

20th Century Canadian Artillery

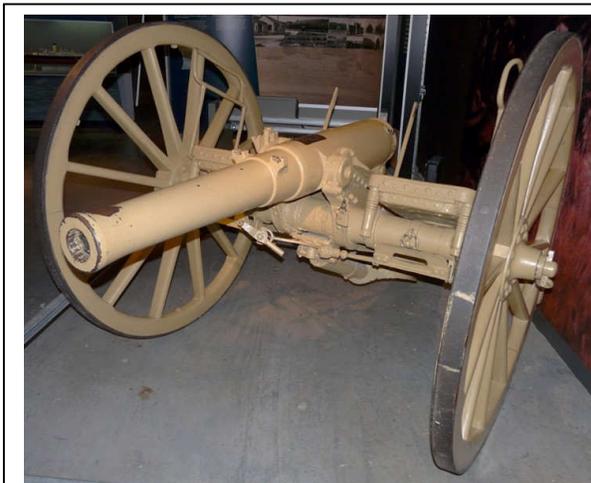
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The use of artillery in North America dates from the earliest visits to the continent by Europeans. Jacques Cartier's guns impressed the natives in 1534. The American Generals Montgomery and Arnold had their incursion stopped by artillery at Quebec in 1775. The Loyal Company of Artillery was established at Saint John, N.B., in 1793. The Northwest Rebellion saw the use of 9-pounder rifled, muzzle loading field guns. And Fenians were chased from St. Andrews, N.B., by gunners. There have been artillery units manned by Canadians since the arrival of the United Empire Loyalists.

This document covers the principal artillery pieces used by Canadian soldiers from the Boer War up to modern times. It is of note that from the late 1800s there was a strong British influence on Canadian artillery that continued throughout the 20th century.

The Beginnings

The Royal Canadian Field Artillery obtained a new and larger gun in 1897 to replace a rifled, muzzle loading 9-pounder. The Ordnance BL 12-pounder 6 cwt Gun had been issued to Britain's Royal Horse Artillery in 1894, and became the standard weapon for Canada's gunners as they greeted the 20th century. The 12-pounder had many advantages over the 9-pounder. The BL system was much more efficient, and the range was considerably longer. The steel carriage was much easier to handle and manoeuvre.



One of the Ordnance BL 12-pounder Guns rescued from capture at Leliefontein, SA

The new shrapnel shell, the sole projectile commonly fired, was of forged steel and was much superior to the former cast iron shell. It incorporated a new time fuze which also detonated on contact, and the cartridge contained a modern propellant, cordite, which was relatively smokeless and highly efficient. The carriage incorporated a rudimentary recoil system consisting of a spade attached to a cable. The cable was attached to a spring located in a cylinder on the trail which absorbed some of the shock of recoil. The recoil spade stayed in place in the ground as the gun recoiled, and rods from the spade applied the carriage brakes. Moving the gun forward released the brakes.

The 12-pounder was employed by the Royal Canadian Field Artillery in South Africa from 1899 to 1902. There are two examples in the Canadian War Museum, one in the LeBreton Gallery and another in the Boer War section of Gallery 2. The gun in Gallery 2 is one of two rescued from the Boers at Leliefontein (Battle of Witkloof) by the Royal Canadian Dragoons, three of whom were awarded the Victoria Cross; the artillery commander received the Distinguished Service Order.

20th Century Canadian Artillery

At the introduction of the 12-pounder, six field batteries were equipped with it, the number of guns being increased to six per battery from four. At this time, two batteries were equipped with 5-inch howitzers and heavy batteries used 4.7-inch QF guns. The howitzer was possibly the Ordnance BL 5-inch Howitzer Mark I, dating from 1897. This was the first BL howitzer in the British army. Four springs on the cradle allowed the barrel to recoil about six inches and absorbed some of the force of recoil. The Royal Canadian Garrison Artillery first fired the Ordnance QF 4.7-inch Gun in 1905. This gun continued in use throughout the First World War.

The French Army's introduction in 1897 of the novel 75 mm field gun with its breech-loaded fixed ammunition and recoil system made the 12-pounder obsolete almost as soon as it was issued. The British Army undertook to design new artillery pieces based on the French weapon and also reflecting its South African experience.

The two guns which resulted from this development were the Ordnance QF 13-pounder Gun for horse artillery and the Ordnance QF 18-pounder Gun for field artillery, both dating from 1904. They were issued to Canadian units in 1906. The two guns each featured an effective recoil system thereby reducing the problem of re-laying the gun after each round was fired. The ammunition was loaded in one piece which greatly increased the rate of fire. There was a shield to protect the gun detachment against enemy small arms.

First World War



Ordnance QF 18-pounder and a round of Shrapnel ammunition.

The QF 13-pounder and 18-pounder served Canada's artillery units during the First World War and continued in general use until the eve of the World War II. Some 18-pounders continued in use during the 1939 to 1945 period.

The 18-pounder was intended to fire shrapnel shells in accordance with the then current artillery doctrine of one shell, one fuze, for a particular gun. This practice became useless when enemy troops moved into entrenchments and other field fortifications. High explosive ammunition was then used. The development of the No. 106 fuze allowed

the shell to explode instantaneously on contact so that barbed wire could be cut.

The 13-pounder was used in much the same way as the 18-pounder but its lighter shell was less effective. This gun came into its own during the period of mobile warfare in 1918.

Ordnance	Calibre	Shell Type	Weight	Range	Velocity
QF 13-pdr Gun	3 inch	Shrapnel	12.5 lbs.	5900 yds.	2673 fps.
QF 18-pdr Gun	3.3 inch	Shrapnel	18.5 lbs.	9519 yds.	1614 fps.

20th Century Canadian Artillery

In common with most artillery of the period, both of these guns were mounted on carriages with a single pole trail. This facilitated movement using horses but severely limited the elevation of the piece and subsequently reduced the range. Improved carriages were designed for the 18-pounder during the war.



Ordnance BL 8-inch Howitzer Mark VII.

Artillery played a dominant role in World War I. In addition to field artillery, Canada employed a number of heavier weapons. The Canadian Artillery Order of Battle, November 11, 1918, shows the extent of Canada's commitment: Corps Troops included nine batteries of six 18-pounders, three batteries of six 4.5-inch howitzers, eight batteries of 6-inch howitzers, two batteries of 9.2-inch howitzers, two batteries of six 60-pounder guns, two batteries of 8-inch howitzers and five sections of two 13-pounders. Divisional artillery included 18-pounder guns and 4.5-inch howitzers.

The Ordnance QF 4.5-inch Howitzer appeared in 1910. Able to elevate to 45 degrees, it could employ plunging fire against enemy trenches. In the period when field guns fired only shrapnel shells, howitzers fired both high explosive and shrapnel.

By 1912, 6-inch guns and howitzers and pieces up to 15-inch howitzers were called Siege Artillery. The 60-pounder and 4.7-inch guns were known as Heavy Artillery.

The Ordnance BL 6-inch 26-cwt Howitzer Mark I was produced to replace earlier 25-cwt and 30-cwt versions. It became the standard British medium artillery piece and was upgraded and used in the early years of the Second World War. It originally fired shrapnel but a high explosive shell was introduced.

The Ordnance BL 60-pounder is another artillery piece from early in the twentieth century that also continued in service well into World War II. Developed following experience in the Boer War, this gun could be retracted rearwards along the carriage in order to provide a more balanced load for transport. Later models dispensed with this feature and were towed

Ordnance	Calibre	Shell Type	Weight	Range	Velocity
QF 4.5-in Howitzer	4.5 inch	HE	35.0 lbs.	7000 yd.	1026 fps.
BL 60-pdr Gun	5.0 inch	HE	60.0 lbs.	10400 yds.	2080 fps.
		Shrapnel		9500 yds.	
BL 6-in 26 cwt Howitzer	6.0 inch	HE	86.0 lbs.	11400 yds.	1400 fps.

20th Century Canadian Artillery

by heavy duty tractors. A third, lighter weight version also used a gun that was retracted for transport. The calibre of the gun was 5.0 inches, firing a 60 pound shell. Range was 9,500 yards with shrapnel shell and 10,440 yards with high explosive. These guns also served with the Canadian contingent in North Russia in 1919.



Ordnance QF 13-pounder 9 cwt; to the immediate right of the pedestal mounting is a listening device with four wooden cones used to detect approaching aircraft and provide information to the gun detachment

The use of aircraft for reconnaissance, and later for attack, led to the development of special guns intended to shoot them down. Initially, regular artillery pieces were placed on special mountings so that they could elevate to the extremely high angles required. Both the 13-pounder and the 18-pounder were used in this fashion. Shrapnel ammunition was used originally but was found to be unsuitable, possibly because expended shells fell on friendly troops below, so high explosive shells were substituted.

Neither the 13- or 18-pounder was successful in this role, so in 1915 a new gun was developed from the 18-pounder. A sleeve was inserted into the barrel to reduce the calibre to that of the 13-pounder. The 18-pounder cartridge was retained so that the gun was very powerful. The new gun, Ordnance QF 13-pounder 9 cwt, was able to fire to a height of 19,000 feet and had an effective ceiling of 10,000 feet. This gun

remained in service in Canada until the outbreak of World War II, and continued in a training role during the early years of that war.

Coast and Garrison Artillery in Canada made use of a wide variety of equipment. There were some genuine coastal artillery pieces installed at important naval bases like Halifax and Esquimalt. In addition, these locations and a number of lesser coastal fortresses used field artillery and naval guns which were adapted to coastal installations. There were 9.2-inch coast artillery guns employed in Canada. Some locations used a 6-inch Mark VII. In 1906 this equipment was mounted at Sandwich Battery, Halifax.

Until just before 1914, Saint John, N.B., had 64-pounder Rifled Muzzle Loading garrison guns in a battery on Partridge Island, but they were in an unfit state. These are the large guns seen in great numbers in Quebec City and also on the ramparts of Kingston's Fort Henry.

The Royal Canadian Artillery developed from a small, poorly equipped part of Canada's army into an effective fighting force during the First World War. The Canadian Corps, under General Sir Arthur Currie, employed artillery fire in a way which led to success on the battlefield. There were many important advances in artillery practice during this period and Canada's gunners were in the forefront in using and developing these new techniques.

20th Century Canadian Artillery

There was virtually no development of artillery equipment in Canada following the First World War, the country continuing to rely on Britain in munitions matters. As well, there were extensive cutbacks in military activities throughout the Dominion, and existing equipment was not replaced. As the international situation continued to worsen, some considered the need to modernize the Army but few steps were taken. The serious economic conditions during and after the Great Depression further discouraged investment in military equipment and training. Basically, modern equipment was not obtained until after the outbreak of the Second World War. Nevertheless, when new ordnance was ultimately provided for the Army, some excellent equipment was chosen.

Second World War



Ordnance QF 25-pounder Gun Mark II. The dial sight, gun rule, traversing and elevating hand wheels are visible.

The Ordnance QF 25-pounder Gun Mark II is the equipment most often associated with Canada's field artillery, being used during World War II and in Korea.

It is widely believed that the design of the piece grew out of a project in the British army to replace the 18-pounder with a larger gun with a calibre of about 105 mm. Since the British government had recently outfitted all of the existing 18-pounders with new carriages, the government restricted the choice of a new gun to one which would use the new 18-pounder carriages. It was determined that the new gun would be restricted to a calibre of about 88 mm. This led to the development of the new Ordnance

QF 25-pounder Gun Mark I.

(Writing in *The Gunners of Canada, Vol. II*, Nicholson gives a completely different story about the development of the gun: it was determined that a large volume of fire was beneficial and that the heavier shells initially proposed would soon cause excessive fatigue for the gun detachments.)

Almost all of the Mark I guns were in France in 1940 and were abandoned during the Dunkirk evacuation. All subsequent 25-pounders were built on the Carriage 25-pounder Mark I, and the equipment was designated Mark II (Mk II). There are two 25-pounder Mk IIs in the Museum, one in the Normandy section of Gallery 3 and the other, lacking its muzzle brake, in the LeBreton Gallery.

The 25-pounder was an extremely versatile piece. The choice of separate loading ammunition gave a great degree of flexibility to the equipment. The



The Sexton self-propelled gun; the Ordnance QF 25-pounder artillery weapon was grafted onto the chassis of a tank, the Canadian built Ram, or as here in the LeBreton Gallery, a Canadian Grizzly tank.

20th Century Canadian Artillery

turntable for the carriage allowed it to be easily rotated 360° so that a broad area could be engaged. The adjustable cartridge, originally containing three bags of propellant, and the fact that the carriage allowed elevation to 45°, permitted the gun to be used much like a howitzer. Until the 6-pounder anti-tank gun came into service around 1941, the 25-pounder served as an anti-tank gun. The anti-tank ammunition, a fixed round, proved too powerful for the carriage but the addition of a muzzle brake reduced the effects of recoil and allowed the carriage to be used unaltered.

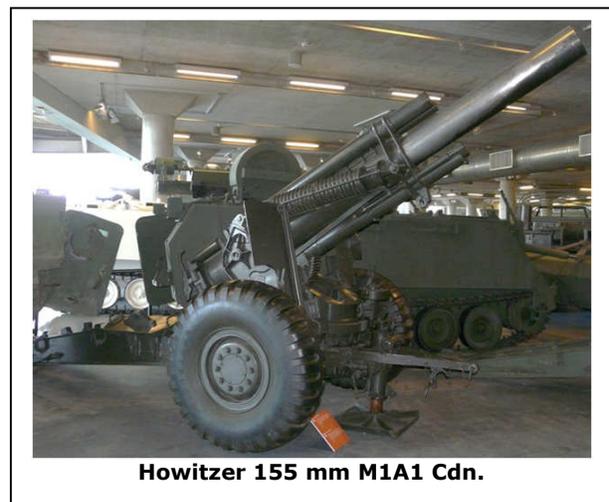
Ordnance	Calibre	Shell Type	Weight	Range	Velocity
QF 25-pdr Gun	3.45 inch	HE	25.0 lbs.	13400 yds.	1700 fps.
4.5-inch Gun	4.5 inch	HE	55.0 lbs.	20514 yds.	2250 fps.
BL 5.5-inch Gun	5.5 inch	HE	100.0 lbs.	16200 yds.	1673 fps.

Because of problems in engaging targets in the mountainous areas of Italy, further increments were added to the cartridge so that more precise adjustments to the propelling charge could be made. The trail of the gun could be dug into the ground, providing an elevation of considerably more than 45° for plunging fire.

Large numbers of 25-pounder guns and their limbers were manufactured in Canada as part of an extensive armaments program conducted during the war years.

Medium artillery developed in Britain following the First World War included the 4.5- and 5.5-inch guns. These were the medium guns used by Canada during World War II. The Ordnance 4.5-inch Gun was developed to provide a weapon with a range in excess of 20,000 yards. It was designed to fit the carriage of the 5.5-inch gun. Only high explosive ammunition was provided and the gun was used in slightly smaller numbers than the 5.5-inch. The Ordnance BL 5.5-inch Gun had a shorter range than the 4.5-inch but fired a 100 pound shell. Ammunition with an 80 pound shell was later provided to enable greater range. The establishment for First Canadian Army called for 64 4.5-inch guns and 70 5.5-inch guns.

Much of this artillery equipment continued to be used by the Canadian Army after World War II, but when it was replaced during the Cold War era, guns of American design were selected. Both manufactured in Canada, the Howitzer C2 105 mm became the field artillery gun, and the Howitzer 155 mm M1A1 Cdn was used by medium batteries. They were true howitzers with high elevation and adjustable propellant charges. Light artillery units used the Italian L5 105 mm Pack Howitzer, employing NATO-standard 105 mm ammunition. The 155 mm Howitzer and 105 mm Pack Howitzer are found in the Museum's LeBreton Gallery. An American built example of the 105 mm Howitzer is located in Gallery 4.



Howitzer 155 mm M1A1 Cdn.

20th Century Canadian Artillery

Ordnance	Calibre	Shell Type	Weight	Range	Velocity
Howitzer C2 105 mm	105 mm	HE	33.0 lbs.	12248 yds.	1548 fps.
Howitzer 155 mm M1A1 Cdn	155 mm	HE	94.0 lbs.	15965 yds.	1850 fps.
L5 105 mm Pack Howitzer	105 mm	HE	33.0 lbs.	16200 yds.	1673 fps.

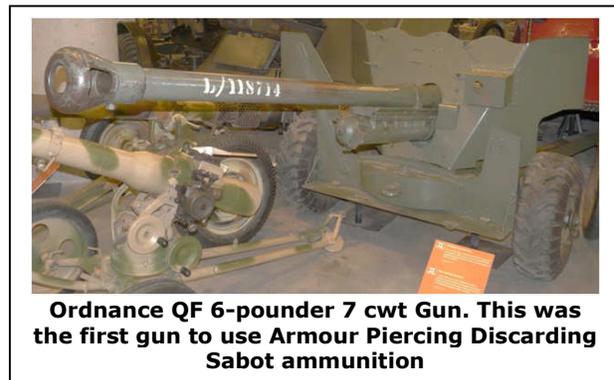
The Battle to Beat Armour

Following the First World War, tanks became more substantial and larger armour piercing weapons were developed to cope with thicker and better armour. The British Army adopted the Ordnance QF 2-pounder as an anti-tank weapon and it had a brief history as the best of its type. But further development of armoured vehicles soon eclipsed its capabilities.

Since most of their 2-pounders had been lost in France in 1940, the British were forced to continue production of this inadequate gun despite the fact that a replacement had been designed, so that an anti-tank weapon would be available in the event of a German invasion of England, which seemed likely. As Canada's army was integrated with the British Army, Canada used the 2-pounder.

The armour piercing ammunition for the 2-pounder depended on delivering a dense, hard projectile at high velocity which pierced the target. In order to further increase the effectiveness of this gun, a "Littlejohn" adaptor was fitted to the end of the barrel. It worked on the principle of reducing the diameter of the projectile so that the smaller projectile would better retain its velocity. A tungsten carbide-steel projectile was contained in a soft metal carrier that was squeezed in the adapter. The pressure of the propellant gases was thereby increased leading to a greater initial muzzle velocity, augmenting the improved ballistic coefficient of the smaller diameter projectile.

Despite this add-on, the 2-pounder could not be up-graded sufficiently to serve as an effective weapon against rapidly improving armour, and the Ordnance QF 6-pounder 7 cwt was designed to replace it. Although AP Shot and Composite Rigid Shot were designed for this new gun, it came into its own as the first weapon to use an Armour Piercing Discarding Sabot projectile. As with the Littlejohn adaptor's effect, the ballistic coefficient of the smaller projectile allowed it to retain its velocity and penetrate thick armour.



Ordnance QF 6-pounder 7 cwt Gun. This was the first gun to use Armour Piercing Discarding Sabot ammunition

As the size of armoured vehicles and the thickness of their armour continued to increase, a better anti-tank gun was required.

20th Century Canadian Artillery

The Ordnance QF 17-pounder was the ultimate development of armour piercing artillery in Commonwealth service during the Second World War. It is, arguably, the best anti-tank gun of that war, taking all factors into account. Like the 6-pounder before it, the gun was mounted on a split trail carriage making it very handy to pack up and move, able to come quickly into action, and capable of dealing with targets on a wide front. Originally provided with Armour Piercing Shot, Armour Piercing Discarding Sabot ammunition was issued from August, 1944. This led to a dramatic increase in performance.

The 2- 6- and 17-pounder guns were all used at some point in British and Canadian designed tanks. Some of these vehicles were used by artillery units, particularly the 17-pounder mounted in the Achilles version of the American M10 self propelled gun. The Achilles replaced the earlier Wolverine model which featured a 3-inch anti-aircraft gun adapted to anti-tank use.

There are a 6-pounder and a 17-pounder in the Museum's LeBreton Gallery and there is a 2-pounder in the Museum's collection.

Unfortunately, the 2-pounder is not on its unique and highly versatile original carriage. The Museum's example was mounted on the

carriage of a 6-pounder and used for comparison testing of the two guns. It was subsequently moved and is currently mounted on a Universal Carrier (Bren Gun Carrier) that is being restored.



Ordnance QF 17-pounder Gun, possibly the best anti-tank gun of World War II

Air Defence Artillery

A 3-inch 20 cwt Mk IA Anti-aircraft Gun, more modern than the 13-pounder, was in service with the British Army but was not issued to Canadians until 1938. Both of these World War I guns remained in service in Canada until the eve of the Second World War, and continued thereafter for training.

A number of Canadian locations were provided with anti-aircraft guns during the Second World War. Many of the weapons were the very effective 3.7-inch QF Gun. This gun was not well received by the gun detachments due to its handling characteristics, but when the gunners evaluated the performance of the weapon, they realized that it was a superior piece of equipment. Development of this gun continued throughout the war and it continued to be an effective weapon. (There were no air attacks on Canada during the war to prove this weapon's defensive capability.)

The Canadian army in the field used anti-aircraft guns with more mobility than large-gun emplacements. The Oerlikon 20 mm gun was developed in Germany in 1917 but, after WW I, the patents were bought by the Swedish firm Oerlikon which developed the weapon into a product marketed around the world. It was used by many nations during the Second World War, including Canada.

20th Century Canadian Artillery

The weapon was redesigned in Poland using fewer than half as many parts. This simpler, cheaper weapon proved to be just as effective as the original. As the design work was nearing completion, the Germans invaded Poland. The plans and some of the design team arrived in England where the work was completed as the Polsten 20 mm. The gun was manufactured in Britain and Canada.

A 20 mm Oerlikon in a naval mounting, and a quad-mount Polsten in a powered, armoured carriage can be found in the LeBreton Gallery.

The 40 mm Bofors L/60 was a more powerful light anti-aircraft gun. Developed in Sweden, it met with widespread acceptance and was used by armies and navies world-wide. It was an accurate and reliable weapon with a high rate of fire. It has currently been redesigned as an L/70 version.

Ordnance	Calibre	Shell Type	Weight	Range	Velocity
QF 13-pdr 9 cwt Gun	3 .0 inch	HE	13.0 lbs.	Height 19000 ft.	2150 fps.
QF 2-pdr Gun	1.57 inch	AP Shot	2.0 lbs.	Effective 1094 yds.	2650 fps.
QF 6-pdr 7 cwt Gun	2.244 inch	AP Shot	6.0 lbs.	Effective 1650 yds.	2695 fps.
		APDS	3.25 lbs.	Effective 1650 yds.	4050 fps.
QF 17-pdr Gun	3.0 inch	AP Shot	16.0 lbs.	10400 yds.	2900 fps.
		APDS	7.62 lbs.	10400 yds.	2950 fps
Polsten 20 mm	20 mm	HE	4.19 oz.	Effective 7200 ft.	2725 fps.
Bofors 40 mm/L60	40 mm	HE	2.0 lbs.	Effective 5000 ft.	2700 fps.
QF 3.7 inch Gun	3.7 inch	HE	28.0 lbs.	Effective 32000 ft.	2600 fps.

Shore Defence

Much of the coast artillery equipment from the First World War continued to be used in Canada throughout the Second World War. Some modern guns were sited at Halifax and Esquimalt, including the BL 6-inch Mk VII and BL 9.2-inch Mk X. Other locations made do with whatever was available.

20th Century Canadian Artillery

The Mispic battery at Saint John, N.B., was armed with three BL 7.5-inch Naval Guns. Batteries in Saint John and Halifax each used two 6-inch guns recovered from the cruiser HMCS Niobe. One of these may still be seen outside HMCS Brunswicker, the naval reserve establishment in Saint John. It is most fortunate that the German Navy was never able to attack any of these makeshift fortifications.

Glossary

[An explanation of terms used in this paper, not formal definitions]

AP – armour piercing: a projectile that goes through armour before exploding (AP shell), or penetrates and causes damage through its own momentum (AP shot)

Armour Piercing Discarding Sabot – an AP projectile whose exterior cladding is shed through centrifugal force immediately after it leaves the gun barrel; allows a heavy but small and ballistically superior missile to be fired at high velocity by a relatively sizeable propellant

artillery – distinguished from *small arms*, guns too heavy to carry and thus mounted, towed or self-propelled; also the science of guns, gunnery

battery – an army artillery unit of six to eight guns depending on weapon type; may be sub-divided into troops; there are three batteries in a field artillery regiment

breech loading (BL) – the projectile and its propellant are loaded into a weapon at the opposite end to the muzzle; in technical terms BL describes guns that are loaded at the breech in three steps: projectile, propellant and primer, the latter installed after the breech is closed

carriage/carrier – the equipment used to support and move an artillery piece; may be towed or self-propelled

Composite Rigid Shot – AP shot which is composed of a heavy, hard core surrounded by a light metal envelope that conforms to a normal projectile's dimensions and carries the core to the target

cwt – abbreviation for "hundred weight", a traditional British standard for weight (112 lbs), applied in artillery to the combined mass of the barrel and breech of a weapon, *e.g.* "6 cwt"

direct fire – the target can be seen directly over the sights of the weapon

field artillery – projectile-launching weapons that directly support the infantry in achieving its objectives, thus requiring a good degree of mobility

fixed ammunition – a munition where the projectile, propellant and primer are joined in a single, easy to handle packet, like a rifle or shotgun cartridge; permits more rapid fire than separate ammunition, where the propellant is loaded in one or more packages behind the projectile

20th Century Canadian Artillery

FOO – Forward Observation Officer: an expert in calling in (indirect) artillery fire on a target based on terrain, map and grid references, using a field or aircraft radio; frequently positioned well forward of friendly military support and with limited escape transportation

fuze – artillery term for fuse, the device that causes a projectile to explode based on time of flight, altitude, direct target contact, or target proximity

gun – a weapon designed mainly for direct fire that in large calibres normally has a 45° barrel elevation limit; also commonly used for indirect fire

horse artillery – formerly the “elite” of the artillery, with lighter guns and all personnel mounted on horses in order to accompany and support the cavalry, this designation continues in use today for some units: the Royal Canadian Horse Artillery and the Royal Horse Artillery (UK), when on parade with their guns, take the right and march past at the head of all other army units

howitzer – a large weapon with an elevation capability greater than 45° that is intended to bombard targets beyond the line of sight, such as over a hill or a town, and which, for most firing assignments needing accuracy, requires a Forward Observation Officer (FOO) to view the target area and radio back range and bearing corrections

indirect fire – what a howitzer does; it may fire on mathematical grid coordinates or as directed by a FOO

limber – the wheeled carrier for an artillery piece’s ammunition, often towed with the gun connected in tandem behind it

muzzle brake – a bulbous, perforated attachment at the muzzle end of the barrel that deflects propellant discharge gases in such a way as to reduce recoil forces on an artillery piece’s structure

“Ordnance” – traditional prefix in the technical name of an artillery piece indicating its British government source of design or supply; dates from the 16th century when a special Crown ordnance office controlled all armaments and munitions used by the British Army and the Royal Navy.

pounder – a British convention for characterizing or naming an artillery piece based on the approximate weight of its projectile in pounds, e.g. “25-pounder”

proximity fuze (VT fuze) – an electronic device that causes a shell to explode when the presence of a solid object is detected by the projectile itself; introduced in 1943-44, it gave an extraordinary increase to the effectiveness of ground-based anti-aircraft fire

quick firing (QF) – a description for a weapon that evolved after the development of fixed ammunition by the French in 1897, indicating it was breech loaded with fixed ammunition and hence could be fired at a rapid rate

re-lay – to *lay* a gun is to set it to fire toward a target at a certain range; if the weapon moves after firing, through violent recoil for example, the gun detachment must *re-lay* it to fire at the same target (this may also involve readjusting the bearing (direction))

20th Century Canadian Artillery

shrapnel – named for its British inventor, Henry Shrapnel, and introduced by the British Army in 1803: lead or steel balls propelled out of an artillery shell designed to burst in the air above troops on the ground; now commonly used to describe any shell or grenade fragments, though this is technically incorrect

trail – the attached support arm for lifting, moving, propelling or towing an artillery piece; may be a single shaft or one that splits into two to provide a base for firing, often with a spade-like recoil braking device at the end(s)

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All of the equipment in this document's photographs is in the collection of the Canadian War Museum.