

WWI INNOVATIONS

STILL WITH US A CENTURY LATER

Machine guns. Tanks. Chemical weapons. Warplanes. Submarines. Trench coats. Wristwatches. Thursday marked the 100th anniversary of the US entry into World War I, and some of the innovations that were developed or came into wide use during the conflict are still with us today. America entered nearly three years after the war began, joining Britain, France and Russia in the fight against Germany and the Austro-Hungarian Empire. When it ended on Nov 11, 1918, more than 4.7 million Americans served and some 115,000 died. The world's first mechanized war introduced enhanced weaponry and equipment, most of it designed to take lives but some of it aimed at saving lives. Here's a look at some of the things that were new to the doughboys that we take for granted today:

MACHINE GUNS

Hand-cranked, high-capacity, rapid-firing firearms had been used as far back as the Civil War. But it was American inventor Hiram Maxim's 1880s design for a single-barrel, portable machine gun and other later versions that became ubiquitous on both



In this July 6, 2014 file photo, Christopher Bulko pilots a Spad VII reproduction bi-plane during an air show at the Old Rhinebeck Aerodrome in Rhinebeck, New York.

sides during World War I. It forced opposing forces to dig hundreds of miles of trenches, with a deadly "no man's land" in between where soldiers could get mowed down. This kind of fighting was unfamiliar to most American forces, who had been trained in the tactics of mobile warfare, always advancing. "Then it becomes, 'How do we get out of the trenches?'" said Maj. Kyle Hatzinger, a history instructor at the U.S. Military Academy at West Point. "The Americans by 1917 have to figure this out."

TANKS

One way to break out of the trenches along the Western Front was to bust through with newly developed armored tracked vehicles dubbed tanks. The British introduced a large number of tanks to the battlefield for the first time in September 1916, during the battle of the Somme. Other armies soon were developing their own versions. In September 1918, a 32-year-old Army lieutenant colonel named George Patton led a U.S. tank unit into battle for the first time. A quarter century later, during World War II, he was the most famous commander of American armored units.

CHEMICAL WEAPONS

Germany launched the first use of a chemical weapon, chlorine gas, at Ypres, Belgium, in April 1915, against French troops. By 1917 other chemicals, including mustard gas, were being used by both sides. Some estimates put the number of deaths from gas attacks at about 900,000, with another 1 million injured. Gas masks were developed. But using gas could result in friendly fire casualties when winds blew the toxic fumes back into the attackers' positions. "And if you attack you now have to go through the gas cloud you've created," Hatzinger said. "There's a lot of trial and error with the technology." Outrage over the use of chemicals weapons in WWI led to the 1925 Geneva Protocol treaty that banned the use of chemical or biological weapons in international armed conflicts.

AIR WARFARE

A little more than a decade after the Wright Brothers flew their first airplane, WWI combatants took to the skies to spy on one



In this Sept 15, 2016 file photo, a replica World War 1 Mk IV is displayed in Trafalgar Square in London to mark the 100th anniversary of the first use of the tank in battle during the Battle of the Somme. — AP photos

another - and then to shoot each other down. Early in the war, aircraft were equipped with cameras for taking reconnaissance photographs. Pilots started arming themselves with handguns and rifles to shoot down enemy biplanes. Soon, mounted machine guns were being used in aerial combat known as dogfights, giving rise to such legendary fighter aces as Germany's Manfred von Richthofen (aka 'The Red Baron'), American Eddie Rickenbacker and Canada's Billy Bishop.

SUBMARINES

Using submersible vessels to attack enemy ships had been tried as far back as the American Revolution. It wasn't until WWI

that submarines were used in large numbers as part of naval operations. Germany was the first nation to fully utilize submarine technology, attacking Allied shipping in the Atlantic and infamously sinking the British ocean liner RMS Lusitania off the Irish coast in May 1915, killing 1,200 people, including 128 Americans. The outcry from the U.S. over the attack prompted Germany to shift much of its submarine attacks elsewhere. But the Germans resumed submarine attacks in early 1917 and sank several U.S. vessels, one of the key reasons for America entering the war.

TRENCH COATS AND WRISTWATCHES

They weren't fashion accessories. Trench coats replaced the earlier era's full-length, woolen great coats, which became heavy when wet. British officers serving in the trenches turned to established English clothing firms such as Burberry and Aquascutum for khaki-colored, waterproof coats with deep pockets large enough to hold maps and a belt at the waist with metal D-rings for attaching gear. Wristwatches had been around in some form for decades, mostly as jewelry worn by women, but they became standard equipment for soldiers and pilots who didn't want to be fumbling for the traditional pocket watch while launching artillery-supported ground assaults or flying combat missions.

PATRIOTIC PROPAGANDA

American James Montgomery Flagg created the now-famous poster of a pointing Uncle Sam under the words "I Want You." Some 4 million copies of the U.S. version of the Army recruitment poster were printed in 1917-18, according to the Library of Congress website. The poster proved so popular it was re-introduced during World War II, when millions more were printed. Similarly popular was George M Cohan's jaunty wartime ditty "Over There," which proudly spread word to Europe that "the Yanks are coming."

More than 2 million copies of the song's sheet music were sold by the end of the war. — AP



In this June 18, 2013 file photo, garbed in a classically styled trench coat, actor Jamie Campbell Bower arrives at a Burberry fashion show in London.



Courtney Burns, director of the New York State Military Museum holds a German 1918 Maxim MG-08 light machine gun at the museum in Saratoga Springs, New York.