

## CHAPTER 17

## ANIMALS IN WARFARE

ADRIENNE MAYOR

## INTRODUCTION

ANIMALS have been employed in warfare for millennia. Evidence from Graeco-Roman literary sources demonstrates that a remarkable variety of creatures from the animal and insect world, from wasps to elephants, were recruited to achieve military victory in antiquity. In the third century AD, the natural historian Aelian (*Characteristics of Animals* 9.40, 1.54, 5.16, 9.15) speculated that the arsenal of venoms possessed by poisonous snakes and stinging insects for hunting and defence inspired humans to weaponize noxious creatures for warfare. In antiquity it was believed that snakes fortified their venom by eating poisonous plants. In turn, an archer could amplify the killing power of his arrows with venom.

The long-observed coincidence between rodent infestations and plagues that infected invading armies may have suggested the idea of deliberately trying to turn animals against enemies. Writing in the first century BC, Lucretius (*On the Nature of the Universe* 5.1298–1349) suggested that earlier humans may have attempted to ‘enlist wild beasts such as lions or savage boars in the service of war’ but soon learned to focus on animals that could be tamed and trained.

Trained horses and elephants could greatly multiply the force exerted by human warriors. Some domestic and wild animals have natural characteristics that lend themselves to being used in offensive or defensive strategies. Some animal species instinctively balked or panicked at the presence of unfamiliar animals, for example, the stench of camels could discombobulate cavalry horses at close range. Chaos could erupt when incompatible animal species were forced to meet on the battlefield, and some cunning commanders figured out how to exploit inter-species antipathy to their advantage. Like all biological weapons, however, animals made to serve in warfare could be unpredictable and uncontrollable: the threat of ‘blowback’, self-injury, and unintended consequences was ever present (Mayor, 2009: 39, 179, 190, 197).

Some creatures deployed against foes were involuntary zoological allies, such as innocent herds of sheep or cattle, or venomous creatures whose aggression leads them to attack human targets. But, unlike wasps, vipers, scorpions, or mice, whose instincts might work to the advantage of one side in military contexts, large, intelligent animals could be specially prepared or trained for battle. Almost every army in antiquity made use of sturdy baggage animals and dogs typically served sentry duty. Other animals were rigorously trained to participate in combat: horses and camels as cavalry mounts, and canines and war elephants to attack.

## INSECTS AND ARTHROPODS

In Greek mythology, the Myrmidons were ‘ant-people’ sent to repopulate the island of Aegina after a terrible plague. According to Homer’s *Iliad*, the Myrmidons were courageous, fierce warriors commanded by Achilles. The ant-warriors were mythological, but social insects, with their reputation for fierce defence and attack en masse, inflicting bites and stings, had long ‘served as models for man to emulate in... the art of warfare’. Bees were admired for their honey—although some bees’ honey was so naturally toxic that it served as a deadly weapon against Pompey the Great’s Roman army in 65 BC in Pontus, during the Third Mithradatic War (Mayor, 2009: 145–8, 2010: 315). Bees, wasps, and hornets were respected as aggressive creatures ‘of exceedingly vicious disposition’ (Ambrose, 1974). It was understood very early in human history that swarms of social insects were fearless defenders of their kin and territory, evoking the ‘image of a disciplined and ferocious phalanx of soldiers forcing a larger army into retreat’ (Lockwood, 2009: 9).

Early people quickly discovered that enraged bees, wasps, or hornets, could send a real army into chaotic retreat. Massive numbers of their stings can even be fatal: according to folk belief cited by Pliny (*Natural History* 11.24), twenty-seven hornet stings would kill a man. Evidence from Graeco-Roman historians’ texts tell us that bees, hornets, wasps, and scorpions (venomous arthropods) were purposefully used in wartime as agents for both attack and defence. Simply by doing what came naturally, these small creatures could inflict damage that far exceeded their size. Hive ‘bombs’ plugged with mud were probably among the first crude projectile weapons, according to Edward Neufeld (1980), who suggested that Neolithic people may have lobbed beehives or hornet and wasp nests at enemies hiding in caves.

The strategy of hurling stinging insects at enemies continued even after more sophisticated siegecraft was developed. Catapults offered an effective delivery system for launching beehives or hornet nests. Catapulting beehives at enemy troops was a well-known Roman tactic, according to Ambrose (1974), who suggested that the Romans’ extensive use of bees in warfare might help account for the recorded decline in the number of hives in the late Roman Empire.



Stinging insects also helped to defend forts in antiquity. In the fourth century BC, Aeneas the Tactician (37.4) advised besieged people 'to release wasps and bees into tunnels being dug under their walls, in order to plague the attackers'. That defence was used against the Romans (72 BC) by the allies of Mithradates VI Eupator of Pontus. Appian (*Mithradatic Wars*, 12.78) relates that Lucullus laid siege to Mithradates' strongholds at Amisus, Eupatoria, and Themiscrya. The Romans excavated tunnels under the fortresses, but the cities' defenders drilled holes above the tunnels and released swarms of angry bees to sting the sappers. In another zoological tactic, the defenders also sent bears and other wild beasts into the passageways to repulse the Romans.

Perhaps the most notorious defensive use of insects occurred in 198–99 AD, during the Second Parthian War, when Septimius Severus failed to capture the remote desert stronghold of Hatra (near Mosul, Iraq). King Barsamia of Hatra ordered the citizens to gather up poisonous insects in the desert and pack them inside clay pots, to help defend the city (Herodian, 3.9).

Exactly what sorts of insect were sealed in the jars is unknown, but deadly scorpions (venomous arthropods) were extremely abundant in the deserts around Hatra, along with other venomous flying insects, such as assassin bugs, wasps, and pederin beetles. Scorpions were deeply feared: Pliny the Elder (*Natural History* 11.87–91; 27.6) commented that scorpions 'are a horrible plague, poisonous like snakes, except that they inflict worse torture' by intensely painful stings and 'lingering death'. The age-old dread of scorpions was put to symbolic military use by ancient Greek warriors, who painted scorpion emblems on their shields to frighten foes, and the scorpion became the official insignia of the Roman Empire's Praetorian Guard. Heaving baskets full of scorpions at besiegers was also recommended by the Byzantine ruler Leo VI (*Tactica* 19.53). Entomologist Jeffrey Lockwood (2009: 19) notes that Iraq is home to at least two deadly scorpion species and three that deliver excruciating but non-lethal stings. Because of the terror evoked by scorpions, raining live scorpions down on attackers was an extremely effective psychological tactic.

Hatra's entomological defence was highly successful. As Severus's men began to ascend the walls, the fragile earthenware pots rained down and broke open on contact. 'The insects fell into the Romans' eyes and the exposed parts of their bodies,' wrote Herodian (3.9.3–8), 'Digging in, they bit and stung the soldiers, causing severe injuries.' Severus abandoned his siege of Hatra after twenty days (Mayor 2009: 181–6). The psychological effect was intended to be as horrifying as the physical pain of the stings.

## VENOMOUS SNAKES

Numerous poisonous snake species inhabited the ancient Mediterranean world; their death-dealing venom was greatly feared. The concept of poisoned arrows is embedded in the ancient Greek language: the word for poison, *toxin*, comes from Greek *toxicon*, derived from *toxon*, which means 'bow'. The earliest description of using snake venom to poison arrows appears in Greek mythology, in the story of Heracles and the Hydra,

a poisonous serpent-monster with multiplying heads. Heracles killed the Hydra and dipped his arrows in its venom; thereafter his arrows inflicted the equivalent of a snake bite. Heracles himself succumbed to 'second-hand' Hydra poison, a victim of his own biological weaponry (Mayor, 2009: 42–54).

Crystallized, dried venom can retain its lethal power over long periods of time, making it an effective arrow drug. Many ancient cultures, including the Greeks and Romans and their enemies, treated their arrowheads, swords, and spears with snake venom. Graeco-Roman writers claimed that archers of Gaul, Dalmatia, Dacia, Thrace, Sarmatia, Parthia, India, Scythia, and Armenia used arrows tipped with venom (Mayor, 2009: 75–97). An early example of envenomed arms in a historical battle occurred in 326 BC, when the defenders of Harmatelia (Pakistan) attacked the army of Alexander the Great with weapons treated with venom (probably that of the Russell's viper) (Curtius, 9.8.13–28; Diodorus, 17.102–3; Mayor, 2009: 89–91).

Of all the archers who dipped their projectiles in poison, none were more feared in classical antiquity than the Scythians, whose shamans knew the secrets of snake venoms. According to Aelian (*Characteristics of Animals* 9.15), Dioscorides (1.106; 2.79), and Pseudo-Aristotle (*On Marvelous Things Heard*, 845), the Scythians concocted a deadly and disgusting arrow drug called 'scythicon', a mixture of decaying venomous snakes, human blood, and animal dung, left for months to decompose and liquefy in a leather bag buried in the ground. The snake species of the Black Sea region include Caucasus and steppe vipers, European adders, and sand vipers (*Vipera ursinii renardi*, *V. kasnakovi*, *V. berus*, and *V. ammodytes*). Arrows were dipped in the resulting bacterial sludge, and the shafts were painted to resemble patterns on snake skin (Mayor, 2009: 77–86). As with many biological and zoological tactics, surprise and fear were important psychological aspects, which may help explain why the details of the scythicon recipe and its agonizing effects were so widely known among Greeks and Romans.

Live snakes could also create confusion and dread among the enemy. During a decisive naval battle against King Eumenes II of Pergamon, c.190–184 BC, Hannibal found his ships greatly outnumbered. According to Cornelius Nepos (*Hannibal* 23.10–11), Hannibal resorted to a ruse, 'since he was unequal to his opponent in arms'. He ordered his men to go ashore and capture venomous snakes and pack them into earthenware pots. This secret reptilian weapon boosted the confidence of the Carthaginians, who suddenly began catapulting the jars onto the decks of Eumenes' ships. The enemy sailors laughed at first, thinking that Hannibal was hurling empty crockery, but soon they were leaping about crazily trying to avoid the writhing snakes. Hannibal reportedly won the battle. According to Frontinus (*Stratagems* 4.7.10–11), Hannibal's trick was also employed by King Prusias of Bithynia.

Snake venom reportedly served as a life-saving medicine at the Battle of Zela in 67 BC, during the Third Mithradatic War. Scythian doctors, known as the Agari, used snake venom to cure a grievous thigh wound suffered by King Mithradates VI of Pontus (Appian, *Mithradatic Wars* 12.88–9). This is the first documented use of a small amount of snake venom administered to staunch hemorrhage—a use only recently discovered by modern scientists of venomics (Mayor, 2010: 310–11).



## RODENTS

In antiquity, mice were inadvertent allies in repulsing attackers. Some epidemics, such as bubonic plague, were transmitted by insects on rodents, but the role of fleas in spreading pestilence was unknown in antiquity. However, rats or mice eating or gnawing leather military gear was a widespread omen of imminent disaster, and hordes of rodents were recognized as signs of imminent epidemics (Pliny, *Natural History* 8.221–3). Herodotus (*Histories* 2.141) recounted a story of mice as military saviours. Egyptian priests at the temple of Ptah showed him a memorial statue of the Pharaoh holding a mouse to represent his victory over the Assyrian invasion led by Sennacherib in about 700 BC. According to the story, Ptah sent an army of mice to help defeat the approaching Assyrians camped at Pelusium. The rodents gnawed through all the leather straps, quivers, and bowstrings. This was taken as a terrible omen, sending the Assyrian army into chaos. They abandoned their invasion. The Egyptian army pursued them, inflicting severe losses on Sennacherib's men. According to Josephus (Josephus, *Jewish Antiquities* 10.15–27; cf. *2 Kings* 19.35), a pestilential plague killed 185,000 Assyrians as they retreated from Egypt through Palestine.

Sennacherib's army was beset by disease-carrying mice who ate the leather parts of their weapons at Pelusium. As the Assyrians retreated, the rodent-borne epidemic (perhaps bubonic plague or typhus) swept through the troops. Other instances recounted by Greek historians attribute similar divine help in deflecting invading armies in the form of rodents and pestilence sent by Apollo, god of medicine and plagues, who was also worshipped as the god of mice (Mayor, 2009: 173–6).

## CANINES

Very early in human history, barking dogs served as sentinels to warn of intruders; they could also track enemies. Their acute senses, loyalty, vigilance, speed, and intelligence soon made them valuable for more organized military purposes. To guard the citadel of Acrocorinth against Philip of Macedon in 243 BC, for instance, the Corinthian commander Aratos maintained fifty dogs. An inscription from the Greek city of Teos records that three dogs were purchased for guard duty at the garrison fort. The fourth-century BC Greek tactician Aeneas frequently mentions the use of dogs as messengers and sentries, but he also warns that their barking instinct could backfire (22.14, 22.20, 23.2, 38.2–3).

Dogs also participated in combat in antiquity. Large breeds can run twice as fast as humans and they can be trained to bite and hold down victims. When large dogs lunge, many people instinctively drop to the ground. For cultures that did not keep large domesticated canines, war dogs were intimidating, and the psychological deterrent was significant.

The earliest artistic evidence for war dogs appears on an Assyrian stone relief, c.600 BC, at Birs Nimrud (Iraq). It depicts a warrior carrying a shield and leading a large, armoured mastiff. According to Pliny (*Natural History* 8.142–3), the ruler of the Garamantes in Africa had 200 trained war dogs 'that did battle with all those who resisted him'. The cities of Colophon and Castabala in Asia Minor also trained dogs to fight ferociously in the front ranks (Pliny, *Natural History* 8.40; 8.142–3). Such dogs were remarkably loyal allies, joked Pliny, 'for they never required payment'. The Magnesians of northeastern Greece and the Hyrcanians near the Caspian Sea kept hounds with spiked collars that accompanied them on the battlefield. 'These allies were an important advantage,' remarked Aelian (*Characteristics of Animals* 7.38).

Polyaenus, the war strategist who advised Roman emperors in the second century AD, recounted how the Cimmerians of the steppes had been driven out of Asia Minor in the sixth century BC by the vicious hounds of Alyattes, king of Lydia in Anatolia. Alyattes set his 'strongest dogs upon the barbarians as if they were wild animals'. Polyaenus (7.2) wrote that the Lydian dogs killed many of the Cimmerian invaders and forced the rest to flee.

At the Battle of Marathon in 490 BC, when the Athenians and their Greek allies defeated Darius I's invading Persian army, one courageous dog was honoured 'for the dangers it faced' along with the great human heroes of the war. Because this dog served as a 'fellow-soldier in the battle', wrote Aelian (*Characteristics of Animals* 7.38), its portrait was featured in the famous mural of the glorious victory, on the Painted Stoa in the Agora of Athens.

## CATTLE, SHEEP, AND OTHER WILD AND DOMESTIC ANIMALS

As has been noted, typical military pack animals included oxen, mules, and donkeys. Great strength and resilience made oxen superior for transporting heavy siege engines, towers, catapults, and baggage trains. Occasionally, pack animals and domestic herd animals served more directly in unconventional battle strategies in antiquity.

For example, Frontinus (*Stratagems* 2.4.17) described how the Spaniards successfully launched cattle against Hannibal's father, Hamilcar Barca in 229 BC. The Spanish commanders placed steer-drawn carts loaded with pitch, animal tallow, and sulphur in their front ranks. Hamilcar's soldiers were thrown into confused retreat when these carts were set afire and driven into the Carthaginian lines. The youthful Hannibal had accompanied his father in the conquest of Spain and perhaps witnessed the chaos wrought by cattle and fire. Perhaps the memory inspired his own ruse against the Romans during his invasion of Italy in 218 BC. At Ager Falernus, trapped in a narrow valley, Hannibal devised a tactic to distract and evade the surrounding Roman forces. The Carthaginians herded their own oxen and those from nearby villages up the mountain. That evening



they tied burning rags to the horns and drove the panic-stricken oxen barreling down the hill into the valley. The noise and torches in the dark tricked the Romans into believing the Carthaginian army was charging. While the Romans hurried to the main pass, Hannibal and his men slipped out of another, now weakly defended pass.

Herd animals could be employed to delude enemies into believing that they were facing vast numbers of attackers. This ploy was recommended by Polyænus and other ancient strategists. Alexander the Great resorted to this trick in Persia, tying branches to the tails of herds of sheep in order to raise great clouds of dust. From their camp, the Persians took the dust clouds as the sign of a massive army. In another instance, similar to Hannibal's tactic, Alexander attached torches to sheep at night, creating the illusion of thousands of campfires on the plain. Alexander's successor, Ptolemy, employed domestic animals in a similar fashion against Perdiccas in Egypt in 321 BC. Ptolemy bound bundles of brush to cattle, sheep, and pigs to raise thick clouds of dust as he approached with his cavalry. Perdiccas fled, imagining that an enormous cavalry was galloping towards him, and suffered heavy casualties during his retreat (Mayor, 2009: 189).

Much earlier, in the sixth century BC, when the Persian king Cambyses besieged Pelusium, Egypt, he created a unique zoological shield. The plan was based on his knowledge of his enemy's religious beliefs. Cambyses gathered up a number of ibexes, sheep, dogs, and cats and placed them in front of his ranks. He knew that each of these animals was worshipped by the Egyptians. All went according to plan: the Egyptians held their fire, fearful of harming any of the sacred creatures. Pelusium fell and Cambyses went on to conquer Egypt (Polyænus, 15.6, 7.9).

Domestic geese are hyper-vigilant fowl; they can be depended on to create a loud racket upon sensing intruders. According to Livy (5.47) a flock of sacred geese kept at the Temple of Juno on the Capitoline Hill saved Rome from a night attack by Brennus and his Gauls in about 390 BC. As the first Gaul climbed over the rampart, the sentry dogs were silent, but the geese began to cackle, awakening the Roman garrison in time to repel the attackers.

## HORSES, DONKEYS, AND MULES

Depending on their function, horses of many different types were used in warfare for more than 3,000 years. Saka-Scythian mounted archers rode tough, agile ponies, perfect for their style of hit-and-run skirmishing. Technological advances such as saddle, stirrup, and harness made horses more effective in battle and raids. War chariots with a driver and a warrior pulled by up to four light horses were common in the Near East and the steppes, before spreading to Greece and Rome. One of the oldest breeds of horse still in existence is the small, fast, spirited, and strong Caspian, once prized by Persian royalty for riding into battle and drawing war chariots (a seal of Darius the Great shows a Caspian horse). In 2011, archaeologists excavated the remains of a Caspian horse buried alongside humans at Gohar-Tappeh, a Bronze Age site in northern Iran (CAIS, 2011).

Heavy horses could pull loaded supplies carts, but donkeys and mules were more suited for strenuous work and as pack animals. Horses for war underwent training to overcome their natural instinct to run from danger. Cavalry tactics evolved over millennia. Highly trained horses gave armies advantages of height, agility, and mobility, plus they enhanced an army's impact against foot soldiers (Xenophon, *On Horsemanship* and *The Cavalry Commander*; Sidnell, 2006). Ancient Greek armies maintained horse scouts and some cavalry (the first and best were Theban and Thessalian), but it was expensive to keep horses. Philip II of Macedon developed tactics using massed cavalry charges; his son Alexander the Great was famous for his heavy cavalry units in the fourth century BC.

Heavy cavalry units are thought to have been developed by the ancient Persians or the Sarmatians. Parthian horses were much larger and robust, bred to wear armour and carry heavily armoured warriors. After their defeat by the Parthians at Carrhae (53 BC), the Romans began to appreciate the advantages of heavy armoured cavalry.

Horses were vulnerable to inter-species conflict. Herodotus (*Histories* 1.80–2, 4.130–6) reports that when Darius the Great was attempting to subdue Scythia, he found the nomads' guerrilla tactics extremely frustrating. Mounted on agile ponies, the expert archers ambushed and then melted away, avoiding face-to-face combat. But Darius found one small advantage over the Scythians in these skirmishes. The Persian army had brought a baggage train of donkeys from Persia, animals unknown in Scythia. Darius noticed that the harsh sound of the braying donkeys 'so upset the nomads' horses... that they would constantly stop short, pricking up their ears in consternation'. Running short of supplies, Darius decided to give up his invasion of Scythia, but he needed to protect his flanks while retreating. He and his army sneaked away under cover of night, leaving all their donkeys behind. The hee-hawing ruckus tricked the nomads into assuming that the Persians were still in camp.

## CAMELS

Camels—one-humped dromedaries and two-humped Bactrians—were mostly used to carry baggage, food, ammunition, and equipment, but camels also served as cavalry for Middle Eastern archers. Cavalry camels were less agile and slower than horses, but because of their height, mounted bowmen could shoot from behind infantry lines.

In another case of inter-species hostility, camels were deployed in an attempt to repel war elephants. In the ninth century BC, King Stabrobates of India was bringing thousands of war elephants to invade Assyria, ruled by Queen Semiramis (Sammuramat). By this time, the native elephant species of Mesopotamia were long extinct, over-hunted for ivory and sport. So Semiramis devised a clever strategy using her military camels. She fashioned dark or dyed ox-hides into costumes shaped like elephants and placed them over her camels. The camels were trained to function as pachyderm puppets. Stabrobates' elephants were flummoxed by the unfamiliar smell of the camel-elephant



dummies. But they obeyed their mahouts and charged Semiramis's army. The queen's plan failed miserably; the Indian war elephants tore up the ox-hide contraptions and overran her army (Kistler, 2005: 17–20). In another camel–elephant incident, King Darius of Persia was said to have successfully repulsed an enemy army's war elephants in 520 BC by loading his camels with bundles of burning materials (Kistler, 2005: 17–20).

Mounted camels ridden by Arab bowmen aided King Antiochus III against Roman forces at Magnesia in 189 BC. Bactrian camels began to be used for cavalry between 500 and 100 BC. During Rome's Mithradatic Wars of the first century BC, Tigranes II of Armenia and Mithradates VI of Pontus imported hardy two-humped camels from Bactria and Margiana (Afghanistan and Turkmenistan; Mayor, 2010: 249). In their later eastern empire, Romans recruited auxiliary camel forces (*Dromedarii*) from the desert provinces. In 53 BC, the Parthians' victory over Marcus Licinius Crassus at Carrhae was partly thanks to archers mounted on camels.

Yet another instance of inter-species aversion occurred in 546 BC, when Cyrus I of Persia set out to fight the formidable cavalry of King Croesus of Lydia. According to Herodotus, Cyrus realized that his cavalry was inferior to the Lydians. Cyrus's advisors pointed out that their own Persian horses took no notice of baggage camels, but he had noticed that foreign horses unfamiliar with dromedaries instinctively shied away at the strange appearance and rank scent of a camel (Herodotus, *Histories* 1.80–2). Accordingly, the Persians placed their baggage train of camels in the front lines, with their cavalry bringing up the rear. Before the battle could even begin, Croesus's impressive cavalry was rendered useless. At the very first sight and whiff of the dromedaries, the Lydian horses reared and galloped away. Many of Croesus's men were trampled in the melee. Ever since this ignominious retreat, most ancient commanders kept a few camels among their horses, to acquaint them with the scent.

## ELEPHANTS

Elephants, intelligent, massive, powerful, and imposing, were traditionally used in warfare in India at least 3,000 years ago. Elephants gave archers very high vantage points and the animals could easily tear up siege engines, destroy wooden fortifications, crush foot soldiers, and gore horses. Elephants can charge at fifteen miles per hour (with that momentum, however, it was difficult to stop them). Stampeding war elephants served as living tanks, plowing through tight infantry formations, trampling and scattering the enemy (Livy, 27.46–9; Pliny, *Natural History* 8.68; Ammianus Marcellinus, 25.1.4; Scullard, 1974; Kistler, 2005). Carefully trained from birth by traditional suppliers in India or North Africa, war elephants were most effective against men and horses who were unfamiliar with such beasts. As Vegetius (*Military Matters* 3) noted, 'Elephants by their vast size, horrible noise, and the novelty of their form are at first very terrible both to men and horses.'

Military elephants were first glimpsed by Greeks at Gaugamela, when Alexander the Great defeated Darius III in 331 BC. There were fifteen war elephants in the Persian

forces, but they were not deployed. Alexander's Macedonians first faced trained Indian elephants in action at the battle of the Hydapses River, in India, where Alexander defeated King Porus in 326 BC. The Macedonians were astounded and fearful of the massive beasts, but they rallied and prepared to fight Porus. Alexander, however, anticipated that despite the bravery of his men, his cavalry horses would refuse to face Porus's 200 elephants. He used his infantrymen to outmanoeuvre the elephants by boxing them in. Then he ordered his men to kill the mahouts atop the beasts with javelins. Hemmed in, with no drivers, the elephants ran amok, trampling many of their own men. Alexander managed to capture eighty of Porus's elephants; in subsequent campaigns in India he obtained 100 more (Curtius, 8.13–14).

The Romans first encountered war elephants in 280/279 BC, when Pyrrhus of Epirus invaded Italy, accompanied by twenty Indian war elephants. The bulk and bizarre appearance of Pyrrhus's pachyderms, each carrying a tower with one or two men wielding bows and javelins, terrified the Romans, and their cavalry horses were panicked by the sight, scent, and trumpeting of the strange beasts and refused combat. In the pandemonium, many Roman soldiers were crushed or impaled on the elephants' tusks (Kistler, 2005: 83–5). Pyrrhus won the battle, but he suffered such heavy losses that the phrase 'Pyrrhic victory' became a byword for victory gained at too high a cost. By 275 BC, Pyrrhus had lost many of his elephants and most of his original forces.

In the winter of 218 BC, Hannibal crossed the Alps with thirty-seven elephants during his invasion of Italy. Each of Hannibal's smaller North African forest elephants carried only a mahout—the elephants themselves were intended as weapons. In the alpine winter, however, all but one of his elephants died in the snow. Hannibal received a new supply of elephants in 215 BC. But the Romans and their horses were no longer terrified by the sheer sight of war elephants (Ober, 2001; Kistler 2005: 105–41).

Meanwhile, in the Hellenistic East, Alexander's successors, the Seleucids and Ptolemies, made heavy use of war elephants. During the Wars of the Successors after Alexander's death in 323 BC, the general Perdikkas sent his war elephants to trample 300 'traitors' who had followed his rival, Meleager (Curtius, 10.9–19). Later, at the Battle of Raphia, in 217 BC, seventy-three African forest elephants were marshalled by Ptolemy to face 102 larger Indian elephants deployed by Antiochus the Great. The battle began as both elephant contingents charged from the wings. As they sensed the larger and more numerous Indian elephants' approach, however, Ptolemy's smaller elephants ran amok, overrunning and trampling their own men and cavalry. Despite this setback, however, Ptolemy's forces won the day. Antiochus lost 300 horses, five elephants, and 10,000 men, while Ptolemy lost 700 horses and sixteen elephants, but only 1,500 men. Battles like this prompted the historian Josiah Ober to observe that in the Hellenistic period the odds were against the commander with the most elephants (Ober, 2001: 200).

War elephants could intimidate naïve enemies. But the cumbersome animal was uncontrollable at high momentum and not as agile as cavalry. As we have seen, the threats of friendly fire and collateral damage were serious, since wounded or crazed elephants often crushed their own men and horses. Certain ways of neutralizing a rampaging war elephant were developed—each mahout carried a spike and mallet to kill



his mount if it was wounded or suddenly wheeled about in the wrong direction. Unlike insects, intelligent creatures such as elephants experience fear and harbour instincts for self-preservation. The unpredictability of war elephants ultimately led to their reputation as a liability rather than advantage in battle. 'Elephants, like prudent men, avoid anything that is harmful,' noted Aelian (*Characteristics of Animals* 8.15, 8.17). Military disasters with elephants in the first century BC led Lucretius (*On the Nature of the Universe* 5.1298–1349) to suggest that very early in human history, other wild beasts, such as lions, may have been 'enlisted in the service of war' but with catastrophic results. The 'experiment of launching savage boars against the enemy' and 'advance guards of lions on leashes' were doomed to fail. Savage wild animals, 'enflamed by the gory carnage of battle,' must have slashed their own masters with tusks, claws, and teeth, 'just as in our own times war elephants sometimes stampede over their own associates.'

As noted earlier, the psychological impact and surprise of elephants was one key to their success in battle. By the Hellenistic period, commanders began to keep at least some elephants to condition their cavalry horses. In the second century BC, Perseus, a son of King Philip V of Macedon, prepared for an invasion by Romans who had African and Indian war elephants with a plan that recalled Semiramis's camels in elephant's clothing. But Perseus constructed wooden models on wheels to resemble elephants and had pipers hide inside the huge mock-ups. As these contraptions were rolled towards his cavalry horses, the pipers played harsh, trumpeting blasts on their pipes. By repeating this training the Macedonian horses gained courage and, Perseus hoped, would be unafraid of the sight and sound of elephants. Perseus was also the first Greek to develop a corps of 'elephant-fighters', infantrymen with spiked helmets and shields (Kistler, 2005: 147–8).

## PIGS

As elephants became less of a novelty, creative gambits quickly evolved to neutralize elephants on the battlefield. According to legend, after his defeat in 326 BC, King Porus taught Alexander the Great how to repulse elephants—by making use of inter-species antipathy, namely elephants' aversion to swine. The Romans had hit on a similar technique in 280–275 BC, when Pyrrhus was marching his surviving elephants across Italy. Romans noticed that rams with horns made the elephants jumpy and that they detested the loud squeals of pigs. Rams and pigs—and flaming torches—were used to deflect Pyrrhus's elephants, who feared fire as much as they could not abide pigs. In one battle, a wounded baby elephant caused Pyrrhus's elephants to rush to its aid (Aelian, *Characteristics of Animals* 1.38, 16.14, 16.36; Pliny, *Natural History* 8.1.27; Kistler, 2005: 89–90; Mayor, 2009: 200).

Not long after Pyrrhus's retreat from Italy in 275 BC, fire and swine were diabolically combined to drive war elephants mad. In about 270 BC, Antigonus Gonatus and his Indian war elephants besieged Megara in Greece. The Megarians covered

their domestic pigs with flammable pitch and set them on fire. As the shrieking, flaming pigs rushed towards them, the elephants fled trumpeting and trampled many of Antigonus's own troops. After this embarrassing rout, noted Polyaeus (*Stratagems* 4.6.3; Mayor, 2009: 202), Antigonus ordered his Indian suppliers to raise his young war elephants in the company of pigs, so the beasts could be conditioned to tolerate them.

The hapless pigs set on fire and deployed against highly trained war elephants exemplify the amazing array of animals that were either spontaneously drafted or painstakingly trained for warfare in antiquity. From mice to camels, bees to donkeys, a zoologically diverse menagerie of creatures was employed as allies and weapons on the ancient fields of battle.

## SUGGESTED READING

Kistler (2005) covers 3,000 years of elephants as war allies; Sidnell (2006) explains the use of cavalry in the ancient world. For military canines, see Karunanithy (2008). For the weaponization of insects, rodents, snakes, and large animals in war, see Mayor (2009). The contributions of insects to human warfare from antiquity to the present are presented in Lockwood (2009).

## REFERENCES

- Ambrose, J. (1974), 'Insects in Warfare', *Army* (December), 33–8.
- CAIS (Circle of Ancient Iranian Studies) (2011), 'Oldest Remains of Caspian Horse Discovered in North of Iran', 29 April 2011. Available at <<http://www.cais-soas.com>>.
- Karunanithy, D. (2008), *Dogs of War: Canine Use in Warfare from Ancient Egypt to the 19th Century*, London, Yarak.
- Kistler, J. (2005), *War Elephants*, Westport, CT, Praeger.
- Lockwood, J. (2009), *Six-Legged Warriors: Using Insects as Weapons of War*, Oxford, Oxford University Press.
- Mayor, A. (2009), *Greek Fire, Poison Arrows, and Scorpion Bombs: Biological and Chemical Warfare in the Ancient World*, Woodstock, NY, Overlook/Duckworth.
- (2010), *The Poison King: The Life and Legend of Mithradates, Rome's Deadliest Enemy*, Princeton, Princeton University Press.
- Neufeld, E. (1980), 'Insects as Warfare Agents in the Ancient Near East', *Orientalia* 49, 30–57.
- Ober, J. (2001), 'Hannibal', in R. Cowley and G. Parker (eds), *The Reader's Companion to Military History*, New York, Houghton Mifflin Harcourt, 199–200.
- Scullard, H. (1974), *The Elephant in the Greek and Roman World*, Cambridge, Thames and Hudson.
- Sidnell, P. (2006), *Warhorse: Cavalry in Ancient Warfare*, London, Continuum.