

# MACHINE GUNS

Early in the war, the Central Powers had more and better machine guns than the Allies. This is why so many Allied soldiers were gunned down as they tried to cross no man's land. However, it wasn't long before the Allies caught up.



the gun, but in battle the water could run out so it was common for gunners to urinate onto the gun for a quick

fix. As the war went on advances in machine gun technology made weapons that were lighter and more portable.



At first, the machine guns used in the war were so heavy that they could not be moved easily. In 1914, machine guns were

set up on a flat tripod and would need a crew of four to six men to use it and could fire 400-600 rounds per minute. Firing bullets that fast meant that the gun could easily overheat in about 2 minutes. That meant water was needed to cool off

The machine guns of World War One led to new inventions after the war like the Thompson sub-machine gun. Nicknamed the "Tommy gun", this was the first hand-held, rapid-fire weapon. It was later used by many police forces, including the Royal Canadian Mounted Police (RCMP) and was very popular with gangsters.



# CHEMICAL WEAPONS

In an attempt to break the deadlock on trench warfare, many poison gases were used in the First World War. Chlorine gas was one of the most deadly. It burned the eyes and lungs, causing victims to choke, gag and suffocate (can't breathe) to death.



Germans Opening Gas Containers

Though the Germans were the first to use chlorine gas, both sides launched gas attacks during the war. So, both sides equipped their troops with protection against gas attacks.



French Troops With Handkerchiefs

First, soldiers were given cotton handkerchiefs dipped in another chemical that helped neutralize (make safe) the gas. Later, soldiers were told to hold urine soaked cloths over their nose and mouths in an emergency. At

the end of the war, soldiers were given proper gas masks with respirators so they could stay in the trenches during an attack.



Early Gas Mask with Goggles

In the end, gas attacks were not very effective. A wind going in the direction you wanted was needed to carry the gas toward the enemy. If the wind changed, the attack could backfire. Besides, the gas usually disappeared quickly once released so it couldn't cause that much damage.

Still, gas struck fear into the hearts of soldiers on both sides. As a result, many countries signed an agreement called the Geneva Protocol in 1925 (after the war) where they banned the use of



Soldiers Prepared for Gas Attack

poison gasses in war. Today, nearly every country in the world has signed the agreement.

# TANKS

Tanks - armoured vehicles that move on heavy metal chains called tracks - were first used by the British.



Tanks developed from the same technology as tractors and bulldozers. Tanks were designed to cross trenches and plow through barbed wire and other barriers. Their metal armour protected them from machine gun fire and shrapnel - the pieces of metal that spray in all directions when artillery shells explode.

The first effective tank used by the British was called 'Little Willie' and could



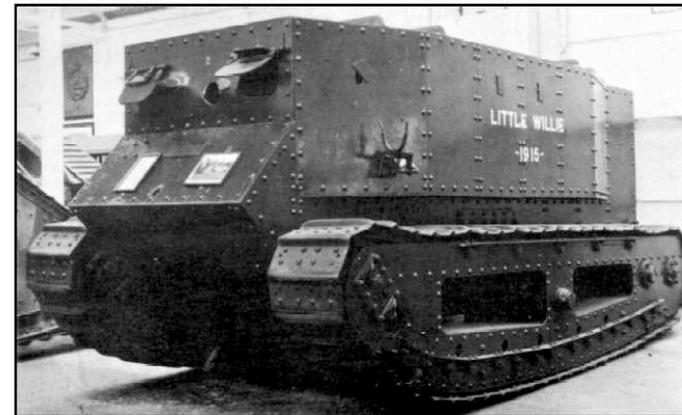
Tank Breaking Through Barbed Wire

## Number of Tanks Made 1916-1918

Year	Britain	France	Germany	Italy	USA
1916	150	0	0	0	0
1917	1,277	800	0	0	0
1918	1,391	4,000	20	6	84

carry three people in cramped conditions. They could also be very uncomfortable as the heat created by the engine was intense and the fumes nearly choked the men inside

The first tanks were slow and awkward. They often broke down or got stuck in the mud of no man's land, so they were not very effective. But, tank technology improved quickly and led to peacetime improvements in bulldozers and other vehicles than run on tracks rather than wheels.



British Little Willie

# AIRPLANES

At first, airplanes were used on for reconnaissance - to gather information about what the enemy was doing. Pilots could fly over enemy trenches and take pictures, but when the war began they couldn't carry bombs or guns.



Airplane with camera attached

machine gun and time its firing so the pilot could fire bullets between the rotating propeller blades.

## Top 3 Fastest Planes in WWI

Airplane	Country	Top Speed (km/h)
Spad XIII	France	222
SE5a	Britain	222
Fokker DR I	Germany	212

For a time, this improvement gave the German pilots a huge advantage. They ruled the skies, at least until the Allies discovered the secret of the German invention and armed their own planes with machine guns. Now the war in the air was more even.

## Top 3 Aces by Country

Country	Pilot	Score
Germany	Manfred von Richthofen the "Red Baron"	80
France	Rene Fonck	75
Canada	William "Billy" Bishop	72

The rapid wartime improvements in airplanes set the stage for the aviation advances that took place after the war, Many returning pilots, set up civilian air services.

Airplanes came to be used for many peacetime purposes including carrying passengers and cargo, conducting search and rescue missions and fighting forest fires.

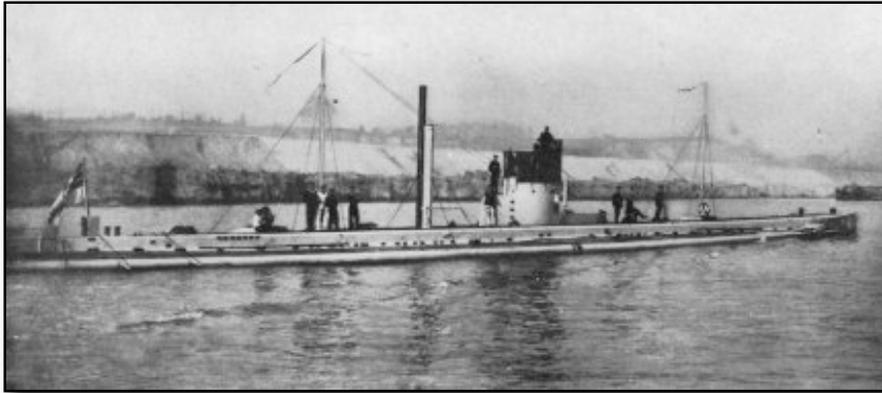


British Fighter Plane

By the end of the war, airplane technology had improved tremendously. Special fighter aircraft had been designed to shoot down enemy planes while other planes were created to only carry bombs.

At first, fighter pilots tried to bring down enemy planes by firing at them with handguns. Sometimes, they even threw bricks and stones. Aircraft designers tried to find a way to arm planes with machine guns, but they were unsuccessful - until the Germans found a way to mount a

# SUBMARINES



German U-Boat

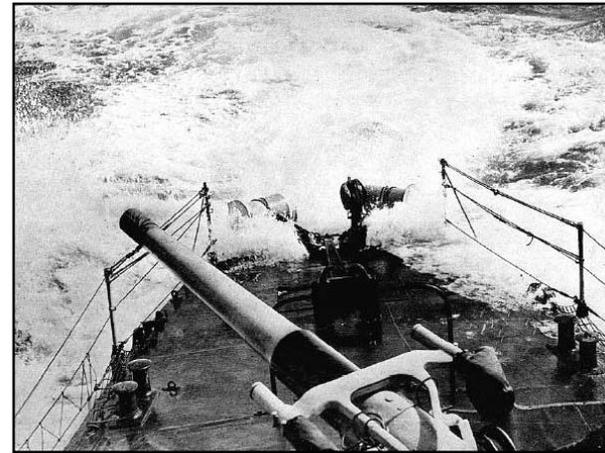
When World War One began, the British navy was the biggest in the world. But the Germans were way ahead in one area: submarines. As a result, the German U-Boat fleet sank a total of 2,600 Allied Ships.



American Destroyer

The Allies used the convoy system to try to protect their ships from U-Boats. But they also created a new kind of ship, an anti-submarine

destroyer. Destroyers were speedy ships that carried special equipment that could find submarines underwater. Once a submarine was found, a destroyer would drop a **depth charge** - a bomb that exploded



Destroyer Dropping Depth Charges

under water - on it.

After the war, submarine technology was used to create submersible vehicles that could take scientists under water. In

addition, the underwater submarine-locating tools that had been developed during the war were improved and used to find many different underwater features.

Both technologies helped scientists conduct underwater research.



Destroyed U-Boat Wrecked on the Beach J.Penney ©

# TELEPHONES AND RADIOS

Telephones and radios existed before the war, but they were considered luxuries and too expensive for most people. WWI speeded up development of these inventions so that after the war they were easier and cheaper to produce allowing more Canadians to buy them.

## Telephones

Telephones played a major role in military communications. Suddenly, commanders could pick up a field telephone, talk directly to officers and give out orders immediately.



Field Telephone Operator

Field telephones had drawbacks though. They required wires, and these needed to be strung. But once the wires had been strung, they could easily be broken by enemy artillery. As a result, the commanders often relied on tried-and-true methods of sending messages - whistles, flags and written messages carried by people and even pigeons (birds). Still, the war proved that telephones were useful.

After the war, telephones became popular in cities and towns where there were enough homes and businesses in a

small area to make it worth stringing up wires and setting up phones. In more remote areas where homes were far apart, it sometimes took many years before people had phone service.



Making a Call from the Trenches

## Radios

Radios operate by sending sound waves electronically over long distances. Unlike telephones, no wires are needed. As a result, radio was known at first as wireless telephone or just wireless.

Before WWI, many ships were equipped with wireless. When the Titanic sank in 1912, its radio operator was able to send a distress signal by radio.

During the war, radio communication became important, especially on ships. Transmitting and receiving stations were set up at strategic locations on land so that messages could be passed from station to station along a network. This meant that wireless operators on ships were able to send messages farther and farther. Ships were able to communicate by voice not only with nearby ships, but also with their home base.