

= Horses in warfare =

The first use of horses in warfare occurred over 5 000 years ago . The earliest evidence of horses ridden in warfare dates from Eurasia between 4000 and 3000 BC . A Sumerian illustration of warfare from 2500 BC depicts some type of equine pulling wagons . By 1600 BC , improved harness and chariot designs made chariot warfare common throughout the Ancient Near East , and the earliest written training manual for war horses was a guide for training chariot horses written about 1350 BC . As formal cavalry tactics replaced the chariot , so did new training methods , and by 360 BC , the Greek cavalry officer Xenophon had written an extensive treatise on horsemanship . The effectiveness of horses in battle was also revolutionized by improvements in technology , including the invention of the saddle , the stirrup , and later , the horse collar .

Many different types and sizes of horse were used in war , depending on the form of warfare . The type used varied with whether the horse was being ridden or driven , and whether they were being used for reconnaissance , cavalry charges , raiding , communication , or supply . Throughout history , mules and donkeys as well as horses played a crucial role in providing support to armies in the field .

Horses were well suited to the warfare tactics of the nomadic cultures from the steppes of Central Asia . Several East Asian cultures made extensive use of cavalry and chariots . Muslim warriors relied upon light cavalry in their campaigns throughout North Africa , Asia , and Europe beginning in the 7th and 8th centuries AD . Europeans used several types of war horses in the Middle Ages , and the best known heavy cavalry warrior of the period was the armored knight . With the decline of the knight and rise of gunpowder in warfare , light cavalry again rose to prominence , used in both European warfare and in the conquest of the Americas . Battle cavalry developed to take on a multitude of roles in the late 18th century and early 19th century and was often crucial for victory in the Napoleonic wars . In the Americas , the use of horses and development of mounted warfare tactics were learned by several tribes of indigenous people and in turn , highly mobile horse regiments were critical in the American Civil War .

Horse cavalry began to be phased out after World War I in favor of tank warfare , though a few horse cavalry units were still used into World War II , especially as scouts . By the end of World War II , horses were seldom seen in battle , but were still used extensively for the transport of troops and supplies . Today , formal battle ready horse cavalry units have almost disappeared , though the United States Army Special Forces used horses in battle during the 2001 invasion of Afghanistan . Horses are still seen in use by organized armed fighters in Third World countries . Many nations still maintain small units of mounted riders for patrol and reconnaissance , and military horse units are also used for ceremonial and educational purposes . Horses are also used for historical reenactment of battles , law enforcement , and in equestrian competitions derived from the riding and training skills once used by the military .

= = Types of horse used in warfare = =

A fundamental principle of equine conformation is " form to function " . Therefore , the type of horse used for various forms of warfare depended on the work performed , the weight a horse needed to carry or pull , and distance travelled . Weight affects speed and endurance , creating a trade off : armour added protection , but added weight reduces maximum speed . Therefore , various cultures had different military needs . In some situations , one primary type of horse was favoured over all others . In other places , multiple types were needed ; warriors would travel to battle riding a lighter horse of greater speed and endurance , and then switch to a heavier horse , with greater weight carrying capacity , when wearing heavy armour in actual combat .

The average horse can carry up to approximately 30 % of its body weight . While all horses can pull more than they can carry , the weight horses can pull varies widely , depending on the build of the horse , the type of vehicle , road conditions , and other factors . Horses harnessed to a wheeled vehicle on a paved road can pull as much as eight times their weight , but far less if pulling wheelless loads over unpaved terrain . Thus , horses that were driven varied in size and had to

make a trade off between speed and weight , just as did riding animals . Light horses could pull a small war chariot at speed . Heavy supply wagons , artillery , and support vehicles were pulled by heavier horses or a larger number of horses . The method by which a horse was hitched to a vehicle also mattered : horses could pull greater weight with a horse collar than they could with a breast collar , and even less with an ox yoke .

== Light weight ==

Light , oriental horses such as the ancestors of the modern Arabian , Barb , and Akhal Teke were used for warfare that required speed , endurance and agility . Such horses ranged from about 12 hands (48 inches , 122 cm) to just under 15 hands (60 inches , 152 cm) , weighing approximately 800 to 1 000 pounds (360 to 450 kg) . To move quickly , riders had to use lightweight tack and carry relatively light weapons such as bows , light spears , javelins , or , later , rifles . This was the original horse used for early chariot warfare , raiding , and light cavalry .

Relatively light horses were used by many cultures , including the Ancient Egyptians , the Mongols , the Arabs , and the Native Americans . Throughout the Ancient Near East , small , light animals were used to pull chariots designed to carry no more than two passengers , a driver and a warrior . In the European Middle Ages , a lightweight war horse became known as the rouncey .

== Medium weight ==

Medium weight horses developed as early as the Iron Age with the needs of various civilizations to pull heavier loads , such as chariots capable of holding more than two people , and , as light cavalry evolved into heavy cavalry , to carry heavily armored riders . The Scythians were among the earliest cultures to produce taller , heavier horses . Larger horses were also needed to pull supply wagons and , later on , artillery pieces . In Europe , horses were also used to a limited extent to maneuver cannons on the battlefield as part of dedicated horse artillery units . Medium weight horses had the greatest range in size , from about 14 2 hands (58 inches , 147 cm) but stocky , to as much as 16 hands (64 inches , 163 cm) , weighing approximately 1 000 to 1 200 pounds (450 to 540 kg) . They generally were quite agile in combat , though they did not have the raw speed or endurance of a lighter horse . By the Middle Ages , larger horses in this class were sometimes called destriers . They may have resembled modern Baroque or heavy warmblood breeds . Later , horses similar to the modern warmblood often carried European cavalry .

== Heavy weight ==

Large , heavy horses , weighing from 1 500 to 2 000 pounds (680 to 910 kg) , the ancestors of today 's draught horses , were used , particularly in Europe , from the Middle Ages onward . They pulled heavy loads , having the power to pull weapons or supply wagons and disposition to remain calm under fire . Some historians believe they may have carried the heaviest armoured knights of the European Late Middle Ages though others dispute this claim , indicating that the destrier , or knight 's battle horse , was a medium weight animal . It is also disputed whether the destrier class included draught animals or not . Breeds at the smaller end of the heavyweight category may have included the ancestors of the Percheron , agile for their size and physically able to manoeuvre in battle .

== Ponies ==

The British Army 's 2nd Dragoons in 1813 had 340 ponies of 14 2 hands (58 inches , 147 cm) and 55 ponies of 14 hands (56 inches , 142 cm) ; the Lovat Scouts , formed in 1899 , were mounted on Highland ponies ; the British Army recruited 200 Dales ponies in World War II for use as pack and artillery animals ; and the British Territorial Army experimented with the use of Dartmoor

ponies as pack animals in 1935 , finding them to be better than mules for the job .

= = = Other equids = = =

Horses were not the only equids used to support human warfare . Donkeys have been used as pack animals from antiquity to the present . Mules were also commonly used , especially as pack animals and to pull wagons , but also occasionally for riding . Because mules are often both calmer and harder than horses , they were particularly useful for strenuous support tasks , such as hauling supplies over difficult terrain . However , under gunfire , they were less cooperative than horses , so were generally not used to haul artillery on battlefields . The size of a mule and work to which it was put depended largely on the breeding of the mare that produced the mule . Mules could be lightweight , medium weight , or even , when produced from draught horse mares , of moderate heavy weight .

= = Training and deployment = =

See also Horse training

The oldest known manual on training horses for chariot warfare was written c . 1350 BC by the Hittite horsemaster , Kikkuli . An ancient manual on the subject of training riding horses , particularly for the Ancient Greek cavalry is Hippika (On Horsemanship) written about 360 BC by the Greek cavalry officer Xenophon . One of the earliest texts from Asia was that of Kautilya , written about 323 BC .

Whether horses were trained to pull chariots , to be ridden as light or heavy cavalry , or to carry the armoured knight , much training was required to overcome the horse 's natural instinct to flee from noise , the smell of blood , and the confusion of combat . They also learned to accept any sudden or unusual movements of humans while using a weapon or avoiding one . Horses used in close combat may have been taught , or at least permitted , to kick , strike , and even bite , thus becoming weapons themselves for the warriors they carried .

In most cultures , a war horse used as a riding animal was trained to be controlled with limited use of reins , responding primarily to the rider 's legs and weight . The horse became accustomed to any necessary tack and protective armour placed upon it , and learned to balance under a rider who would also be laden with weapons and armour . Developing the balance and agility of the horse was crucial . The origins of the discipline of dressage came from the need to train horses to be both obedient and manoeuvrable . The Haute école or " High School " movements of classical dressage taught today at the Spanish Riding School have their roots in manoeuvres designed for the battlefield . However , the airs above the ground were unlikely to have been used in actual combat , as most would have exposed the unprotected underbelly of the horse to the weapons of foot soldiers .

Horses used for chariot warfare were not only trained for combat conditions , but because many chariots were pulled by a team of two to four horses , they also had to learn to work together with other animals in close quarters under chaotic conditions .

= = Technological innovations = =

Horses were probably ridden in prehistory before they were driven . However , evidence is scant , mostly simple images of human figures on horse @-@ like animals drawn on rock or clay . The earliest tools used to control horses were bridles of various sorts , which were invented nearly as soon as the horse was domesticated . Evidence of bit wear appears on the teeth of horses excavated at the archaeology sites of the Botai culture in northern Kazakhstan , dated 3500 ? 3000 BC .

= = = Harness and vehicles = = =

The invention of the wheel was a major technological innovation that gave rise to chariot warfare . At first , equines , both horses and onagers , were hitched to wheeled carts by means of a yoke around their necks in a manner similar to that of oxen . However , such a design is incompatible with equine anatomy , limiting both the strength and mobility of the animal . By the time of the Hyksos invasions of Egypt , c . 1600 BC , horses were pulling chariots with an improved harness design that made use of a breastcollar and breeching , which allowed a horse to move faster and pull more weight .

Even after the chariot had become obsolete as a tool of war , there still was a need for technological innovations in pulling technologies ; horses were needed to pull heavy loads of supplies and weapons . The invention of the horse collar in China during the 5th century AD (Southern and Northern Dynasties) allowed horses to pull greater weight than they could when hitched to a vehicle with the ox yokes or breast collars used in earlier times . The horse collar arrived in Europe during the 9th century , and became widespread by the 12th century .

= = Riding equipment = =

Two major innovations that revolutionised the effectiveness of mounted warriors in battle were the saddle and the stirrup . Riders quickly learned to pad their horse 's backs to protect themselves from the horse 's spine and withers , and fought on horseback for centuries with little more than a blanket or pad on the horse 's back and a rudimentary bridle . To help distribute the rider 's weight and protect the horse 's back , some cultures created stuffed padding that resembles the panels of today 's English saddle . Both the Scythians and Assyrians used pads with added felt attached with a surcingle or girth around the horse 's barrel for increased security and comfort . Xenophon mentioned the use of a padded cloth on cavalry mounts as early as the 4th century BC .

The saddle with a solid framework , or " tree " , provided a bearing surface to protect the horse from the weight of the rider , but was not widespread until the 2nd century AD . However , it made a critical difference , as horses could carry more weight when distributed across a solid saddle tree . A solid tree , the predecessor of today 's Western saddle , also allowed a more built @-@ up seat to give the rider greater security in the saddle . The Romans are credited with the invention of the solid @-@ treed saddle .

An invention that made cavalry particularly effective was the stirrup . A toe loop that held the big toe was used in India possibly as early as 500 BC , and later a single stirrup was used as a mounting aid . The first set of paired stirrups appeared in China about 322 AD during the Jin Dynasty . Following the invention of paired stirrups , which allowed a rider greater leverage with weapons , as well as both increased stability and mobility while mounted , nomadic groups such as the Mongols adopted this technology and developed a decisive military advantage . By the 7th century , due primarily to invaders from Central Asia , stirrup technology spread from Asia to Europe . The Avar invaders are viewed as primarily responsible for spreading the use of the stirrup into central Europe . However , while stirrups were known in Europe in the 8th century , pictorial and literary references to their use date only from the 9th century . Widespread use in Northern Europe , including England , is credited to the Vikings , who spread the stirrup in the 9th and 10th centuries to those areas .

= = Tactics = =

The first archaeological evidence of horses used in warfare dates from between 4000 and 3000 BC in the steppes of Eurasia , in what today is Ukraine , Hungary , and Romania . Not long after domestication of the horse , people in these locations began to live together in large fortified towns for protection from the threat of horseback @-@ riding raiders , who could attack and escape faster than people of more sedentary cultures could follow . Horse @-@ mounted nomads of the steppe and current day Eastern Europe spread Indo @-@ European Languages as they conquered other tribes and groups .

The use of horses in organised warfare was also documented early in recorded history . One of the first depictions of equids is the " war panel " of the Standard of Ur , in Sumer , dated c . 2500 BC ,

showing horses (or possibly onagers or mules) pulling a four @-@ wheeled wagon .

= = = Chariot warfare = = =

Among the earliest evidence of chariot use are the burials of horse and chariot remains by the Andronovo (Sintashta @-@ Petrovka) culture in modern Russia and Kazakhstan , dated to approximately 2000 BC . The oldest documentary evidence of what was probably chariot warfare in the Ancient Near East is the Old Hittite Anitta text , of the 18th century BC , which mentioned 40 teams of horses at the siege of Salatiwara . The Hittites became well known throughout the ancient world for their prowess with the chariot . Widespread use of the chariot in warfare across most of Eurasia coincides approximately with the development of the composite bow , known from c . 1600 BC . Further improvements in wheels and axles , as well as innovations in weaponry , soon resulted in chariots being driven in battle by Bronze Age societies from China to Egypt .

The Hyksos invaders brought the chariot to Ancient Egypt in the 16th century BC and the Egyptians adopted its use from that time forward . The oldest preserved text related to the handling of war horses in the ancient world is the Hittite manual of Kikkuli , which dates to about 1350 BC , and describes the conditioning of chariot horses .

Chariots existed in the Minoan civilization , as they were inventoried on storage lists from Knossos in Crete , dating to around 1450 BC . Chariots were also used in China as far back as the Shang Dynasty (c . 1600 ? 1050 BC) , where they appear in burials . The high point of chariot use in China was in the Spring and Autumn Period (770 ? 476 BC) , although they continued in use up until the 2nd century BC .

Descriptions of the tactical role of chariots in Ancient Greece and Rome are rare . The Iliad , possibly referring to Mycenaen practices used c . 1250 BC , describes the use of chariots for transporting warriors to and from battle , rather than for actual fighting . Later , Julius Caesar , invading Britain in 55 and 54 BC , noted British charioteers throwing javelins , then leaving their chariots to fight on foot .

= = = Cavalry = = =

Some of the earliest examples of horses being ridden in warfare were horse @-@ mounted archers or spear @-@ throwers , dating to the reigns of the Assyrian rulers Ashurnasirpal II and Shalmaneser III . However , these riders sat far back on their horses , a precarious position for moving quickly , and the horses were held by a handler on the ground , keeping the archer free to use the bow . Thus , these archers were more a type of mounted infantry than true cavalry . The Assyrians developed cavalry in response to invasions by nomadic people from the north , such as the Cimmerians , who entered Asia Minor in the 8th century BC and took over parts of Urartu during the reign of Sargon II , approximately 721 BC . Mounted warriors such as the Scythians also had an influence on the region in the 7th century BC . By the reign of Ashurbanipal in 669 BC , the Assyrians had learned to sit forward on their horses in the classic riding position still seen today and could be said to be true light cavalry . The ancient Greeks used both light horse scouts and heavy cavalry , although not extensively , possibly due to the cost of keeping horses .

Heavy cavalry was believed to have been developed by the Ancient Persians , although others argue for the Sarmatians . By the time of Darius (558 ? 486 BC) , Persian military tactics required horses and riders that were completely armoured , and selectively bred a heavier , more muscled horse to carry the additional weight . The cataphract was a type of heavily armored cavalry with distinct tactics , armour , and weaponry used from the time of the Persians up until the Middle Ages .

In Ancient Greece , Phillip of Macedon is credited with developing tactics allowing massed cavalry charges . The most famous Greek heavy cavalry units were the companion cavalry of Alexander the Great . The Chinese of the 4th century BC during the Warring States period (403 ? 221 BC) began to use cavalry against rival states . To fight nomadic raiders from the north and west , the Chinese of the Han Dynasty (202 BC ? 220 AD) developed effective mounted units . Cavalry was not used

extensively by the Romans during the Roman Republic period , but by the time of the Roman Empire , they made use of heavy cavalry . However , the backbone of the Roman army was the infantry .

== Horse artillery ==

Once gunpowder was invented , another major use of horses was as draught animals for heavy artillery , or cannon . In addition to field artillery , where horse @-@ drawn guns were attended by gunners on foot , many armies had artillery batteries where each gunner was provided with a mount . Horse artillery units generally used lighter pieces , pulled by six horses . " 9 @-@ pounders " were pulled by eight horses , and heavier artillery pieces needed a team of twelve . With the individual riding horses required for officers , surgeons and other support staff , as well as those pulling the artillery guns and supply wagons , an artillery battery of six guns could require 160 to 200 horses . Horse artillery usually came under the command of cavalry divisions , but in some battles , such as Waterloo , the horse artillery were used as a rapid response force , repulsing attacks and assisting the infantry . Agility was important ; the ideal artillery horse was 15 to 16 hands high , strongly built , but able to move quickly .

== Asia ==

== Central Asia ==

Relations between steppe nomads and the settled people in and around Central Asia were often marked by conflict . The nomadic lifestyle was well suited to warfare , and steppe cavalry became some of the most militarily potent forces in the world , only limited by nomads ' frequent lack of internal unity . Periodically , strong leaders would organise several tribes into one force , creating an almost unstoppable power . These unified groups included the Huns , who invaded Europe , and under Attila , conducted campaigns in both eastern France and northern Italy , over 500 miles apart , within two successive campaign seasons . Other unified nomadic forces included the Wu Hu attacks on China , and the Mongol conquest of much of Eurasia .

== India ==

The literature of ancient India describes numerous horse nomads . Some of the earliest references to the use of horses in South Asian warfare are Puranic texts , which refer to an attempted invasion of India by the joint cavalry forces of the Sakas , Kambojas , Yavanas , Pahlavas , and Paradas , called the " five hordes " (pañca.ganah) or " K?atriya " hordes (K?atriya ganah) . About 1600 BC , they captured the throne of Ayodhya by dethroning the Vedic king , Bahu . Later texts , such as the Mah?bh?rata , c . 950 BC , appear to recognise efforts taken to breed war horses and develop trained mounted warriors , stating that the horses of the Sindhu and Kamboja regions were of the finest quality , and the Kambojas , Gandharas , and Yavanas were expert in fighting from horses .

In technological innovation , the early toe loop stirrup is credited to the cultures of India , and may have been in use as early as 500 BC . Not long after , the cultures of Mesopotamia and Ancient Greece clashed with those of central Asia and India . Herodotus (484 ? 425 BC) wrote that Gandarian mercenaries of the Achaemenid Empire were recruited into the army of emperor Xerxes I of Persia (486 ? 465 BC) , which he led against the Greeks . A century later , the " Men of the Mountain Land , " from north of Kabul River , served in the army of Darius III of Persia when he fought against Alexander the Great at Arbela in 331 BC . In battle against Alexander at Massaga in 326 BC , the Assakenoi forces included 20 @,@ 000 cavalry . The Mudra @-@ Rakshasa recounted how cavalry of the Shakas , Yavanas , Kambojas , Kiratas , Parasikas , and Bahlikas helped Chandragupta Maurya (c . 320 ? 298 BC) defeat the ruler of Magadha and take the throne , thus laying the foundations of Mauryan Dynasty in Northern India .

Mughal cavalry used gunpowder weapons , but were slow to replace the traditional composite bow . Under the impact of European military successes in India , some Indian rulers adopted the European system of massed cavalry charges , although others did not . By the 18th century , Indian armies continued to field cavalry , but mainly of the heavy variety .

= = = East Asia = = =

The Chinese used chariots for horse @-@ based warfare until light cavalry forces became common during the Warring States era (402 ? 221 BC) . A major proponent of the change to riding horses from chariots was Wu Ling , c . 320 BC . However , conservative forces in China often opposed change , and cavalry never became as dominant as in Europe . Cavalry in China also did not benefit from the additional cachet attached to being the military branch dominated by the nobility .

The Japanese samurai fought as cavalry for many centuries . They were particularly skilled in the art of using archery from horseback . The archery skills of mounted samurai were developed by training such as Yabusame , which originated in 530 AD and reached its peak under Minamoto Yoritomo (1147 ? 1199 AD) in the Kamakura Period . They switched from an emphasis on mounted bowmen to mounted spearmen during the Sengoku period (1467 ? 1615 AD) .

= = = Middle East = = =

During the period when various Islamic empires controlled much of the Middle East as well as parts of West Africa and the Iberian peninsula , Muslim armies consisted mostly of cavalry , made up of fighters from various local groups , mercenaries and Turkoman tribesmen . The latter were considered particularly skilled as both lancers and mounted archers . In the 9th century the use of Mamluks , slaves raised to be soldiers for various Muslim rulers , became increasingly common . Mobile tactics , advanced breeding of horses , and detailed training manuals made Mamluk cavalry a highly efficient fighting force . The use of armies consisting mostly of cavalry continued among the Turkish people who founded the Ottoman Empire . Their need for large mounted forces lead to an establishment of the sipahi , cavalry soldiers who were granted lands in exchange for providing military service in times of war .

Mounted Muslim warriors conquered North Africa and the Iberian Peninsula during the 7th and 8th centuries AD following the Hegira , or Hijra , of Muhammad in 622 AD . By 630 AD , their influence expanded across the Middle East and into western North Africa . By 711 AD , the light cavalry of Muslim warriors had reached Spain , and controlled most of the Iberian peninsula by 720 . Their mounts were of various oriental types , including the North African Barb . A few Arabian horses may have come with the Umayyads who settled in the Guadalquivir valley . Another strain of horse that came with Islamic invaders was the Turkoman horse . Muslim invaders travelled north from nowadays Spain into France , where they were defeated by the Frankish ruler Charles Martel at the Battle of Tours in 732 AD .

= = Europe = =

= = = The Middle Ages = = =

During the European Middle Ages , there were three primary types of war horses : The destrier , the courser , and the rouncey , which differed in size and usage . A generic word used to describe medieval war horses was charger , which appears interchangeable with the other terms . The medieval war horse was of moderate size , rarely exceeding 15 @. @ 2 hands (62 inches , 157 cm) . Heavy horses were logistically difficult to maintain and less adaptable to varied terrains . The destrier of the early Middle Ages was moderately larger than the courser or rouncey , in part to accommodate heavier armoured knights . However , destriers were not as large as draught horses , averaging between 14 @. @ 2 hands (58 inches , 147 cm) and 15 hands (60 inches , 152 cm) .

On the European continent , the need to carry more armour against mounted enemies such as the Lombards and Frisians led to the Franks developing heavier , bigger horses . As the amount of armour and equipment increased in the later Middle Ages , the height of the horses increased ; some late medieval horse skeletons were of horses over 15 hands .

Stallions were often used as destriers due to their natural aggression . However , there may have been some use of mares by European warriors , and mares , who were quieter and less likely to call out and betray their position to the enemy , were the preferred war horse of the Moors , who invaded various parts of Southern Europe from 700 AD through the 15th century . Geldings were used in war by the Teutonic Knights , and known as " monk horses " (German Mönchpferde or Mönchhengste) . One advantage was if captured by the enemy , they could not be used to improve local bloodstock , thus maintaining the Knights ' superiority in horseflesh .

===== Uses =====

The heavy cavalry charge , while it could be effective , was not a common occurrence . Battles were rarely fought on land suitable for heavy cavalry . While mounted riders remained effective for initial attacks , by the end of the 14th century , it was common for knights to dismount to fight , while their horses were sent to the rear , kept ready for pursuit . Pitched battles were avoided if possible , with most offensive warfare in the early Middle Ages taking the form of sieges , and in the later Middle Ages as mounted raids called chevauchées , with lightly armed warriors on swift horses .

The war horse was also seen in hastiludes ? martial war games such as the joust , which began in the 11th century both as sport and to provide training for battle . Specialised destriers were bred for the purpose , although the expense of keeping , training , and outfitting them kept the majority of the population from owning one . While some historians suggest that the tournament had become a theatrical event by the 15th and 16th centuries , others argue that jousting continued to help cavalry train for battle until the Thirty Years ' War .

===== Transition =====

The decline of the armoured knight was probably linked to changing structures of armies and various economic factors , and not obsolescence due to new technologies . However , some historians attribute the demise of the knight to the invention of gunpowder , or to the English longbow . Some link the decline to both technologies . Others argue these technologies actually contributed to the development of knights : plate armour was first developed to resist early medieval crossbow bolts , and the full harness worn by the early 15th century developed to resist longbow arrows . From the 14th century on , most plate was made from hardened steel , which resisted early musket ammunition . In addition , stronger designs did not make plate heavier ; a full harness of musket @-@ proof plate from the 17th century weighed 70 pounds (32 kg) , significantly less than 16th century tournament armour .

The move to predominately infantry @-@ based battles from 1300 to 1550 was linked to both improved infantry tactics and changes in weaponry . By the 16th century , the concept of a combined @-@ arms professional army had spread throughout Europe . Professional armies emphasized training , and were paid via contracts , a change from the ransom and pillaging which reimbursed knights in the past . When coupled with the rising costs involved in outfitting and maintaining armour and horses , the traditional knightly classes began to abandon their profession . Light horses , or prickers , were still used for scouting and reconnaissance ; they also provided a defensive screen for marching armies . Large teams of draught horses or oxen pulled the heavy early cannon . Other horses pulled wagons and carried supplies for the armies .

===== Early modern period =====

During the early modern period the shift continued from heavy cavalry and the armoured knight to unarmoured light cavalry , including Hussars and Chasseurs à cheval . Light cavalry facilitated

better communication , using fast , agile horses to move quickly across battlefields . The ratio of footmen to horsemen also increased over the period as infantry weapons improved and footmen became more mobile and versatile , particularly once the musket bayonet replaced the more cumbersome pike . During the Elizabethan era , mounted units included cuirassiers , heavily armoured and equipped with lances ; light cavalry , who wore mail and bore light lances and pistols ; and " petronels " , who carried an early carbine . As heavy cavalry use declined armour was increasingly abandoned and dragoons , whose horses were rarely used in combat , became more common : mounted infantry provided reconnaissance , escort and security . However , many generals still used the heavy mounted charge , from the late 17th century and early 18th century , where sword @-@ wielding wedge @-@ formation shock troops penetrated enemy lines , to the early 19th century , where armoured heavy cuirassiers were employed .

Light cavalry continued to play a major role , particularly after the Seven Years ' War when Hussars started to play a larger part in battles . Though some leaders preferred tall horses for their mounted troops this was as much for prestige as for increased shock ability and many troops used more typical horses , averaging 15 hands . Cavalry tactics altered with fewer mounted charges , more reliance on drilled manoeuvres at the trot , and use of firearms once within range . Ever @-@ more elaborate movements , such as wheeling and caracole , were developed to facilitate the use of firearms from horseback . These tactics were not greatly successful in battle since pikemen protected by musketeers could deny cavalry room to manoeuvre . However the advanced equestrianism required survives into the modern world as dressage . While restricted , cavalry was not rendered obsolete . As infantry formations developed in tactics and skills , artillery became essential to break formations ; in turn , cavalry was required to both combat enemy artillery , which was susceptible to cavalry while deploying , and to charge enemy infantry formations broken by artillery fire . Thus , successful warfare depended in a balance of the three arms : cavalry , artillery and infantry .

As regimental structures developed many units selected horses of uniform type and some , such as the Royal Scots Greys , even specified colour . Trumpeters often rode distinctive horses so they stood out . Regional armies developed type preferences , such as British hunters , Hanoverians in central Europe , and steppe ponies of the Cossacks , but once in the field , the lack of supplies typical of wartime meant that horses of all types were used . Since horses were such a vital component of most armies in early modern Europe , many instituted state stud farms to breed horses for the military . However , in wartime , supply rarely matched the demand , resulting in some cavalry troops fighting on foot .

= = = 19th century = = =

In the 19th century distinctions between heavy and light cavalry became less significant ; by the end of the Peninsular War , heavy cavalry were performing the scouting and outpost duties previously undertaken by light cavalry , and by the end of the 19th century the roles had effectively merged . Most armies at the time preferred cavalry horses to stand 15 @. @ 2 hands (62 inches , 157 cm) and weigh 990 to 1 @, @ 100 pounds (450 to 500 kg) , although cuirassiers frequently had heavier horses . Lighter horses were used for scouting and raiding . Cavalry horses were generally obtained at 5 years of age and were in service from 10 or 12 years , barring loss . However losses of 30 ? 40 % were common during a campaign due to conditions of the march as well as enemy action . Mares and geldings were preferred over less @-@ easily managed stallions .

During the French Revolutionary Wars and the Napoleonic Wars the cavalry 's main offensive role was as shock troops . In defence cavalry were used to attack and harass the enemy 's infantry flanks as they advanced . Cavalry were frequently used prior to an infantry assault , to force an infantry line to break and reform into formations vulnerable to infantry or artillery . Infantry frequently followed behind in order to secure any ground won or the cavalry could be used to break up enemy lines following a successful infantry action .

Mounted charges were carefully managed . A charge 's maximum speed was 20 km / h ; moving

faster resulted in a break in formation and fatigued horses . Charges occurred across clear rising ground , and were effective against infantry both on the march and when deployed in a line or column . A foot battalion formed in line was vulnerable to cavalry , and could be broken or destroyed by a well @-@ formed charge . Traditional cavalry functions altered by the end of the 19th century . Many cavalry units transferred in title and role to " mounted rifles " : troops trained to fight on foot , but retaining mounts for rapid deployment , as well as for patrols , scouting , communications , and defensive screening . These troops differed from mounted infantry , who used horses for transport but did not perform the old cavalry roles of reconnaissance and support .

= = Sub @-@ Saharan Africa = =

Horses were used for warfare in the central Sudan since the 9th century , where they were considered " the most precious commodity following the slave . " The first conclusive evidence of horses playing a major role in the warfare of West Africa dates to the 11th century when the region was controlled by the Almoravids , a Muslim Berber dynasty . During the 13th and 14th centuries , cavalry became an important factor in the area . This coincided with the introduction of larger breeds of horse and the widespread adoption of saddles and stirrups . Increased mobility played a part in the formation of new power centers , such as the Oyo Empire in what today is Nigeria . The authority of many African Islamic states such as the Bornu Empire also rested in large part on their ability to subject neighboring peoples with cavalry . Despite harsh climate conditions , endemic diseases such as trypanosomiasis the African horse sickness and unsuitable terrain that limited the effectiveness of horses in many parts of Africa , horses were continuously imported and were , in some areas , a vital instrument of war . The introduction of horses also intensified existing conflicts , such as those between the Herero and Nama people in Namibia during the 19th century .

The African slave trade was closely tied to the imports of war horses , and as the prevalence of slaving decreased , fewer horses were needed for raiding . This significantly decreased the amount of mounted warfare seen in West Africa . By the time of the Scramble for Africa and the introduction of modern firearms in the 1880s , the use of horses in African warfare had lost most of its effectiveness . Nonetheless , in South Africa during the Second Boer War (1899 ? 1902) , cavalry and other mounted troops were the major combat force for the British , since the horse @-@ mounted Boers moved too quickly for infantry to engage . The Boers presented a mobile and innovative approach to warfare , drawing on strategies that had first appeared in the American Civil War . The terrain was not well @-@ suited to the British horses , resulting in the loss of over 300 @,@ 000 animals . As the campaign wore on , losses were replaced by more durable African Basuto ponies , and Waler horses from Australia .

= = The Americas = =

The horse had been extinct in the Western Hemisphere for approximately 10 @,@ 000 years prior to the arrival of Spanish Conquistadors in the early 16th century . Consequently , the Indigenous peoples of the Americas had no warfare technologies that could overcome the considerable advantage provided by European horses and gunpowder weapons . In particular this resulted in the conquest of the Aztec and Inca empires . The speed and increased impact of cavalry contributed to a number of early victories by European fighters in open terrain , though their success was limited in more mountainous regions . The Incas ' well @-@ maintained roads in the Andes enabled quick mounted raids , such as those undertaken by the Spanish while resisting the siege of Cuzco in 1536 ? 7 .

Indigenous populations of South America soon learned to use horses . In Chile , the Mapuche began using cavalry in the Arauco War in 1586 . They drove the Spanish out of Araucanía at the beginning of the 17th century . Later , the Mapuche conducted mounted raids known as Malónes , first on Spanish , then on Chilean and Argentine settlements until well into the 19th century . In North America , Native Americans also quickly learned to use horses . In particular , the people of the Great Plains , such as the Comanche and the Cheyenne , became renowned horseback fighters

. By the 19th century , they presented a formidable force against the United States Army .

During the American Revolutionary War (1775 ? 1783) , the Continental Army made relatively little use of cavalry , primarily relying on infantry and a few dragoon regiments . The United States Congress eventually authorized regiments specifically designated as cavalry in 1855 . The newly formed American cavalry adopted tactics based on experiences fighting over vast distances during the Mexican War (1846 ? 1848) and against indigenous peoples on the western frontier , abandoning some European traditions .

During the American Civil War (1861 ? 1865) , cavalry held the most important and respected role it would ever hold in the American military . Field artillery in the American Civil War was also highly mobile . Both horses and mules pulled the guns , though only horses were used on the battlefield . At the beginning of the war , most of the experienced cavalry officers were from the South and thus joined the Confederacy , leading to the Confederate Army 's initial battlefield superiority . The tide turned at the 1863 Battle of Brandy Station , part of the Gettysburg campaign , where the Union cavalry , in the largest cavalry battle ever fought on the North American continent , ended the dominance of the South . By 1865 , Union cavalry were decisive in achieving victory . So important were horses to individual soldiers that the surrender terms at Appomattox allowed every Confederate cavalryman to take his horse home with him . This was because , unlike their Union counterparts , Confederate cavalymen provided their own horses for service instead of drawing them from the government .

= = 20th century = =

Although cavalry was used extensively throughout the world during the 19th century , horses became less important to warfare after the beginning of the 20th century . Light cavalry was still seen on the battlefield at the beginning of the 20th century , but formal mounted cavalry began to be phased out for combat during and immediately after World War I , although units that included horses still had military uses well into World War II .

= = = World War I = = =

World War I saw great changes in the use of cavalry . The mode of warfare changed , and the use of trench warfare , barbed wire and machine guns rendered traditional cavalry almost obsolete . Tanks , introduced in 1917 , began to take over the role of shock combat .

Early in the War , cavalry skirmishes were common , and horse @-@ mounted troops widely used for reconnaissance . On the Western Front cavalry were an effective flanking force during the " Race to the Sea " in 1914 , but were less useful once trench warfare was established . There a few examples of successful shock combat , and cavalry divisions also provided important mobile firepower . Cavalry played a greater role on the Eastern Front , where trench warfare was less common . On the Eastern Front , and also against the Ottomans , the " cavalry was literally indispensable . " British Empire cavalry proved adaptable , since they were trained to fight both on foot and while mounted , while other European cavalry relied primarily on shock action .

On both fronts , the horse was also used as a pack animal . Because railway lines could not withstand artillery bombardments , horses carried ammunition and supplies between the railheads and the rear trenches , though the horses generally were not used in the actual trench zone . This role of horses was critical , and thus horse fodder was the single largest commodity shipped to the front by some countries . Following the war , many cavalry regiments were converted to mechanised , armoured divisions , with light tanks developed to perform many of the cavalry 's original roles .

= = = World War II = = =

Several nations used horse units during World War II . The Polish army used cavalry to defend against the armies of Nazi Germany during the 1939 invasion . Both the Germans and the Soviet Union maintained cavalry units throughout the war , particularly on the Eastern Front . The British

Army used horses early in the war , and the final British cavalry charge was on March 21 , 1942 , when the Burma Frontier Force encountered Japanese infantry in central Burma . The only American cavalry unit during World War II was the 26th Cavalry . They challenged the Japanese invaders of Luzon , holding off armoured and infantry regiments during the invasion of the Philippines , repelled a unit of tanks in Binalonan , and successfully held ground for the Allied armies ' retreat to Bataan .

Throughout the war , horses and mules were an essential form of transport , especially by the British in the rough terrain of Italy and the Middle East . The United States Army utilised a few cavalry and supply units during the war , but there were concerns that the Americans did not use horses often enough . In the campaigns in North Africa , generals such as George S. Patton lamented their lack , saying , " had we possessed an American cavalry division with pack artillery in Tunisia and in Sicily , not a German would have escaped . "

The German and the Soviet armies used horses until the end of the war for transportation of troops and supplies . The German Army , strapped for motorised transport because its factories were needed to produce tanks and aircraft , used around 2 @. @ 75 million horses ? more than it had used in World War I. One German infantry division in Normandy in 1944 had 5 @, @ 000 horses . The Soviets used 3 @. @ 5 million horses .

= = Recognition = =

While many statues and memorials have been erected to human heroes of war , often shown with horses , a few have also been created specifically to honor horses or animals in general . One example is the Horse Memorial in Port Elizabeth in the Eastern Cape province of South Africa . Both horses and mules are honored in the Animals in War Memorial in London 's Hyde Park .

Horses have also at times received medals for extraordinary deeds . After the Charge of the Light Brigade during the Crimean War , a surviving horse named Drummer Boy , ridden by an officer of the 8th Hussars , was given an unofficial campaign medal by his rider that was identical to those awarded to British troops who served in the Crimea , engraved with the horse 's name and an inscription of his service . A more formal award was the PDSA Dickin Medal , an animals ' equivalent of the Victoria Cross , awarded by the People 's Dispensary for Sick Animals charity in the United Kingdom to three horses that served in World War II .

= = Modern uses = =

Today , many of the historical military uses of the horse have evolved into peacetime applications , including exhibitions , historical reenactments , work of peace officers , and competitive events . Formal combat units of mounted cavalry are mostly a thing of the past , with horseback units within the modern military used for reconnaissance , ceremonial , or crowd control purposes . With the rise of mechanised technology , horses in formal national militias were displaced by tanks and armored fighting vehicles , sometimes still referred to as " cavalry " .

= = Active military = =

Organised armed fighters on horseback are occasionally seen . The best @-@ known current examples are the Janjaweed , militia groups seen in the Darfur region of Sudan , who became notorious for their attacks upon unarmed civilian populations in the Darfur conflict . Many nations still maintain small numbers of mounted military units for certain types of patrol and reconnaissance duties in extremely rugged terrain , including the conflict in Afghanistan .

At the beginning of Operation Enduring Freedom , Operational Detachment Alpha 595 teams were covertly inserted into Afghanistan on October 19 , 2001 . Horses were the only suitable transportation for the difficult mountainous terrain of Northern Afghanistan . They were the first U.S. soldiers to ride horses into battle since January 16 , 1942 , when the U.S. Army ' s 26th Cavalry Regiment charged an advanced guard of the 14th Japanese Army as it advanced from Manila .

The only remaining operationally ready , fully horse @-@ mounted regular regiment in the world is the Indian Army 's 61st Cavalry .

= = = Law enforcement and public safety = = =

Mounted police have been used since the 18th century , and still are used worldwide to control traffic and crowds , patrol public parks , keep order in processions and during ceremonies and perform general street patrol duties . Today , many cities still have mounted police units . In rural areas , horses are used by law enforcement for mounted patrols over rugged terrain , crowd control at religious shrines , and border patrol .

In rural areas , law enforcement that operates outside of incorporated cities may also have mounted units . These include specially deputised , paid or volunteer mounted search and rescue units sent into roadless areas on horseback to locate missing people . Law enforcement in protected areas may use horses in places where mechanised transport is difficult or prohibited . Horses can be an essential part of an overall team effort as they can move faster on the ground than a human on foot , can transport heavy equipment , and provide a more rested rescue worker when a subject is found .

= = = Ceremonial and educational uses = = =

Many countries throughout the world maintain traditionally trained and historically uniformed cavalry units for ceremonial , exhibition , or educational purposes . One example is the Horse Cavalry Detachment of the U.S. Army 's 1st Cavalry Division . This unit of active duty soldiers approximates the weapons , tools , equipment and techniques used by the United States Cavalry in the 1880s . It is seen at change of command ceremonies and other public appearances . A similar detachment is the Governor General 's Horse Guards , Canada 's Household Cavalry regiment , the last remaining mounted cavalry unit in the Canadian Forces . Nepal 's King 's Household Cavalry is a ceremonial unit with over 100 horses and is the remainder of the Nepalese cavalry that existed since the 19th century . An important ceremonial use is in military funerals , which often have a caparisoned horse as part of the procession , " to symbolize that the warrior will never ride again " .

Horses are also used in many historical reenactments . Reenactors try to recreate the conditions of the battle or tournament with equipment that is as authentic as possible .

= = = Equestrian sport = = =

Modern @-@ day Olympic equestrian events are rooted in cavalry skills and classical horsemanship . The first equestrian events at the Olympics were introduced in 1912 , and through 1948 , competition was restricted to active @-@ duty officers on military horses . Only after 1952 , as mechanisation of warfare reduced the number of military riders , were civilian riders allowed to compete . Dressage traces its origins to Xenophon and his works on cavalry training methods , developing further during the Renaissance in response to a need for different tactics in battles where firearms were used . The three @-@ phase competition known as Eventing developed out of cavalry officers ' needs for versatile , well @-@ schooled horses . Though show jumping developed largely from fox hunting , the cavalry considered jumping to be good training for their horses , and leaders in the development of modern riding techniques over fences , such as Federico Caprilli , came from military ranks . Beyond the Olympic disciplines are other events with military roots . Competitions with weapons , such as mounted shooting and tent pegging , test the combat skills of mounted riders .