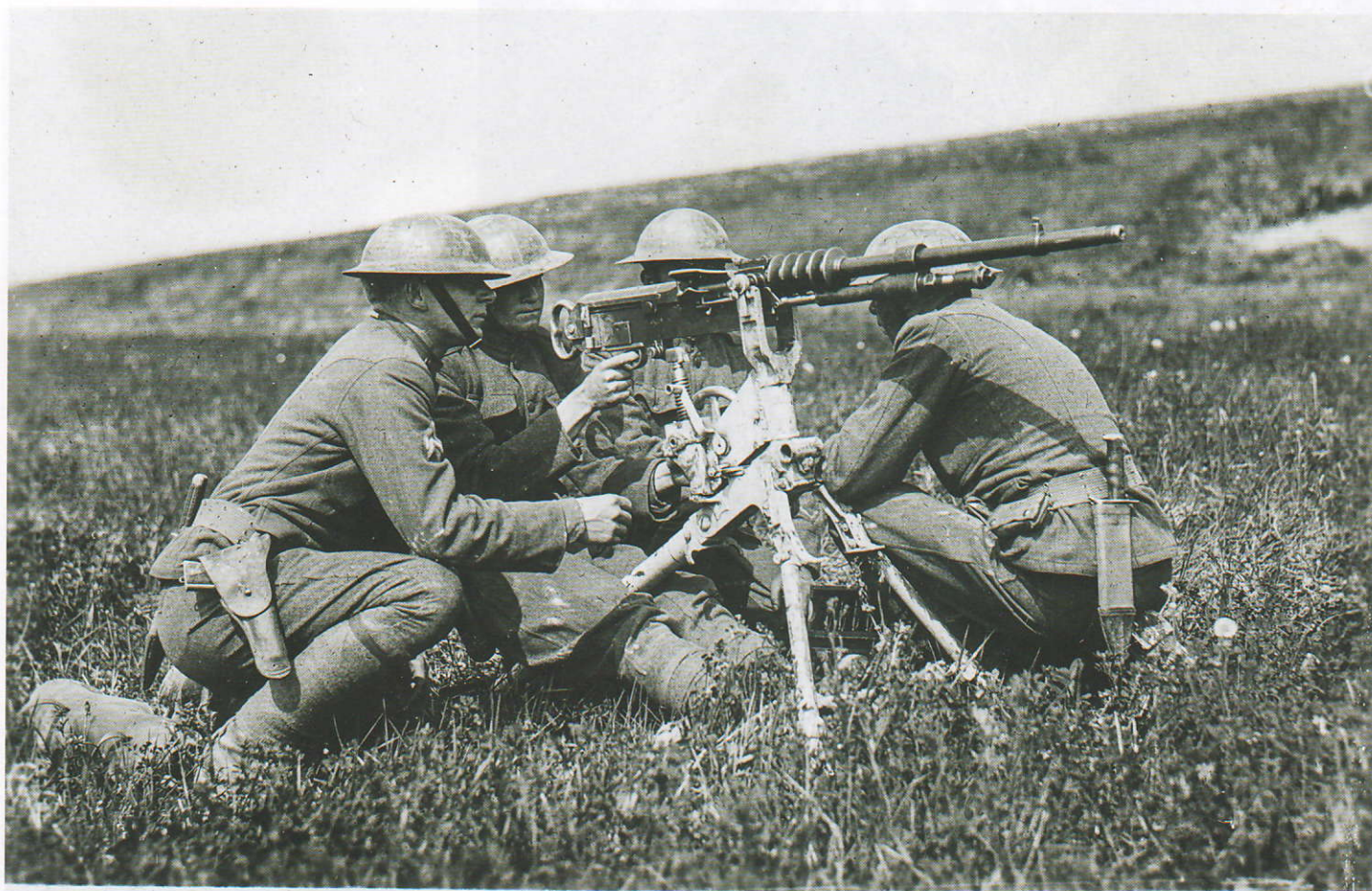
Hotchkiss machine gun being used against a German airplane near Cunel, Meuse-Argonne. Courtesy of the National WWI Museum and Memorial.

competing models and also made it usable in arid climates. Its 8 mm Lebel cartridges, rather than being fed by a belt, used a tray holding 24 rounds; although the gun could fire at up to 600 rounds per minute, it had to be constantly reloaded. The tray feed was considered an asset, as the operator had to make good use of his ammunition instead of simply spraying bullets over the landscape. Simple in design, the gun had only 38 parts and could be disassembled without tools except for the barrel and the cylinder.

The U.S. Navy tested an early-model Hotchkiss in 1896. It failed

due to faulty materials and manufacturing, but the Navy liked the design and suggested the firm hire Edward Parkhurst, a Connecticut engineer, to help solve its problems. Parkhurst was known for work he had done in the 1870s on a hand-cranked, multibarrel gun manufactured by Pratt & Whitney. His recommendations to Hotchkiss yielded the Model 1897 that, with improvements, led to the Model 1914, the standard French heavy machine gun of World War I. With its tripod the gun weighed 110 pounds. The tripod could not be lowered, so it was difficult to conceal in open country.

Nevertheless, its reliability made it popular with the French. Its staying power was proven in the battle of Verdun, when a section of infantry, cut off from the rest of the French army but equipped with two Hotchkiss guns, held off German assaults for ten days, firing a total of over 150,000 rounds. In France the AEF purchased 5,255 of them, making it the heavy machine gun most used by American soldiers. The staying power of the Hotchkiss was proved in another way; the design was adopted by the Japanese, Poles, Greeks, and Italians, whose versions served through WWII.



A Machine Gun Team from Co. A, 2nd Brig., Machine Gun Ba., 1st Divn. (Capt. H. Wilhelm, Comdg.) operating a Hotchkiss Machine Gun on the range near FROISSY, FROISSY, Oise France, May 10th 1918.

Photographed by Pvt. E. R. Trabold, S.C.

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A machine gun team from the 1st Division operating a Hotchkiss machine gun on the range near Froissy, France, May 10, 1918. Roy Coles Collection, United States Army Heritage and Education Center, Carlisle, Penn.

Although manufactured by a French company, the Hotchkiss Model 1914 was largely the invention of two Americans, Laurence Benét and Edward Parkhurst, and can fairly be said to be an American design.

Like Benjamin Hotchkiss, most American weapons inventors saw their designs ignored by the War Department. There was one exception. John M. Browning was born into a family of gunsmiths in what was then Utah Territory. In 1884, at the age of 29, he patented an improved lever action for rifles; he sold it to Winchester, beginning a long and profitable relationship with that company. In 1889,

while firing one of his rifles in a salt marsh, he noticed that the muzzle blast deflected the reeds for quite a distance ahead. He realized that the exhaust gases could be used to power an automatic firing mechanism. Within six years he developed a workable machine gun, manufactured by Colt, that fired smokeless cartridges. After testing, the Navy ordered 50 of the Colt/Browning guns. This was the first time the United States Government procured an automatic weapon. It was soon used to successfully defend the foreign legations in Peking during the Boxer Rebellion.

The 1895 gun had numerous

disadvantages: a delicate mechanism, a propensity to clog and jam, poor aiming caused by vibration, and a downward-swinging gas lever that prevented the user from firing in the prone position. As the United States entered the war, no other models were ready for quick delivery, so a large order was placed. By the 1918 Armistice, 1,500 guns had been delivered, but by then recoil-actuated models had made them obsolete.

By 1900 Browning had already concluded that a recoil-operated system was best, and patented a water-cooled model in 1901. He then let the project lie; the many other firearms he



Three French soldiers and a British soldier operating a Hotchkiss machine gun. Courtesy of the National WWI Museum and Memorial.

had designed were selling well and the government showed no interest. In 1910 he picked it up again, making improvements to the 1901 model but using the same basic mechanism. Browning first demonstrated his Model 1910 in February 1917, in front of high-ranking American and foreign army officers, members of Congress, and the press.

Although it received rave reviews, the Army felt the gun required further testing. That May at the Springfield Armory, Browning fired off 20,000 rounds at 600 rounds per minute without a stoppage. An Army board quickly recommended it for immediate purchase. Besides its reliability, they liked its simple design; it could be dismantled and reassembled by a blindfolded operator in a few minutes. Its only drawback was that it



Over the Top: A Browning .30 cal. machine gun crew of the 315th MG Battalion creeping toward the enemy lines through the woods between La Chalade and Claon, Meuse, October 29, 1918. WWI Signal Corps Collection, United States Army Heritage and Education Center, Carlisle, Penn.



Closeup of gun crew with .30 cal. Browning MG, 83rd Division, October 1, 1918. WWI Signal Corps Collection, United States Army Heritage and Education Center, Carlisle, Penn.



Lieut. Val A. Browning, USA (at right), son of the inventor of the Browning machine gun, testing one of the guns in Lorraine. Roy Coles Collection, United States Army Heritage and Education Center, Carlisle, Penn.

would take time to produce in sufficient numbers. Contracts were let with Colt, Remington, and Westinghouse for a total of 45,000 guns; almost all had been produced by the time the war ended.

In his lifetime Browning was credited with designing 13 pistols, 11 rifles, 6 machine guns, and many other weapons. He also produced a prototype machine rifle that would meet the need for "walking fire"; that is, a soldier could fire it while advancing against the enemy. The gun, chambered for the standard .30-06 rifle cartridge, was air-cooled and gas-actuated, fired at 480 rounds per minute, and carried a 20-shot magazine. Weighing 16 pounds, as compared to nine pounds for a typical bolt-action rifle, it was supported by a shoulder sling and fired from the hip as the soldier was walking. Alternatively, it could be held and fired like a conventional rifle.

Dubbed the Browning Automatic Rifle or "BAR," it debuted in 1917 at the same February and May firings as Browning's heavy machine gun. It met with quick approval and a contract was awarded to Winchester for 25,000 units. Company lore has it



Browning Automatic Rifle, this rifle is part of the United States Army Heritage and Education Center.

that their engineers took Browning's hand-made prototype and generated all the production drawings and specifications over a single weekend. By July 1918 the company had delivered 13,000 BARs, and by the end of the war more than 40,000 had reached France. Browning himself was entitled to \$12.7 million in royalties from his designs, but claimed only \$750,000.

Both Brownings began arriving at the front in July when the 79th Division, the first to receive them, disembarked at Brest. Sturdy and reliable, they were an immediate success, and as more became available, those units that could get them abandoned the Hotchkiss and the French Chauchat in favor of the new weapons. During the Meuse-Argonne offensive, which initially suffered from poor artillery support, Browning's guns were often

credited with taking German positions and breaking up counterattacks. Unfortunately, transportation bottlenecks prevented most weapons from reaching the soldiers before the Armistice.

Both of Browning's guns, the BAR and the .30-caliber machine gun, along with its .50-caliber upgrade, turned out to be excellent weapons and, in their many variants, continued to serve the United States in World War II and far beyond. The .50 caliber version is still used by the U.S. military.

Gene Fax is the author of *With Their Bare Hands: General Pershing, the 79th Division, and the Battle for Montfaucon*, which was published by Osprey Publications in February 2017 and appeared in paperback in June 2018. The book was awarded the 2017 Master Corporal Jan Stanislaw Jakobczak Memorial Book Award by the U.S. Military History Group as the outstanding book on U.S. military history between 1898 and 1945. It was named "One of the 5 Best Books on the Hundred Days Offensive" by *History of War* magazine. More of his writings can be found at genefaxauthor.com. An earlier version of this article appeared on the Osprey blog site.



Members of the 314th Machine Gun Company, 79th Division, training with a Browning .30-caliber machine gun. Courtesy of the National WWI Museum and Memorial.

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