



## DEFINITION

**Shrapnel bullets** are small spherical projectiles made of lead. During the 19th and 20th centuries shrapnel-type artillery ammunition was packed with dozens of **shrapnel bullets**. Shrapnel-type ammunition was designed to kill or seriously injure soldiers and horses in open spaces.

Although “shrapnel” is often used in contemporary English to refer to all types of exploding fragments, this usage is not technically correct. Strictly speaking, shrapnel describes a particular type of projectile (marble-sized lead bullets) contained within shrapnel-type ammunition.

# HISTORICAL CONTEXT & EVOLUTION

Up until the late 1700s there were three general types of artillery ammunition:

1. A solid iron or stone sphere (“cannonball”) fired from a gun. Solid shot caused damage through impact with buildings, fortifications or even direct hits against soldiers. It did not contain explosives.
2. A hollow iron sphere, rather than a solid sphere. The hollow core was packed with explosives, and a simple timing fuse was inserted through a small hole. When it was fired from a cannon, the propellant blast ignited the cord-type fuse. When the fuse burned all the way to the core of the shell during flight, the shot exploded into fragments. The explosion and the fragments killed or injured soldiers and horses.
3. A rudimentary metal or cloth container filled with spherical iron or lead bullets — similar to **shrapnel bullets**, but closer to the size of golf balls. When the cannon was fired, the bullets burst forth *directly* from the cannon’s muzzle, killing or wounding soldiers or animals at close ranges of only a few hundred metres at most.

Henry Shrapnel was a British artillery officer during the 1780s. He created ‘shrapnel’ ammunition by filling a hollow sphere (or shell) with **shrapnel bullets** (marble-sized iron or lead bullets), and fitting a timing fuze that would

## DID YOU KNOW?

After the **shrapnel bullets** were expelled, the empty shell continued travelling until reaching the ground, still intact. The former First World War battlefields are littered with these empty shells even a century later.

## DID YOU KNOW?

Artillery fire was used to provide cover for infantry advances by forcing enemy soldiers to remain in their trenches and dugouts. As long as the assault infantry remained immediately behind the impact zone, they were generally safe from the spray of **shrapnel bullets**. During the later part of the First World War, this type of artillery fire was usually timed to move across the battlefield in unison with the advancing infantry. This technique was called a creeping barrage. It was important that the infantry soldiers advance at the correct pace, otherwise they risked walking into their own artillery fire, or being left far behind.

cause the shell to explode over the target. When the shell exploded, it sprayed the **shrapnel bullets** in a wide pattern, killing or injuring any soldiers or horses in the impact area.

By the start of the First World War in 1914, shrapnel-type ammunition had evolved from the spherical common shot design to cylindrical shells with tapered noses. The new cylindrical shells were packed with dozens of **shrapnel bullets**, much like Henry Shrapnel’s original design. A much more sophisticated timing fuse was threaded into the nose-end of the shell. When the shell was in flight the timing fuse would cause a secondary explosion that sprayed the bullets forward into the air above the intended targets. The shrapnel bullets fanned out in a conical pattern, with the potential to injure or kill groups of soldiers or horses.

Shrapnel-type shells proved deadly against soldiers and horses moving about in the open during the early stages of the First World War.

They were less effective, however, against soldiers who were protected inside trenches or other types of underground fortifications, as was common by 1915.

Beginning in 1915–1916, a second type of artillery ammunition called high explosive (HE) superseded shrapnel-type ammunition in trench warfare, as it was better suited against fortifications.

High explosive ammunition featured a steel shell and fuse, outwardly similar to shrapnel-type ammunition. However, instead of being packed with **shrapnel bullets**, HE shells were filled with powerful explosives that devastated personnel and fortifications. When an HE shell exploded, the shell burst apart into a series of jagged steel fragments that traveled through the air

## DID YOU KNOW?

In 1915, Canadian firms manufactured about 5.3 million artillery shells. By 1917, the annual production figure approached 24 million shells. By the end of the war, Canadian factories had turned out about one-third of the shells supplied to the British Empire forces.

at considerable speed. These shell fragments caused devastating injuries when they struck soldiers or horses. Blast pressure could also damage internal organs without inflicting any obvious external injuries.

## VOCABULARY LIST

### **Artillery:**

Weapons that use mechanical or explosive (chemical) energy to project munitions over distances ranging from hundreds of meters to dozens of kilometers. Generally speaking, any device that fires a projectile with a calibre (diameter) of 2 cm or greater is considered an artillery weapon.

### **British Empire Forces:**

In the context of the First World War period, this term refers to all military forces associated with the British Empire, including troops from colonies, self-governing nations (such as Canada or Australia), and various other territories under British influence or protection. Soldiers of many nationalities and ethnicities served with the British Empire forces, including English, Welsh, Scottish, Irish, Canadian, Australian, New Zealand, South African, Indian, Egyptian and Chinese personnel, as well as Aboriginal peoples from Canada, Australia, and New Zealand.

### **High explosive ammunition:**

A type of artillery ammunition consisting of a steel shell packed with powerful explosives and detonated by a fuse either in flight or upon impact.