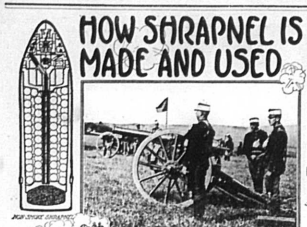
# HOW SHRAPNEL IS MADE AND USED




A LITTLE more than one and one-hundred and thirty-four years ago there was born near London the great English artillerist, Henry Shrapnel, the officer who at the age of sixteen years invented the idea of a bullet-shivering projectile—the missile which, in addition is known by the name of shrapnel, and which remains to this day one of the most effective man killing projectiles yet devised.

In all armies the field artillery units today use shrapnel—the time has only to the end the war news that is raided or wired from across the Atlantic tells us that the all-important part shrapnel shells are playing in the conflict now raging.

The shrapnel projectile consists of a hollow cylindrical body with an apex or conoidal head, in the interior near the base, there is an explosive charge and immediately above the charge there is an iron disk, and between this disk and the head the body of the projectile is filled with spherical bullets. The fuse is fixed in the point of the projectile, and communicates with the powder or bursting charge through a central pipe, and is timed so as to explode the shell during its flight, at a point about sixty or eighty yards short of the target.

The bursting charge is only strong enough to blow off the head of the projectile, which is lightly attached and thus release the bullets, which fly forward in a cone-shaped shower, resembling a large front. The bullets depend for their force upon the speed at which the projectile is traveling when they are released. For this they should have a momentum of not less than four hundred feet per second. Consequently, as it ballistics or the force and velocity of the projectile increase, the striking effect of shrapnel becomes more formidable.

In all the history of warfare there are few more interesting stories than that which tells of the evolution of the terrible weapon invented by General Shrapnel in the latter part of the eighteenth century. Likewise it is a story little known outside military circles.

On July 3, 1778, a sensation was at second lieutenant in the Royal Artillery was named to Henry Shrapnel. Shrapnel was then eighteen years of age. It was a period in the world's history when great wars which were to culminate in the overthrow of Napoleon, were being fought—an era when an officer of the artillery service of Shrapnel was surely needed he practically every army in Europe.

As soon as he was commissioned Lieutenant Shrapnel was ordered to Gibraltar to take part in the defense of the great rock then besieged by the Spaniards. The siege lasted in thirty-nine years of 1704 until 1783.

From the very first day of his service Shrapnel was a student. Arriving at Gibraltar, he viewed the situation from a scientific rather than a military standpoint, and history states that the young officer was more impressed, or rather depressed, because of the poor effect of the bullets used in warfare. Shrapnel noted that on one occasion when more than two thousand twenty four pounders were fired from the rock as a means of Spanish fleet that out of the entire command only twenty-six were put out of action. Another officer who was impressed as a result of the poor results obtained was a Captain Mercier perhaps an acquaintance of Shrapnel's during one of the present day.

Mercier recommended that an experiment, namely, the firing of mortar shells, be made. Shrapnel, it is said, should have in the air at close proximity to the target, but that was not the first trial the shells did explode as the fuses did not ignite the powder. Shrapnel withstood the experiment and then and there was born the idea out of which has been perfected the dreadful bullet-stuffed projectile. An English artillery officer has written:

Shrapnel realized that the effect of round shot cannon balls, impact bombs, case or grape shot against troops in the field was trivial. His idea was to increase the ranges of the most effective missiles namely case and grape shot by producing a projectile which at long distances Shrapnel therefore suggested a hot time spherical projectile filled with carbine balls and containing a small quantity of gunpowder just sufficient to burst the shell, the explosion to be timed as a short distance previous to its execution, by which means the range would be equally several of the enemy.

In 1787 the records of the British army state that Shrapnel in that year described to Gardner, Master General of the ordnance at Gibraltar, a new method of extending the use of grape shot, similar to the ancient cases of ordnance.

In 1803 Shrapnel's idea may be said to have taken for the first time, definitely shape. In that year there was issued at Woolwich, England, a book which contained a table of practice with Lieutenant Shrapnel's proposed new method of firing case shot. And in that same year it is recorded that Shrapnel exhibited the new shells at Woolwich common, in the presence of the Prince of Wales and a host of distinguished officers, and that all foreigners were excluded. Among the several officers was Wellington, who was greatly impressed, for in later years charged to a certain extent with the effective use of the science of shrapnel in war.

In 1804, and following the royal inspection of the new shells at Woolwich, Shrapnel was ordered to Ireland, which, there to experimental the many ideas he had in connection with farrier's immediate issue to the army.

In 1805 the next year shrapnel were for the first time employed by the British. This occasion was the bombardment of the Flotation settlement of Boulogne by the British fleet under Lord Keith.

The time was the latter part of April and the year was 1806. A Major Hill was commanded the British artillery, and it was under the direction that the shrapnel shell was used for the first time in warfare. After the bombardment Major Wilson reported that the shrapnel shells were found to be able to reach the ramparts of Fort Ambleteuse, which was the object of the general shell." Major Wilson's report continued:

"The shrapnel shells were found to be very destructive when they burst in the air, they ought to be did with fuses."

So impressed was the admiral that the shrapnel shell was given a trial at sea. The bullets in this type are imbedded in a soft composition and fastened to the shell. It was at Calabria in 1806 when a range of 4,000 British fathoms defeated a force of 5,000 French. Although no shrapnel shells were used by the British naval force off Calabria, those in command were impressed by the unusually great.

It is evident that the shells of Colonel Shrapnel's invention, when fired by cannon of the period, were very heavy. Shrapnel noted that on one occasion when shells containing twenty four pounders were fired from the rock as a means of Spanish fleet that out of the entire command only twenty-six were put out of action. Another officer who was impressed as a result of the poor results obtained was a Captain Mercier perhaps an acquaintance of Shrapnel's during one of the present day.

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