AUTARCH

ADVENTURER CONQUEROR KING SYSTEM™

GUNS OF WAR™

RULES FOR WARFARE IN THE AGE OF PIKE AND SHOT

Written by **ALEXANDER MACRIS**

ADVENTURER CONQUEROR KING SYSTEM™

DOMAINS AT WAR

— GUNS OF WAR —

BY ALEXANDER MACRIS

RULES FOR WARFARE IN THE AGE OF PIKE AND SHOT

I am the King of Sweden! And this day I seal with my blood the liberties and religion of the German nation."

– Gustavus Adolphus, Battle of Lützen

(6th November 1632)

—— GUNS OF WAR ——

AUTARCH™
www.autarch.co

ACKS CORE

CREDITS

TABLE OF CONTENTS

INTRODUCTION

Guns of War brings you all the rules you need to add the gunpowder, firearms, and artillery of the Age of Pike and Shot into your fantasy role-playing game. We mark the beginning of the Age of Pike and Shot as 1494 AD, with the start of the Great Italian Wars, and the ending with the close of the Thirty Years' War in 1648. During this century-and-a-half period, war changed more rapidly than it had in any time in the preceding 3,500 years of human history.

At the start of the Age, armies still went to war using arms and tactics that would have been familiar to Henry IV or Hannibal. The old ways ended forever at the Battle of Cerignola in 1503. There, heavily-outnumbered Spanish forces defeated the medieval-style French army by using a newly-developed formation, the *tercio*, which integrated matchlock arquebusiers with pikemen. The Spanish had realized that, although matchlock arquebuses and muskets had neither the range nor the rate of fire of the bow, they were cheap to produce, easy to use, and capable of penetrating the armor of the once-invincible knight. When accompanied by sufficient numbers of pike- and sword-armed foot to guard them while reloading, arquebusiers and musketeers could dominate the battlefield – and did! Over the following decades, the introduction of wheellock and flintlock firing mechanisms, rifling, gun carriages, and other technology further increased the power of gunpowder weapons. The great captains of the era, such Córdoba, Maurice, and Adolphus, developed complex tactical formations to exploit these new technologies, even as improvements in industry made it possible to field armies larger than any seen since Antiquity. The Age of Pike and Shot essentially came to a close with the Treaty of Westphalia that ended the Thirty Years' War and created the modern era. Subsequent wars would be fought with the bayonet (invented circa 1655), a weapon which transformed the musket into a pike and made the combined arms formations of the Pike and Shot Age irrelevant.

For game purposes, we have divided the Age of Pike and Shot into three eras: Early (1494 AD – 1559 AD), Middle (1560 AD – 1600 AD) and Late (1600 AD – 1648 AD). The Early Era encompasses the Great Italian Wars and is characterized by matchlock arquebusiers, pikemen, knightly cavalry, and cumbersome tercio-style formations. The Middle Era marks the beginning of the so-called Military Revolution which made possible modern war and the modern state, and includes the first-half of the War for Dutch Independence. The Late Era covers the second half of the War for Dutch Independence and the entirety of the Thirty Years War. It is characterized by the rise of flintlock weaponry, field artillery, and flexible tactical formations inspired by ancient Roman doctrine but equipped with modern weaponry.

Of course, these eras are approximate, as innovation occurred at different rates at different locations throughout Europe and Asia. Even seemingly-simple innovations such as the artillery limber could take one hundred years or more to transfer from one country to another. One of the most fascinating aspects of the Age of Pike and Shot was how it pitted plate-clad knights against rifle-armed soldiery, field artillery against pikemen: It was an era of apparent anachronism made real. When running a historical campaigns, Judges should feel free to mix-and-match technology and tactics from different eras as appropriate for their own campaign worlds.

HOW TO USE THIS BOOK

You must have a copy of *Domains at War* (D@W) to use this rulebook. You will also need a copy of *Adventurer Conqueror King System* (ACKS)*, Lamentations of the Flame Princess* (LOTFP)*,* or a similar D20-based fantasy role-playing game. The rulebook is organized into the following parts.

Section 1, **Weapon and Equipment of the Pike and Shot Age**, introduces the weapons, armor, and equipment of the era.

Section 2, **Artillery of the Pike and Shot Age**, details the vast array of cannons, guns, and mortars of the era, from the tiny 1-pound field gun to the mighty 200-pound bombard. Rules for designing your own artillery pieces are included.

Section 3, **Armies of the Pike and Shot Age**, presents the type of troops that fought in the era, along with their availability, wages, morale, and characteristics. A total of 17 new troop types, including cuirassiers, dragoons, hussars, and musketeers, are presented.

Section 4, **Unit Formations of the Pike and Shot Age**, introduces four new unit formations for your *Domains at War* battles, with special rules representing drilled volley fire, pistol caracoles, and more.

Section 4, **Army Formations in the Pike and Shot Age**, shows how historical formations such as the Spanish tercio and Swedish brigade are represented in *Domains at War* battles.

Section 5, **Firearms on the Battlefield**, presents detailed mechanics for using firearms-equipped units on the *Domains at War* battlefield.

Section 6, **Gunpowder Artillery on the Battlefield**, shows how gunpowder artillery units function on the *Domains at War* battlefield.

Section 7, **Building Firearms-Equipped Units**, supplements the rules for building units in Chapter 8 of *Domains at War: Battles*.

Section 8, **Sample Units of the Pike and Shot Age**, provides *D@W: Campaigns* and *D@W: Battles* characteristics for the new troop types introduced in these rules.

Section 9, **Gunpowder in an Age of Swords and Sorcery**, provides suggestions on how to include gunpowder in more traditional fantasy settings.

"War is our homeland, our hauberk is our house."

- Soldiers' saying from the Thirty Years War

WEAPONS AND EQUIPMENT OF THE PIKE AND SHOT AGE

The Age of Pike and Shot began with the introduction of the matchlock arquebuses and musket and rapidly progressed through the introduction of wheellock and flintlock firing mechanisms, rifling, and other technology.

COINS AND MONEY

The economies of the Age of Pike and Shot relied on a bimetallic currency system of gold and silver coins. The most important gold coin were the 3.5g 99%-pure *ducat* and its rival the *florin*, a coin of virtually identical weight and worth. The most important silver coins were the *lira* and the *soldo,* with 1 lira worth 20 soldi. The exchange rate of gold and silver changed dramatically over the era as silver coins were debased and precious metals entered from the New World, such that the value of a ducat rose from 6 lire 10 soldi in 1517 to 8 lire 16 soldi in 1573, to 10 lire in 1594 to 15 lire in 1638. For simplicity, *Guns of War* presents all costs and wages using the default *ACKS* coinage system of gold pieces, silver pieces, and copper pieces.

For Judges who want to convert *ACKS* coins into historical coins, a ducat is worth approximately 1 platinum piece or 5 gold pieces. For conversion between the ducat, lira, and soldo, we suggest using the 1594 exchange rate of 10 lire per ducat, as this is a mathematically simple rate from historically mid-way through the era. Therefore a lira is worth 1 electrum piece or 5 silver pieces; a soldo is worth 2.5 copper pieces. There are 1200 ducats, 2400 lire, and 48,000 soldi per stone of encumbrance.

ARMOR

Armor				
Armor	**Cost**	**AC**	**Enc.**	**Era**
Padded Jack	20gp	2 (+1)	1 st	Any
Munition Armor	30gp	3	3 st	Any
Half-Plate Armor	100gp	4	3 st	Any
Three-Quarters Plate Armor	150gp	6	4 st	Any
Full Plate Armor	300gp	8 (6)	6 st	Any

Padded Jack: A sturdy leather or quilted jacket that provides basic protection to its wearer. A padded jack can be worn by itself for a base AC of 2, or can be worn under munition armor or half-plate for a +1 AC bonus. Worn either way, a padded jack has an encumbrance of 1 stone. Historical examples include the arming doublet, gambeson, and buff coat.

Munition Armor: A set of mass-produced plate armor made of cheap iron or iron alloy. Munition armor includes a light helmet, a gorget with spaulders, and a cuirass with laminated tassets. It has an encumbrance of 3 stone. Historical examples include Almain-rivet armor and most other 16th and 17th century footman's armor.

Half-Plate Armor: A set of hand-crafted, reticulated steel armor that covers the head, arms, and torso. It consists of a cuirass, a light helmet, a gorget, spaulders, cuirass, vambraces, and pauldrons. Half-plate armor was often worn by elite heavy infantry and by lighter types of horsemen. Because of the hand-crafted fit and advanced steel used,

three-quarters plate armor has an encumbrance of just 3 stone despite offering 4 points of protection. Historical examples include 16th and 17th century landsknecht's and harquebusier's armor.

Three-Quarters Plate Armor: A set of hand-crafted, reticulated steel plate armor that covers the entire upper body and the front half of the legs down to the knee. The torso is protected with a cuirass and spaulders, while the arms are fully armored with vambraces and pauldrons. The thighs and knees are protected by long tassets, but riding boots replace the lower leg armor. A light helm with gorget accompanies the armor, although a heavy helm may also be worn. Because of the hand-crafted fit and advanced steel used, three-quarters plate armor has an encumbrance of just 4 stone despite offering 6 points of protection. Historical examples include 16th and 17th century demi-lancer's and cuirassier's armor.

Full Plate Armor: A complete set of hand-crafted, articulated, steel plate armor providing head-to-toe protection. It includes a heavy helmet and gorget for the head and neck; a cuirass with fault, tassets, and culet for the torso; spaulders, vambraces, and gauntlets for the arms; and mail skirt, cuisses, poleyns, greaves, and sabatons for the lower body. Full plate armor grants an AC of 8 against most attacks. However, it only provides an AC of 6 against morning stars, two-handed swords, great axes, pole arms, longbows, composite bows, arbalests, firearms, and natural attacks by monsters with more than 4 HD. (Firearms might ignore up to 5 points of armor in some cases; see below.) Because of the hand-crafted fit and advanced steel used, full plate armor has an encumbrance of just 6 stone despite offering 8 points of protection. Historical examples of full plate armor include the White, Gothic, Maximilian, and Milanese suits of the 15th through 17th centuries.

Due to the advanced metals used in half-plate, three-quarters plate, and full plate, they are more difficult to enchant than traditional armors. A +1 bonus costs 15,000gp and takes 2 months per point of AC. A +2 bonus costs 35,000gp and takes 3 months per point of AC. They cannot be enchanted beyond +2 except through experimentation.

> **NOTE:**
>
> *It is self-evident that the advanced plate armors of the 15th – 17th century must be assigned superior characteristics than the earlier types of plate armor present in ACKS, such as mirror plate, plate-and-mail, and hoplite panoply. The obvious solution is to increase the AC available from non-magical armor, from e.g. 6 to 8. Since this then tilts game balance in favor of defense, the obvious solution immediately creates a new problem! The next stage in the "solution" is to give powerful weapons such as the two-handed sword a bonus to hit to represent their armor penetrating powers. Unfortunately, this path results in every character wearing full plate armor and carrying a pole arm, when in fact this was not the historical result. In ACKS: Guns of War, we have aimed to resolve this dilemma. We grant full plate armor a superior 8 AC against the lightweight weapons it historically was invincible against, but only a reduced 6 AC against its historical threats, like the pike and arbalest. We have not increased the attack throws of these heavy-hitting weapons against lesser armors, however. Instead we assume that longbows, two-handed swords, pikes and similar armor-penetrating weapons gain no bonus to hit against lesser armor because these armors already have enough weak points that an increased armor penetration against their strong points is largely irrelevant.*
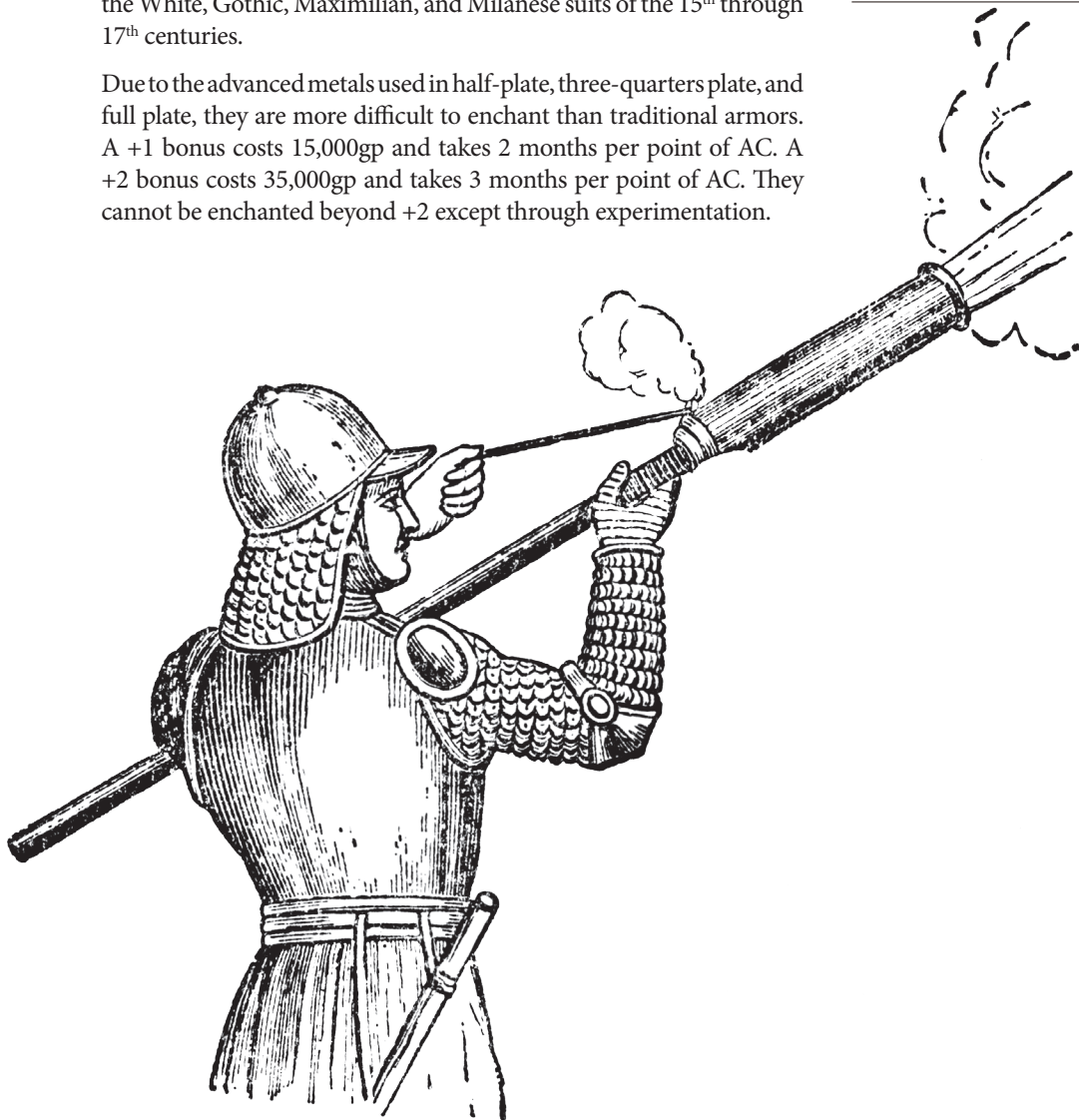
FIREARMS

The firearms of the Age of Pike & Shot were clumsy, slow, and inaccurate. Nevertheless, their low cost, ease of use, and penetrating power soon brought them to the forefront of military weaponry.

As firearms are still relatively new during this time period, not every character will be proficient in their use. Characters with an unrestricted selection of missile weapons (such as explorers, fighters, or thieves) may use all types of firearms, and if their class offers a damage bonus with missile weapons, they will be able to reload firearms more quickly (p. 11). Classes capable of using crossbows may use pistols, but not arquebuses or muskets. Other characters who equip themselves with firearms will fight as 0th level characters while so equipped (see *ACKS*, p. 39).

FIREARM TYPES

Firearm Types		
Firearms	**Cost**	**Era**
Matchlocks:		
Matchlock Arquebus, Smoothbore	15gp	Any
Matchlock Musket, Smoothbore	20gp	Any
Matchlock Arquebus, Rifled	30gp	Middle-Late
Matchlock Musket, Rifled	40gp	Middle-Late
Wheellocks:		
Wheellock Pistol, Smoothbore	80gp	Middle-Late
Wheellock Arquebus, Smoothbore	85gp	Middle-Late
Wheellock Musket, Smoothbore	140gp	Middle-Late
Wheellock Arquebus, Rifled	210gp	Middle-Late
Wheellock Musket, Rifled	285gp	Middle-Late
Flintlocks:		
Flintlock Pistol, Smoothbore	25gp	Late
Flintlock Arquebus, Smoothbore	30gp	Late
Flintlock Musket, Smoothbore	40gp	Late
Flintlock Arquebus, Rifled	60gp	Late
Flintlock Musket, Rifled	80gp	Late
Accessories:		
12 Apostles	1gp	Any
Artillerist's Tools	5gp	Any
Gun Cleaning Kit	1gp	Any
Gunpowder (1lbs.)	1gp	Any
Gunpowder, Barrel (2,500 shots)	75gp	Any
Match Cord, 3'	1gp	Any
Musket rest	5sp	Any
Powder Horn (holds 50 shots)	1gp	Any
Shot, Ball (100)	1gp	Any
Shot, Scatter (100)	1gp	Any
Shot Bag (holds 100 shots)	1gp	Any

Arquebus: A handheld long gun which does not require a fork rest in order to fire properly. An arquebus requires two hands to reload and fire, and has an encumbrance of 1 stone. In melee, it can be used two-handed as a staff (1d6 damage).

Musket: A large handheld long gun which requires a fork rest in order to fire; not having the rest imposes a –2 penalty to the wielder's attack throw. A muskets require two hands to reload and fire, and has an encumbrance of 1 stone (2 stone with fork rest). In melee, it can be used two handed as a staff (1d6 damage).

Pistol: A small handheld gun about the size of a man's forearm. A pistol counts as an item for encumbrance purposes. A pistol requires one hand to fire and two hands to reload. In melee, a pistol can be used one-handed as a club (1d4 damage).

FIREARM BORES

Smoothbore: A firearm which has a barrel without rifling. Smoothbore firearms are faster to load than rifled firearms, and dominated the battlefield until the invention of breech-loading weapons (which these rules do not cover). Firearms are generally smoothbore unless otherwise noted.

Rifled: A firearm which has a barrel with spiral grooves carved inside its length. These grooves place a gyroscopic spin on the bullet, improving accuracy at range. However, the grooves make it much harder to load the bullet down the muzzle of the weapon, greatly reducing rate of fire. Rifled firearms were widely used for hunting but rarely used on the battlefield.

FIREARM MECHANISMS

Matchlock: A type of firing mechanism used with arquebuses and muskets consisting of a lit match (a long match cord is standard, often lit at both ends) secured in a clamp. When the trigger is pulled, the clamp drops the match into a priming pan filled with a small amount of fine gunpowder. The ignition of this powder travels through a small hole (the "touch hole") to ignite coarser powder in the base of the barrel, firing the gun.

After the gun is fired, it must be reloaded, a 28-step process which takes a great deal of time and attention. All matchlock firearms are muzzle-loaders, which means that the gun is reloaded by jamming the bullet (a round ball), powder, and wadding to secure it all, down the barrel. A ramrod is very often included in the stock below the barrel to aid in this. The powder in the priming pan must also be replaced, which means the match (hopefully still lit!) must be removed from the firing mechanism. Coordinating all of this in an orderly manner which keeps the lit matchcord away from the gunpowder takes 10-15 rounds, depending on the wielder's training and the type of gun.

Because the match must be lit before the gun can be fired, matchlock firearms are often only useful when combat is anticipated. A lit match burns 4" per turn (from each end it burns!), and the light and smell that the burning match gives off makes stealth impossible. Matchlocks are also prone to misfiring, especially in damp and wet conditions. They are not well-suited to dungeon adventuring, but were prominent on the battlefields of Europe from the late 15th to early 17th centuries, before being supplanted by the flintlock.

Wheellock: A type of firing mechanism used primarily with pistols. When the trigger is pulled, a spring-loaded steel wheel spins against a piece of pyrite to generate a spark which ignites gunpowder in a priming pan, which flashes through the touch hole to ignite the main charge in the firearm's barrel. A wheellock allows the gun to be ready to fire with no outside source of ignition while also protecting the firing mechanism and priming pan from the elements.

Like matchlocks, wheellocks are muzzle-loading. Reloading is safer with wheellocks than with matchlocks because the match's flame, necessary to ignite the powder and so discharge the gun, is not

present; but it remains highly complicated, because the wheellock's moving parts must be carefully reset.

Each wheellock mechanism must be handcrafted by a skilled gunsmith, making the cost of equipping rank-and-file troops with this superior technology prohibitive. Wheellocks were invented in the real world around 1500 and remained in use until they were superseded by the superior flintlock.

Flintlock: A flintlock is a type of firing mechanism used with arquebuses, muskets, and pistols. It replaces the lit match of a matchlock with a small piece of flint. When the trigger is pulled, the flint strikes a piece of steel (the "frizzen") to cause a spark that ignites the powder in the priming pan, discharging the gun. The benefits of not needing to carry, or reload while holding, a lit match to use firearms are obvious. Like matchlocks, flintlocks are muzzle-loaded, but they are twice as fast to load and half as likely to misfire. Flintlock firearms were invented around 1610, became widespread by 1630, and dominated the battlefield by 1660.

Damage: The damage dealt by a shot from the firearm. Firearms deal comparable damage to arrows and bolts, but have considerably better armor penetration. At short range (at any range for muskets), attacks with firearms may ignore 5 points of armor for purposes of calculating the attack throw value necessary to hit the target. "Armor" for this purpose includes actual physical protection, thick hide, shields, etc. but not bonuses to AC due to magic or Dexterity. The Judge should apply common sense when deciding if a monster's Armor Class is due to its armor, the toughness of its hide, or magic and Dexterity.

The smoke and thunder of firearms is frightening. The discharge of a firearm against a target with a morale score of 0 or less forces the target to make an immediate morale check, even if the attack misses.

Range: The short, medium, and long ranges for the weapon. (Remember that ranges are measured in feet in dungeons but in yards in the wilderness). The weapon's range penalty is listed next to the range. Smoothbore firearms have twice the range penalty of other missile weapons. Rifled firearms have the normal range penalties. If the range is italicized, then the firearm ignores 5 points of armor at that range.

Firearm Characteristics										
		Range			**Reload Time**		**Misfire Chance**			
Firearm	**Damage**	**Short**	**Medium**	**Long**	**Drilled**	**Undrilled**	**Dry**	**Damp**	**Wet**	**Enc**
Flintlock Arquebus, Smoothbore	1d8	50'	100' (-4)	200' (-10)	4	5	10%	20%	40%	1 stone
Flintlock Musket, Smoothbore	1d8	50'	100'(-4)	200'(-10)	5	6	10%	20%	40%	2 stone
Flintlock Arquebus, Rifled	1d8	50'	100' (-2)	200' (-5)	6	8	10%	20%	40%	1 stone
Flintlock Musket, Rifled	1d8	50'	100'(-2)	200' (-5)	8	9	10%	20%	40%	2 stone
Flintlock Pistol, Smoothbore	1d8	25'	50' (-2)	100' (-10)	4	5	10%	20%	40%	1 item
Matchlock Arquebus, Smoothbore	1d8	50'	100' (-4)	200' (-10)	8	10	20%	40%	80%	1 stone
Matchlock Musket, Smoothbore	1d8	50'	100'(-4)	200'(-10)	9	11	20%	40%	80%	2 stone
Matchlock Arquebus, Rifled	1d8	50'	100' (-2)	200' (-5)	12	15	20%	40%	80%	1 stone
Matchlock Musket, Rifled	1d8	50'	100'(-2)	200'(-5)	13	17	20%	40%	80%	2 stone
Wheellock Arquebus, Smoothbore	1d8	50'	100' (-4)	200' (-10)	8	10	20%	20%	20%	1 stone
Wheellock Musket, Smoothbore	1d8	50'	100'(-4)	200'(-10)	9	11	20%	20%	20%	2 stone
Wheellock Arquebus, Rifled	1d8	50'	100' (-2)	200' (-5)	12	15	20%	20%	20%	1 stone
Wheellock Musket, Rifled	1d8	50'	100' (-2)	200' (-5)	13	17	20%	20%	20%	2 stone
Wheellock Pistol, Smoothbore	1d8	25'	50' (-4)	100' (-10)	8	10	20%	20%	20%	1 item

FIREARM CHARACTERISTICS

Reload Time: The base time in rounds to reload the weapon. For purposes of reload times, a character is considered *drilled* if his class provides a damage bonus with missile weapons, or if he has had four weeks of training with firearms by a marshal. A character is otherwise considered *undrilled*.

Adjust the base reload time by the character's Dexterity modifier. Increase reload time by 1 if the character is carrying more than 5 stone, by 2 if carrying more than 7 stone, and by 3 if carrying more than 10 stone. Reduce reload time by 1 if the character is using apostles (see below). Any round in which the character moves or defends himself (using his regular Armor class when attacked) does not count towards the reload time.

Note that while a longbowman might release as many as 20 arrows in a minute, and a crossbowman could sustain 4-6 shots per minute, even a drilled arquebusier or musketeer will fire perhaps one shot every minute or two. All firearms of this period were muzzle-loaders, which means that the gun was reloaded by jamming the bullet (a round ball),

powder, and wadding to secure it all, down the barrel. Rifled guns are even slower to load as the rifling in the barrel makes it impossible to quickly jam shot, powder, and wadding down the barrel.

Misfire Chance: Matchlock and Flintlock firearms have a chance of "misfiring," meaning that the powder discharges, but the bullet does not fire. A misfire will require three rounds to clear before attempting to fire again. Damp conditions (such as most dungeons) double the chances of misfiring, while wet conditions (such as rain) quadruple the chance of misfire. Wheellocks do not suffer an increased chance of misfire in damp or wet conditions, often making them the preferred (albeit expensive) choice for adventurers, sailors, and pirates. Guns that are not cleaned daily (with a gun cleaning kit) have double the chance of misfiring.

Encumbrance: The encumbrance of the firearm. A musket counts as 2 stone (including its musket rest), while an arquebus counts as 1 stone, and a pistol counts as 1 item.

FIREARM ACCESSORIES

12 Apostles: A bandolier with 12 shots worth of powder in pre-measured containers. Using an apostle reduces the time needed to load a firearm by one round. If a character wearing the apostles is hit by a fire attack, he must make a saving throw versus Blast for each unused apostle; for each failure he takes 1 point of damage as the powder explodes and fragments of the container act as shrapnel. It counts as 1 item for encumbrance purposes.

Artillerist's Kit: A set of implements used to service artillery. These include a caliper, to make measurements; a gunner's gimlet, to remove obstructions from the barrel; a gunner's level, to mark points of sight; a gunner's pincers, to remove debris; a plummet, to level the gun carriage; a ladle, to measure and dump powder; a priming wire, to pierce the cartridge in the bore; a rammer, to drive the shot and cartridge to the base of the bore; a pair of shell hooks, to move and load heavy shells; a sponge, to clean powder residue from the bore; and a worm, an iron screw on a wooden pole used to clean debris from the gun bore. An artillerist's kit weighs 4 stone so it is typically divided amongst multiple crew members.

Gunpowder: An explosive black powder made from mixing brimstone, charcoal, and saltpeter. Purchased in bulk, gunpowder costs 1gp per lb. A shot of gunpowder weighs about a half-ounce. A gunpowder barrel holds 2,500 shots of powder (75lbs) and weighs 10 stone (100lbs). If a barrel is struck by a fire-based attack, it detonates the powder within. The resulting explosion deals 5d8 damage to all within 30' (save versus Blast for half damage).

Gun Cleaning Kit: The black powder used by arquebuses and muskets is dirty and quickly clogs up the gun. Daily use of a gun cleaning kit keeps misfires to a minimum. A typical kit contains four steel rods, a wooden handle, a pair of brushes, a cotton bore swab, a musket nipple wrench, a bundle of cotton rags, and bottle of oil.

Match Cord: A 3' cord that can be lit on either end, used to ignite gunpowder in matchlock weapons. It burns at a rate of 4" per turn. It counts as 1 item for encumbrance purposes.

Musket Rest: A wooden fork rest that provides stability to a musket. Characters without a musket rest suffer a −2 penalty to attack throws with muskets. A musket rest counts as 1 stone for encumbrance purposes (included in the musket's encumbrance).

Powder Horn: A flask or container for gunpowder, generally of cow or ox horn, with a stopper at both ends. The wide mouth is used for refilling, while the narrow tip is used to dispense powder. The horn is held by a long strap slung over the shoulder. A character needs two horns with two types of powder in order to load a firearm. One type of powder goes down the muzzle with the wadding and shot; the other is used in the priming pan. (A character using apostles only needs one powder horn, with powder for the priming pan). If a character with a powder horn is hit by a fire-based attack, he must make a saving throw versus Blast in or take 1d3 damage for every 10 shots (round up) worth of powder remaining in the horn. A typical powder horn holds up to 50 shots (25 oz.) of gunpowder, and counts as 1 item for encumbrance purposes.

Shot, Round: Smooth, solid lead balls, ranging from ½" to ¾" in diameter and weighing about 1 – 1½ ounces each. 100 round shots weigh 1 stone.

Shot, Scatter: Small pellets, bits of metal, rocks, or other ammunition that scatter when fired. Any smoothbore arquebus, musket, or pistol may fire scattershot. Firing scattershot provides a +2 bonus to attack throws at short range, but only deals 1d6 damage on a successful hit instead of 1d8, and does not ignore armor. (Note that *Lamentations of the Flame Princess* uses a different mechanism for these weapons. Check with your Judge as to which mechanic is being used).

Shot Bag: A large pouch hung from a shoulder strap or belt. It holds up to 100 shots, and weighs 1 stone fully loaded.

FIREARM PROFICIENCIES

Firearm Fighting Style	
Firearm Type	**Reload Time**
Flintlock Arquebus, Smoothbore	3
Flintlock Musket, Smoothbore	4
Flintlock Arquebus, Rifled	5
Flintlock Musket, Rifled	7
Flintlock Pistol, Smoothbore	3
Matchlock Arquebus, Smoothbore	6
Matchlock Musket, Smoothbore	7
Matchlock Arquebus, Rifled	9
Matchlock Musket, Rifled	9
Wheellock Arquebus, Smoothbore	6
Wheellock Musket, Smoothbore	7
Wheellock Arquebus, Rifled	9
Wheellock Musket, Rifled	10
Wheellock Pistol, Smoothbore	6

Fighting Style (Firearms): The character is particularly skilled in the use of firearms. His reload times are reduced to the values shown in the accompanying table.

Craft (Gunsmith) (G): The character is an apprentice gunsmith. He can manufacture 10gp per month of firearms, and can identify famous gunsmiths, proof firearms, and repair damaged firearms with a proficiency throw of 11+. If a character selects Craft (Gunsmith) twice he is considered a journeyman gunsmith. He can manufacture 20gp per month of firearms, and supervise up to 3 apprentices, increasing their productivity by 50%. If he selects Craft (Gunsmith) three times, he is considered a master gunsmith. He can manufacture 40gp per month, and supervise up to 2 journeymen and 4 apprentices, increasing their productivity by 50%. He could work as a specialist in this craft (as described in the **Hiring Specialists** section of *ACKS*, p. 49).

Craft Proficiency Progression		
Rank (# of times taken)	**Gp Earned/ Month**	**Number of Workers Allowed**
1	10gp	N.A.
2	20gp	3 Apprentices
3	40gp	2 Journeymen, 4 Apprentices

Firearms

Craft (Pyrotechnics) (G): The character has studied the secret arts of gunpowder-making under a master pyrotechnician. The character is considered an apprentice in his trade. He can manufacture 10gp per month of gunpowder, and can identify famous pyrotechnicians, recipe-books, ingredients, and equipment used in the field with a proficiency throw of 11+. If a character selects Craft (Pyrotechnics) twice he is considered a journeyman pyrotechnician. He can manufacture 20gp per month of gunpowder, and supervise up to 3 apprentices, increasing their productivity by 50%. If he selects Craft (Pyrotechnics) three times, he is considered a master pyrotechnician. He can manufacture 40gp per month, and supervise up to 2 journeymen and 4 apprentices, increasing their productivity by 50%. He could work as a specialist in this craft (as described in the **Hiring Specialists** section of *ACKS,* p. 49). A master gunsmith with two ranks of Siege Engineering proficiency may work as a construction supervisor on gunpowder artillery construction projects (see *D@W: Campaigns*, p. 49).

Cromwell, our chief of men, who through a cloud,

Not of war only, but detractions rude,

Guided by faith and matchless fortitude,

To peace and truth thy glorious way has ploughed

And on the neck of crowned fortune proud

Has reared God's trophies, and his work pursued,

While Darwen stream with blood of Scots imbrued,

And Dunbar field resounds thy praises loud,

And Worcester's laureate wreath. Yet much remains

To conquer still: peace hath her victories

No less renowned than war: new foes arise,

Threatening to bind our souls with secular chains:

Help us to save free conscience from the paw

Of hireling wolves whose gospel is their maw.

- John Milton, Sonnet XVI,
"To the Lord General Cromwell"

ARTILLERY OF THE PIKE AND SHOT AGE

Gunpowder Artillery	Cost
Cannon, 60pdr (8,000lb)	4,000gp
Round Shot (60lb)	10gp
Powder Charge (30lb)	30gp
Cannon, 48pdr (6,650lb)	3,325gp
Round Shot (48lb)	8gp
Powder Charge (24lb)	24gp
Cannon, 36pdr (5,400lb)	2,700gp
Round Shot (36lb)	6gp
Powder Charge (18lb)	18gp
Cannon, 24pdr (3,400lb)	1,700gp
Round Shot (24lb)	4gp
Powder Charge (12lb)	12gp
Cannon, 12pdr (2,000lb)	1,000gp
Round Shot (12lb)	2gp
Powder Charge (6lb)	6gp
Gun, 24pdr (6,500lb)	3,250gp
Round Shot (24lb)	4gp
Powder Charge (24lb)	24gp
Gun, 18pdr (5,000lb)	2,500gp
Round Shot (18lb)	3gp
Powder Charge (18lb)	18gp
Gun, 12pdr (3,750lb)	1,875gp
Round Shot (12lb)	2gp
Powder Charge (12lb)	12gp
Gun, 9pdr (2,400lb)	1,150gp
Round Shot (9lb)	15sp
Powder Charge (9lb)	9gp
Gun, 6pdr (1,600lb)	800gp
Round Shot (6lb)	1gp
Powder Charge (6lb)	6gp
Gun, 3pdr (1,000lb)	515gp
Round Shot (3lb)	5sp
Powder Charge (3lb)	3gp
Gun, 2pdr (625lb)	315gp
Round Shot (2lb)	3sp
Powder Charge (2lb)	2gp
Gun, 1pdr (375lb)	195gp
Round Shot (1lb)	15cp
Powder Charge (1lb)	1gp
200pdr (32,000lb)	15,750gp
Stone Shot (200lb)	6gp
Powder Charge (100lb)	100gp
Mortar, 90pdr (15,000lb)	7,100gp
Stone Shot (90lb)	4gp
Powder Charge (45lb)	45gp
Mortar, 24pdr (4,000lb)	2,000gp
Stone Shot (24lb)	1.5gp
Powder Charge (12lb)	12gp
Mortar, 12pdr (2,000lb)	1,000gp
Stone Shot (12lb)	1gp
Powder Charge (6lb)	6gp

TYPE OF GUNPOWDER ARTILLERY

It is difficult, and likely impossible, to arrange the diverse and wide-ranging types of artillery that appeared in the Pike and Shot Age into a structure that is both coherent and historical. Depending on the nation and decade, weapons were named for the weight of shot they fired; the thickness of their tubing; the length of their barrel; or even the animal their carriage resembled. Sometimes the same term would be applied to weapons of entirely different characteristics (e.g., the manifold uses of "basilisk") while different terms might be used for virtually identical weapons. For game purposes, we have divided **gunpowder artillery** into three categories: **cannons**, **guns**, and **mortars**. Each of these categories include a range of weapons, which we have organized by the weight of their shot (e.g., a 60pdr cannon fires cannon balls weighing 60lbs each).

Cannon: A short-barreled thin-walled piece that throws iron round shot in a medium-high trajectory (15° to 45°). Cannon can shoot larger projectiles than guns of similar cost and weight, and can reach targets behind obstructions with plunging fire. They are designed to destroy forts and walls, and dismount the enemy's artillery. Historical examples include the battering cannon, double cannon, siege cannon, demicannon, and quarter cannon.

Gun: A long-barreled, thick-walled pieces that throws iron round shot at its target along a relatively flat trajectory (0° to 15°). Compared to cannon, guns cost and weigh more, and are limited to direct fire, but have superior range, accuracy, and safety. Guns are designed to battery heavy construction with solid shot, dismount enemy artillery, and blast massed troops. Historical examples include the culverin, third culverin, demiculverin, saker, minion, falcon, and falconet.

Mortar: A short-barreled thick-walled piece that throws stone balls and explosive shot in a high trajectory (35° to 70°). They use plunging fire to destroy targets sheltering behind obstacles and walls. Historical examples include the bombard, pedrero, mortar, and petro.

GUNPOWDER ARTILLERY CHARACTERISTICS

The Artillery Characteristics table on the next page details the weight, crew requirements, and other characteristics of artillery.

AC: The armor class of the artillery piece itself.

SHP: The structural hit points of the artillery piece itself. An artillery piece which is reduced to ½ its maximum SHP is **damaged** and cannot be fired again until it is repaired.

Base Weight: The weight of the artillery piece, including its carriage but excluding ammunition.

Barrel Caliber: The diameter, in inches, of the artillery's tube. An artillery piece will fire shot at least ¼" smaller than the caliber of its barrel. An 18-pound gun has a barrel caliber of 5.5". It fires round shot of 5.25".

Barrel Length: The length, in feet, of the artillery's tube. Gun barrels are longer than cannon barrels, which in turn are longer than mortar barrels. In general, the longer the barrel the more accurate the artillery piece. However, shorter-barreled weapons are lighter and can more easily be raised up to achieve a greater arc of fire.

Shot Weight: The weight of the ammunition fired by the artillery piece. Artillery is most effective when firing ammunition of the designated weight. Artillery can fire ammunition of a lighter weight than indicated for their type, but medium and long range are reduced by 25% due to windage. Artillery cannot fire ammunition of greater weight than indicated, as the diameter of the shot will be too large for the barrel's caliber.

Powder Charge: The amount of gunpowder (in pounds) consumed each time the weapon is fired. The heavier artillery pieces consume an exorbitant amount of powder! If a lower powder charge is used, the range and damage should be reduced accordingly. For instance, if a 2pdr gun is fired using a 1lb powder charge, halve its range and damage.

Range: All gunpowder artillery pieces have a short, medium, and long range (in yards). Cannon and guns can fire at short range with no penalty. Mortars cannot fire at targets at short range due to their high arc of fire. (A mortar's powder charge can be reduced to reduce its short range, but this reduces its damage. See above.) Fire at medium range imposes a −4 penalty to the artillery's attack throws. Fire at long range imposes a −10 penalty to the artillery's attack throws.

Damage: Gunpowder artillery that hits a ship or structure deals the listed damage to the structural hit points (shp) of the target. Artillery also deals the listed damage to the hit points of any creatures within the area of effect, as explained below.

Area of Effect (AOE): Artillery shot carries enough kinetic energy to blow through dozens of creatures. For cannons and guns, the artillery's area of effect is generally a 5' wide line that extends from the shot's **impact point** (see below) directly away from the artillery. For mortars, the artillery's area of effect is a radius around the impact point.

Crew: The number of crew required to efficiently operate the artillery piece. Artillery can be operated with a reduced crew, but rate of fire is reduced proportionately. For instance, if a cannon requires 6 crew and only 3 are available, rate of fire is halved. Artillery attacks as the lowest level member of the crew. Artillery crews without a sufficient number of artillerists suffer −4 to attack throws.

Rate of Fire (ROF): The type of artillery determines rate of fire. In between firing, the tube is sponged, powder and wadding added, the shot rammed down the tube, and, if necessary, the cannon elevated using a quadrant and plummet. Artillery crews without a sufficient number of artillerists reduce their rate of fire by half.

DETERMINING GUNPOWDER ARTILLERY CHARACTERISTICS

If desired, the Judge can use the formula below to estimate the characteristics of particular historical artillery pieces of a known shot weight that he wants to include in his campaign.

Barrel Caliber: For cannon and guns, which throw iron balls, caliber in inches is equal to 0.25 plus the cube root of the shot weight times 1.9237, e.g. $\text{Caliber} = 0.25 + 1.9237 \times (\text{Shot Weight})^{1/3}$. For mortars, which throw stone balls, caliber in inches is equal to 0.25 plus the cube root of the shot weight times 2.5, e.g. $\text{Caliber} = 0.25 + 2.5 \times (\text{Shot Weight})^{1/3}$.

Barrel Length: Barrel length in feet is a multiple of caliber in inches. Multiply caliber × 18 for cannon, × 30 for guns, and × 8 for mortars.

Powder Weight: Powder weight is equal to ½ shot weight for cannons and mortars, and full shot weight for guns.

Short Range: Short range in yards is a multiple of barrel length in feet determined by artillery type. Multiply barrel length × 30 for cannons, × 32 for guns, and × 40 for mortars. Round to the nearest 20 yards.

Long Range: Long range in yards is a multiple of short range determined by artillery type. Multiply short range × 4.85 for cannon, × 5.4 for guns, and × 10 for mortars. Round to the nearest 100 yards.

Medium Range: Medium range is equal to short range plus 28% of the difference between unrounded long range and short range, e.g. $\text{Medium range} = [0.28 \times (\text{Long Range} - \text{Short Range})] + \text{Short Range}$. Round to the nearest 20 yards.

Gunpowder Artillery Characteristics													
Artillery Type	AC	SHP	Base Weight	Barrel Caliber	Barrel Length	Shot Weight	Powder Charge	Short Range	Medium Range	Long Range	Damage	AOE	Crew	ROF
60-pdr Cannon	2	16	8,000lb	8"	12'	60lb	30lb	360'	740'	1,700'	12d10	60'	19 men	1/60
48-pdr Cannon	2	13	6,650lb	7.5"	11'3"	48lb	24lb	340'	700'	1,600'	10d10	55'	17 men	1/54
36-pdr Cannon	2	11	5,400lb	7"	10'6"	36lb	18lb	320'	650'	1,500'	8d10	45'	15 men	1/50
24-pdr Cannon	2	7	3,400lb	6"	9'	24lb	12lb	280'	560'	1,300'	6d10	35'	13 men	1/40
12-pdr Cannon	2	4	2,000lb	5"	7'6"	12lb	6lb	220'	460'	1,000'	4d10	25'	11 men	1/32
24-pdr Gun	2	13	6,400lb	6"	15'	24lb	24lb	480'	1,000'	2,500'	10d10	55'	13 men	1/40
18-pdr Gun	2	10	5,000lb	5.5"	13'9"	18lb	18lb	440'	960'	2,300'	8d10	45'	11 men	1/36
12-pdr Gun	2	8	3,750lb	5"	12'6"	12lb	12lb	400'	880'	2,100'	6d10	35'	9 men	1/32
9-pdr Gun	2	5	2,400lb	4.25"	10'8"	9lb	9lb	340'	740'	1,800'	5d10	30'	7 men	1/26
6-pdr Gun	2	3	1,600lb	3.75"	9'4"	6lb	6lb	300'	660'	1,600'	4d10	25'	5 men	1/22
3-pdr Gun	2	2	1,000lb	3.25"	8'2"	3lb	3lb	260'	560'	1,400'	3d10	20'	3 men	1/18
2-pdr Gun	2	1	625lb	2.75"	6'10"	2lb	2lb	220'	480'	1,200'	2d10	15'	3 men	1/14
1-pdr Gun	2	1	375lb	2.25"	5'8"	1lb	1lb	180'	400'	1,000'	1d10	10'	3 men	1/12
200-pdr Mortar	2	64	32,000lb	15"	10'	200lb	100lb	400'	1,400'	4,000'	26d10	20'	42 men	1/120
90-pdr Mortar	2	28	15,000lb	11.5"	7'8"	90lb	45lb	300'	1,000'	3,000'	15d10	15'	24 men	1/85
24-pdr Mortar	2	8	4,000lb	7.5"	5'	24lb	12lb	200'	700'	2,000'	6d10	10'	13 men	1/48
12-pdr Mortar	2	4	2,000lb	6"	4'	12lb	6lb	160'	560'	1,600'	4d10	5'	11 men	1/36

Base Weight: Base weight in pounds is equal to barrel caliber (in inches) squared times barrel length (in feet) times a weight modifier, e.g. Base Weight = Barrel Caliber^2 × Barrel Length x Weight Modifier. Weight modifier is 10.5 for cannons, 12 for guns, and 14 for mortars.

Crew: The number of men required is based on the shot weight. At 0-3lbs, 3 men; 4-6lbs, 5 men; 7-9lbs, 7 men; 10-12lbs, 9 men; 13-18lbs, 11 men; 19-24lbs, 13 men; 25-36lbs, 15 men; 37-48lbs, 17 men; 49-60lbs, 19 men; and an additional 1 man for every 6lbs thereafter.

Damage: Damage can be approximated based on powder weight, using the following guidelines. Damage is 1d10 per lb up to 3lbs. Damage is 1d10 per 3lbs for every 3lbs thereafter, up to 30lbs. Damage is 1d10 per 5lbs thereafter.

AOE: Area of effect can be approximated based on damage, using the following guidelines. For cannon and guns, the area of effect is a line 5' wide with a length equal to 5' + 5' multiplied by the number of damage dice, to a maximum of 60'. For mortars, the area of effect is a 5' radius at up to 5d10 damage, 10' radius at up to 10d10 damage, 15' radius at up to 20d10 damage, and 20' radius at more than 20d10 damage.

ROF: An artillery piece may fire a number of shots per day determined by its barrel caliber, using the formula SPD = 90 / (Shot Weight /12)$^{0.4}$. Using shots per day, ROF is calculated as 1 / [1/ (shots per day / 2880)]. Multiply shots per day for mortars by 0.833. (Note that the ROFs of the artillery pieces presented on the Gunpowder Artillery Characteristics table are often *slightly* better than the ROFs calculated with this formula. This represents the fact that highly standard artillery pieces should have optimized their rates of fire through years of minor improvements and crew training.)

Cost: Cost in gold pieces is equal to ½ base weight.

MOVING GUNPOWDER ARTILLERY

Over the course of the Age of Pike and Shot, technological innovations such as the field carriage and the limber gunpowder made it possible for artillery to be increasingly mobile. Over time this created a differentiation between so-called "field artillery", which could be limbered, and "garrison artillery", which was too heavy for field carriages.

The Gunpowder Mobility table, below, shows the different types of carriages available for each artillery type by era, along with the movement rates and assembly/disassembly time associated with the carriages.

Carriageless: At the beginning of the Age of Pike and Shot, gunpowder artillery pieces lacked any carriage. They were transported to the battlefield in everyday carts or wagons, where they were laid directly onto the ground, with the barrel elevated by piling earth up under the muzzle end. As a result, battlefield mobility was non-existent. Carriageless artillery is transported on carts or wagons at a rate of 12 miles per day and 48 miles per week. (Carts and wagons must be purchased separately.) Assembling and disassembling carriageless artillery takes 1 turn per 100lbs, rounded up. Carriageless artillery cannot move on the battlefield at all, even to change facing.

Garrison Carriage: Designed for use within fortresses or aboard ships, a garrison carriage is a sturdy wooden frame with four small wheels that allow the artillery piece to roll backward with recoil and roll forward again into firing position. The wheels are too small for long-distance movement, so garrison artillery (i.e. artillery on garrison carriage) must be transported on carts or wagons at a rate of 12 miles per day and 48 miles per week. (Carts and wagons must be purchased separately.) Assembling and disassembling garrison artillery takes 1 turn per 1,000lbs, rounded up. Garrison artillery

Gunpowder Mobility				
Artillery Type	**Carriageless**	**Garrison Carriage**	**Field Carriage**	**Field Carriage and Limber**
60-pdr Cannon	Early	Middle	Not Available	Not Available
48-pdr Cannon	Early	Middle	Not Available	Not Available
36-pdr Cannon	Early	Middle	Middle	Late
24-pdr Cannon	Early	Middle	Middle	Late
12-pdr Cannon	Early	Middle	Middle	Late
24-pdr Gun	Early	Middle	Not Available	Not Available
18-pdr Gun	Early	Middle	Not Available	Not Available
12-pdr Gun	Early	Middle	Middle	Late
9-pdr Gun	Early	Middle	Middle	Late
6-pdr Gun	Early	Middle	Middle	Late
3-pdr Gun	Early	Middle	Middle	Late
2-pdr Gun	Early	Middle	Middle	Late
1-pdr Gun	Early	Middle	Middle	Late
200-pdr Mortar	Early	Middle	Not Available	Not Available
90-pdr Mortar	Early	Middle	Not Available	Not Available
24-pdr Mortar	Early	Middle	Middle	Late
12-pdr Mortar	Early	Middle	Middle	Late
Daily/ Weekly Movement	**12/ 48**	**12/ 48**	**12/ 48**	**12/ 48**
Encounter Movement	None	Facing Change	30'	30' or 60'
Assembly/Disassembly	1 turn / 100lbs.	1 turn / 1,000 lbs.	1 turn	1 round
Carriage Cost	None	25% artillery cost	33% artillery cost	50% artillery cost
Carriage Weight	None	16% artillery weight	33% artillery weight	66% artillery weight
Horses	Total weight /550lbs.	Total weight / 800lbs	Total weight / 1,200lbs.	Total weight / 1,600lbs
Carts/Wagons	Total weight/6,400lbs	Total weight/6,400lbs	None	None

cannot move on the battlefield, but the wheeled carriage allows its facing to be changed. Garrison artillery cannot fire or be reloaded during a round when its facing is changed.

Field Carriage: Built for battlefield mobility, a field carriage consists of a lightweight wooden frame perched atop two large, reinforced wheels. A pair of legs, called "trails", extend rearward from the frame to the ground, providing stability. The wheels are similar to those used on wagons and allow field artillery (i.e. artillery mounted on field carriage) to be pulled muzzle-first by a team of horses at a rate of 12 miles per day and 48 miles per week. It takes 1 turn to harness or un-harness the carriage to or from its team of horses. On the battlefield, field artillery can be manhandled at a movement rate of 30' per turn. Field artillery cannot fire or be reloaded during a round when its moves or changes facing.

Field Carriage and Limber: A limber is a two-wheeled cart designed to support the trail of a field carriage. (Despite the seeming obviousness of the limber, its development lagged that of the field carriage by almost 100 years!) Limbered field artillery can be pulled by a team of horses at a rate of 12 miles per day and 48 miles per week. While limbered, it can be moved on the battlefield at a rate of 60' per turn. While unlimbered, field artillery can be manhandled at a movement rate of 30' per turn. It takes one round to limber and unlimber field artillery. Field artillery cannot fire or be reloaded during a round when it limbers, unlimbers, moves, or changes facing.

Daily/Weekly Movement: The rate at which artillery can move on the regional map during campaign activities (see *D@W: Campaigns*, p. 55). All artillery is assumed to be moved by carts or wagons with an encounter movement rate of 60' per turn, yielding movement rates of 12 miles per day and 48 miles per week.

Artillery Type	Carriageless	Garrison	Field	Limber
60-pdr Cannon	15 horses	12 horses	9 horses	8 horses
48-pdr Cannon	12 horses	10 horses	7 horses	7 horses
36-pdr Cannon	10 horses	8 horses	6 horses	6 horses
24-pdr Cannon	6 horses	5 horses	4 horses	4 horses
12-pdr Cannon	4 horses	3 horses	2 horses	2 horses
24-pdr Gun	12 horses	9 horses	7 horses	7 horses
18-pdr Gun	9 horses	7 horses	6 horses	7 horses
12-pdr Gun	7 horses	5 horses	4 horses	5 horses
9-pdr Gun	4 horses	3 horses	3 horses	4 horses
6-pdr Gun	3 horses	2 horses	2 horses	2 horses
3-pdr Gun	2 horses	1 horse	1 horse	2 horses
2-pdr Gun	1 horse	1 horse	1 horse	1 horse
1-pdr Gun	1 horse	1 horse	1 horse	1 horse
200-pdr Mortar	58 horses	46 horses	35 horses	33 horses
90-pdr Mortar	27 horses	22 horses	17 horses	16 horses
24-pdr Mortar	7 horses	6 horses	4 horses	4 horses
12-pdr Mortar	4 horses	3 horses	2 horses	2 horses

Encounter Movement: The rate at which artillery can move per turn. Carriageless and garrison carriage artillery are both immobile, but artillery on garrison carriages can change the direction they face, while carriageless artillery is fixed in position.

Assembly/Disassembly: This is the amount of time required for an artillery crew to assemble or disassemble the artillery and carriage before any daily/weekly movement. Artillery cannot be moved across long distances until it is disassembled. Artillery cannot be fired until it is assembled, so an army that has to suddenly pitch battle, or is surprised on the march, will not have access to its artillery initially.

Cost and Weight: The cost in gold pieces and weight in stone for the carriage. The cost and weight of the carriage is a percentage of the cost and weight of the artillery piece itself. Larger, bulkier artillery pieces require bigger, sturdier carriages.

Horses: The number of heavy horses required to move the artillery is equal to the total weight of the artillery and carriage divided by a value based on carriage type (ranging from 550 - 1,600). 6 men, 2 mules, or 2 medium horses can be substituted for 1 heavy horse. Artillery without a sufficient number of horses cannot be moved. The adjacent table summarizes the number of horses required for each type of artillery by carriage.

Wagons: Carriageless and garrison artillery require large carts or wagons to move, which must be purchased separately at a rate of one large cart per 1,600lbs of total weight. One wagon can be substituted for four large carts.

ATTACKING WITH GUNPOWDER ARTILLERY

When gunpowder artillery attacks, it aims at an **impact point**. The impact point can be a particular creature, structure, ship, terrain feature, or simply a point in space. The artillery then makes an attack throw against its base target value, applying the range modifier and any appropriate modifiers from the rules below. (Remember, artillery attacks as the lowest level member of the crew). The result is determined by the attack throw:

» If the attack throw exceeds the target value *and* an unmodified 20 is rolled, then a **direct hit** occurs. The artillery's shot has hit the impact point. If the impact point is on a structure or ship, the artillery deals damage to the structural hit points (shp) of the target. The structure or ship may make a **structural saving throw** to avoid being damaged (see below). If the impact point is a creature, terrain feature, or point in space, then the artillery deals damage to all creatures in its area of effect. Creatures in the area of effect (including the creature at the impact point, if any) can reduce damage by half with a successful saving throw v. Blast. Creatures on the far side of arrow loops, battlements, etc. will receive a +4 to their saving throws (see *D@W: Campaigns*, p. 49).

» If the attack throw exceeds the target value on an unmodified 2-19, *or* an unmodified 20 is rolled, then a **close hit** occurs. The artillery's shot has landed 1d6 yards away from the impact point. Roll 1d12 to determine the direction to a new impact point, applied as a clock direction from the original impact point (such that 6 o'clock points towards the firing artillery). Resolve the effects of the artillery as if a hit had occurred at the new impact point. However, successful saving throws avoid all damage.

» If the attack throw fails with an unmodified 1, then a **misfire** occurs. When a misfire occurs, roll again. If the result is an unmodified 2-20 then the shot and powder are wasted but there is no other effect. If the result is another unmodified 1, then an accidental powder discharge has occurred. All crew members must save versus Blast or take 4d6 point of damage. The artillery piece must save versus Blast or be damaged (reduced to ½ its maximum shp). The gunpowder artillery piece saves as a 4th level fighter if attended by an artillerist, or as a normal man if not.

» A **scatter** occurs on any other result. Roll 1d12 to determine the direction to a new impact point, applied as a clock

direction from the original impact point (such that 6 o'clock points towards the firing artillery). If at short range, the new impact point is 2d6 yards away in the indicated direction. If at long range, it lands 2d6 × 5 yards away. If thrown at long range, it lands 2d6 × 25 yards away. Resolve the effects of the artillery as if a close hit had occurred at the new impact point.

Type of Artillery	Short Range	Medium Range	Long Range
Gun	Direct Fire Only	Direct Fire Only (-4)	Direct Fire Only (-10)
Cannon	Direct Fire Only	Direct Fire (-4) or Plunging Fire (-8)	Plunging Fire Only (-14)
Mortar	May Not Fire	Plunging Fire Only (-8)	Plunging Fire Only (-14)

EXAMPLE #1: A 6-pdr gun designates as its impact point a stone tower that is 1,000 yards away, placing it at long range (-10). All members of the crew are normal men (attack throw 11+). The target value for the attack throw is therefore 21+.

The die roll is an unmodified 20. The die roll does not exceed the target value, so this is not a direct hit; but since an unmodified 20 was rolled, the gun scores a close hit. The Judge rolls 1d12 to determine the direction to a new impact point, and gets a 6. He then rolls 1d6, getting a 2. The impact point is shifted 2 yards in the 6'o'clock direction, back towards the gun. The new impact point lands on a small, empty hillock. The 6-pdr gun will deal 4d10 damage to any creatures in a 25' x 5' wide line extending from the impact point directly away from the gun. This carries it into the base of the tower.

EXAMPLE #2: A 12-pdr gun designates as its impact point the center of a 100' stretch of stone wall. All members of the crew are normal men (attack throw 11+). The wall is 400 yards away, placing it at medium range (-4), resulting in a target value for the attack throw of 15+.

The die roll is a 7, resulting in a scatter. The Judge rolls 1d12 to determine the direction to a new impact point, and gets a 9. He then rolls 2d6 x 5, resulting in a 50. The impact point is shifted 50 yards in the 9'o'clock direction. The new impact point is not on a structure or ship; it's just a spot on an empty meadow. Therefore the 12-pdr gun will deal 6d10 damage to any creatures in a 35' x 5' wide line extending from the impact point directly away from the gun.

As it happens, a party of adventurers was crossing the meadow, and two unfortunate adventurers are in the area of effect. Each must save versus Blast. The first character succeeds and takes no damage; the round shot whizzes past him harmlessly. The second character fails his save, and takes 18 points of damage. This is enough to incapacitate him. Blood sprays everywhere as the gun's shot shatters his flesh.

Line of Sight: Unless using plunging fire, an artillery piece must have a line of sight to its designated impact point. If the artillery's line of sight to its impact point is blocked, then the artillery's impact point becomes the point at which its line of sight is blocked.

Line of sight may be blocked by ships, structures, elevated or obscuring terrain, formations of troops, or gigantic and colossal creatures. The Judge should use his discretion (or, if he has Engineering proficiency in real life, a protractor and some trigonometry) to determine if line of sight is blocked. For instance, a 5' wall at a range of 100 yards probably shouldn't block line a gun's line of sight to a distant castle, but a 20' wall at a range of 10 yards probably should.

Plunging Fire: Plunging fire allows an artillery piece to aim at impact points that are not within line of sight. Guns cannot use plunging fire. Cannons may use plunging fire at medium range, and *must* use plunging fire at long range. Mortars must use plunging fire at medium and long range (and cannot aim at targets at short range at all). Plunging fire imposes a −4 penalty on the artillery's attack throws. Double the distance of any scatter that results from plunging fire.

EXAMPLE: A 24-pdr cannon aims at a formation of troops 1,000 yards away on the far side of a hill. The impact point is not in line of sight. All members of the crew are normal men (attack throw 11+). The attack is occurring at long range, imposing a -10 penalty. The cannon can (in fact, must) use plunging fire in its attack, imposing an additional -4 penalty. The target value for the attack throw is 25+, so only a natural 20 will succeed. The die roll is only a 4, so the shot scatters. At long range, scatter is normally 2d6x25 yards, but because the cannon is using plunging fire, this is doubled to 2d6x50 yards.

Structural Saving Throws: While ancient stone-throwing artillery deal only 1/10th damage to stone structure, gunpowder artillery deals full damage to stone structures. However, despite their velocity, cannon balls often bounce off sturdy ships and structures without dealing substantial damage. When a ship or structure is struck by a gunpowder artillery shot, it may make a structural saving throw against a target value of (21 + Range Modifier – AC). If the throw succeeds, the ship or structure takes no damage from the attack.

EXAMPLE: 30 rounds later, the crew of the 12xpdr gun has reloaded and is firing again. The crew again designates as its impact point the center of the stone wall, 400 yards away. This time the attack throw succeeds. Rolling 6d10, the gun's crew deals 21 shp of damage to the wall.

The wall now receives a structural saving throw. Since the wall is at medium range (-4) and has an AC of 6, the target value for its saving throw is 21 + (-4) − (6), or 11+. The die roll is a 19, so the shot does no damage to the wall.

Shrapnel: Gun and cannon shots that strike a ship or structure will not bounce and plough through creatures, so the standard area of effect does not apply. Instead, the round shot will shatter on impact, blasting **shrapnel** of iron fragments, wood splinters, and stone shards into the surrounding area. Shrapnel deals the artillery's normal damage in a 5' radius around the impact point. Creatures in the area of effect can avoid the damage with a successful saving throw v. Blast. Creatures on the far side of arrow loops, battlements, etc. will receive a +4 to their saving throws.

EXAMPLE: When the 12-pdr gun struck the wall (in the example above), three musketeers were stationed behind battlements near the impact point. The first was 2' from the impact point, the second was 4' from it, and the third was 8' from it. A 12-pdr gun's shot blasts shrapnel in a 5' radius, so the first and second must each make a saving throw versus Blast. As the musketeers are normal men, their target value is 17+. Each gains a +4 bonus due to the protection afforded by the battlements. The first musketeer rolls a 2, and dies from the consequent 6d10 damage he receives. The second musketeer rolls an 18 and takes no damage. The second and third musketeer are shocked at Athos' sudden death.

BOMBARDING WITH GUNPOWDER ARTILLERY

Despite their much lower rate-of-fire, gunpowder artillery are considerably more effective at smashing down castles walls than stone-throwing artillery, especially at closer ranges. Bombardment by a gunpowder artillery piece reduces the stronghold's shp each day by the amount shown on the Gunpowder Artillery Bombardment table, below. Separate damage values are listed for each range and for direct and plunging fire. The values listed are for bombardments of stone
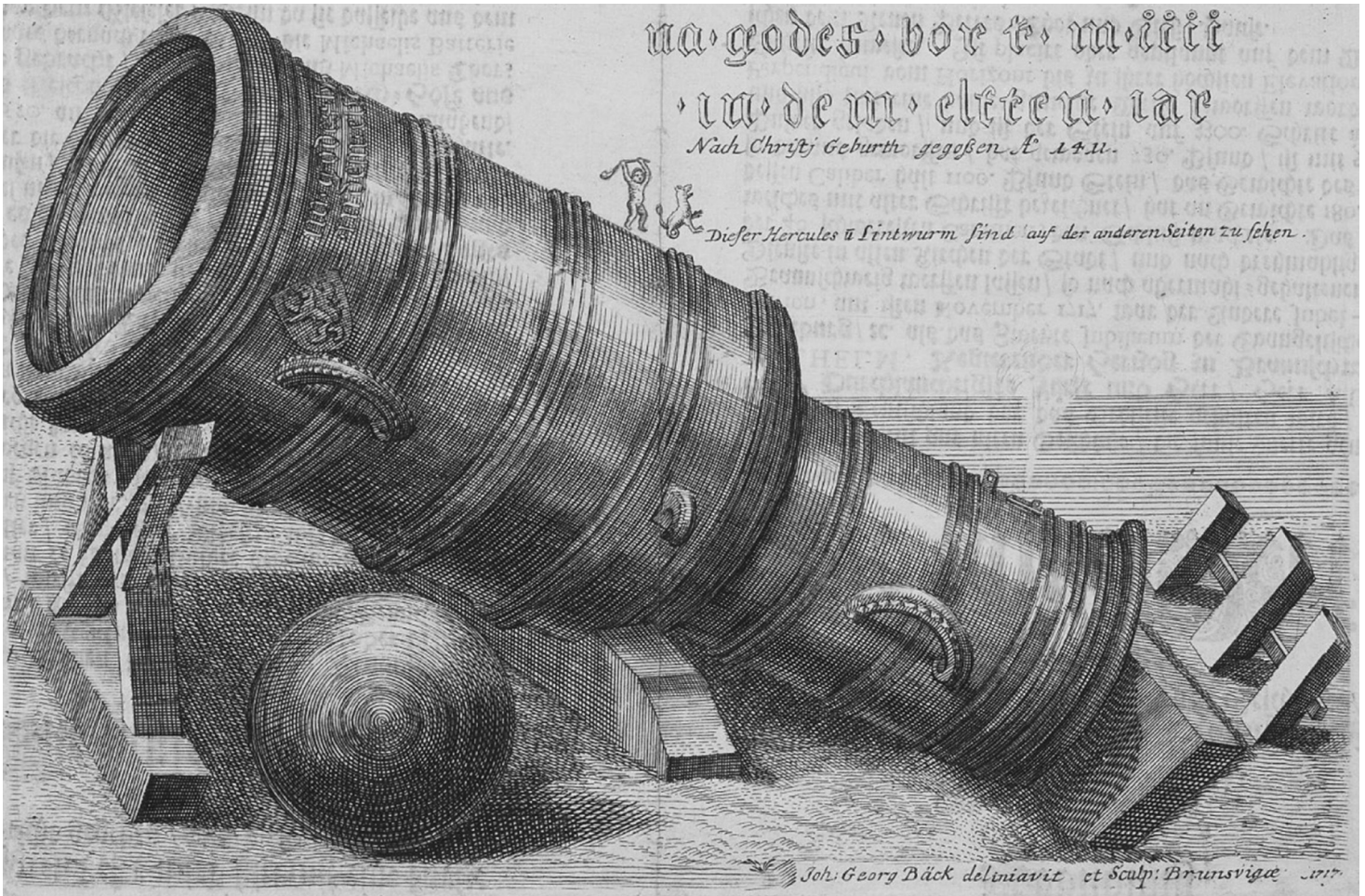
structures. When bombarding wood structures, increase damage by 33% at short and medium range and by 66% at long range.

Ammunition: Unlike stone-throwing artillery (which can use cheap, readily-available rocks, rubble, and cadavers) gunpowder artillery requires expensive powder and shot for each firing. Only a leader as rich as a king can afford to deploy many gunpowder artillery pieces for long. The shots fired each day of a bombardment are listed on the Artillery Bombardment table, alongside the daily cost of ammunition.

SPIKING THE GUNS

Artillery can be temporarily disabled by hammering a barbed steel spike into the vent, a process known as "spiking the gun." A character can attempt to spike a gun by spending one combat round stationary

Gunpowder Artillery Bombardment						
Artillery Type	**Range Brackets**	**Direct/ Plunging @ Short Range**	**Direct/ Plunging @ Medium Range**	**Direct/ Plunging @ Long Range**	**Shots Fired Per Day**	**Daily Powder & Shot Cost**
60-pdr Cannon	360/740/1,700	1,750/-	900/700	-/85	48	2,000gp
48-pdr Cannon	340/700/1,600	1,625/-	850/650	-/75	55	1,750gp
36-pdr Cannon	320/650/1,500	1,400/-	725/575	-/65	60	1,440gp
24-pdr Cannon	280/560/1,300	1,325/-	675/525	-/60	72	1,150gp
12-pdr Cannon	220/460/1,000	1,100/-	575/450	-/50	90	725gp
24-pdr Gun	480/1,000/2,500	2,200/-	1,150/-	120/-	72	2,000gp
18-pdr Gun	440/960/2,300	1,950/-	1,025/-	105/-	80	1,675gp
12-pdr Gun	400/880/2,100	1,650/-	850/-	90/-	90	1,250gp
9-pdr Gun	340/740/1,800	1,700/-	875/-	90/-	110	1,150gp
6-pdr Gun	300/660/1,600	1,600/-	825/-	85/-	130	910gp
3-pdr Gun	260/560/1,400	1,475/-	750/-	80/-	160	550gp
2-pdr Gun	220/480/1,200	1,250/-	650/-	70/-	205	475gp
1-pdr Gun	180/400/1,000	725/-	375/-	40/-	240	275gp
200-pdr Mortar	400/1,400/4,000	-/-	-/775	-/90	25	2,650gp
90-pdr Mortar	300/1,000/3,000	-/-	-/625	-/75	35	1,715gp
24-pdr Mortar	200/700/2,000	-/-	-/450	-/45	60	800gp
12-pdr Mortar	160/560/1,600	-/-	-/400	-/45	80	550gp

and adjacent to it. If the character has Siege Engineering proficiency and is equipped with a hammer and spike, the spiking automatically succeeds; otherwise he must make a successful attack throw against the artillery to spike it.

Once an artillery piece has been spiked, it cannot be fired until the spike is removed. Removing a spike is a 1gp construction project requiring Craft (Gunsmith) proficiency.

GUNPOWDER ARTILLERY DUELS

The bombardment rules assume that the besieger has artillery, while the defender does not. It is considerably more difficult to conduct bombardment when the besieged stronghold can return fire. When both the besieging and defending armies have artillery, the besieger has two options. A cautious besieger can restrict himself to using artillery capable of bombarding from outside the range of the defender's artillery. If the besieging army has no artillery that outrange the defender's artillery, of course, then this is not an option.

> EXAMPLE: Graf Steinhauer has four 12-pdr guns defending his stronghold (2,100 yard range). Duce Falconi is besieging with six 24-pdr cannons (1,300 yard range) and two 90-pdr mortars (3,000 yard range). If Falconi does not wish to put his cannons at risk, he must bombard using only his mortars.

A more aggressive besieger can commence an **artillery duel** by moving his artillery into long range of one or more of the defender's artillery pieces. If desired, an artillery duel may be resolved as a heroic foray and played out using the *ACKS* combat rules. An artillery duel may also be played out using the battlemap and *Domains at War: Battles*. Otherwise, resolve the duel using the following system. You will need the artillery piece's shp, ranges, ROF, and damage from the Gunpowder Artillery Characteristics table (p. 14).

The duel begins with the besieging army's artillery pieces placed at any range from the besieging army's position that is equal to or greater than the defender's longest-range artillery piece. The duel then proceeds in a series of rounds.

1. Each defending artillery piece may fire, reload, or hole up. Suppressed artillery cannot take any action, however.

   a. A defending artillery piece which fires designates one of the besieging artillery pieces as its target and makes an attack throw. The target value for the attack throw is 6+ at short range, 14+ at medium range, and 20+ at long range. (Do not worry about direct hits, close hits, scatter, or saving throws. It's all factored in.) If the attack throw succeeds, roll for damage (using the damage values listed on the Gunpowder Artillery Characteristics table) and apply it to the target's shp. If the target is reduced to 0 shp or less, it is destroyed. Otherwise, the target is suppressed for one turn. Once an artillery piece has fired, it may not fire again until it reloads.

   b. An artillery piece which reloads reduces the number of rounds until it can fire again by one. An artillery piece cannot "pre-load".

   c. An artillery piece which holes up leaves the artillery duel. It cannot fire or be fired on.

2. If all of the besieger's artillery has been destroyed, the duel is over. Otherwise, each besieging artillery piece may fire, reload, or move.

   a. A besieging artillery piece which fires designates one of the defending artillery pieces as its target and makes an attack throw. The procedure is exactly as in 1(a), but the defending artillery piece may make a saving throw with a target value of 11+ to avoid taking any damage.

   b. An artillery piece which reloads reduces the number of rounds until it can fire again by one. An artillery piece cannot "pre-load".

   c. An artillery piece which moves can advance forward, decreasing its range to the besieged army's position by 20 yards; or it can fall back, increasing its range to the besieged army's position by 20 yards. Record the artillery piece's new range on a piece of scratch paper. Only artillery with field carriage and limber may move during an artillery duel. See **Moving Gunpowder Artillery**, below.

3. If all of the defender's artillery has been destroyed or has holed up, or if all of the besieger's artillery has fallen back beyond the defender's range, the duel is over. Otherwise, return to step 1.

> EXAMPLE: Duce Falconi decides to engage in an artillery duel against his besieged foe, Graf Steinhauer. Graf Steinhauer is defending his stronghold with four 12-pdr guns, labeled A, B, C, and D. Duce Falconi is bombarding with six 24-pdr cannons on field carriages with limbers, labeled U, V, W, X, Y, and Z; and with two 90-pdr mortars on garrison carriages, labeled M and N.
>
> Steinhauer's guns have a maximum range of 2,100 yards. Therefore when the duel begins, Falconi may set up his artillery anywhere that is at least 2,100 yards from Steinhauer's position. He places the two 90-pdr mortars at 2,500 yards and the six 24-pdr cannons at 2,100 yards. Round 1 now begins.
>
> In the first phase of round 1, Steinhauer may choose to have each of his four 12-pdr guns either fire or hole up. Steinhauer fires all four 12-pdr guns at Falconi's cannons. Each gun (A, B, C, and D) targets a different cannon (U, V, W, and X). The guns are firing at long range, so the target value for their attack throws is 20+. Steinhauer rolls 18, 10, 14, and 10, missing four times.
>
> In the second phase of round 1, Falconi may fire or move each of his artillery pieces. He moves the six 24-pdr cannon forward 10 yards, to 2,080 yards. He fires his two 90-pdr Mortars (M and N) at Gun A. The mortars are firing at long range, so the target value for their attack throws is 20+. Falconi rolls 11, a miss, and 20, a hit! Because Gun A is on the defense, it can make a saving throw with a target value of 11+ to avoid taking damage, however. Steinhauer rolls a 12 – his gun is saved.
>
> Round 2 now begins. Steinhauer reloads his guns. 12-pdr guns have a rate of fire of 1/32 so if they reload continuously they will be able to fire on round 33. Then Falconi reloads his mortars. 90-pdr mortars have a rate of fire of 1/85 so if they reload continuously they will be able to fire on round 86. Falconi then advances his cannon to 2,080 yards.
>
> Play continues in this manner. At the end of round 32, Steinhauer's guns are reloaded, while Falconi's cannon are 1,460 yards away. Round 33 begins. In the first phase, Steinhauer fires his four 12-pdr guns. The guns are still firing at long range, so the target value for their attack throws is 20+. Steinhauer rolls 20, 10, 19, and 14, so Gun A hits Cannon U. The 12-pdr gun deals 6d10 shp of damage, and demolishes cannon U. (Note that the besieger's artillery pieces do not receive saving throws). In the second phase of round 33, Falconi continues to reload his mortars and advance his surviving cannons.
>
> Over the course of rounds 34 – 40, Steinhauer reloads his guns while Falconi reloads his mortars and advances his cannon. At the end of round 40, Falconi's cannon are 1,300 yards from Steinhauer's position, putting them at long range! Round 41 begins.

In the first phase of round 41, Steinhauer reloads his guns. (They will finish reloading in round 64 and be able to fire in round 65.) In the second phase of round 41, Falconi reloads his mortars. He could fire his cannon, but instead he decides to advance them to 1,280 yards.

Falconi continues to aggressively push forward for the next 23 rounds. At the end of round 64, Falconi has gotten his cannon to a range of 820 yards. Round 65 begins. In the first phase, Steinhauer's guns are now reloaded, and he opens fire! 800 yards is medium range for 12-pdr guns, so his attack throw target value is 14+. Steinhauer rolls 17, 11, 16, and 5, hitting and destroying cannons V and X. In the second phase, Falconi again reloads his mortars and again advances his three surviving cannons (W, Y, and Z) to 800 yards.

Over the course of rounds 66 – 77, Steinhauer reloads his guns while Falconi reloads his mortars and advances his cannon. At the end of round 77, the cannon are at 560 yards from Steinhauer's position, putting them at middle range. Round 78 begins. In the first phase, Steinhauer reloads his guns again. (They will finish reloading in round 96 and be able to fire in round 97). In the second phase, Falconi fires his cannon. At medium range, their attack throw target value is 14+. Falconi rolls 11, 7, and 19, hitting gun C. Gun C rolls a 6 on its saving throw, failing, and is destroyed by 28 shp of damage. Falconi then reloads his mortars. (They will finish reloading in round 85 and be ready to fire in round 86.)

During rounds 78 to 85, all the artillery pieces are busily reloaded. Steinhauer spends the first phase of round 86 reloading as well. During the second phase Falconi reloads his cannon, and then fires his mortars. He rolls a 6 and a 9, missing.

Rounds 86 to 96 are spent reloading. On round 97, Steinhauer's guns are reloaded, and he opens fire! His attack throw target value is 14+, but he rolls 11, 6, and 12, missing three times. Rounds 98-120 are spent reloading. On round 121, Falconi's cannon are reloaded, and they fire. His attack throw target value is 14+. He rolls 13, 8, and 14. Gun D is hit. Gun D rolls a 20 on its saving throw, however, and is unharmed.

The duel could continue in this manner for some time, likely ending with Falconi's cannons being destroyed while Steinhauer's guns are further reduced in number and then hole up, leaving Falconi's mortars to bombard.

GUNPOWDER ARTILLERY BATTLE RATINGS

When used during Domains at War: Campaigns assaults and battles, gunpowder artillery must be grouped into units. The number of pieces of artillery required to form a unit depends on the type of artillery. The unit size and battle rating is listed in the Gunpowder Artillery Battle Rating table. Artillery not present in sufficient numbers to form a unit do not affect a Domains at War: Campaigns assault or battle

Unit Size: The minimum number of pieces of artillery that must be deployed to have an effect on an assault.

BR: Gunpowder artillery with a battle rating function exactly like assaulting/defending units for all purposes, except they do *not* count against the unit capacity restrictions on assault and defense.

Gunpowder Artillery Battle Ratings		
Artillery Piece	**Unit Size**	**BR**
60-pdr Cannon	1	0.5
48-pdr Cannon	1	0.5
36-pdr Cannon	1	0.25
24-pdr Cannon	2	0.5
12-pdr Cannon	4	0.5
24-pdr Gun	1	2
18-pdr Gun	1	1.5
12-pdr Gun	2	2
9-pdr Gun	4	3
6-pdr Gun	4	2
3-pdr Gun	6	2
2-pdr Gun	6	1.5
1-pdr Gun	6	1
200-pdr Mortar	1	2
90-pdr Mortar	1	1
24-pdr Mortar	2	1
12-pdr Mortar	4	1

Gunpowder Artillery Bonus Units	
Artillery Piece	**Bonus Units**
60-pdr Cannon	26
48-pdr Cannon	24
36-pdr Cannon	17
24-pdr Cannon	16
12-pdr Cannon	14
24-pdr Gun	27
18-pdr Gun	25
12-pdr Gun	20
9-pdr Gun	21
6-pdr Gun	20
3-pdr Gun	18
2-pdr Gun	16
1-pdr Gun	9
200-pdr Mortar	19
90-pdr Mortar	15
24-pdr Mortar	20
12-pdr Mortar	20

"The fight is between God and the devil. If his Excellency is on God's side, let him stand by me; if he holds rather with the devil, then he must fight with me; there is no third course, -that is certain."

- Gustavus Adolphus

SIEGES SIMPLIFIED

Domains at War: Campaigns presents a Simplified Sieges system, with which the duration of sieges can be calculated by cross-referencing a besieged stronghold's structural hit points with the besieging army's unit advantage (number of units by which the besieging army exceeds the number of units in the defending army) on the Duration of Siege table (*Domains at War: Campaigns,* p. 85). When using the Simplified Sieges system, *each* piece of gunpowder artillery count as one or more bonus units, as shown on the adjacent table.

EXAMPLE: Duce Falconi is besieging the fortress of Graf Steinhauer. Duce Falconi has 60 units, 6 24-pdr cannons and 2 90-pdr mortars. His unit total is therefore [60 + (6 x 27) + (2 x 15)] 252 units. Graf Steinhauer's stronghold has 24,000 shp and is defended with 24 units and 4 12-pdr guns. His unit total is therefore [24 + (4 x 20)] 104 units. Duce Falconi has a 148 unit advantage. Consulting the Duration of Siege table, the Judge determines that Duce Falconi will capture the fortress in 5 days.

"I have not the particular shining bauble or feather in my cap for crowds to gaze at or kneel to, but I have power and resolution for foes to tremble at."

- Oliver Cromwell

GODESBERG

ry ein festen Schloß gg Ernst gar manchen schos mit mit schricken ließ, en ers angreiffen hieß.

Auch steigen vil vom fußvolck, fein Durch ein heimlich gemach hinein, Als er nun sturmet drinn vnd drauß Erobert er diß feste Hauß.

Godesberghenuiron vne lieu de la ville de Bonn, vng chasteau fort, apres que ceulx ...) de la part de Truchseß, estoint dedens, se auoient brauemt deffenduz, a este des gens du nouueau Archeuecque, rompu en pieces par moien de miner et force pouldres. Le 17. de Decembre L'an 1583.

ARMIES OF THE PIKE AND SHOT AGE

The introduction of gunpowder weapons onto the battlefield required the introduction of new types of soldiers trained to wield them: arquebusiers, cuirassiers, musketeers, and more. But the dominance of the firearm was far from complete; for centuries, firearms-equipped troops fought with and against armored knights, pikemen, and other traditionally-armed warriors that would not have been out of place on the battlefields of Cannae or Crecy.

TYPES OF TROOPS

The Pike and Shot Troop Type table below shows the most common troop types of the Pike and Shot Age, along with their default equipment. However, other troop types from Domains at War will still be available, particularly in backward regions. Likewise, the default equipment may vary with race or realm, and any given realm or race might have mercenaries of different types or equipment. All of these factors will be determined by the particulars of the Judge's setting.

Pike and Shot Troop Type	Default Equipment
Matchlock Arquebusiers	Matchlock arquebus, sword, padded jack
Flintlock Arquebusiers	Flintlock arquebus, sword, padded jack
Matchlock Musketeers	Matchlock musket, sword, padded jack
Flintlock Musketeers	Flintlock musket, sword, padded jack
Pikemen	Pole arm, short sword, padded jack
Armored Pikemen	Pole arm, short sword, munition armor, padded jack
Swordsmen	Sword, shield, padded jack
Armored Swordsmen	Sword, shield, munition armor, padded jack
Heavy Swordsmen	Two-handed sword, short sword, half-plate armor, padded jack
Dragoons	Flintlock musket, short sword, hand axe, padded jack, light riding horse
Hussars	Lance, flintlock pistol, short sword, shield, padded jack, light warhorse
Coutiliers	Lance, sword, shield, munition armor, padded jack, light warhorse
Reiters	2 flintlock pistols, sword, half-plate armor, padded jack, light warhorse
Harquebusiers	Flintlock arquebus, 2 flintlock pistols, sword, munition armor, padded jack, light warhorse
Cuirassiers	2 flintlock pistols, sword, three-quarters plate armor, medium warhorse
Demi-Lancers	Lance, wheellock pistol, sword, three-quarters plate armor, medium warhorse
Gendarmes	Lance, sword, shield, full plate armor, heavy warhorse with plate barding

In addition to the weapons and armor noted for their troop type, all troops have the following equipment: military uniform, coat or cloak, pair of shoes, backpack, laborer's tools, 4 stakes and mallet, mess kit, small tent, 2 wool blankets, and canteen (40gp, 4 stone). Firearms-equipped troops will carry a bandolier with 12 apostles, a shot bag with 100 shots, a powder horn with 50 shots of priming powder, and a 3' match cord (7.5gp, 1 3/6 stone). If musketeers they will also carry a musket rest (0.5 gp, 1 stone). Mounted troops will also have saddle, bridle, 2 saddlebags, and grooming kit.

AVAILABILITY OF TROOPS

The availability of troops will depend on the market class (*ACKS,* p.39-40) within which they are recruited, as noted on the Pike and Shot Troop Availability by Market Class table. Mercenaries will be of the prevailing race of the settlement they're recruited from.
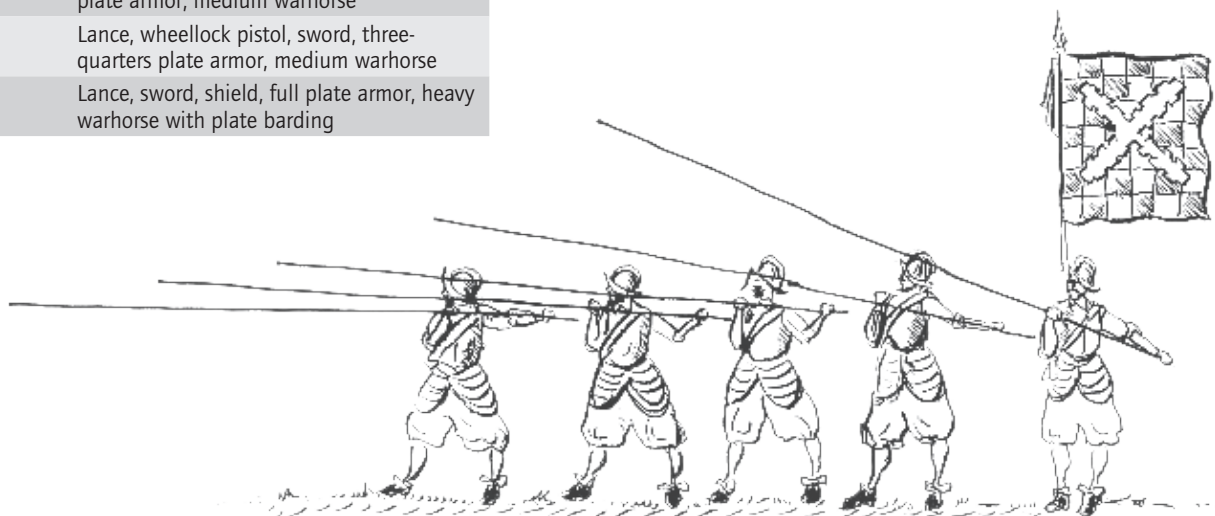
The Pike and Shot Troop Availability by Realm Size table shows how many of each type of troop is available in each size of realm and what time period is required to recruit them. Availability restrictions by race, climate, and terrain are identical to those from settlements (above). Note that the listed realms are of minimum population for their type; if the realm is larger than the listed population, scale up proportionately.

TROOP WAGES

Troops must be paid the monthly wages listed on the Pike and Shot Troop Wage per Month GP Wage table, below. This table supplements the GP Wage per Month table found in *Domains at War: Campaigns.*

TROOP MORALE

Troop morale is based on their training and equipment. The Base Morale by Pike and Shot Troop Type table shows the morale of various troops by race and type.

Pike and Shot Troop Availability by Market Class

Mercenary Type	Class I	Class II	Class III	Class IV	Class V	Class VI	Era
Matchlock Arquebusiers	6d100	7d20	7d10	2d8	1d6	1	Any
Flintlock Arquebusiers	4d100	5d20	5d10	1d12	1d4	1 (80%)	Late
Matchlock Musketeers	4d100	5d20	5d10	1d12	1d4	1 (80%)	Any
Flintlock Musketeers	2d100	3d20	3d10	1d6	1d2	1 (50%)	Late
Pikemen	6d100	7d20	7d10	2d8	1d6	1	Any
Armored Pikemen	3d100	7d10	4d8	1d8	1d3	1 (60%)	Any
Swordsmen	6d100	7d20	7d10	2d8	1d6	1	Any
Armored Swordsmen	4d100	5d20	5d10	1d12	1d4	1 (80%)	Any
Heavy Swordsmen	3d100	7d10	4d8	1d8	1d3	1 (60%)	Any
Dragoons	8d20	2d20	2d10	1d4	1	1 (35%)	Late
Hussars	6d20	3d10	2d6	1d3	1 (75%)	1 (25%)	Late
Coutiliers	5d20	3d8	1d12	1d2	1 (60%)	1 (20%)	Early-Middle
Reiters	5d20	3d8	1d12	1d2	1 (60%)	1 (20%)	Late
Harquebusiers	4d20	2d10	1d10	1d2	1 (55%)	1 (17%)	Late
Cuirassiers	3d20	2d8	1d8	1	1 (45%)	1 (15%)	Late
Demi-Lancers	3d20	2d8	1d8	1	1 (45%)	1 (15%)	Early-Middle
Gendarmes	3d10	1d8	1d3	1 (50%)	1 (22%)	1 (7%)	Early-Middle

Pike and Shot Troop Availability by Realm Size

Mercenary Type	Continent	Empire	Kingdom	Principality	Duchy	County	March	Barony
Population (Families)	16,000,000	1,500,000	364,000	87,000	20,000	4,600	960	160
Time Period	Year	Season	Season	Month	Month	Week	Week	Week
Matchlock Arquebusiers	240,000	22,000	5,300	1,250	300	65	14	2
Flintlock Arquebusiers	160,000	14,500	3,500	845	200	45	9	2
Matchlock Musketeers	160,000	14,500	3,500	845	200	45	9	2
Flintlock Musketeers	100,000	8,750	2,100	500	115	25	6	1
Pikemen	240,000	22,000	5,300	1,250	300	65	14	2
Armored Pikemen	120,000	11,000	2,650	625	150	33	7	1
Swordsmen	240,000	22,000	5,300	1,250	300	65	14	2
Armored Swordsmen	160,000	14,500	3,500	850	200	45	9	2
Heavy Swordsmen	120,000	11,000	2,650	625	150	33	7	1
Dragoons	75,000	6,500	1,600	380	85	20	4	1
Hussars	50,000	4,500	1,000	250	60	15	3	-
Coutiliers	40,000	3,700	900	225	50	12	2	-
Reiters	40,000	3,700	900	225	50	12	2	-
Harquebusiers	35,000	3,275	800	200	45	10	2	-
Cuirassiers	30,000	2,600	635	150	35	8	2	-
Demi-Lancers	30,000	2,600	635	150	35	8	2	-
Gendarmes	15,000	1,300	315	75	20	4	1	-
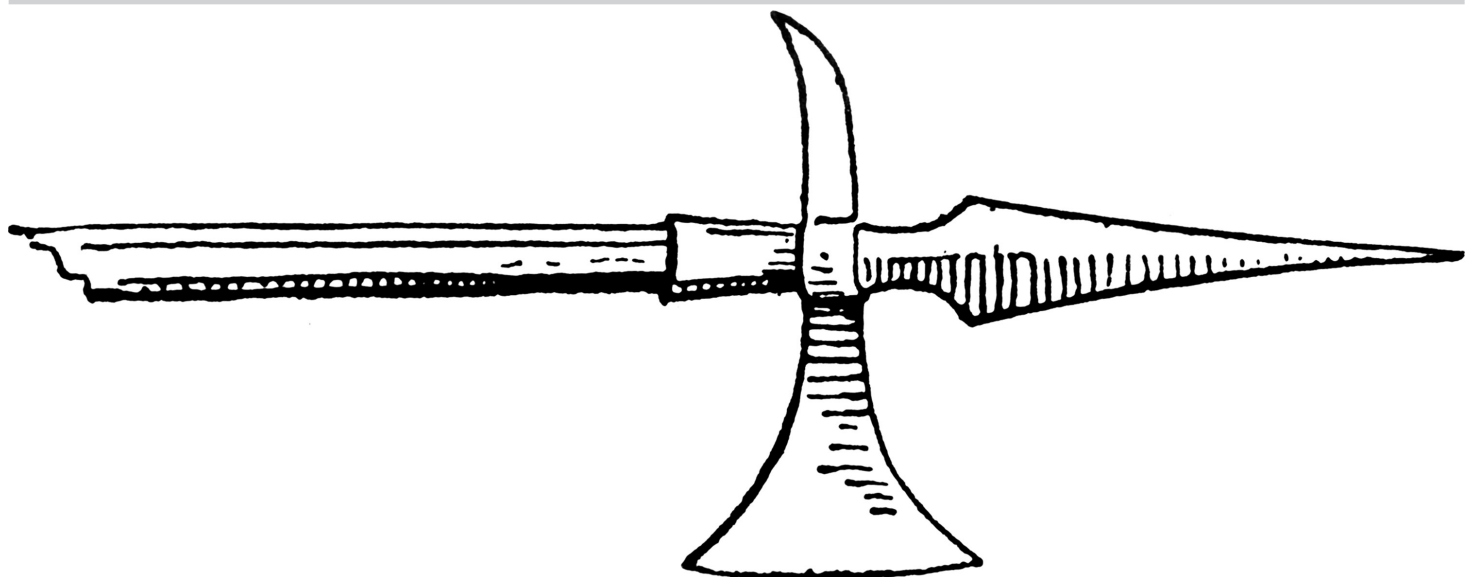
Pike and Shot Troop GP Wage per Month										
Troop Type	**Man**	**Dwarf**	**Elf**	**Kobold**	**Goblin**	**Orc**	**Hob.**	**Gnoll**	**Lizardman**	**Bugbear**	**Ogre**
Matchlock Arquebusiers	6	12	9	2	2	3	6	4.5	15	27	-
Flintlock Arquebusiers	9	18	15	3	3	4.5	12	6	18	30	-
Matchlock Musketeers	9	15	12	-	-	4.5	9	6	18	30	35
Flintlock Musketeers	12	21	18	-	-	6	15	9	21	33	40
Pikemen	6	-	15	-	-	3	12	15	30	60	70
Armored Pikemen	12	24	27	-	-	9	24	24	45	80	120
Swordsmen	6	-	12	2	3	3	9	12	21	40	60
Armored Swordsmen	9	18	18	-	-	6	15	18	30	55	100
Heavy Swordsmen	12	-	30	-	-	-	27	-	-	-	-
Dragoons	18	-	-	-	-	-	-	-	-	-	-
Hussars	30	-	50	-	-	-	40	-	-	-	-
Coutiliers	35	-	60	-	-	-	45	-	-	-	-
Reiters	35	-	60	-	-	-	45	-	-	-	-
Harquebusiers	40	-	65	-	-	-	50	-	-	-	-
Cuirassiers	45	-	70	-	-	-	60	-	-	-	-
Demi-Lancers	45	-	70	-	-	-	60	-	-	-	-
Gendarmes	80	-	105	-	-	-	-	-	-	-	-

| Base Morale by Pike and Shot Troop Type										
Troop Type	**Man**	**Dwarf**	**Elf**	**Kobold**	**Goblin**	**Orc**	**Hob.**	**Gnoll**	**Lizardman**	**Bugbear**	**Ogre**
Matchlock Arquebusiers	-1	-1	-1	-3	-1	-1	-1	-1	+1	+1	-
Flintlock Arquebusiers	-1	-1	-1	-3	-1	-1	-1	-1	+1	+1	-
Matchlock Musketeers	0	0	0	-	-	0	0	0	+2	+2	+2
Flintlock Musketeers	0	0	0	-	-	0	0	0	+2	+2	+2
Pikemen	0	0	0	-	-	0	0	0	+2	+2	+2
Armored Pikemen	+1	+1	+1	-	-	+1	+1	+1	+3	+3	+3
Swordsmen	0	0	0	-2	0	0	0	0	+2	+2	+2
Armored Swordsmen	+1	+1	+1	-	-	+1	+1	+1	+3	+3	+3
Heavy Swordsmen	+2	-	+2	-	-	-	+2	-	-	-	-
Dragoons	+1	-	-	-	-	-	-	-	-	-	-
Hussars	+1	-	+1	-	-	-	+1	-	-	-	-
Coutiliers	+1	-	+1	-	-	-	+1	-	-	-	-
Reiters	+1	-	+1	-	-	-	+1	-	-	-	-
Harquebusiers	+1	-	+1	-	-	-	+1	-	-	-	-
Cuirassiers	+2	-	+2	-	-	-	+2	-	-	-	-
Demi-Lancers	+2	-	+2	-	-	-	+2	-	-	-	-
Gendarmes	+3	-	+3	-	-	-	-	-	-	-	-
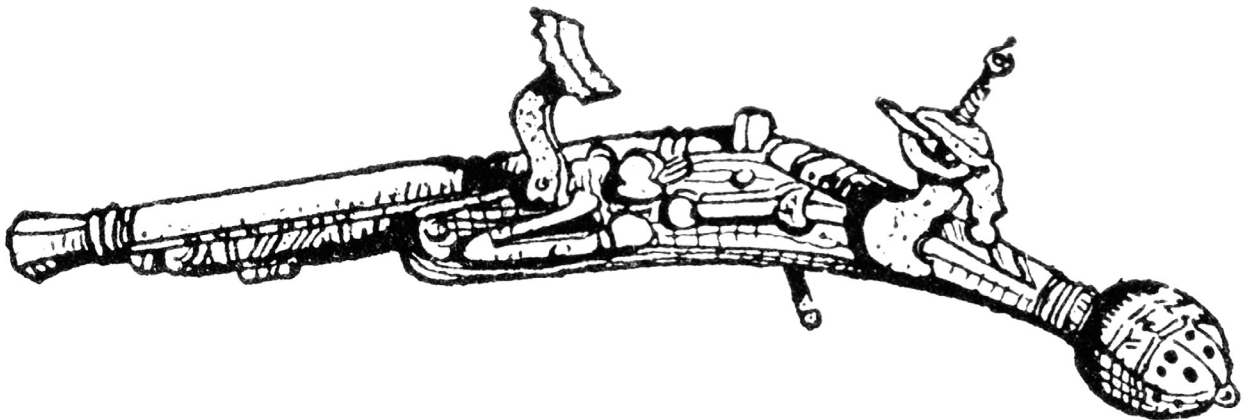
TRAINING TROOPS

One of the advantages of Pike and Shot Age is the ease with which units can be raised. Any peasant able-bodied enough to be conscripted in the first place can be trained to be an arquebusier, pikeman, or swordsman, requiring merely a few weeks of drill. 50% of peasants have the fitness and discipline to be trained as musketeers, armored pikemen, or armored swordsmen, while only the best 33% can be heavy swordsmen. Up to 25% have the skill and seat to be cavalry. Only two-thirds of those (17% of the total) have the prowess to be coutiliers, reiters, or harquebusiers. Cuirassiers or demi-lancers must be both agile riders as well as strong and large enough to handle their armor and horses; only 50% of riders (12% of total) can qualify. Gendarmes are drawn from the biggest and strongest cavalrymen, and only 25% of riders (8.5% of total) can qualify. Forces drawn from elven, dwarven, and humanoid racial stock follow similar rules at slightly different breakdowns.

The Qualifying Number of Conscripts table summarizes these results, showing the number of each type of troop that can recruited from a pool of 120 conscripts.

The Training and Equipment Time and Cost table shows the time and cost to train the Pike and Shot troop types. Arquebusiers are the most easily-trained type of troop in *Domains at War*.

Qualifying Number (Per 120 Conscripts)											
Troop Type	**Man**	**Dwarf**	**Elf**	**Kobold**	**Goblin**	**Orc**	**Hob.**	**Gnoll**	**Lizardman**	**Bugbear**	**Ogre**
Matchlock Arquebusiers	120	120	120	30	30	120	120	120	120	120	-
Flintlock Arquebusiers	120	120	120	30	30	120	120	120	120	120	-
Matchlock Musketeers	60	120	60	-	-	90	90	90	90	90	120
Flintlock Musketeers	60	120	60	-	-	90	90	90	90	90	120
Pikemen	120	-	120	-	-	120	120	120	120	120	120
Armored Pikemen	60	120	60	-	-	90	90	90	90	90	120
Swordsmen	120	-	120	60	60	120	90	120	120	120	120
Armored Swordsmen	60	120	60	-	-	90	90	90	90	90	120
Heavy Swordsmen	40	-	30	-	-	-	45	90	90	90	120
Dragoons	30	-	-	-	-	-	-	-	-	-	-
Hussars	30	-	30	-	-	-	30	-	-	-	-
Coutiliers	20	-	20	-	-	-	20	-	-	-	-
Reiters	20	-	20	-	-	-	20	-	-	-	-
Harquebusiers	20	-	20	-	-	-	20	-	-	-	-
Cuirassiers	15	-	15	-	-	-	15	-	-	-	-
Demi-Lancers	15	-	15	-	-	-	15	-	-	-	-
Gendarmes	10	-	10	-	-	-	-	-	-	-	-

Troop Type	**Training Time**	**Marshal Cost***	**Training Cost**	**Equipment Cost**	**Total Cost (Troop)**	**Total Cost (Unit)**
Matchlock Arquebusiers	2 weeks	25cp	3gp	96gp	99.25gp	11,910gp
Flintlock Arquebusiers	2 weeks	25cp	3gp	110 gp	113.25gp	13,590gp
Matchlock Musketeers	1 month	1gp	9gp	101 gp	110.5gp	13,260gp
Flintlock Musketeers	1 month	1gp	9gp	120 gp	129.5gp	15,540gp
Pikemen	1 month	1gp	9gp	79 gp	89gp	10,680gp
Armored Pikemen	1 month	1gp	9gp	109 gp	119gp	14,280gp
Swordsmen	1 month	1gp	9gp	85 gp	95gp	11,400gp
Armored Swordsmen	1 month	1gp	9gp	115 gp	125gp	15,000gp
Heavy Swordsmen	2 months	3gp	18gp	187 gp	206gp	24,720gp
Dragoons	2 months	3gp	18gp	231gp	252gp	30,240gp
Hussars	3 months	3gp	30gp	323 gp	356gp	21,360gp
Coutiliers	4 months	8gp	45gp	301 gp	349gp	20,940gp
Reiters	4 months	8gp	45gp	415 gp	468gp	28,080gp
Harquebusiers	4 months	8gp	45gp	375 gp	428gp	25,680gp
Cuirassiers	6 months	8gp	85gp	545 gp	638gp	38,280gp
Demi-Lancers	6 months	8gp	85gp	521 gp	614gp	36,840gp
Gendarmes	12 months	12gp	170gp	1,701 gp	1,883gp	112,980gp

*Per troop, assuming each marshal is training 60 troops.

Armies of the Pike and Shot Age

Human Troop Characteristics										
Troop Type	**AC**	**Move**	**HD**	**Hp**	**Att.**	**Dmg**	**SV**	**ML**	**BR**	**Wage**
Undrilled Conscripts/Militia (matchlock arquebus)	0	120'	1/2	3	1	BW	NM	-2	0.004	3gp
Matchlock Arquebusier (matchlock arquebus, sword, padded jack)	2	120'	1-1	4	1	BW	NM	-1	0.008	6gp
Flintlock Arquebusier (flintlock arquebus, sword, padded jack)	2	120'	1-1	4	1	BW	NM	-1	0.013	9gp
Matchlock Musketeer (matchlock musket, sword, padded jack)	2	120'	1-1	4	1	BW	NM	0	0.013	9gp
Flintlock Musketeer (flintlock musket, sword, padded jack)	2	120'	1-1	4	1	BW	NM	0	0.017	12gp
Pikemen (pole arm, short sword, padded jack)	2	120'	1-1	4	1	BW	NM	0	0.008	6gp
Armored Pikemen (pole arm, short sword, munition armor, padded jack)	4	90'	1-1	4	1	BW	NM	+1	0.017	12gp
Swordsmen (sword, shield, padded jack)	3	120'	1-1	4	1	BW	NM	0	0.008	6gp
Armored Swordsmen (sword, shield, munition armor, padded jack)	5	90'	1-1	4	1	BW	NM	+1	0.013	9gp
Heavy Swordsmen (two-handed sword, short sword, half-plate armor, padded jack)	5	90'	1-1	4	1	BW	NM	+2	0.017	12gp
Dragoons (flintlock musket, short sword, hand axe, padded jack, light riding horse)	2/2	240'	1-1	4	1	BW	NM	+1	0.050	21gp
Hussars (lance, 2 flintlock pistols, short sword, shield, padded jack, light warhorse)	3/2	240'	1-1	4	1	BW	NM	+1	0.058	30gp
Coutiliers (lance, sword, shield, munition armor, padded jack, light warhorse)	5/2	240'	1-1	4	1	BW	NM	+1	0.067	35gp
Reiters (2 flintlock pistols, sword, half-plate armor, padded jack, light warhorse)	5/2	240'	1-1	4	1	BW	NM	+1	0.67	35gp
Harquebusier (flintlock arquebus, 2 flintlock pistols, sword, munition armor, padded jack, light warhorse)	4/2	240'	1-1	4	1	BW	NM	+1	0.075	40gp
Cuirassier (2 flintlock pistols, sword, three-quarters plate armor, medium warhorse)	6/2	180'	1-1	4	1	BW	NM	+2	0.083	45gp
Demi-Lancer (lance, flintlock pistol, sword, three-quarters plate armor, medium warhorse)	6/2	180'	1-1	4	1	BW	NM	+2	0.083	45gp
Gendarme (lance, sword, shield, full plate armor, heavy warhorse with plate barding)	9 (7) /6	120'	1-1	4	1	BW	NM	+3	0.133	80gp

Notes: 25% of human units will be veterans (1st level fighters). Veterans have 1 HD, 5 hp, +1 to morale, and +1 to damage rolls.
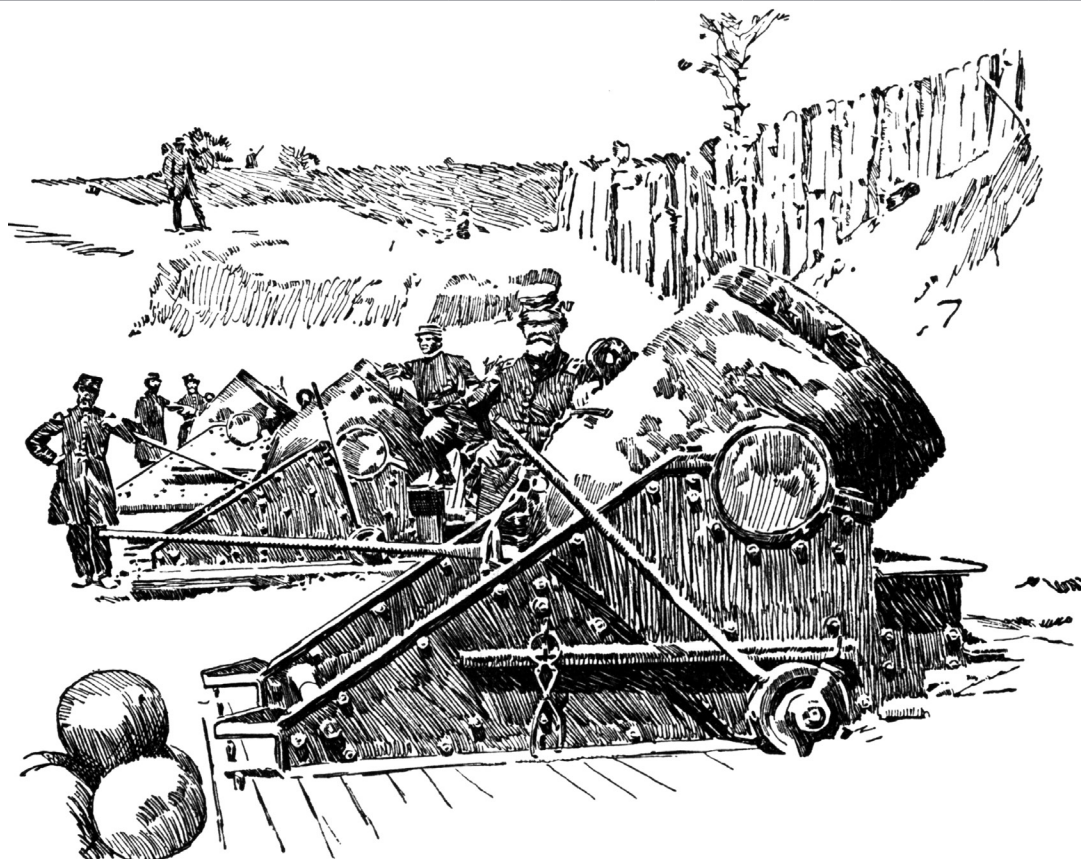
Demi-Human Troop Characteristics										
Troop Type	**AC**	**Move**	**HD**	**Hp**	**Att.**	**Dmg**	**SV**	**ML**	**BR**	**Wage**
Dwarven Matchlock Arquebusier (matchlock arquebus, mace, munition armor, padded jack)	4	90'	1	5	1	BW+1	D1	-1	0.017	12gp
Dwarven Flintlock Arquebusiers (flintlock arquebus, mace, munition armor, padded jack)	4	90'	1	5	1	BW+1	D1	-1	0.025	18gp
Dwarven Matchlock Musketeer (matchlock musket, mace, half-plate armor)	4	90'	1	5	1	BW+1	D1	0	0.021	15gp
Dwarven Flintlock Musketeer (flintlock musket, mace, half-plate armor)	4	90'	1	5	1	BW+1	D1	0	0.029	21gp
Dwarven Armored Pikemen (two-handed spear, sword, three-quarters plate armor)	6	90'	1	5	1	BW+1	D1	+1	0.033	24gp
Dwarven Armored Swordsmen (sword, shield, three-quarters plate armor)	7	90'	1	5	1	BW+1	D1	+1	0.025	18gp
Elven Matchlock Arquebusier (matchlock arquebus, sword, padded jack)	2	120'	1+1	6	1	BW+1	E1	-1	0.013	9gp
Elven Flintlock Arquebusiers (flintlock arquebus, sword, padded jack)	2	120'	1+1	6	1	BW+1	E1	-1	0.021	15gp
Elven Matchlock Musketeer (matchlock musket, sword, padded jack)	2	120'	1+1	6	1	BW+1	E1	0	0.017	12gp
Elven Flintlock Musketeer (flintlock musket, sword, padded jack)	2	120'	1+1	6	1	BW+1	E1	0	0.025	18gp
Elven Pikemen (pole arm, short sword, padded jack)	2	120'	1+1	6	1	BW+1	E1	0	0.021	15gp
Elven Armored Pikemen (pole arm, short sword, munition armor, padded jack)	4	90'	1+1	6	1	BW+1	E1	+1	0.038	27gp
Elven Swordsmen (sword, shield, padded jack)	3	120'	1+1	6	1	BW+1	E1	0	0.017	12gp
Elven Armored Swordsmen (sword, shield, munition armor, padded jack)	5	90'	1+1	6	1	BW+1	E1	+1	0.025	18gp
Elven Heavy Swordsmen (two-handed sword, short sword, half-plate armor, padded jack)	5	90'	1+1	6	1	BW+1	E1	+2	0.042	30gp
Elven Hussars (lance, 2 flintlock pistols, short sword, shield, padded jack, light warhorse)	3/2	240'	1+1	6	1	BW+1	E1	+1	0.092	50gp
Elven Coutiliers (lance, sword, shield, munition armor, padded jack, light warhorse)	5/2	240'	1+1	6	1	BW+1	E1	+1	0.100	60gp
Elven Reiters (2 flintlock pistols, sword, half-plate armor, padded jack, light warhorse)	5/2	240'	1+1	6	1	BW+1	E1	+1	0.100	60gp
Elven Harquebusier (flintlock arquebus, 2 flintlock pistols, sword, munition armor, padded jack, light warhorse)	4/2	240'	1+1	6	1	BW+1	E1	+1	0.108	65gp
Elven Cuirassier (2 flintlock pistols, sword, three-quarters plate armor, medium warhorse)	6/2	180'	1+1	6	1	BW+1	E1	+2	0.117	70gp
Elven Demi-Lancer (lance, flintlock pistol, sword, three-quarters plate armor, medium warhorse)	6/2	180'	1+1	6	1	BW+1	E1	+2	0.117	70gp
Elven Gendarme (lance, sword, shield, full plate armor, heavy warhorse with plate barding)	9 (7) /6	120'	1+1	6	1	BW+1	E1	+3	0.167	105gp
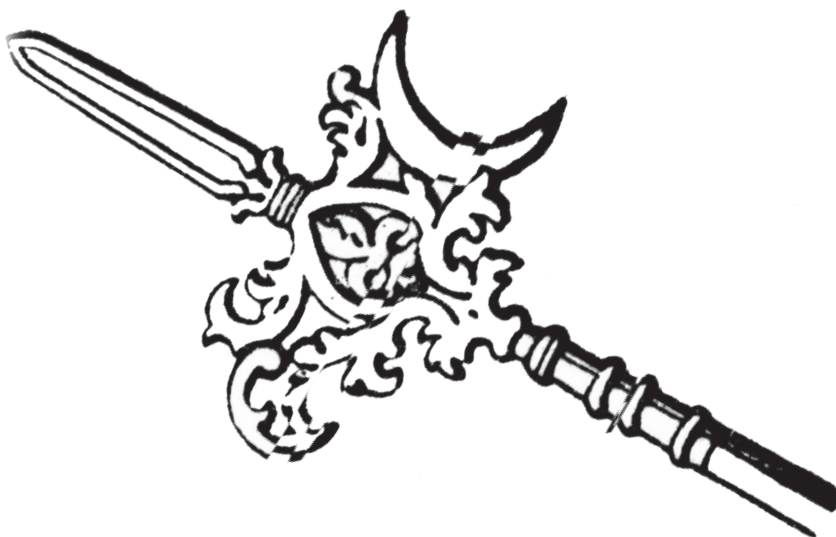
Troop Type	AC	Move	HD	Hp	Att.	Dmg	SV	ML	BR	Wage
Beastman Troop Characteristics										
Kobold Matchlock Arquebusier (matchlock arquebus, fork rest*, dagger, hide)	1	60'	1/2	3	1	BW-1	NM	-3	0.002	2gp
Kobold Flintlock Arquebusiers (flintlock arquebus, fork rest*, dagger, hide)	1	60'	1/2	3	1	BW-1	NM	-3	0.004	3gp
Kobold Swordsmen (dagger sword, shield, hide)	2	60'	1/2	3	1	BW-1	NM	-2	0.002	2gp
Goblin Matchlock Arquebusier (matchlock arquebus, short sword, hide)	1	60'	1-1	4	1	BW	NM	-1	0.002	2gp
Goblin Flintlock Arquebusiers (flintlock arquebus, short sword, hide)	1	60'	1-1	4	1	BW	NM	-1	0.004	3gp
Goblin Swordsmen (short sword, shield, hide)	2	60'	1-1	4	1	BW	NM	0	0.004	3gp
Orc Matchlock Arquebusier (matchlock arquebus, sword, hide)	1	120'	1	5	1	BW	F1	-1	0.004	3gp
Orc Flintlock Arquebusier (flintlock arquebus, sword, hide)	1	120'	1	5	1	BW	F1	-1	0.006	4.5gp
Orc Matchlock Musketeer (matchlock musket, sword, hide)	1	120'	1	5	1	BW	F1	0	0.006	4.5gp
Orc Flintlock Musketeer (flintlock musket, sword, hide)	1	120'	1	5	1	BW	F1	0	0.008	6gp
Orc Pikeman (pole arm, short sword, hide)	1	120'	1	5	1	BW	F1	0	0.004	3gp
Orc Armored Pikeman (pole arm, short sword, munition armor)	3	120'	1	5	1	BW	F1	+1	0.013	9gp
Orc Swordsman (sword, shield, hide)	2	120'	1	5	1	BW	F1	0	0.004	3gp
Orc Armored Swordsman (sword, shield, munition armor)	4	120'	1	5	1	BW	F1	+1	0.008	6gp
Hobgoblin Matchlock Arquebusier (matchlock arquebus, sword, padded jack)	2	120'	1+1	6	1	BW	F1	-1	0.008	6gp
Hobgoblin Flintlock Arquebusier (flintlock arquebus, sword, padded jack)	2	120'	1+1	6	1	BW	F1	-1	0.017	12gp
Hobgoblin Matchlock Musketeer (matchlock musket, sword, padded jack)	2	120'	1+1	6	1	BW	F1	0	0.013	9gp
Hobgoblin Flintlock Musketeer (flintlock musket, sword, padded jack)	2	120'	1+1	6	1	BW	F1	0	0.021	15gp
Hobgoblin Pikeman (pole arm, short sword, padded jack)	2	120'	1+1	6	1	BW	F1	0	0.017	12gp
Hobgoblin Armored Pikeman (pole arm, short sword, munition armor, padded jack)	4	120'	1+1	6	1	BW	F1	+1	0.033	24gp
Hobgoblin Swordsman (sword, shield, padded jack)	3	120'	1+1	6	1	BW	F1	0	0.013	9gp
Hobgoblin Armored Swordsman (sword, shield, munition armor, padded jack)	5	120'	1+1	6	1	BW	F1	+1	0.021	15gp
Hobgoblin Heavy Swordsman (two-handed sword, short sword, half-plate armor, padded jack)	5	120'	1+1	6	1	BW	F1	+2	0.038	27gp
Hobgoblin Hussars (lance, 2 flintlock pistols, short sword, shield, padded jack, light warhorse)	3/2	240'	1+1	6	1	BW	F1	+1	0.075	40gp
Hobgoblin Coutiliers (lance, sword, shield, munition armor, padded jack, light warhorse)	5/2	240'	1+1	6	1	BW	F1	+1	0.083	45gp
Hobgoblin Reiters (2 flintlock pistols, sword, half-plate armor, padded jack, light warhorse)	5/2	240'	1+1	6	1	BW	F1	+1	0.083	45gp
Hobgoblin Harquebusier (flintlock arquebus, 2 flintlock pistols, sword, munition armor, padded jack, light warhorse)	4/2	240'	1+1	6	1	BW	F1	+1	0.092	50gp
Hobgoblin Cuirassier (2 flintlock pistols, sword, three-quarters plate armor, medium warhorse)	6/2	180'	1+1	6	1	BW	F1	+2	0.100	60gp
Hobgoblin Demi-Lancer (lance, flintlock pistol, sword, three-quarters plate armor, medium warhorse)	6/2	180'	1+1	6	1	BW	F1	+2	0.100	60gp

Due to their small size, kobolds need fork rests to fire arquebus. They cannot fire muskets at all.

Troop Type	AC	Move	HD	Hp	Att.	Dmg	SV	ML	BR	Wage
Gnoll Matchlock Arquebusier (matchlock arquebus, sword, hide)	2	120'	2	9	1	BW/BW+1	F2	-1	0.006	4.5gp
Gnoll Flintlock Arquebusier (flintlock arquebus, sword, hide)	2	120'	2	9	1	BW/BW+1	F2	-1	0.008	6gp
Gnoll Matchlock Musketeer (matchlock musket, sword, hide)	2	120'	2	9	1	BW/BW+1	F2	0	0.008	6gp
Gnoll Flintlock Musketeer (flintlock musket, sword, hide)	2	120'	2	9	1	BW/BW+1	F2	0	0.013	9gp
Gnoll Pikemen (pole arm, short sword, hide)	2	120'	2	9	1	BW+1	F2	0	0.021	15gp
Gnoll Armored Pikemen (pole arm, short sword, munition armor)	4	120'	2	9	1	BW+1	F2	+1	0.033	24gp
Gnoll Swordsmen (sword, shield, hide)	3	120'	2	9	1	BW+1	F2	0	0.017	12gp
Gnoll Armored Swordsmen (sword, shield, munition armor)	5	120'	2	9	1	BW+1	F2	+1	0.025	18gp
Lizardman Matchlock Arquebusier (matchlock arquebus, sword, hide)	4	60'	2+1	10	1	BW/BW+1	F2	+1	0.021	15gp
Lizardman Flintlock Arquebusier (flintlock arquebus, sword, hide)	4	60'	2+1	10	1	BW/BW+1	F2	+1	0.025	18gp
Lizardman Matchlock Musketeer (matchlock musket, sword, hide)	4	60'	2+1	10	1	BW/BW+1	F2	+2	0.025	18gp
Lizardman Flintlock Musketeer (flintlock musket, sword, hide)	4	60'	2+1	10	1	BW/BW+1	F2	+2	0.029	21gp
Lizardman Pikemen (pole arm, short sword, hide)	4	60'	2+1	10	1	BW+1/d3, d8	F2	+2	0.042	30gp
Lizardman Armored Pikemen (pole arm, short sword, munition armor)	6	60'	2+1	10	1	BW+1/d3, d8	F2	+3	0.062	45gp
Lizardman Swordsmen (sword, shield, hide)	5	60'	2+1	10	1	BW+1/d3, d8	F2	+2	0.029	21gp
Lizardman Armored Swordsmen (sword, shield, munition armor)	7	60'	2+1	10	1	BW+1/d3, d8	F2	+3	0.042	30gp
Bugbear Matchlock Arquebusier (matchlock arquebus, sword, hide)	4	120'	3+1	15	1	BW/BW+1	F3	+1	0.038	27gp
Bugbear Flintlock Arquebusier (flintlock arquebus, sword, hide)	4	120'	3+1	15	1	BW/BW+1	F3	+1	0.042	30gp
Bugbear Matchlock Musketeer (matchlock musket, sword, hide)	4	120'	3+1	15	1	BW/BW+1	F3	+2	0.042	30gp
Bugbear Flintlock Musketeer (flintlock musket, sword, hide)	4	120'	3+1	15	1	BW/BW+1	F3	+2	0.042	33gp
Bugbear Pikemen (pole arm, short sword, hide)	4	120'	3+1	15	1	BW+1	F3	+2	0.083	60gp
Bugbear Armored Pikemen (pole arm, short sword, munition armor)	6	120'	3+1	15	1	BW+1	F3	+3	0.113	80gp
Bugbear Swordsmen (sword, shield, hide)	5	120'	3+1	15	1	BW +1	F3	+2	0.058	40gp
Bugbear Armored Swordsmen (sword, shield, munition armor)	7	120'	3+1	15	1	BW +1	F3	+3	0.075	55gp
Ogre Matchlock Musketeer (matchlock musket, sword, hide)	4	120'	4+1	19	1	BW/BW+3	F4	+2	0.067	35gp
Ogre Flintlock Musketeer (flintlock musket, sword, hide)	4	120'	4+1	19	1	BW/BW+3	F4	+2	0.075	40gp
Ogre Pikemen (pole arm, short sword, hide)	4	120'	4+1	19	1	BW +3	F4	+2	0.117	70gp
Ogre Armored Pikemen (pole arm, short sword, munition armor)	6	120'	4+1	19	1	BW+3	F4	+3	0.183	120gp
Ogre Swordsmen (two-handed sword, hide)	4	120'	4+1	19	1	BW+3	F4	+2	0.100	60gp
Ogre Armored Swordsmen (two-handed sword, munition armor, hide)	6	120'	4+1	19	1	BW+3	F4	+3	0.158	100gp

UNIT FORMATIONS OF THE PIKE AND SHOT AGE

The introduction of firearms forced armies to develop new formations that maximized firearm's strengths and minimized their weaknesses. These changes are reflected with the addition of three new *D@W: Battles* unit formations: Drilled Mounted, Drilled Foot, and Undrilled Foot.

DRILLED MOUNTED

Drilled Mounted (DM) are horsemen drilled to fire and maneuver with firearms in formation. Their usual tactic is to approach an enemy unit in serried ranks, discharge their firearms rank-by-rank at close range, and then withdraw, a maneuver known as the caracole. Drilled Mounted may also fight in melee, but they lack the enthusiasm for the charge that characterizes Formed Mounted troops. Historical examples include the English harquebusiers and German reiters of the early to mid 17th century.

Except where noted below, Drilled Mounted function like Loose Mounted units.

Reload: A Drilled Mounted unit may remove a **reload token** (see below) after marching during its movement sequence. (Other unit types may only remove a reload token if they remain stationary during their movement sequence.)

Reluctant to Charge: A Drilled Mounted unit may not charge into a hex threatened by an enemy unit, or conduct a charge attack against an enemy unit, unless the enemy unit is disordered.

Voluntary Retreat: A Drilled Mounted unit which conducts a firearms attack after marching or remaining stationary may make a voluntary retreat of one hex at the conclusion of its attack sequence. The retreat must take the unit directly away from its target, e.g. the Drilled Mounted cannot "retreat" parallel to or towards the target. The Drilled Mounted unit's facing does not change when it voluntarily retreats.

DRILLED FOOT

Drilled Foot (DF) are soldiers that have been drilled to fire and maneuver with firearms in formation. Because of the lengthy reload time required by their weapons, Drilled Foot are trained to fire in volleys by rank, then fall back to the rear rank to reload, enabling the next rank to fire. Due to their vulnerability while reloading, Drilled Foot are terrified of being charged by cavalry, which could close with and destroy them quickly. For this reason Drilled Foot units are best used in conjunction with Formed Foot units, who can protect the vulnerable gunners with their bristling rows of weapons. Historical examples of Drilled Foot troops include Spanish, Dutch, and Swedish harquebusiers and musketeers.

Like Loose Foot, Drilled Foot can march or hustle through friendly units, and be marched or hustled through by friendly units. As actions in lieu of attacking, Drilled Foot may ready to attack. When a Drilled Foot unit is hit, it may be eligible to reduce damage dealt by one or more points by withdrawing one or more hexes, up to a maximum of its marching movement, in the same manner as Loose Foot.

Volley Fire: Well-drilled arquebusiers and musketeers could unleash a single, devastating volley at an approaching enemy. To reflect this, a Drilled Foot unit may take double the normal number of attacks during its firearm attack sequence. In exchange, it receives double the normal number of **reload tokens**.

> EXAMPLE: A unit of veteran flintlock musketeers has an attack characteristic of "1 matchlock musket 10+, 1 reload token". With an enemy commander's unit in range, it takes advantage of volley fire. The unit's attack sequence becomes "2 matchlock musket 10+, 2 reload tokens".

Shocked by Cavalry: Anytime a Drilled Foot unit is damaged by Formed Mounted while it has one or more reload tokens, it must make a shock roll. If the Drilled Foot unit is adjacent to one or more units of Formed Foot, however, this rule does not apply.

MOUNTED FOOT

Mounted Foot (MF) are multi-role troops that are organized and trained as infantry, but provided with horses for strategic mobility. Their horses enable Mounted Foot to be employed for scouting, screening, foraging, labor, and light skirmishing roles, all at less cost than traditional cavalry. Historical examples of Mounted Foot include early Swedish and English dragoons and later American and British mounted rifles.

Horse Transport: Mounted Foot have the daily movement of light cavalry. One unit of Mounted Foot counts as two units of light cavalry for purposes of reconnaissance rolls (*D@W: Campaigns* p. 58), supply (*D@W: Campaigns,* p. 56), and pursuit rolls (*D@W: Campaigns* p. 73 and *D@W: Battles* p. 26).

Mounted Laborers: Mounted Foot count as skilled laborers for purposes of construction projects (*D@W: Campaigns,* p. 49).

Variable Deployment: On the battlefield, a unit of Mounted Foot can deploy as either one unit of Drilled Foot or two units of Irregular Mounted. The selection must be made during Deployment and cannot be changed for the duration of the battle. A Mounted Foot unit deployed as two Irregular Mounted units will reform after the battle back into one unit. If either or both IM units took damage, then reduce its total uhp by the percentage of uhp lost combined across the two IM units. Round fractions to the nearest whole number, rounding 0.5 up if odd and down if even.

> EXAMPLE: A unit of 120 Mounted Foot with 6 uhp is deployed during a battle as two units of 60 Irregular Mounted, each with 6 uhp. (Remember, half of a typical cavalry unit's uhp are coming from its mounts). The first unit loses 3 uhp while the second loses 4 uhp. Combined, they have lost a total of 7/12uhp. When the reform as a single unit, the Mounted Foot have lost (7/12 x 6) 3.5 uhp, rounded to 4 uhp. The unit has 2 uhp remaining.

UNDRILLED FOOT

Undrilled Foot (UF) are poorly-trained and undisciplined soldiers carrying firearms. They are incapable of any advanced tactics and are generally the worst troops on the battlefield. Like Drilled Foot, Undrilled Foot are **shocked by cavalry** (see above). They lack combined-arms training, however, so they do not benefit from the

presence of adjacent Formed Foot. This makes them extremely vulnerable to cavalry!

Like Irregular Foot, Undrilled Foot units may not disengage or ready to attack, due to lack of discipline. Undrilled Foot units must attack if able, and if the target of an Undrilled Foot unit's attack recoils, flees, or routs, the Undrilled Foot unit must advance if possible. Undrilled Foot may not conduct volley fire.

ARMY FORMATIONS IN THE PIKE AND SHOT AGE

Utilizing the Pike and Shot Age's unique forces posed great tactical challenges. The great captains of the era developed army formations that blended pikemen, musketeers, and arquebusiers into combined-arms groups with the staying power of formed foot and the firepower of drilled foot. As the era developed, the army formations became increasingly sophisticated, arguably reaching their peak with the Dutch regiment of Maurice and the Swedish brigade of Gustavus Adolphus.

Mechanically speaking, all armies in *Guns of War* are still organized into units and divisions, exactly as per the rules for army organization on p. 19 – 20 of *Domains at War: Campaigns* and p. 10 of *Domains at War: Battles*. Within the limits of those rules, players can deploy and maneuver their units as desired based on their forces, tactics, and terrain. However, players who are interested in utilizing historic army formations may find the following of interest.

TERCIO (EARLY)

The tercio was developed by the Spanish in the early 16th century as a means to combine armored infantry with firearms-equipped gunners. The typical tercio had around 3,000 soldiers, with ranks of pikemen in a hollow square surrounded by arquebusiers deployed into "sleeves" at each corner. The Tercio Diagram, below, shows a *D@W: Battles* army made up of 24 company-sized units (2,880 troops total) consisting of 12 pikemen, 10 arquebusier, and 2 musketeer units. The army is divided into five divisions, shown encircled in black.
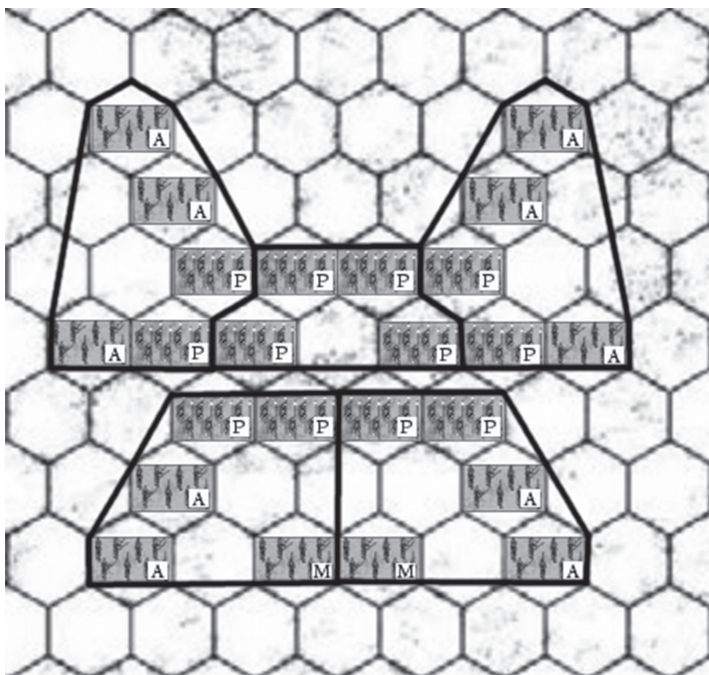
EVOLVED TERCIO (MIDDLE)

As firearms improved in reliability and rate of fire, the tactical balance between pikemen, arquebusiers, and musketeers began to shift. With less need for massed pikemen, the tercio evolved into a lighter, 1,500-man formation with more emphasis on firepower. The Evolved Tercio Diagram, below, shows a *D@W: Battles* army made up of 13 company-sized units (1,560 troops total) consisting of 8 musketeer, 3 pikemen, and 2 arquebusier units. The army is divided into three divisions, shown encircled in black. Note that every Drilled Foot unit is adjacent to a Formed Foot unit, providing protection from cavalry shock.
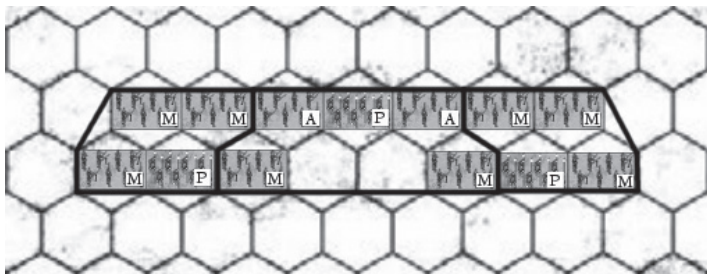
DUTCH REGIMENT AND BRIGADE (MIDDLE)

The Dutch regiment was created by Maurice of Nassau in reaction to the Spanish tercio. The highly flexible formation of 850 soldiers was inspired by the ancient Roman legion, and would be used to great effect in a series of battles between 1590 and 1609. The Dutch Regiment Diagram, below, shows a *D@W: Battles* army made up of 8 company-sized units (960 troops total) consisting of 4 musketeer and 4 pikemen units. The army is divided into two divisions, shown encircled in black.
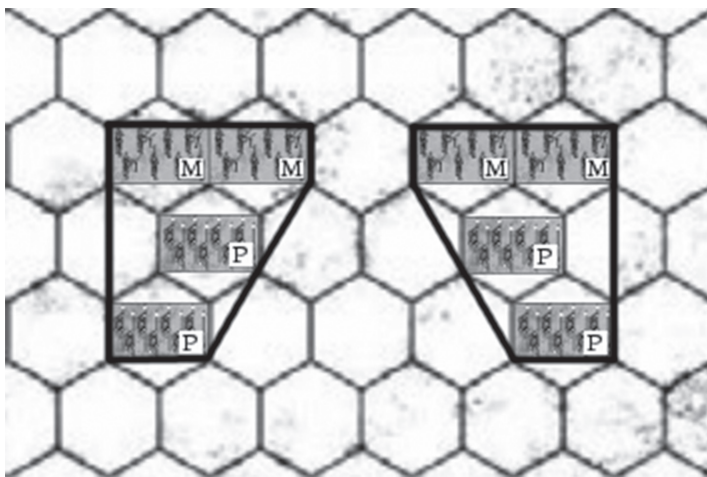
"War is not a river, or a lake, but an ocean of all that is evil."

- Gustavus Adolphus

The regiment would actually be deployed in brigades of four regiments each, with a first, second, and reserve line. The Dutch Brigade Diagram, below, shows a *D@W: Battles* army made up of 32 company-sized units (3,840 troops total) consisting of 16 musketeer and 16 pikemen units. The army is divided into eight divisions, shown encircled in black.
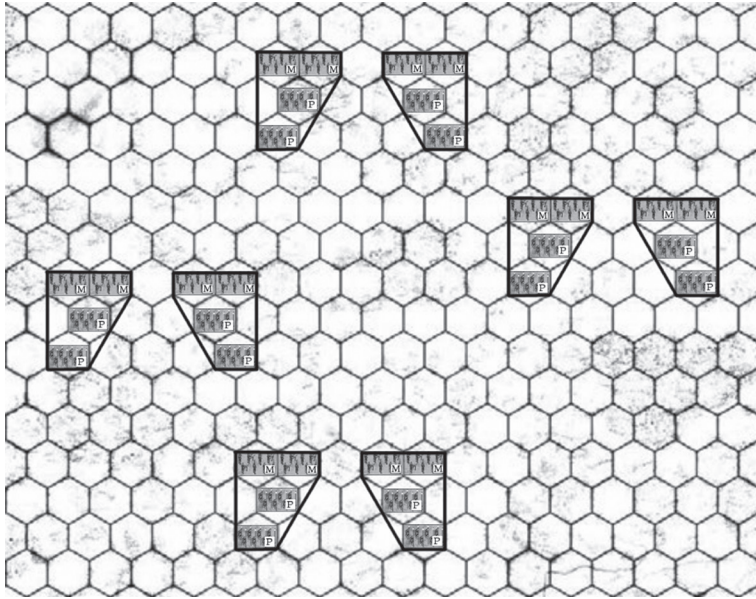
SWEDISH BRIGADE (LATE)

The Swedish brigade was developed by Gustavus Adolphus, the Lion of the North, and deployed to great effect during the 30 Years' War. The Swedish brigade had around 1,700 soldiers arrayed in a broad, flexible front that was capable of delivering a high volume of fire. The Swedish Brigade Diagram, below, shows an army made up of 14 company-sized units (1,680 troops total) consisting of 8 musketeer and 6 pikemen units. The army is divided into three divisions, shown encircled in black. The first rank of musketeers serves to break up enemy attacks before the main line engages. If needed, there are sufficient pikemen in the second rank to support both the first and second rank.
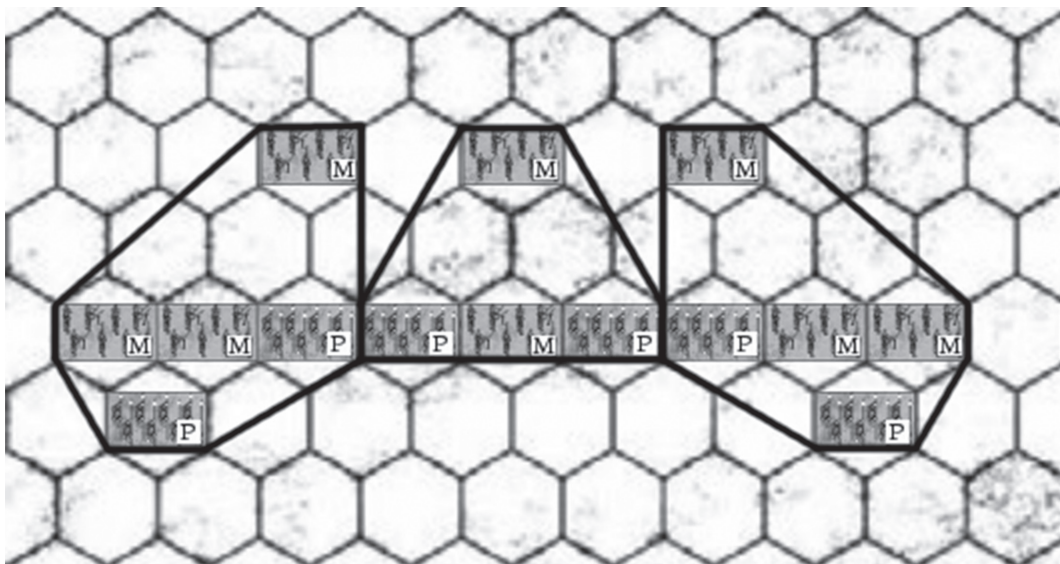
FIREARMS ON THE BATTLEFIELD

Firearms are missile weapons, and generally handled according to the rules for **Attack Sequences** in Chapter 1 of *Domains at War: Battles*. Certain special rules are required to simulate the particular characteristics of the Age's firearms.

GENERAL FIREARM RULES

Firearm Range (AP / Maximum)		
Firearm	**v. Foot**	**v. Mounted**
Rifled Musket	4/4	5/5
Musket	3/3	4/4
Rifled Arquebus	2/4	2/5
Arquebus	2/3	2/4
Pistol	1/2	1/3

Armor Penetration and Range: Because they have a shallow trajectory and rapid decrease in shot velocity, firearms have considerably shorter range than bows and crossbows. The trade-off, however, is that attacks made with firearms ignore up to 5 points of armor at certain ranges. The Firearm Range table shows the armor-penetrating and maximum range (in hexes) for various firearms. (Note that "armor" for this purpose includes actual physical protection, thick hide, shields, etc. but not bonuses to AC due to magic or Dexterity. The Judge should apply common sense when deciding if a monster's Armor Class is due to its armor, the toughness of its hide, or magic and Dexterity.)

EXAMPLE: A Drilled Foot unit is equipped with rifled arquebuses. It can fire at an enemy Foot unit up to 4 hexes away. If the enemy Foot unit were only 2 hexes away, the Drilled Foot unit could ignore up to 5 points of armor when making its attack throw against it.

EXAMPLE: A Drilled Foot unit is equipped with muskets. It can fire at an enemy Foot unit up to 3 hexes away. The Drilled Foot unit can ignore up to 5 points of the target's armor when making its attack throw against it.

Line of Sight: Missile attacks with firearms must have LOS. Firearms may never volley overhead.

Invisible Killers: Pre-modern projectiles such as arrows and slings can be tracked flying through the sky. Not so for musket-balls and other gunpowder projectiles, which move too quickly for the eye. As a result, Drilled, Loose and Flyer units may not withdraw to reduce damage dealt by firearms.

Shock and Awe: The noise, smoke, and flash of firearms can quickly break the morale of unseasoned troops. As with magic, anytime a unit is damaged by firearms, a shock roll is required to see if the unit retreats or routs.

Reload Tokens: When a unit conducts a firearms attack, it receives reload tokens. On the unit roster, the number of reload tokens is noted in parentheses after the attack characteristic in the following format:

[# of attacks] [weapon type] [target value] (reload [# of reload tokens])

Reload tokens track the amount of time required for the unit to reload its firearms after it fires. When a unit completes a firearms attacks sequence, place the number of reload tokens indicated for that attack onto the unit's counter. At the conclusion of each movement sequence in which the firearms-equipped unit remains stationary (or marches,

if Drilled Mounted), remove one reload token from the unit. A unit may not declare a firearms attack while it has any reload tokens from those firearms.

EXAMPLE: In the first round of combat, a Drilled Foot unit conducts a firearms attack. Its attack characteristic is "1 matchlock arquebus 11+ (reload 2)," so after the attack sequence is completed, two reload tokens are placed on the unit's counter. In the second round, the unit remains stationary during its movement sequence, and one reload token is removed. It still has a reload token, so it cannot attack with its arquebuses during its attack sequence. In the third round, the unit marches, so it cannot remove a reload token, and still cannot attack with its arquebuses. In the fourth round, the unit remains stationary during its movement sequence, and the last reload token is removed. The unit is then able to make a firearms attack during its attack sequence.

WEAPON-SPECIFIC FIREARM RULES

Musket Forks: Muskets are large, long guns which should be supported by a fork rest when firing. Therefore, in order to fire without penalty, a musket-equipped unit must have stood fast during its movement sequence. Otherwise the unit suffers a −2 penalty to attack throws because it is firing without the benefit of its fork rests. (This penalty never applies when a musket-equipped unit conducts reaction fire – the act of readying in lieu of attacking includes setting up the fork rests!)

Pistol Caracoles: A Drilled Mounted unit's troops will typically each carry a brace of two pistols or more, so that the troops can fire twice during the caracole before needing to reload. To simulate this, a unit of Drilled Mounted (or Flyers) equipped with two or more pistols does not receive any reload tokens the first time it conducts a pistol attack sequence.

On the unit roster, such units are designated with an attack characteristic in the following format:

[# of attacks] [pistol type] [target value] (reload [# of reload tokens] or 0)

For instance, a harquebusier unit's attack characteristic is "1 flintlock pistol 11+, reload 2 or 0". The zero serves as a reminder that the unit gets a shot without reloading because of its second pistol.

EXAMPLE: In the first round of combat, a Drilled Mounted unit conducts a firearms attack. Its attack characteristic is "1 pistol 11+, reload 2 or 0". This is the first time the unit has conducted a pistol attack sequence, so it gains no reload tokens. In the second round of combat, the Drilled Mounted unit conducts another firearms attack. Two reload tokens are now placed on the unit's counter. On the third round of combat, the Drilled Mounted unit marches two hexes towards another target. Drilled Mounted units can reload while marching, so a reload token is removed at the end of its movement sequence. On the fourth round of combat, the Drilled Mounted unit marches another two hexes. The unit's remaining reload token is removed at the end of its movement sequence, and it can fire its pistols in its subsequent attack sequence.

Pistol Charges: While lighter cavalry preferred the stately caracole, heavier cavalry tended to charge with pistols in hand, firing at point blank range. If a second pistol was carried, the opening volley would be quickly followed up with a second shot.

To reflect this, Formed Mounted units (and Flyers) may conduct melee attacks with pistols, provided it has no reload tokens. If the attacker charged during its movement sequence, its melee attack with

its pistols will be a charge. Such attacks use the standard procedures for melee attacks, but the special rules for armor penetration, invisible killing, reload tokens, and shock and awe still apply.

If the Formed Mounted unit's troops carry two or more pistols each, the unit receives a bonus attack the first time it conducts a melee attack sequence with pistols. On the unit roster, these units are designated with an attack characteristic in the following format:

[# of attacks] [# of attacks +1] [pistol type] [target value] (reload [# of reload tokens])

For instance, a cuirassier unit's attack characteristic is "1 (2) flintlock pistol 11+ (reload 2)". The parenthetical number of attacks serves as a reminder that the unit gets a bonus shot the first time it attacks with its pistols. Units equipped with lances or shields can never benefit from a bonus attack with pistols.

> EXAMPLE: A cuirassier unit is equipped with 2 flintlock pistols. Its attack sequence is 1 flintlock pistol 11+ (reload 1). During its movement sequence, it charges 4 hexes to threaten an enemy armored swordsmen unit (AC 5, morale +1). During its attack sequence, the cuirassier unit conducts a charge attack with its pistols against the enemy swordsmen. This is its first attack sequence with its pistols, so the cuirassier unit gets a bonus attack, giving it a total of two attacks. Because the range is 1 hex, the cuirassier will ignore all 5 points of the enemy's AC. Both attacks will be at +2 because the cuirassier charged, so the cuirassier only needs to roll 9+ to hit!
>
> Both attacks hit, dealing 2 uhp of damage to the armored swordsmen and disordering them. The armored swordsmen must now make a shock roll because they have been damaged by a firearm attack. The roll is a 6, modified by +1 (unit morale) − 2 (disordered), for a total of 5. The enemy armored swordsmen flee! The cuirassier unit advances one hex. As the cuirassier unit's attack sequence is now completed, one reload token is now placed on its counter.

GUNPOWDER ARTILLERY ON THE BATTLEFIELD

When deployed in *D@W: Battles,* gunpowder artillery should be organized into units. A unit of artillery represents a battery of between 1 and 6 artillery pieces. The crew for a unit may range from 10 to 50 men, with anywhere from 4 to 60 horses, depending on the number and sizes of the artillery pieces. The characteristics for artillery units are as follows:

Veteran artillery crews will have attack throws of 10+. Artillery crewed by other races will use their race's base attack throw, as determined by their hit dice.

ARTILLERY MOVEMENT

All gunpowder artillery units move as War Machinery. War Machinery cannot cross swamp, streams, trenches, ditches, walls or moats, and cannot **defend** or charge. War Machinery can **ready to attack** (p. 25), however. A gunpowder artillery unit's actual movement rate is determined by the artillery's carriage, as shown on the table below.

	Carriageless	Garrison Carriage	Field Carriage	Field Carriage & Limber
Movement Rate	-/-/-	-/*/-	-/1/-	1/2/-

A movement rate of "-/-/-" means that the unit cannot move or change facing. A movement rate of "-/*/-" means that the unit can change its facing in any direction by hustling during its movement sequence, but cannot otherwise move. A movement rate listed as "-/1/-" means that the unit can hustle 1 hex, but cannot march or charge. A movement rate of "1/2/-" means that the unit can march 1 hex or hustle 2 hexes, but cannot charge. Artillery units with field carriage and limber are allowed to conduct gunpowder artillery attacks after marching, but may not reload while marching.

CREW ATTACKS

Artillery units possess crew which are typically armed with small weapons, such as pistols and short swords. They may attack enemy units or heroes with these weapons as if they were Undrilled Foot. All the standard rules apply. Artillery may not make crew attacks and gunpowder artillery attacks in the same combat round. Artillery units may not reload their artillery and reload their personal firearms in the same round – the unit's commander chooses which reload token to remove.

"We shall be called Ironsides because we are like iron, being hard both day and night. And the king shall find us unyielding, like a rod of iron, and shall give us satisfaction. Like our wives!"

- Olive Cromwell

Unit Type	Unit Move	Unit Form	Unit AC	Unit HD	Unit HP	Unit Morale	Crew Attacks & Attack Throws	Artillery Attacks & Attack Throws
1 60-pdr Cannon	Varies	WM	1	1-1	2	0	1 short sword 11+ 1 wheellock pistol 11+ (1 reload)	1 gunpowder artillery attack 11+ (60 reload)
1 48-pdr Cannon	Varies	WM	1	1-1	2	0	1 short sword 11+ 1 wheellock pistol 11+ (1 reload)	1 gunpowder artillery attack 11+ (54 reload)
1 36-pdr Cannon	Varies	WM	1	1-1	2	0	1 short sword 11+ 1 wheellock pistol 11+ (1 reload)	1 gunpowder artillery attack 11+ (50 reload)
2 24-pdr Cannons	Varies	WM	1	1-1	2	0	1 short sword 11+ 1 wheellock pistol 11+ (1 reload)	1 gunpowder artillery attack 11+ (20 reload)
4 12-pdr Cannons	Varies	WM	1	1-1	3	0	1 short sword 11+ 1 wheellock pistol 11+ (1 reload)	1 gunpowder artillery attack 11+ (8 reload)
1 24-pdr Gun	Varies	WM	1	1-1	2	0	1 short sword 11+ 1 wheellock pistol 11+ (1 reload)	1 gunpowder artillery attack 11+ (40 reload)
1 18-pdr Gun	Varies	WM	1	1-1	1	0	1 short sword 11+ 1 wheellock pistol 11+ (1 reload)	1 gunpowder artillery attack 11+ (36 reload)
2 12-pdr Guns	Varies	WM	1	1-1	2	0	1 short sword 11+ 1 wheellock pistol 11+ (1 reload)	1 gunpowder artillery attack 11+ (16 reload)
4 9-pdr Guns	Varies	WM	1	1-1	3	0	1 short sword 11+ 1 wheellock pistol 11+ (1 reload)	1 gunpowder artillery attack 11+ (7 reload)
4 6-pdr Guns	Varies	WM	1	1-1	2	0	1 short sword 11+ 1 wheellock pistol 11+ (1 reload)	1 gunpowder artillery attack 11+ (6 reload)
6 3-pdr Guns	Varies	WM	1	1-1	2	0	1 short sword 11+ 1 wheellock pistol 11+ (1 reload)	1 gunpowder artillery attack 11+ (3 reload)
6 2-pdr Guns	Varies	WM	1	1-1	1	0	1 short sword 11+ 1 wheellock pistol 11+ (1 reload)	1 gunpowder artillery attack 11+ (2 reload)
6 1-pdr Guns	Varies	WM	1	1-1	1	0	1 short sword 11+ 1 wheellock pistol 11+ (1 reload)	1 gunpowder artillery attack 11+ (2 reload)
1 200-pdr Mortar	Varies	WM	1	1-1	7	0	1 short sword 11+ 1 wheellock pistol 11+ (1 reload)	1 gunpowder artillery attack 11+ (120 reload)
1 90-pdr Mortar	Varies	WM	1	1-1	4	0	1 short sword 11+ 1 wheellock pistol 11+ (1 reload)	1 gunpowder artillery attack 11+ (85 reload)
2 24-pdr Mortars	Varies	WM	1	1-1	2	0	1 short sword 11+ 1 wheellock pistol 11+ (1 reload)	1 gunpowder artillery attack 11+ (24 reload)
4 12-pdr Mortars	Varies	WM	1	1-1	3	0	1 short sword 11+ 1 wheellock pistol 11+ (1 reload)	1 gunpowder artillery attack 11+ (9 reload)

GUNPOWDER ARTILLERY ATTACKS

The following special rules apply to gunpowder artillery attacks.

Eligibility to Attack: In order to be eligible to make an artillery attack, an artillery unit must meet the following requirements:

- The artillery unit must have remained stationary during its movement sequence. Because all artillery movement is effectively hustling, artillery cannot move and fire in the same combat round.

- The artillery must not have any **reload tokens**. Reload tokens track the amount of time required to reload the artillery after it fires. Place the number of reloading tokens indicated for that artillery when it completes its artillery attack sequence. At the conclusion of each movement sequence in which the artillery unit remains stationary, remove one reload token from the unit.

- The artillery unit must not be threatened by another unit. Threatened units may only make melee attacks.

Target Eligibility: Gunpowder artillery attacks always target an **impact hex**. The impact hex might contain a structure, a terrain feature, and/or a unit, or it might simply be an open hex. In order to be an eligible target of an artillery unit's missile attack, the impact hex must meet the following requirements:

- The impact hex must be within the artillery's maximum range. Range is measured by counting the number of hexes from the artillery unit to the impact hex (excluding the artillery unit's hex, but including the impact hex). The closer the impact hex, the more accurate the artillery will be. The Gunpowder Artillery Range and Structural Damage table lists the short, medium, and long ranges of artillery.

Firearms on the Battlefield

Gunpowder Artillery Range and Structural Damage				
Unit	Short	Medium	Long	SHP Dmg.
1 60-pdr Cannon	18 hexes	37 hexes	85 hexes	65
1 48-pdr Cannon	17 hexes	35 hexes	80 hexes	55
1 36-pdr Cannon	16 hexes	32 hexes	75 hexes	45
2 24-pdr Cannons	14 hexes	28 hexes	65 hexes	30
4 12-pdr Cannons	11 hexes	23 hexes	50 hexes	20
1 24-pdr Gun	24 hexes	50 hexes	125 hexes	55
1 18-pdr Gun	22 hexes	48 hexes	115 hexes	45
2 12-pdr Guns	20 hexes	44 hexes	105 hexes	30
4 9-pdr Guns	17 hexes	37 hexes	90 hexes	25
4 6-pdr Guns	15 hexes	33 hexes	80 hexes	20
6 3-pdr Guns	13 hexes	28 hexes	70 hexes	15
6 2-pdr Guns	11 hexes	24 hexes	60 hexes	10
6 1-pdr Guns	9 hexes	20 hexes	50 hexes	6
1 200-pdr Mortar	20 hexes	70 hexes	200 hexes	145
1 90-pdr Mortar	15 hexes	50 hexes	150 hexes	80
2 24-pdr Mortar	10 hexes	35 hexes	100 hexes	30
4 12-pdr Mortar	8 hexes	28 hexes	80 hexes	20

- The impact hex must be within the firing arc of the artillery. An impact hex is within the artillery's firing arc if an imaginary line drawn straight from the center of the artillery's hex to the center of the impact hex would exit the artillery's hex through the artillery's front hexes. When the imaginary line exits at the vertex between the artillery's front face and flank face, it counts as within the firing arc.

- The impact hex must be within the **line of sight** of the artillery unit, unless using **plunging fire** (see below).

- The impact hex must not continue units that are threatening or threatened by the artillery, or a unit on the artillery's side. Firing into a melee is too risky to the attacker's allies.

Gunpowder Artillery Attack Procedure: The artillery makes an attack throw against its base target value, applying the range modifier and any other appropriate modifiers. The result is determined by the attack throw:

If the attack throw exceeds the target value *and* an unmodified 20 is rolled, then a **direct hit** occurs. The artillery's shot has hit the impact hex. If the impact hex contains a structure, the artillery deals damage to the structural hit points (shp) of the structure unless it makes a **structural saving throw** to avoid being damaged (see below). If the impact hex contains a unit and/or heroes, the artillery deals damage to the units or heroes. Units and heroes in the impact hex can reduce damage by half with a successful saving throw v. Blast (see **Damage versus Units**, below).

If the attack throw exceeds the target value on an unmodified 2-19, *or* an unmodified 20 is rolled, then a **close hit** occurs. Resolve the effects of the artillery as if a direct hit had occurred. However, units and heroes in the impact hex can avoid damage altogether with a successful saving throw v. Blast.

If the attack throw fails with an unmodified 1, then a **misfire** occurs. When a misfire occurs, roll again. If the result is an unmodified 2-20 then the shot and powder are wasted but there is no other effect. If the result is another unmodified 1, then an accidental powder discharge has occurred. When this occurs, place twice the usual number of reload tokens on the artillery and reduce its Unit Hit Points by half.

A **scatter** occurs on any other result, with the artillery placing its shot into a hex near the intended impact hex. The Artillery Scatter diagram shows the possibilities that may result from scattering. The attacker rolls 1d6 to determine the scatter at short range; 1d6 and 1d12 at medium range; and 1d6, 1d12, and 1d20 at long range. Apply the scatter from each die step by step from the smallest to largest die, with each larger die's scatter being applied against the impact point determined by the prior hex. Resolve the effects of the artillery as if a close hit had occurred in the new impact hex.

EXAMPLE: A 48-pdr cannon fires at long range and gets a scatter result. The attacker rolls 1d6, 1d12, and 1d20 to determine scatter. The roll of 1d6 gets a result of 2, so the impact hex is shifted one hex up and to the right. The roll of 1d12 gets a 5, so the impact hex is shifted another two hexes directly to the right. The roll of 1d20 gets a 10, so the impact hex is shifted another three hexes to the lower right. The Example of Scatter diagram shows the final impact point.

EXAMPLE OF SCATTER DIAGRAM
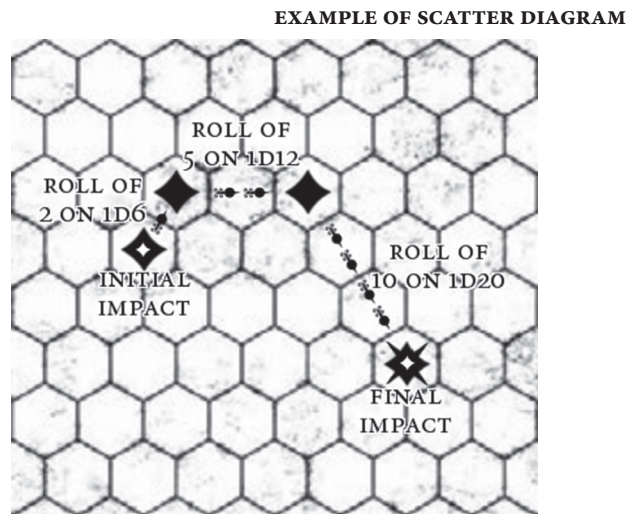
Line of Sight: Unless using **plunging fire** (see below), an artillery unit must have a line of sight to its designated impact hex. An artillery unit has line of sight if it can trace an imaginary line from the center of its hex to the center of the impact hex without crossing a hex containing an obstacle. If the imaginary line touches the border of the hex containing

the obstacle, but does not actually cross the hex containing the obstacle, line of sight is not blocked. Obstacles include friendly units, enemy units, and certain types of terrain (see *D@W: Battles* p. 22, 29).

If, as a result of scatter, an artillery unit's line of sight to its impact hex becomes blocked by an obstacle, then the artillery unit's impact hex becomes the hex containing the obstacle instead.

LINE OF SIGHT SCATTER DIAGRAM

EXAMPLE: See the Line of Sight During Scatter diagram. A unit of 2-pdr guns fires at an impact hex at long range. The artillery has a clear line of sight to this impact hex. However, a scatter result occurs, with the new impact hex. Line of sight from the artillery unit to this hex is blocked by an adjacent hill. The artillery unit's new impact hex becomes the hex containing the hill that blocked its line of sight.

Plunging Fire: Plunging fire allows an artillery piece to aim at impact hexes that are not within line of sight. Guns cannot use plunging fire. Cannons may use plunging fire at medium range, and *must* use plunging fire at long range. Mortars must use plunging fire at medium and long range (and cannot aim at targets at short range at all). Plunging fire imposes a -4 penalty on the artillery's attack throws. When plunging fire scatters, apply the results of each die twice.

EXAMPLE: A 24-pdr cannon fires at an impact hex on the far side of a hill, 50 hexes away. This is long range and the impact hex is not in line of sight, so the unit conducts plunging fire. The result is a scatter. The attacker rolls 1d6, 1d12, and 1d20 to determine scatter. The roll of 1d6 gets a result of 1, the roll of 1d12 gets a 7, and the roll of 1d20 gets a 19. The Example of Scatter from Plunging Fire diagram shows how the final impact hex is the result of applying each die twice.

EXAMPLE OF SCATTER FROM PLUNGING FIRE
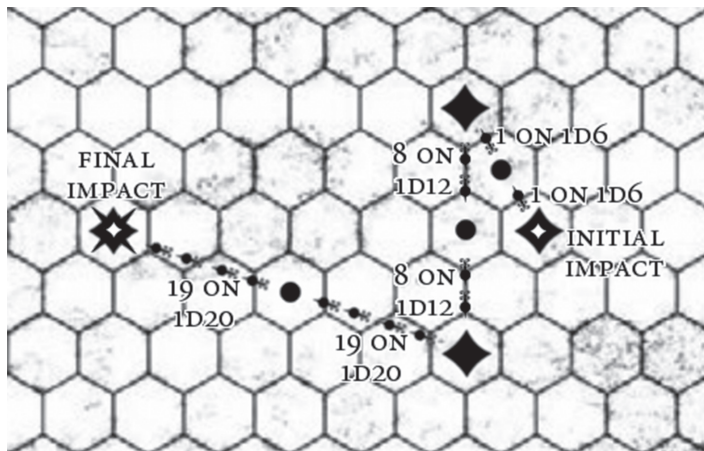
Damage versus Structures: If the impact hex contains a fortified structure, the structure may suffer damage to its shp. The structure must make a structural saving throw against a target value of (21 + Range Modifier − AC). If the throw succeeds, the structure takes no damage from the attack. If the throw fails, the structure suffers the shp damage shown on the Gunpowder Artillery Range and Structural Damage table. See **Damaging and Destroying Fortified Structures** in *D@W: Battles* (p. 58).

EXAMPLE: A unit of two 12-pdr guns lands a close hit onto an impact hex at medium range (-4 range modifier). The impact hex contains a large tower (AC 6), so the tower must make a structural saving throw. Since the tower is at medium range (-4) and has an AC of 6, the target value for its saving throw is 21 + (-4) − (6), or 11+. The die roll is a 4, so the structure suffers the damage shown on the Gunpowder Artillery Range and Structural Damage table for a unit of 12-pdr guns, e.g. 33 shp.

"I call on the all-powerful God to witness, by whose providence we are here assembled, that it is not by my own wish, or from any love of war, that I undertake this campaign."

- Gustavus Adolphus

Firearms on the Battlefield

Damage versus Heroes: If the impact hex contains one or more heroes, the hero or heroes may suffer damage to their hp. The damage is determined as if one artillery shot had struck the hero, dealing the amount shown the Gunpowder Artillery Characteristics table (p. 14). Heroes may avoid damage with a successful saving throw v. Blast (or reduce damage by half if directly hit). Heroes occupying a fortified structure will receive a +4 to their saving throws (see *D@W: Battles*, p. 27). If the hex was impacted as a result of a close hit or scatter, the heroes receive an additional +4 to their saving throws. (The extra +4 bonus is because the area of effect of artillery is considerably smaller than the area of a hex, so a hero in a hex might not "really" have been hit had more precise calculations been used to determine where the shot landed).

> EXAMPLE #1: Marcus, a 7th level fighter with 42hp, is occupying a large tower that is in the impact hex of a close hit by a unit of two 12-pdr guns. Marcus must make a saving throw versus Blast. As a 7th level fighter, his base target value is 11+. He gains a +4 bonus for occupying a fortified structure and an additional +4 because the attack was a close hit (and not a direct hit). He therefore needs a 3+ to succeed. Sadly, he rolls a 2. 12-pdr guns deal 6d6 points of damage according to the Gunpowder Artillery Characteristics table. The Judge rolls a 24, leaving Marcus badly hurt. (It is important to note that even though the unit has two guns, damage is determined as if just one shot had hit.)

Damage versus Units: If the impact hex contains a unit, the unit may suffer damage to its uhp. The damage dealt is determined by the type of artillery unit, the HD of the unit, and the number of troops in the unit. To determine uhp of damage dealt by an artillery unit's missile attack, consult the tables below. Cross-index the number of troops in the target unit with its Unit HD. If the unit is **cavalry**, double the number of troops in the unit for purposes of calculating damage dealt. Deal the listed value in uhp of damage to the unit. The unit may make a saving throw versus Blast to avoid the damage (or reduce

damage by half if directly hit). Units occupying a fortified structure will receive a +4 to their saving throws.

> EXAMPLE #1: A unit of 120 Pikemen (Unit HD 1-1) is struck by an artilery attack from a 24-pdr mortar unit. Cross-indexing the number of troops in the unit (120) by the Unit Hit Dice (1-1), the Judge determines that the Pikemen suffers 2 uhp of damage. However, the Pikemen make a successful saving throw versus Blast. This reduces the damage to 1 uhp.

> EXAMPLE #2: A unit of 60 Goblin Wolf Riders (Unit HD 4+1) is struck by an artilery attack from a 36-pdr Cannon. Because the target is a cavalry unit, it is considered to have 120 troops for purposes of calculating damage dealt. Cross-indexing the number of troops in the unit (120, because it is a cavalry unit) with the Unit HD (5), the Judge determines that the Goblin Wolf Riders suffer 4 uhp of damage. However, the Wolf Riders make a successful saving throw versus Blast. This reduces the damage to 2 uhp.

Enfilade Fire: Enfilade fire occurs when gunpowder artillery attacks rake across a unit's flank face. Enfilade fire only occurs when the impact hex contains a unit. To determine if enfilade fire occurs, draw an imaginary line between the artillery and its impact hex. If the line enters the impact hex through the occupying unit's flank or rear hexes, enfilade fire occurs. Enfilade fire deals double the normal value in uhp damage to a unit. Units in the impact hex can still reduce or avoid the damage with a successful saving throw v. Blast.

> EXAMPLE #1: A unit of 120 Drilled Foot (Unit HD 1-1) is struck by an artilery attack from a 24-pdr Gun Unity to their rear. Cross-indexing the number of troops in the unit (120) by the Unit Hit Dice (1-1), the Judge determines that the Drilled Foot suffers 2 uhp of damage. However, the rilled Foot make a successful saving throw versus Blast. This reduces the damage to 1 uhp.

200-pdr Mortar Damage																
Troops In Unit	1HD-	2HD	3HD	4HD	5HD	6HD	7HD	8HD	9HD	10HD	11HD	12HD	13HD-15HD	16HD-18HD	19HD-21HD	22HD-24HD	25HD+
61 to 120	5	8	12	17	20	24	29	32	36	41	44	48	60	72	84	96	120
31 to 60	3	4	6	9	10	12	15	16	18	21	22	24	30	36	42	48	60
11 to 30	1	2	2	3	4	4	5	6	6	7	8	8	10	12	14	16	20
5 to 10	1	1	1	1	1	2	2	2	2	3	3	3	3	4	5	5	6
1 to 4	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2

90-pdr Mortar Damage																
Troops In Unit	1 HD-	2 HD	3 HD	4 HD	5 HD	6 HD	7 HD	8 HD	9 HD	10 HD	11 HD	12 HD	13 HD	14 HD	15 HD-17HD	18 HD+
61 to 120	3	5	8	10	12	15	17	20	22	25	27	29	32	34	36	44
31 to 60	2	3	4	5	6	8	9	10	11	13	14	15	16	17	18	22
11 to 30	1	1	2	2	2	3	3	4	4	5	5	5	6	6	6	8
5 to 10	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3
1 to 4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2

60-pdr Cannon Damage													
Troops In Unit	1 HD -	2 HD	3 HD	4 HD	5 HD	6 HD	7HD	8HD	9HD	10HD	11HD	12HD	13HD+
61 to 120	1	2	3	4	5	6	7	8	9	10	11	12	14
31 to 60	1	2	3	4	4	5	6	7	8	9	9	10	11
11 to 30	1	1	2	2	2	3	3	4	4	5	5	5	6
5 to 10	1	1	1	1	1	2	2	2	2	3	3	3	3
1 to 4	1	1	1	1	1	1	1	1	1	1	1	1	1

48-pdr Cannon/24-pdr Gun Damage

Troops In Unit	1 HD -	2 HD	3 HD	4 HD	5 HD	6 HD	7HD	8HD	9HD	10HD	11HD	12HD+
61 to 120	1	2	3	4	5	6	7	8	9	10	11	12
31 to 60	1	2	3	3	4	5	6	6	7	8	9	9
11 to 30	1	1	1	2	2	2	3	3	3	4	4	4
5 to 10	1	1	1	1	1	2	2	2	2	3	3	3
1 to 4	1	1	1	1	1	1	1	1	1	1	1	1

36-pdr Cannon/18-pdr Gun Damage

Troops In Unit	1 HD -	2 HD	3 HD	4 HD	5 HD	6 HD	7HD	8HD	9HD	10HD+
61 to 120	1	2	3	4	4	5	6	7	8	9
31 to 60	1	2	2	3	3	4	5	5	6	7
11 to 30	1	1	1	2	2	2	3	3	3	4
5 to 10	1	1	1	1	1	2	2	2	2	3
1 to 4	1	1	1	1	1	1	1	1	1	1

24-pdr Cannon/12-pdr Gun Damage

Troops In Unit	1 HD -	2 HD	3 HD	4 HD	5 HD	6 HD	7HD	8HD+
61 to 120	1	2	2	3	3	4	5	5
31 to 60	1	1	2	2	3	3	4	4
11 to 30	1	1	1	2	2	2	2	3
5 to 10	1	1	1	1	1	1	1	2
1 to 4	1	1	1	1	1	1	1	1

24-pdr Mortar Damage

Troops In Unit	1 HD -	2 HD	3 HD	4 HD	5 HD	6 HD	7HD+
61 to 120	2	3	4	5	6	7	8
31 to 60	1	2	2	3	3	4	4
11 to 30	1	1	1	1	1	2	2
5 to 10	1	1	1	1	1	1	1
1 to 4	1	1	1	1	1	1	1

9-pdr Gun Damage

Troops In Unit	1 HD -	2 HD	3 HD	4 HD	5 HD	6 HD+
61 to 120	1	2	2	3	3	4
31 to 60	1	1	2	2	2	3
11 to 30	1	1	1	1	1	2
5 to 10	1	1	1	1	1	1
1 to 4	1	1	1	1	1	1

3-pdr Gun Damage

Troops In Unit	1 HD -	2 HD	3 HD	4 HD+
61 to 120	1	1	1	2
31 to 60	1	1	1	2
11 to 30	1	1	1	1
5 to 10	1	1	1	1
1 to 4	1	1	1	1

12-pdr Cannon/6-pdr Gun Damage

Troops In Unit	1 HD -	2 HD	3 HD	4 HD	5 HD+
61 to 120	1	1	2	2	3
31 to 60	1	1	1	2	2
11 to 30	1	1	1	1	1
5 to 10	1	1	1	1	1
1 to 4	1	1	1	1	1

12-pdr Mortar

Troops In Unit	1 HD -	2 HD	3 HD	4 HD	5 HD+
61 to 120	1	1	1	2	2
31 to 60	1	1	1	1	1
11 to 30	1	1	1	1	1
5 to 10	1	1	1	1	1
1 to 4	1	1	1	1	1

2-pdr Gun/1-pdr Gun Damage

Troops In Unit	Any HD
61 to 120	1
31 to 60	1
11 to 30	1
5 to 10	1
1 to 4	1
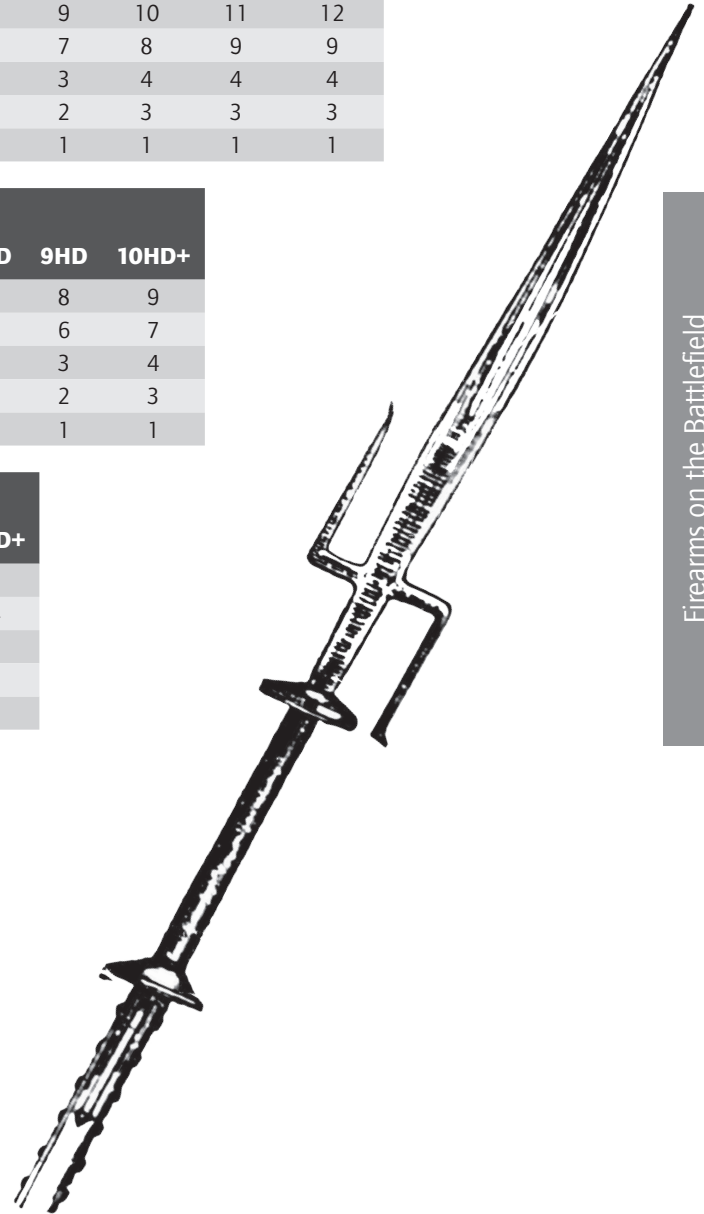
BUILDING FIREARMS-EQUIPPED UNITS

The rules below supplement the rules for building units in Chapter 8 of *Domains at War: Battles*.

INFANTRY UNIT MOVEMENT RATE AND FORMATION

The addition of firearms adds two new formation types for infantry units, Drilled Foot (DF) and Undrilled Foot (UF). The Standard Unit Movement Rate and Formation table, below, has been updated to add the new weapons and formations. If the unit carries multiple weapons, start at the top and work downward, stopping when a weapon carried by the unit is reached.

Irregular Foot: Unless equipped with firearms, the following troops are always Irregular Foot (IF): untrained conscripts, untrained militia, undead, and beastmen other than hobgoblins.

Undrilled Foot: If equipped with firearms, the following troops are always Undrilled Foot (UF) with a maximum movement rate of 1/2/3: untrained conscripts, untrained militia, regular units without firearm experience, undead, and beastmen other than hobgoblins.

Standard Unit Movement Rate and Formation			
	Encounter Movement Rate		
Weapons Carried	**60'**	**90'**	**120'**
Arquebus, pistol, or musket	-/1/2 (DF)	1/2/3 (DF)	2/3/4 (DF)
Spear and shield; or pole arm	1/2/3 (FF)	2/3/4 (FF)	2/4/6 (FF)
Weapon and shield; spear without shield; or two-handed weapon	1/2/3 (FF)	2/3/4 (FF or LF)*	2/4/6 (FF or LF)*
Dual wielding one-handed weapons	1/2/3 (FF)	2/3/4 (FF or LF)*	2/4/6 (LF)
Bow, crossbow, darts, javelins, or sling; or one-handed weapon without shield	1/2/3 (LF)	2/3/4 (LF)	2/4/6 (LF)
Natural weapons	1/2/3 (IF)	2/3/4 (IF)	2/4/6 (IF)
Choose when the unit is created.			

CAVALRY UNIT MOVEMENT RATE AND FORMATION

The addition of firearms adds one new formation types for cavalry units, Drilled Mounted. The Cavalry Unit Movement Rate and Formation table, below, has been updated to add the new weapons and formation types. Remember, if the unit carries multiple weapons, start at the top and work downward, stopping when a weapon carried by the unit is reached.

Irregular Mounted: Beastmen (other than hobgoblins) are always Irregular Mounted (IM) because the riders are ill-disciplined. Units with mounts of animal intelligence that can be trained as guard or hunters (e.g. dire wolves) are always Irregular Mounted because the mounts are difficult to control. Likewise, units with mounts that are not trained as war mounts (such as riding horses) are always Irregular Mounted. For details on animal intelligence and training, see *D@W: Campaigns*.

Flyers: If the mount is capable of flying, the unit is generally a Flyer (FLY). If a Flyer is equipped with pistols, it may perform a Marching Reload, Voluntary Retreat, and Pistol Caracole (like Drilled Mounted) and a Pistol Charge (like Formed Mounted).

EXAMPLE #1: A cavalry unit has a movement rate of 180' and is equipped with an arquebus and 2 pistols. Starting at the top of the Cavalry Unit Movement Rate and Formation table, "Arquebus" is the first line reached. The unit's movement rate and formation is 3/6/9 DM.

EXAMPLE #2: A cavalry unit has a movement rate of 180' and is equipped with sword and 2 pistols. Starting at the top of the Cavalry Unit Movement Rate and Formation table, "Pistol" is the first line reached. The unit's movement rate is 3/6/9 and its formation is either DM or FM.

EXAMPLE #3: A cavalry unit has a movement rate of 180' and is equipped with lance and 2 pistols. Starting at the top of the Cavalry Unit Movement Rate and Formation table, "Lance" is the first line reached. The unit's movement rate is 3/6/9 and its formation is FM.

Cavalry Unit Movement Rate and Formation						
Weapons Carried	**60'**	**90'**	**120'**	**150'**	**180'**	**240'**
Arquebus	1/2/3 (IM)	2/3/4 (IM)	(2/4/6) (DM)	2/5/8 (DM)	3/6/9 (DM)	4/8/12 (DM)
Lance or spear	1/2/3 (IM)	2/3/4 (IM)	2/4/6 (FM)	2/5/8 (FM)	3/6/9 (FM)	4/8/12 (FM)
Pistol	1/2/3 (IM)	2/3/4 (IM)	2/4/6 (FM)	2/5/8 (FM or DM)*	3/6/9 (DM or FM)*	4/8/12 (DM or FM)*
Bow, crossbow, darts, javelins, sling	1/2/3 (IM)	2/3/4 (IM)	2/4/6 (FM)	2/5/8 (FM or LM)*	3/6/9 (FM or LM)*	4/8/12 (FM or LM)*
Other melee weapons	1/2/3 (IM)	2/3/4 (IM)	2/4/6 (FM)	2/5/8 (FM or LM)*	3/6/9 (FM or LM)*	4/8/12 (FM or LM)*
Natural weapons	1/2/3 (IM)	2/3/4 (IM)	2/4/6 (IM)	2/5/8 (IM)	3/6/9 (IM)	4/8/12 (IM)
Choose when the unit is created						

UNIT NUMBER OF ATTACKS & RELOAD TOKENS

Firearm Rate of Fire		
Firearm	**DF / DM**	**Other**
Flintlock Pistol	1/4	1/6
Flintlock Arquebus	1/4	1/6
Flintlock Musket	1/5	1/7
Flintlock Rifled Arquebus	1/6	1/9
Flintlock Rifled Musket	1/7	1/10
Other Pistol	1/8	1/11
Other Arquebus	1/8	1/11
Other Musket	1/9	1/12
Other Rifled Arquebus	1/12	1/16
Other Rifled Musket	1/13	1/18

Use the following alternative formula for calculating raw number of attacks with firearms:

(No. of creatures / 20) × (average damage / 4.5) × (rate of fire) × (misfire factor)

Rate of Fire: Rate of fire is simply [1 / (1 + Reload Time)]. The Firearm Rate of Fire table has standard rates of fire for the available weapons. The listed rates of fire assume the troops have no DEX modifier, are unencumbered and, if DF or SF, are using apostles. For each round by which reload time varies from this default, adjust the listed rate of fire by 1.

Misfire Factor: Misfire factor is 0.8 for flintlock firearms and 0.9 for other firearms.

Once the raw number of attacks is calculated, find the resulting value on the Firearm Number of Attacks and Reload Tokens table and write down the unit's final number of attacks and reload tokens under the Missile Attacks section of its unit roster.

Raw No. of Attacks	**Attack Characteristic**
1.51+	2 attacks, 1 reload token
1.50-0.66	1 attack, 1 reload token
0.65-0.46	1 attack, 2 reload tokens
0.45-0.31	1 attack, 3 reload tokens
0.30-0.26	1 attack, 4 reload tokens
0.25-0.21	1 attack, 5 reload tokens
0.20-0.16	1 attack, 6 reload tokens
0.15-0.11	1 attack, 7 reload tokens
0.10-	1 attack, 10 reload tokens

EXAMPLE #1: A unit of 120 Veteran Drilled Foot are equipped with flintlock arquebus. The unit's number of attacks is (120/20) x (5.5/4.5) x (1/4) x (0.9) = 1.65. Its attack sequence is "2 flintlock arquebus, 1 reload token".

EXAMPLE #2: A unit of 120 Drilled Foot is equipped with matchlock musket. The unit's number of attacks is (120/20) x (4.5/4.5) x (1/9) x (0.8) = 0.53. The unit's attack sequence is "1 matchlock musket, 2 reload tokens".

If the unit is Drilled Mounted (or a Flyer) and equipped with two or more pistols, indicate its Pistol Caracole ability by placing a (0) next to its reload token number.

If the unit is Formed Mounted (or a Flyer) and equipped with one or more pistols, also list its number of attacks and reload tokens with its pistols under the Melee Attacks section. If the unit is equipped with two or more pistols, then put a bonus melee attack in parentheses.

CALCULATING BATTLE RATING AND COST OF FIREARMS-EQUIPPED UNITS

As explained in *D@W: Battles,* p. 92, the formula for calculating a unit's battle rating is:

BR = (Unit AC) × (uhp/8) × (Morale Multiplier) × (Speed Multiplier) × (Formation Multiplier) × (Combat Multiplier) / 6

The notes below provide new modifiers for the new formations and equipment introduced.

Speed Multiplier: For DM units, speed modifier is equal to (Charging Movement / 9).

Formation Modifier: Use the value listed in the appropriate column on the table below.

When calculating the BR of mounted foot, treat them as if they were a unit of 120 drilled foot but substitute the Mounted Foot formation modifier of 1.3 for the Drilled Foot formation modifier of 1.15.

Melee Value: FM units equipped with a pair of pistols have a minimum Melee Value equal to 3 plus their number of charge attacks. Use this value if it is greater than the unit's Melee Value calculated using its melee weapons.

Missile Value: For DF or DM units, the formula for Missile Value is:

MiV= (unrounded number of missile attacks + equipment bonus) × (walking movement + missile range) × (firearm modifier) / 2

For other types of units equipped with firearms, the formula for Missile Value is:

MiV = (unrounded number of missile attacks + equipment bonus) x [(walking movement/3) + missile range] × (firearm modifier) / 2

The **equipment bonus** is a modifier representing the higher sustained fire a unit can deliver if it carries multiple firearms loaded in advance. Increase the unit's unrounded number of missile attacks by 0.33 for each firearm after the first.

The **firearm modifier** is a factor representing the armor-penetrating and morale-breaking effects of firearms. Firearm modifier is 1.125 for pistol, 1.5 for arquebus, and 2.25 for musket.

For purposes of calculating BR, the **missile range** of arquebus and muskets is 3; of pistols, 1.

Formation Modifier										
DF	**DM**	**FF**	**FLY**	**FM**	**IF**	**IM**	**LF**	**LM**	**MF**	**UF**
1.15	1.3	1.15	2.0	1	0.675	0.62	1	1.3	1.3	0.675

Once Missile Value and Melee Value are known, Combat Modifier can be calculated.

If Melee Value equals or exceeds Missile Value, Combat Modifier is (Melee Value + 0.2 x Missile Value).

If Missile Value exceeds Melee Value, Combat Modifier is (Missile Value + 0.05 x Melee Value).

Special Attack Bonus: All units equipped with firearms gain a 0.25 special attack bonus to the Battle Rating.

Once you have calculated all of the modifiers, enter the values into the formula. Round totals below 1 to the nearest 0.25 and totals of 1 or higher to the nearest 0.5.

EXAMPLE: Let's calculate the BR of a unit of 120 Matchlock Musketeers (AC 2, 6 uhp, Movement Rate 2/3/4, Formation DF, 2 Sword 11+ or, ML 0). The formula is (Unit AC) x (uhp/8) x (Morale Modifier) x (Speed Modifier) x (Formation Modifier) x (Combat Modifier) / 6. We calculate:

» Armor Class is 2.

» Uhp/8 is (6/8), or 0.75.

» Morale Modifier is $[(0+7)/7]^{1/2}$, or 1.

» Speed Modifier is $(4 / 7.5)^{0.33}$, or 0.813.

» Formation Modifier is 1.15.

» Melee Value is equal to the unit's unrounded number of attacks (2.1) divided by its rounded number of attacks (2) times the maximum damage the unit can deal in a charge (2), or 2.1.

» As a DF unit, Missile Value is equal to (number of missile attacks + equipment bonus) x [(walking movement/3) + missile range] x (firearm modifier) / 2. For this unit, that is (0.53 + 0) x [2 + 3] x (2.25) /2, or 2.98.

» Since Missile Value of 2.98 is greater than Melee Value of 2.1, Combat Modifier is [2.98 + (0.05 x 2.1)], or 3.1.

» Therefore the unit's BR is (2 x 0.75 x 1 x 0.813 x 1.15 x 3.1) / 6 = 0.72, which rounds to 0.75.

» The special attack bonus of 0.25 is added to the Battle Rating, for a final Battle Rating of 1.0.

Sylla was the first of victors: but our own

The sagest of usurpers, Cromwell: he

Too swept off the senates while he hewed the throne

Down to a block – immortal rebel! See

What crimes it costs to be a moment free

And famous through all ages.

- Lord Byron,
Child Harold's Pilgrimage,
Canto IV
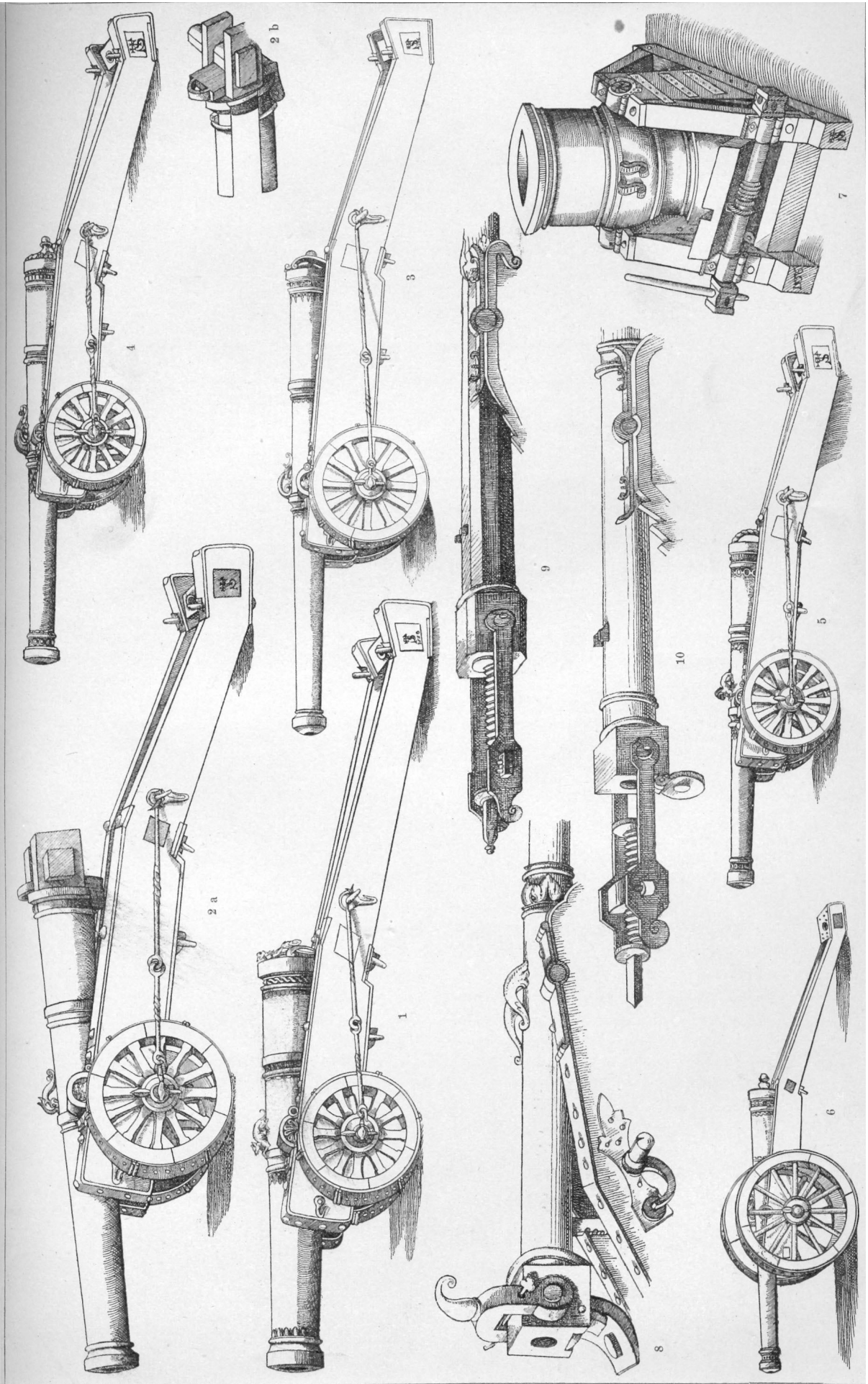
UNITS OF THE PIKE AND SHOT AGE

The unit rosters below provide *D@W: Campaigns* and *D@W: Battles* characteristics for the new troop types introduced in these rules.

Human Unit Characteristics - Campaigns							
Unit Type	Daily Move (Miles)	Weekly Move (Miles)	Monthly Wage (GP/ Month)	Supply Cost (GP/ Week)	Specialist Cost (GP/ Month)	Total Cost (GP/ Month)	Battle Rating
120 Untrained Conscripts/Militia	24	96	360	120	0	840	0.5
120 Matchlock Arquebusiers	24	96	720	60	130	1,090	1
120 Flintlock Arquebusiers	24	96	1,080	60	130	1,450	1.5
120 Matchlock Musketeers	24	96	1,080	60	130	1,450	1.5
120 Flintlock Musketeers	24	96	1,440	60	130	1,810	2
120 Pikemen	24	96	720	60	130	1,090	1
120 Armored Pikemen	18	72	1,440	60	130	1,810	2
120 Swordsmen	24	96	720	60	130	1,090	1
120 Armored Swordsmen	18	72	1,080	60	130	1,450	1.5
120 Heavy Swordsmen	18	72	1,440	60	130	1,810	2
120 Dragoons	48	192	2,400	480	130	4,450	2.5
60 Hussars	48	192	1,800	240	90	2,850	3.5
60 Coutiliers	36	144	2,100	240	90	3,150	4
60 Reiters	36	144	2,100	240	90	3,150	4
60 Harquebusiers	36	144	2,400	240	90	3,450	4.5
60 Cuirassiers	36	144	2,700	240	90	3,750	5
60 Demi-Lancers	36	144	2,700	240	90	3,750	5
60 Gendarmes	24	96	6,000	240	90	5,850	8

Notes: 25% of human units will be veterans (1st level fighters). Increase monthly wages of veterans by 12gp per troop. Increase Battle Rating by 2 for veteran infantry units and by 1 for veteran cavalry units.

Human Unit Characteristics - Battles								
Unit Type	Unit Move	Unit Form	Unit AC	Unit HD	Unit HP	Unit Morale	Unit Melee Attacks & Attack Throws	Unit Missile Attacks & Attack Throws
120 Conscripts/Militia	1/2/3	UF	0	1-1	6	-2	1 musket (club) 11+	1 matchlock arquebus 11+ (reload 3)
120 Matchlock Arquebusiers	2/3/4	DF	2	1-1	6	-1	2 sword 11+	1 matchlock arquebus 11+ (reload 2)
120 Veteran Matchlock Arquebusiers	2/3/4	DF	2	1	8	0	3 sword 10+	1 matchlock arquebus 10+ (reload 1)
120 Flintlock Arquebusiers	2/3/4	DF	2	1-1	6	-1	2 sword 11+	1 flintlock arquebus 11+ (reload 1)
120 Veteran Flintlock Arquebusiers	2/3/4	DF	2	1	8	0	3 sword 10+	2 flintlock arquebus 10+ (reload 1)
120 Matchlock Musketeers	2/3/4	DF	2	1-1	6	0	2 sword 11+	1 matchlock musket 11+ (reload 2)
120 Veteran Matchlock Musketeers	2/3/4	DF	2	1	8	+1	3 sword 10+	1 matchlock musket 10+ (reload 2)
120 Flintlock Musketeers	2/3/4	DF	2	1-1	6	0	2 sword 11+	1 flintlock musket 11+ (reload 1)
120 Veteran Flintlock Musketeers	2/3/4	DF	2	1	8	+1	3 sword 10+	1 flintlock musket 10+ (reload 1)
120 Pikemen	2/4/6	FF	2	1-1	6	0	3 pole arm 11+	-
120 Veteran Pikemen	2/4/6	FF	2	1	8	+1	4 pole arm 10+	-
120 Armored Pikemen	2/3/4	FF	4	1-1	6	+1	3 pole arm 11+	-
120 Veteran Armored Pikemen	2/3/4	FF	4	1	8	+2	4 pole arm 10+	-
120 Swordsmen	2/4/6	FF	3	1-1	6	0	2 sword & shield 11+	-
120 Veteran Swordsmen	2/4/6	FF	3	1	8	+1	3 sword & shield 10+	-
120 Armored Swordsmen	2/3/4	FF	5	1-1	6	+1	2 sword & shield 11+	-
120 Veteran Armored Swordsmen	2/3/4	FF	5	1	8	+2	3 sword & shield 10+	-
120 Heavy Swordsmen	2/3/4	FF	5	1-1	6	+2	3 two-handed sword 11+	-
120 Veteran Heavy Swordsmen	2/3/4	FF	5	1	8	+3	4 two-handed sword 11+	-
120 Dragoons (Dismounted)	2/3/4	MF (DF)*	2	1-1	6	+1	2 short sword 11+	1 flintlock musket 11+ (reload 1)
120 Veteran Dragoons (Dismounted)	2/3/4	MF (DF)*	2	1-1	8	+2	3 short sword 10+	1 flintlock musket 10+ (reload 1)

*Mounted Foot functioning as Drilled Foot.

Unit Type	Unit Move	Unit Form	Unit AC	Unit HD	Unit HP	Unit Morale	Unit Melee Attacks & Attack Throws	Unit Missile Attacks & Attack Throws
60 Dragoons (Mounted)	4/8/12	MF (IM)*	2	1-1	6	+1	2 short sword 11+	1 flintlock musket 11+ (4 reload)
60 Veteran Dragoons (Mtd.)	4/8/12	MF (IM)*	2	1-1	8	+2	2 short sword 10+	1 flintlock musket 10+ (3 reload)
60 Hussars	4/8/12	FM	3	1-1	6	+1	1 (2) flintlock pistol 11+ (1 reload) or 2 lance & shield 11+ Charge: 3 hooves 9+	1 flintlock pistol 11+ (1 reload)
60 Veteran Hussars	4/8/12	FM	3	1	8	+2	1 (2) flintlock pistol 10+ (1 reload) or 3 lance & shield 10+ Charge: 3 hooves 9+	1 flintlock pistol 10+ (1 reload)
60 Coutiliers	4/8/12	FM	4	1-1	6	+1	2 lance & shield 11+ Charge: 3 hooves 9+	-
60 Veteran Coutiliers	4/8/12	FM	4	1	8	+2	3 lance & shield 10+ Charge: 3 hooves 9+	-
60 Reiters	4/8/12	DM	4	1-1	6	+1	2 sword 11+	1 flintlock pistol 11+ (1 or 0 reload)
60 Veteran Reiters	4/8/12	DM	4	1	8	+2	2 sword 10+	1 flintlock pistol 10+ (1 or 0 reload)
60 Harquebusiers	4/8/12	DM	3	1-1	6	+1	2 sword 11+	1 arquebus 11+ (2 reload) 1 flintlock pistol 11+ (1 or 0 reload)
60 Veteran Harquebusiers	4/8/12	DM	3	1	8	+2	2 sword 10+	1 arquebus 10+ (1 reload) 1 flintlock pistol 10+ (1 or 0 reload)
60 Cuirassiers	3/6/9	FM	4	1-1	6	+2	1 (2) flintlock pistol 11+ (1 reload) or 2 sword 11+ or Charge: 3 hooves 8+	1 flintlock pistol 11+ (1 reload)
60 Veteran Cuirassiers	3/6/9	FM	4	1	8	+3	1 (2) flintlock pistol 10+ (1 reload) or 2 sword 10+ Charge: 3 hooves 8+	1 flintlock pistol 10+ (1 reload)
60 Demi-Lancers	3/6/9	FM	4	1-1	6	+2	1 flintlock pistol 11+ (1 reload) or 2 lance & shield 11+ Charge: 3 hooves 8+	1 flintlock pistol 11+ (1 reload)
60 Veteran Demi-Lancers	3/6/9	FM	4	1	8	+3	1 flintlock pistol 10+ (1 reload) or 3 lance & shield 10+ Charge: 3 hooves 8+	1 flintlock pistol 10+ (1 reload)
60 Gendarmes	2/4/6	FM	8 (7)	1-1	6	+3	2 lance & shield 11+ Charge: 4 hooves 8+	-
60 Veteran Gendarmes	2/4/6	FM	8 (7)	1	8	+4	3 lance & shield 10+ Charge: 4 hooves 8+	-

Mounted Foot functioning as Irregular Mounted
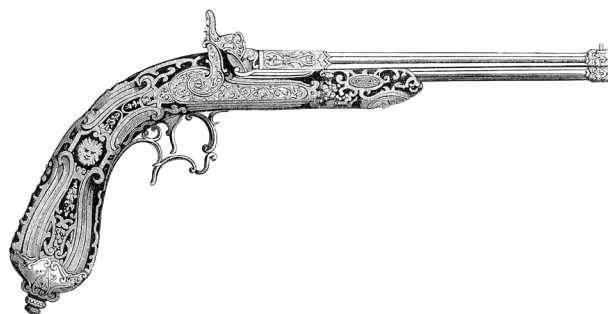
Demi-Human Unit Characteristics - Campaigns

Unit Type	Daily Move (Miles)	Weekly Move (Miles)	Monthly Wage (GP/ Month)	Supply Cost (GP/ Week)	Specialist Cost (GP/ Month)	Total Cost (GP/ Month)	Battle Rating
Dwarven Matchlock Arquebusier	18	72	1,440	60	130	1,810	2
Dwarven Flintlock Arquebusiers	18	72	2,160	60	130	2,530	3
Dwarven Matchlock Musketeer	18	72	1,800	60	130	2,170	2.5
Dwarven Flintlock Musketeer	18	72	2,520	60	130	2,890	3.5
Dwarven Armored Pikemen	18	72	2,880	60	130	3,250	4
Dwarven Armored Swordsmen	18	72	2,160	60	130	2,530	3
Elven Matchlock Arquebusier	24	96	1,080	60	130	1,450	1.5
Elven Flintlock Arquebusiers	24	96	1,800	60	130	2,170	2.5
Elven Matchlock Musketeer	24	96	1,440	60	130	1,810	2
Elven Flintlock Musketeer	24	96	2,160	60	130	2,530	3
Elven Pikemen	24	96	1,800	60	130	2,170	2.5
Elven Armored Pikemen	18	72	3,240	60	130	3,610	4.5
Elven Swordsmen	24	96	1,440	60	130	1,810	2
Elven Armored Swordsmen	18	72	2,160	60	130	2,530	3
Elven Heavy Swordsmen	18	72	3,600	60	130	3,970	5
Elven Hussars	48	192	3,000	240	90	4,050	5.5
Elven Coutiliers	48	192	3,600	240	90	4,650	6
Elven Reiters	48	192	3,600	240	90	4,650	6
Elven Harquebusier	48	192	3,900	240	90	4,950	6.5
Elven Cuirassier	36	144	4,200	240	90	5,250	7
Elven Demi-Lancer	36	144	4,200	240	90	5,250	7
Elven Gendarme	24	96	6,300	240	90	7,350	10

Demi-Human Unit Characteristics – Battles

Unit Type	Unit Move	Unit Form	Unit AC	Unit HD	Unit HP	Unit Morale	Unit Melee Attacks & Attack Throws	Unit Missile Attacks & Attack Throws
Dwarven Matchlock Arquebusier	1/2/3	DF	4	1	8	-1	3 mace 10+	1 matchlock arquebus 10+ (reload 1)
Dwarven Flintlock Arquebusiers	1/2/3	DF	4	1	8	-1	3 mace 10+	2 flintlock arquebus 10+ (reload 1)
Dwarven Matchlock Musketeer	1/2/3	DF	4	1	8	0	3 mace 10+	1 matchlock musket 10+ (reload 2)
Dwarven Flintlock Musketeer	1/2/3	DF	4	1	8	0	3 mace 10+	1 flintlock musket 10+ (reload 1)
Dwarven Armored Pikemen	2/3/4	FF	6	1	8	+1	3 spear 10+	-
Dwarven Armored Swordsmen	2/3/4	FF	7	1	8	+1	3 sword & shield 10+	-
Elven Matchlock Arquebusier	2/3/4	DF	2	1+1	10	-1	3 mace 9+	1 matchlock arquebus 9+ (reload 1)
Elven Flintlock Arquebusiers	2/3/4	DF	2	1+1	10	-1	3 mace 9+	2 flintlock arquebus 9+ (reload 1)
Elven Matchlock Musketeer	2/3/4	DF	2	1+1	10	0	3 mace 9+	1 matchlock musket 9+ (reload 2)
Elven Flintlock Musketeer	2/3/4	DF	2	1+1	10	0	3 mace 9+	1 flintlock musket 9+ (reload 1)
Elven Pikemen	2/4/6	FF	2	1+1	10	0	4 pole arm 9+	-
Elven Armored Pikemen	2/3/4	FF	4	1+1	10	+1	4 pole arm 9+	-
Elven Swordsmen	2/4/6	FF	3	1+1	10	0	3 sword & shield 9+	-
Elven Armored Swordsmen	2/3/4	FF	5	1+1	10	+1	3 sword & shield 9+	-
Elven Heavy Swordsmen	2/3/4	FF	5	1+1	10	+2	4 two-handed sword 9+	-
Elven Hussars	4/8/12	FM	3	1+1	10	+1	1 (2) flintlock pistol 9+ (1 reload) or 3 lance & shield 9+ Charge: 3 hooves 9+	1 flintlock pistol 9+ (1 reload)
Elven Coutiliers	4/8/12	FM	4	1+1	10	+1	3 lance & shield 9+ Charge: 3 hooves 9+	-
Elven Reiters	4/8/12	DM	4	1+1	10	+1	2 sword 9+	1 flintlock pistol 9+ (1 or 0 reload)
Elven Harquebusier	4/8/12	DM	3	1+1	10	+1	2 sword 9+	1 arquebus 9+ (1 reload) 1 flintlock pistol 9+ (1 or 0 reload)
Elven Cuirassier	3/6/9	FM	4	1+1	10	+2	1 (2) flintlock pistol 9+ (1 reload) or 2 sword 9+ Charge: 3 hooves 8+	1 flintlock pistol 9+ (1 reload)
Elven Demi-Lancer	3/6/9	FM	4	1+1	10	+2	1 flintlock pistol 9 (1 reload) or 3 lance & shield 9+ Charge: 3 hooves 8+	1 flintlock pistol 9+ (1 reload)
Elven Gendarme	2/4/6	FM	8(7)	1+1	10	+3	3 lance & shield 9+ Charge: 4 hooves 8+	-

Beastman Unit Characteristics - Campaigns							
Unit Type	Daily Move (Miles)	Weekly Move (Miles)	Monthly Wage (GP/ Month)	Supply Cost (GP/ Week)	Specialist Cost (GP/ Month)	Total Cost (GP/ Month)	Battle Rating
Kobold Matchlock Arquebusier	12	48	240	60	130	610	0.25
Kobold Flintlock Arquebusiers	12	48	360	60	130	730	0.5
Kobold Swordsmen	12	48	240	60	130	610	0.25
Goblin Matchlock Arquebusier	12	48	240	60	130	610	0.25
Goblin Flintlock Arquebusiers	12	48	360	60	130	730	0.5
Goblin Swordsmen	12	48	360	60	130	730	0.5
Orc Matchlock Arquebusier	24	96	360	60	130	730	0.5
Orc Flintlock Arquebusier	24	96	540	60	130	910	0.75
Orc Matchlock Musketeer	24	96	540	60	130	910	0.75
Orc Flintlock Musketeer	24	96	720	60	130	1,090	1
Orc Pikemen	24	96	360	60	130	730	0.5
Orc Armored Pikemen	24	96	1,080	60	130	1,450	1.5

Beastman Unit Characteristics - Campaigns							
Unit Type	Daily Move (Miles)	Weekly Move (Miles)	Monthly Wage (GP/ Month)	Supply Cost (GP/ Week)	Specialist Cost (GP/ Month)	Total Cost (GP/ Month)	Battle Rating
Orc Swordsmen	24	96	360	60	130	730	0.5
Orc Armored Swordsmen	24	96	720	60	130	1,090	1
Hobgoblin Matchlock Arquebusier	24	96	720	60	130	1,090	1
Hobgoblin Flintlock Arquebusier	24	96	1,440	60	130	1,810	2
Hobgoblin Matchlock Musketeer	24	96	1,080	60	130	1,450	1.5
Hobgoblin Flintlock Musketeer	24	96	1,800	60	130	2,170	2.5
Hobgoblin Pikemen	24	96	1,440	60	130	1,810	2
Hobgoblin Armored Pikemen	24	96	2,880	60	130	3,250	4
Hobgoblin Swordsmen	24	96	1,080	60	130	1,450	1.5
Hobgoblin Armored Swordsmen	24	96	1,800	60	130	2,170	2.5
Hobgoblin Heavy Swordsmen	24	96	3,240	60	130	3,610	4.5
Hobgoblin Hussars	48	192	2,400	240	90	3450	4.5
Hobgoblin Coutiliers	48	192	2,700	240	90	3750	5
Hobgoblin Reiters	48	192	2,700	240	90	3750	5
Hobgoblin Cuirassier	36	144	3,000	240	90	4050	5.5
Hobgoblin Demi-Lancer	36	144	3,600	240	90	4650	6
Gnoll Matchlock Arquebusier	24	96	540	60	130	910	0.75
Gnoll Flintlock Arquebusier	24	96	720	60	130	1,090	1
Gnoll Matchlock Musketeer	24	96	720	60	130	1,090	1
Gnoll Flintlock Musketeer	24	96	1,080	60	130	1,450	1.5
Gnoll Pikemen	24	96	1,800	60	130	2,170	2.5
Gnoll Armored Pikemen	24	96	2,880	60	130	3,250	4
Gnoll Swordsmen	24	96	1,440	60	130	1,810	2
Gnoll Armored Swordsmen	24	96	2,160	60	130	2,530	3
Lizardman Matchlock Arquebusier	12	48	1,800	60	130	2,170	2.5
Lizardman Flintlock Arquebusier	12	48	2,160	60	130	2,530	3
Lizardman Matchlock Musketeer	12	48	2,160	60	130	2,530	3
Lizardman Flintlock Musketeer	12	48	2,520	60	130	2,890	3.5
Lizardman Pikemen	12	48	3,600	60	130	3,970	5
Lizardman Armored Pikemen	12	48	5,400	0	130	5,530	7.5
Lizardman Swordsmen	12	48	2,520	60	130	2,890	3.5
Lizardman Armored Swordsmen	12	48	3,600	0	130	3,730	5
Bugbear Matchlock Arquebusier	24	96	3,240	60	130	3,610	4.5
Bugbear Flintlock Arquebusier	24	96	3,600	60	130	3,970	5
Bugbear Matchlock Musketeer	24	96	3,600	60	130	3,970	5
Bugbear Flintlock Musketeer	24	96	3,960	60	130	4,330	5.5
Bugbear Pikemen	24	96	7,200	60	130	7,570	10

Beastman Unit Characteristics - Campaigns

Unit Type	Daily Move (Miles)	Weekly Move (Miles)	Monthly Wage (GP/ Month)	Supply Cost (GP/ Week)	Specialist Cost (GP/ Month)	Total Cost (GP/ Month)	Battle Rating
Bugbear Armored Pikemen	24	96	9,600	60	130	9,970	13.5
Bugbear Swordsmen	24	96	4,800	60	130	5,170	7
Bugbear Armored Swordsmen	24	96	6,600	60	130	6,970	9
Ogre Matchlock Musketeer	24	96	3,000	30	90	3,210	4
Ogre Flintlock Musketeer	24	96	2,100	240	90	3,150	4
Ogre Pikemen	24	96	4,200	240	90	5,250	7
Ogre Armored Pikemen	24	96	7,200	240	90	8,250	11
Ogre Swordsmen	24	96	3,600	240	90	4,650	6
Ogre Armored Swordsmen	24	96	6,000	240	90	7,050	9.5

Beastman Unit Characteristics – Battles

Unit Type	Unit Move	Unit Form	Unit AC	Unit HD	Unit HP	Unit Morale	Unit Melee Attacks & Attack Throws	Unit Missile Attacks & Attack Throws
Kobold Matchlock Arquebusier	-/1/2	UF	1	1/2	4	-3	2 dagger 10+	1 matchlock arquebus 10+ (reload 3)
Kobold Flintlock Arquebusiers	-/1/2	UF	1	1/2	4	-3	2 dagger 10+	1 flintlock arquebus 10+ (reload 1)
Kobold Swordsmen	1/2/3	IF	2	1/2	4	-2	2 dagger & shield 10+	-
Goblin Matchlock Arquebusier	-/1/2	UF	1	1-1	6	-1	2 short sword 10+	1 matchlock arquebus 10+ (reload 3)
Goblin Flintlock Arquebusiers	-/1/2	UF	1	1-1	6	-1	2 short sword 10+	1 flintlock arquebus 10+ (reload 1)
Goblin Swordsmen	1/2/3	IF	2	1-1	6	0	2 short sword & shield 10+	-
Orc Matchlock Arquebusier	1/2/3	UF	1	1	8	-1	2 sword 10+	1 matchlock arquebus 10+ (reload 3)
Orc Flintlock Arquebusier	1/2/3	UF	1	1	8	-1	2 sword 10+	1 flintlock arquebus 10+ (reload 1)
Orc Matchlock Musketeer	1/2/3	UF	1	1	8	0	2 sword 10+	1 matchlock musket 10+ (reload 3)
Orc Flintlock Musketeer	1/2/3	UF	1	1	8	0	2 sword 10+	1 flintlock musket 10+ (reload 1)
Orc Pikemen	2/4/6	IF	1	1	8	0	3 pike 10+	-
Orc Armored Pikemen	2/4/6	IF	3	1	8	0	3 pike 10+	-
Orc Swordsmen	2/4/6	IF	2	1	8	0	2 sword & shield 10+	-
Orc Armored Swordsmen	2/4/6	IF	4	1	8	0	2 sword & shield 10+	-
Hobgoblin Matchlock Arquebusier	2/3/4	DF	2	1+1	10	-1	2 sword 9+	1 matchlock arquebus 9+ (reload 2)
Hobgoblin Flintlock Arquebusier	2/3/4	DF	2	1+1	10	-1	2 sword 9+	1 flintlock arquebus 9+ (reload 1)
Hobgoblin Matchlock Musketeer	2/3/4	DF	2	1+1	10	0	2 sword 9+	1 matchlock musket 9+ (reload 2)
Hobgoblin Flintlock Musketeer	2/3/4	DF	2	1+1	10	0	2 sword 9+	1 flintlock musket 9+ (reload 1)
Hobgoblin Pikemen	2/4/6	FF	2	1+1	10	0	4 pole arm 9+	-
Hobgoblin Armored Pikemen	2/3/4	FF	4	1+1	10	+1	4 polearm 9+	-
Hobgoblin Swordsmen	2/4/6	FF	3	1+1	10	0	2 sword & shield 9+	-
Hobgoblin Armored Swordsmen	2/3/4	FF	5	1+1	10	+1	2 sword & shield 9+	-
Hobgoblin Heavy Swordsmen	2/3/4	FF	5	1+1	10	+2	4 two-handed sword 9+	-
Hobgoblin Hussars	4/8/12	FF	3	1+1	10	+1	1(2) flint pistol 9+ (1 reload) or 3 lance & shield 9+ Charge: 3 hooves 9+	1 flintlock pistol 9+ (1 reload)
Hobgoblin Coutiliers	4/8/12	FF	4	1+1	10	+1	3 lance & shield 9+ Charge: 3 hooves 9+	-
Hobgoblin Reiters	4/8/12	FF	4	1+1	10	+1	2 sword 9+	1 flintlock pistol 9+ (1 or 0 reload)
Hobgoblin Cuirassier	4/8/12	FF	4	1+1	10	+2	1(2) flint pistol 9+ (1 reload) or 2 sword 9+ Charge: 3 hooves 9+	1 flintlock pistol 9+ (1 reload)
Hobgoblin Demi-Lancer	4/8/12	FF	4	1+1	10	+2	1 flintlock pistol 9 (1 reload) or 3 lance & shield 9+ Charge: 3 hooves 8+	1 flintlock pistol 9+ (1 reload)
Gnoll Matchlock Arquebusier	1/2/3	UF	2	2	16	-1	3 sword 9+	1 matchlock arquebus 9+ (reload 3)
Gnoll Flintlock Arquebusier	1/2/3	UF	2	2	16	-1	3 sword 9+	1 flintlock arquebus 9+ (reload 1)
Gnoll Matchlock Musketeer	1/2/3	UF	2	2	16	0	3 sword 9+	1 matchlock musket 9+ (reload 3)
Gnoll Flintlock Musketeer	1/2/3	UF	2	2	16	0	3 sword 9+	1 flintlock musket 9+ (reload 1)
Gnoll Pikemen	2/4/6	IF	2	2	16	0	4 pole arm 9+	-
Gnoll Armored Pikemen	2/4/6	IF	4	2	16	+1	4 pole arm 9+	-
Gnoll Swordsmen	2/4/6	IF	3	2	16	0	3 sword & shield 9+	-

Unit Type	Unit Move	Unit Form	Unit AC	Unit HD	Unit HP	Unit Morale	Unit Melee Attacks & Attack Throws	Unit Missile Attacks & Attack Throws
Gnoll Armored Swordsmen	2/4/6	IF	5	2	16	+1	3 sword & shield 9+	-
Lizardman Matchlock Arquebusier	-/1/2	UF	4	2+1	18	+1	3 sword 8+	1 matchlock arquebus 8+ (reload 3)
Lizardman Flintlock Arquebusier	-/1/2	UF	4	2+1	18	+1	3 sword 8+	1 flintlock arquebus 8+ (reload 1)
Lizardman Matchlock Musketeer	-/1/2	UF	4	2+1	18	+2	3 sword 8+	1 matchlock musket 8+ (reload 3)
Lizardman Flintlock Musketeer	-/1/2	UF	4	2+1	18	+2	3 sword 8+	1 flintlock musket 8+ (reload 1)
Lizardman Pikemen	1/2/3	IF	4	2+1	18	+2	5 pole arm 8+	-
Lizardman Armored Pikemen	1/2/3	IF	6	2+1	18	+3	5 pole arm 8+	-
Lizardman Swordsmen	1/2/3	IF	5	2+1	18	+2	3 sword & shield 8+	-
Lizardman Armored Swordsmen	1/2/3	IF	7	2+1	18	+3	3 sword & shield 8+	-
Bugbear Matchlock Arquebusier	1/2/3	UF	4	3+1	26	+1	4 sword 7+	1 matchlock arquebus 7+ (reload 3)
Bugbear Flintlock Arquebusier	1/2/3	UF	4	3+1	26	+1	4 sword 7+	1 flintlock arquebus 7+ (reload 1)
Bugbear Matchlock Musketeer	1/2/3	UF	4	3+1	26	+2	4 sword 7+	1 matchlock musket 7+ (reload 3)
Bugbear Flintlock Musketeer	1/2/3	UF	4	3+1	26	+2	4 sword 7+	1 flintlock musket 7+ (reload 1)
Bugbear Pikemen	2/4/6	IF	4	3+1	26	+2	5 pole arm 7+	-
Bugbear Armored Pikemen	2/4/6	IF	6	3+1	26	+3	5 pole arm 7+	-
Bugbear Swordsmen	2/4/6	IF	5	3+1	26	+2	4 sword & shield 7+	-
Bugbear Armored Swordsmen	2/4/6	IF	7	3+1	26	+3	4 sword & shield 7+	-
Ogre Matchlock Musketeer	1/2/3	UF	4	4+1	17	+2	5 sword 6+	1 matchlock musket 6+ (reload 6)
Ogre Flintlock Musketeer	1/2/3	UF	4	4+1	17	+2	5 sword 6+	1 flintlock musket 6+ (reload 3)
Ogre Pikemen	2/4/6	IF	4	4+1	17	+2	6 pole arm 6+	-
Ogre Armored Pikemen	2/4/6	IF	6	4+1	17	+3	6 pole arm 6+	-
Ogre Swordsmen	2/4/6	IF	4	4+1	17	+2	6 two-handed sword 6+	-
Ogre Armored Swordsmen	2/4/6	IF	6	4+1	17	+3	6 two-handed sword 6+	-

GUNPOWDER IN AN AGE OF SWORDS AND SORCERY

Guns of War assumes a more advanced age, a realistic world of fledgling nation-states amidst a Renaissance in thought, art, and warfare. As a result, gunpowder in *Guns of War* is priced realistically, as it was during the Age of Pike & Shot in Earth's history.

In game terms, gunpowder is a crafted good made with the Craft (Pyrotechnics) proficiency. A crafter's workshop, with a master, two journeymen, and four apprentices, can produce 5gp of goods per day – that's two barrels of gunpowder each month, when gunpowder is priced at its default of 1 gp per pound.

Likewise, firearms and cannon are constructed by persons with the Craft (Gunsmith) proficiency, with a crafter's workshop capable of producing 5gp of goods per day. A properly staffed smithy can output most matchlocks and flintlocks in anywhere from 3 days for a smoothbore matchlock arquebus to 16 days for a rifled flintlock musket. The more complex wheellocks can take up to 57 days. A massive 200 pound mortar would take almost 9 years for a single workshop to manufacture – a would-be conqueror wanting to field the largest artillery would need to dedicate vast numbers of craftsmen to the war effort. (Of course, this is exactly what the kings of the Renaissance era did, and why power quickly consolidated around those monarchs wealthy enough to afford to field cannon).

However the default assumptions of ACKS' Auran Empire, and of many other fantasy role playing games, is one of knightly armies, fantastic monsters, divine powers, and magical spells. In such a setting, the approach described above could cause a grand shift in the internal reality of the world – what use mages and magic in war, when the brute force of chemistry may stand as the last argument of kings?

We offer the following alternatives for Judges who wish to make use of gunpowder and firearms in their campaign setting in a more limited scope.

> **NOTE:**
>
> *Judges who wish to explore truly gonzo settings could apply the automaton artillery rules to creating constructs, crossbreeds, or undead (ACKS, p. 120-123). Be warned that we have no idea what the effects of golem-guns, undead ooze-throwers, and living bombards will be on your campaign, though we hope it will be destructive and delightful.*

Alchemy is an inefficient pseudoscience, and as such alchemists produce gunpowder with the same improbable mechanisms as they brew potions. An alchemist can produce 10 pounds of gunpowder a week (just as they independently produce a 1st level potion – 500GP over two weeks), thereby filling a barrel of gunpowder in 7 ½ weeks. Characters able to **brew potions** can produce twice that amount, filling a barrel in 3 ¾ weeks, and may increase their production by utilizing assistants.

The increased expense of alchemical gunpowder would have an effect on the availability and cost of firearms and artillery – prices for these would be doubled due to lesser demand and consequent lesser manufacturing expertise. For example, the simple smoothbore matchlock arquebus would sell for 30gp instead of 15gp, and would take 6 days to create.

MAGICAL GUNPOWDER

In worlds where alchemy cannot unlock the secrets of saltpetre and sulphur, the methods and rituals of magical research might be utilized to create gunpowder. In this case, each pound of **magical gunpowder** would be priced as a 1st level potion – valued at 500gp per pound.

Mages and their assistants would create magical gunpowder as per the normal ACKS magical research rules for brewing potions (p. 119). With a sample, a mage could produce 2 pounds of gunpowder per week, filling a barrel in about nine months and one and a half weeks. As gunpowder would be sold as a magical item, its actual market price would be doubled to 1,000gp per pound (thus keeping the market for artisanally-cast *fireballs* active and healthy)

With gunpowder so expensive, there would be even less demand for, and less expertise in, producing guns. Prices for firearms and artillery would be quintupled. The smoothbore matchlock arquebus, for example, would sell for 75 gp, and take a gunsmith's shop 15 days to produce. The largest of cannons would be so costly that they would become vanity projects, rather than effective war expenditures.

DWARVEN GUNPOWDER

In some worlds, neither alchemy nor magic might be able to create gunpowder. Indeed, gunpowder wouldn't even be a mixture of sulfur, coal, and saltpeter at all. Instead, gunpowder would be a rare mineral, which must be mined from the deep earth using Labor (Mining) proficiency, then subjected to complex processing using Craft (Smelting) in order to transform it into a powdered explosive. If this mineral itself were very toxic in its raw form, then only dwarves or other **hardy people** could gather and process it without falling permanently ill. This would create the conditions for **dwarven gunpowder**.

Gunpowder Type	Proficiency/ Class Power Required	Gunpowder Cost	Firearm Cost
Historical Gunpowder	Craft (Pyrotechnics)	1gp/pound	x1
Alchemical Gunpowder	Alchemy 3 or Brew Potions	25gp/pound	x2
Magical Gunpowder	Brew Potions	1,000gp/pound	x5
Dwarven Gunpowder	Hardy People, Labor (Mining), and Craft (Smelting)	Varies	Varies

ALCHEMICAL GUNPOWDER

In a fantasy world where alchemy is the norm, and the science of chemistry is veiled behind half-truths and superstition, gunpowder would be produced by alchemists. In such a world, **alchemical gunpowder** would be priced as holy water at 25 gp per pound.

Depending on the rarity of the toxic ore, dwarven gunpowder could be set at any price level defined above (or even some other arbitrary price). We recommend pricing at the alchemical price of 25gp per lb. Whatever the price, the market availability for dwarven gunpowder in non-dwarven settlements would be reduced by one market class.

> EXAMPLE: If dwarven gunpowder is available at the default price of 1gp per pound, then a barrel of gunpowder priced at 75 gp would only be available 10% of the time in a non-dwarven Class V market, and not at all in a non-dwarven Class VI market.

Again depending on rarity, prices for dwarven gunpowder firearms and artillery might be anywhere from 1-5x the historical price. (We recommend ×2.) Alternatively, dwarven gunpowder might require such complex machinery for ignition that only Dwarven Machinists could construct firearms and artillery. In this case, **dwarven firearms** would be constructed at ×2 historical price using the construction rules for automatons. It would take 1 week to create any listed firearm. **Dwarven artillery** would be constructed at 10× historical price using the automaton construction rules, and would take 1 week plus one day per 1,000 gp value (rounded up) to create.

> EXAMPLE: The Judge is running a campaign set in a world where dwarven gunpowder costs 500gp per pound and guns can only be manufactured by Dwarven machinists at x5 historical price. Grimm, a 9th level Dwarven machinist, wants to build a 60-pdr cannon. A 60-pdr cannon has a historical cost of 4,000gp, so in Grimm's world a 60-pdr cannon costs 8,000gp. Grimm's base proficiency throw is 6+ but the 8,000gp cost increases the target value of the proficiency throw by 2 (+1 per 5,000gp value) to 10+. Fortunately Grimm has a workshop worth 20,000gp, which affords him a +1 bonus to his proficiency throw. He also lavishes 10,000gp on fine brass and rare wood, which provides another +1 bonus to his proficiency throw. Grimm will need to roll 6+ to build his 60pdr cannon. He rolls a 13, and succeeds! It takes him (1 week + 8,000gp-days/1,0000gp) 15 days to craft the cannon.

In a world of dwarven gunpowder, automatons could be equipped with firearms or artillery. Adding a dwarven firearm or artillery piece to an automaton would count as 1 special ability for the automaton. The automaton must have a carrying capacity sufficient for the weight of the firearm or artillery piece. By default, an automaton would reload a built-in firearm as a drilled troop, and a built-in artillery piece as a full crew led by an artillerist. Doubling the automaton's rate of fire with its built-in firearms or artillery would counts as an additional special ability.

"Steampunk 2020 BC" Memorial Rule: The rules for Determining Gunpowder Artillery Characteristics (p. 14) allow Judges to create a variety of historical artillery pieces of differing caliber. However, enterprising Dwarven machinists might want to build custom artillery pieces from scratch using the automaton construction rules. The two systems are actually broadly compatible, so artillery automatons can be built using the following guidelines:

1. All artillery pieces are considered to be operated-controlled immobile automaton. This counts as −2 special abilities.

2. Decide the Maximum Damage dealt by the artillery piece from a shot.

3. Decide the Rate of Fire of the artillery piece.

4. Decide the Area of Effect (in square feet) of the artillery piece's shots. For cannon and guns this will be 5 times the listed AOE. For mortars this will be the listed AOE squared × 3.14.

5. Calculate the Estimated Number of Targets based on the artillery piece's AOE. This will be its AOE / 25.

6. Calculate the artillery piece's Maximum Damage per Round as (Maximum Damage) × (Estimated Number of Targets) x (Rate of Fire).

7. Calculate the artillery piece's Hit Dice as Maximum Damage per Round / 3.

8. Calculate the artillery piece's weight in stones as equal to its Hit Dice squared × 10. Weight can be reduced if desired. Each halving of weight counts as a special ability.

9. Decide whether the artillery piece is a cannon, gun, or mortar.

   a. Building the piece as a cannon counts as 2 special abilities and grants it a ranged cannon attack with a maximum range 15' × Maximum Damage.

   b. Building the piece as a gun counts as 2 special abilities and grants it a ranged gun attack with a maximum range of 20' × Maximum Damage.

   c. Building the piece as a mortar counts as 1 special ability and grants it a ranged mortar attack with a maximum range of 5' × Maximum Damage. It does not count as a special ability.

   d. All rules applicable to cannons, guns, and mortars apply to an automaton that selects the cannon, gun, or artillery special ability. The number of operators required (crew) should be based on the necessary shot weight to be able to deal the piece's damage.

As with all automatons, the cost will be 1,000gp per HD + 5,000gp per net special ability.

> EXAMPLE: Grimm wants to build a 60-pdr cannon from scratch as an operator-controlled immobile automaton. A 60-pdr cannon deals 12d10 damage in a 5' x 60' line, with a rate of fire of 1/60. Therefore the automaton's Maximum Damage is 120, Area of Effect is (5 x 60) 300, and Estimated Number of Targets is (300 / 25) 12. The automaton's Maximum Damage per Round is (120) x (12) x (1/60) = 24. Therefore this is a (24/3) 8 HD automaton. The automaton weighs (8 x 8 x 10) 640st, or about 7,680lbs. The automaton is built as a cannon, with a maximum range of (120 x 15) 1800'. The automaton has a net of (2 − 2) 0 special abilities. Total cost is (1,000gp/HD x 8 HD) 8,000gp.
>
> How does Grimm's automaton compare to the characteristics of the historical 60-pdr cannon presented on p. 14? The historical 60-pdr cannon costs 4,000gp while Grimm's automaton costs 8,000gp (but remember that in a Dwarven Gunpowder world, historical costs are doubled, so this result is correct). The historical 60-pdr cannon weighs 8,000lbs while Grimm's automaton weighs 7,680lbs. The historical 60pdr cannon has a maximum range of 1,700' while Grimm's automaton has a maximum range of 1,800'. All other characteristics are identical.

ADVENTURER CONQUEROR KING SYSTEM™

GUNS OF WAR™

Full now—yea, more than full—behold our devastation:
The frantic drum beat, and the brazen horde,
The thundering siege gun, and the blood-slick sword
Devour all diligence, and sweat, and careful preparation.

Down walls and through the town runs always fresh-spilled blood
For eighteen summers now, our river's yearly flood
Near-choked with corpses, has pushed slowly, slowly on.

– ANDREAS GRYPHIUS
TEARS OF THE FATHERLAND, 1636 A.D

Guns of War brings you all the rules you need to add the gunpowder, firearms, and artillery of the Age of Pike and Shot into your fantasy role-playing game. This century-and-a-half period was an age of war more terrible than any that had come before, as the technology of battle changed more rapidly than it had in any time in the preceding 3,500 years of human history. It was also an age of apparent anachronism made real, as plate-clad knights battled rifle-armed soldiery, field artillery fired on pikeman, and swords hung alongside pistols on the belts of cavalry.

Guns of War is designed for use with Autarch's *Domains at War* (*D@W*) rules for military campaigns and battles. You will also need a copy of the *Adventurer Conqueror King System™* (*ACKS™*), *Lamentations of the Flame Princess* (*LOFTP*), or a similar D20-based fantasy role-playing game to use this book.