

## What is the difference between artillery shrapnel and shell fragments?

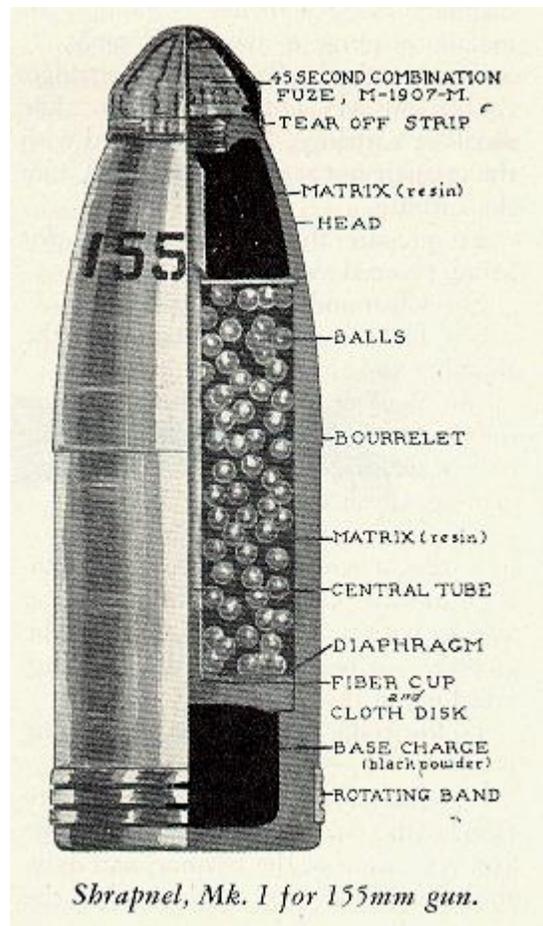
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This edited version of Major General H. W. Blakely's classic article, "Shrapnel, Semantics and Such," reprinted from the March 1952 *Combat Forces Journal*, explains in layman's terms the differences between artillery shrapnel and shell fragments.

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SEMANTICS, the science of the meaning of words, makes a strange bedfellow for those two old veterans of many wars, ordnance and gunnery. The editors of the *Combat Forces Journal* brought the three together recently when they commented on the growing use of the word "shrapnel" when actually "shell fragments" is meant.

To start with the ordnance and gunnery side of the picture, the simple fact is that today's journalists, historians, doughboys, and maybe even young artillery shavetails don't know what shrapnel is. It must sound like a good name for shell fragments. But that is speculation; Let's get the facts first.



Shrapnel, and if anyone can find an essentially different definition anywhere he is ahead of me, is "an artillery projectile provided with a bursting charge, and filled with lead balls, exploded in flight by a time fuze." It was named for its inventor, General Henry Shrapnel of the British Army, who died in 1842, so it is no Johnny-come-lately in the fields of ordnance and gunnery...

In pre-World War II days, shrapnel was regarded as the most efficient type of ammunition against troops in the open. The 75mm shrapnel projectile contained 270 lead balls, each about a half-inch in diameter, in a smoke-producing matrix. The 155mm shrapnel packed a lethal load of 800 balls. Each projectile was practically a shotgun which was fired, by means of the time fuze, ideally at the height which would produce the maximum effect on the enemy. At the moment of burst, the bullets shot forward with increased velocity, normally without fracturing the case. The result was a cone of bullets which swept an area generally much larger than the area made dangerous by the burst of a high explosive shell of the same caliber. Even for the relatively small 75mm gun, the effective area at a range of 4,000 yards was about 35 yards wide and 50 yards long. In addition, some balls with equally effective velocity were scattered less densely over a zone roughly twice as wide and several times as long. The height of burst had to be adjusted by observation of the smoke puff produced at the moment of explosion, and by proper changes in the setting of the time fuze...

It was not very effective in trench warfare of the World War I type, and that fact influenced our decision to abandon it. But shrapnel was abandoned primarily because it was difficult to get the height of burst adjusted properly even under conditions of good visibility, and impossible to do this in darkness or bad weather. It also added to the complications of ammunition manufacture and supply. With the proximity fuzes now available the problem of adjustment of the height of burst could be overcome; the need for a smoke producing matrix to permit observation of height of burst would be eliminated; and sharp hard-metal missiles, not unlike small shell fragments, might replace the round lead balls. The complication of ammunition supply would remain as an objection.

My first experience with the use of the word "shrapnel" to mean shell fragments was in Normandy about D plus 2. The 4th Infantry Division had landed on Utah Beach on D-day with surprisingly light opposition, but as we turned north toward Cherbourg we ran into rough going that was to cost the division over 5,000 battle casualties in the next three weeks. A surgeon mentioned to me that one of our regiments, the 22d Infantry, was having particularly high losses from shrapnel wounds. As division artillery commander, I was very much interested. Were the Germans using what we regarded as an obsolescent type of ammunition? Or did they have an improved variant of it? I visited the regiment and asked questions everywhere. No one knew of anyone wounded by shrapnel. When I hunted up the surgeon who had first mentioned shrapnel, and told him that practically all the casualties in the 22d were from shell fragments, he said, "That's what I told you."

Since then I have frequently noticed the misuse of "shrapnel" by newspaper men, radio commentators and historians...

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Note:

This image depicts two shrapnel balls from a World War I era 75-mm. shrapnel projectile and a fragment from a World War I era 75-mm. high explosive shell.

The intended destructive effect of the shrapnel projectile against men and animals came from the shrapnel balls. The projectile casing, which merely acted as a carrier for the shrapnel balls, was not designed to fracture or fragment. Some World War I era shrapnel projectiles contained a mixture of two sized balls. The smaller balls, intended for anti-personnel use, constituted approximately ninety per cent of the shrapnel round. The remaining percentage of larger balls were included to disable or kill horses.

The intended destructive effect of high explosive rounds came from the action of the high explosive charge coupled with the fragmentation of the projectile casing. Whereas a shrapnel round was intended to kill or injure people and animals, high explosive rounds were originally designed to damage or destroy inanimate objects such as buildings and field guns.

