WARFARE IN THE MEDIEVAL WORLD

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Researching, writing and illustrating this book was a seven-year odyssey. The idea of writing a two-volume survey of warfare in western civilization – *Warfare in the Ancient World* and *Warfare in the Medieval World* – came
to me while doing a book-search for two undergraduate courses at the American Military University. Unable to find a suitable text, I decided to write my own. I soon recognized that my narrative required a visual component, and computer-generated maps were not my forte. Luckily for me, I was exposed to some wonderful maps generated by two of my
best and brightest students. US Army Master Sergeant Joshua Allfree joined me as tactical illustrator early on and his abilities as both cartographer and military historian were invaluable. Later on we were joined by John Cairns, a physics major and professional cartographer, who was taking my one-hundred level western civilization course at
Front Range Community College-Larimer Campus. His computer-generated maps of the Persian Empire, Hellenic Greece, and Imperial Rome knocked my socks off and he graciously agreed to assist Josh and me in this undertaking. Both of these gentlemen believed in my vision and this project years before a publisher was found. For that I will be forever
grateful.

We could not have completed the project without the collaboration and support from a few notable people. We would first and foremost like to thank Pen and Sword Books, especially our managing editor Rupert Harding and our copy-editor Merle Read. Without their generous support and guidance this endeavour
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hours of our time, and now they can see what it was all about.

Brian Todd Carey
Loveland, Colorado
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Introduction

Military equipment and tactical organization in pre-modern western civilization underwent fundamental changes between the rise of civilization in Mesopotamia in the late fourth millennium bce and the revival of Europe in the seventeenth century of the Common Era. During this
four and a half millennium span, the art of warfare reached a sophisticated level, with commanders fully realizing the tactical capabilities of shock and missile combat in large battlefield situations, situations where perhaps 150,000 men took the field at the same time along a narrow front. On a battlefield where the force-to-space ratio was
so high, the ability to orchestrate tens of thousands of infantry and cavalry became necessary for ultimate victory. Modern principles of war, such as the primacy of the offensive, mass and economy of force, were understood by ancient, classical, medieval and early modern generals, and applied on battlefields throughout the period under study.
Warfare in the Medieval World is the second volume of a two-volume study. It covers the development of warfare from the rise of Byzantium in the early medieval period through to the Thirty Years War (c.500–1648 ce), following volume 1, Warfare in the Ancient World, which surveyed the evolution of warfare on the battlefields of the Near East.
and Europe between the beginning of the Bronze Age and the fall of the Western Roman Empire (c.3000 BCE – c.500 CE). Through an exploration of fifty-four select battlefield engagements (thirty-three battles in volume two and twenty-one battles in volume one), it is this author’s intention to survey the changing tactical relationships between the four
weapon systems – heavy and light infantry, and heavy and light cavalry – focusing on how shock and missile combat evolved on the battlefields of the Near East and Europe.

Overview of *Warfare in the Medieval World*

In eastern Europe the torch of Roman imperialism was passed to Constantinople for
another thousand years. The Byzantine Empire (337–1453) enjoyed its greatest territorial expansion in the century after the fall of the Western Roman Empire. Emperor Justinian shored up the eastern frontiers and briefly won back Italy and parts of north Africa and Spain, but, after his death in 565, later emperors would lose these lands to the
expansion of Islam in the seventh century. Faced with a mounted and highly mobile foe, Byzantine emperors increased the percentage of cavalry to infantry in their armies, then fused heavy and light cavalry into one system by giving bows to some of their heavily armoured shock cavalry. In Byzantine warfare exclusive cavalry engagements often took place
(Dara, Tricameron, Manzikert) while combined arms also continued at a high level, with light infantry taking an important place beside cavalry in military operations, as seen at Taginae and Casilinum.

But centuries of defensive action against assaults from the Bulgars, Muslims and western Europeans took their toll, forcing the Byzantine
emperors to rely increasingly on mercenaries. By the eleventh century Byzantium faced a new and dangerous threat from the east, the Seljuk Turks, who fought from horseback as lancers and archers. The Byzantine loss at the battle of Manzikert in 1071 robbed the Eastern Roman Empire of its prime conscription lands and precipitated a call for help to
the west. In 1095 the First Crusade was born.

In western Europe the fall of the Western Roman Empire ushered in the early Middle Ages (c.500–c.1000), a time when victorious Germanic successor kingdoms converted to Catholicism and consolidated politically, with the Franks in Gaul emerging as the most powerful new kingdom in western Europe.
Frankish rulers faced new threats as Muslim raiders crossed the Pyrenees and pillaged France. One such Muslim expeditionary force was soundly defeated in 732 at Tours by Charles Martel, laying the foundations for the Carolingian dynasty that would produce Charlemagne, the first holy Roman emperor in the West.

But at Charlemagne’s death
in 814, Europe was besieged by a new wave of invasions that lasted over 200 years. Muslim, Magyar and Viking raiders and invaders struck the whole of Christian Europe. From their bases in north Africa, the Muslims attacked the southern coastline of Europe, while Magyar horsemen swept in from the east and settled in what is now Hungary, raiding
deep into central and western Europe until their defeat in 955 at the hands of the German king Otto I at Lechfeld. Of these new invasions, the Viking attacks were the most devastating and widespread. Masters of ship-to-ship battles such as the battle of Nisa, these fierce Scandinavian warriors rowed up the rivers and estuaries of Europe in their longships,
raiding and then invading territories as far west as Ireland and as far east as Russia, creating cultural and martial synthesis along the way.

In response to this ‘Second Age of Invasions’, western European monarchies developed an art of war unique in world history in its reliance on heavy cavalry as the dominant weapon system.
Needing the kind of strategic mobility only cavalry could provide, western European commanders initiated a gradual transformation in the composition of medieval armies. Consequently, heavy cavalry replaced infantry as the decisive arm. The mounted knight and lancer, with his stabilizing stirrup, expensive panoply and well-trained horse, gradually
became the centrepiece of a combined-arms army where all other weapon systems were subordinated to heavy cavalry.

The decentralization of political authority in western Europe also had a profound effect on the character of medieval warfare. Insufficient resources meant large-scale battles such as those seen in the classical period did not
take place, and when battle was joined, the participating armies rarely included more than a few thousand men. In these limited wars of attrition, battle was often avoided because the outcome was too unpredictable. Instead, medieval warfare revolved around the construction and control of castles and fortified towns or the destruction of the enemy’s economic
resources. In fact, during this ‘Age of Castles’, warfare consisted of perhaps 1 per cent battles and 99 per cent sieges.

The Normans mastered this strategy of combining castle building and pitched battles in campaigns in Italy and England. In Italy, Duke Robert Guiscard of Apulia and his successors carved out a Norman state in southern
Italy and Sicily, then set their sights on expanding, at the expense of Byzantium, in Albania. At Durazzo, Guiscard defeated an impressive Byzantine infantry host with his heavy cavalry supported by light infantry. In England in 1066, the Anglo-Saxon king Harold Godwinson successfully defeated the Norwegian king Harald Hardrada at Stamford
Bridge, but proved unable to master William, duke of Normandy, at Hastings. The duke used these same sophisticated combined-arms tactics to secure the throne as William I. William’s victory initiated an Anglo-Norman dynasty and hundreds of years of soured Anglo-French relations. His successors would add to his conquests, bringing Wales under English
hegemony and making war with Ireland and Scotland.

Through the high Middle Ages (c.1000–c.1300), heavy cavalry lancers ruled the battlefields of western Europe, giving rise to the ideals of chivalry and reinforcing the social position of the knightly class. Here, cavalry engagements, supported by infantry, became the norm, as
illustrated by the French victory over an English-sponsored imperialist army at the battle of Bouvines in 1214. But the tactical realities faced by the mounted aristocracy in the Near East and the British Isles showed the weaknesses of heavy cavalry. In the Holy Land, Latin knights faced a sophisticated Islamic combined-arms system and
learned first-hand at Dorylaeum, Hattin and Arsuf the dangers in confronting composite-bow-wielding infantry and horse archers in open terrain. Similar lessons were learned in the Reconquista in Spain at the battles of Sagrajas in 1086 and Las Navas de Tolosa in 1212.

As western European crusaders were learning new
tactical lessons in the Levant, eastern and central Europe was brutally attacked by the most successful wave of steppe warriors, the Mongols. Under the charismatic leadership of Genghis Khan, Mongol light and heavy cavalry swept out of Central Asia and conquered northern China and the Khwarizmian Empire in Transoxiana. After Genghis Khan’s death in
1227, his successors continued his conquests westward, pushing first into Russia, destroying the Kievan kingdom, and then into Poland and Hungary. The Mongols, who relied exclusively on cavalry, perfected shock and missile combat from horseback and vanquished numerically larger Christian armies at Liegnitz and Sajo River.
European heavy cavalry tactics, always confrontational, fell prey to the traditional steppe-warrior game of luring an attacker with a retreat. Islamic armies suffered similar fates. But the Mamluks in Egypt fought fire with fire, using their own heavy and light cavalry arms to finally blunt Mongol westward expansion at *Ain Jalut* in 1260.
In the late Middle Ages (c.1300–c.1500) the 300-year domination of the mounted knight was challenged by the return of a more balanced combined-arms tactical mix, one which featured light infantry archers and heavy infantry battle squares against heavy cavalry. The Anglo-Norman campaigns against the Welsh, and later against the Scottish, showed the
potential of light infantry archers against enemy infantry formations, and, more ominously, against heavy cavalry. King Edward I’s victory at *Falkirk* was similar to the earlier battles of Hastings and Durazzo, where heavy cavalry and archers worked together against dense heavy-infantry positions. But the unusual aspect of the battle of Falkirk
is in the steadfastness of the Scottish infantry formations, a harbinger of things to come. One example of heavy infantry’s ability to meet and defeat enemy heavy cavalry and light infantry attacks can be seen in the later campaigns of the Anglo-Scottish Wars, most notably the Scottish victory over the English at Bannockburn in 1314. Nineteen years later, the
roles were reversed. The victory of the English monarch Edward III against the Scots at *Halidon Hill* in 1333 introduced the English defensive tactical system to medieval warfare, a system that relied heavily on infantry. Later English monarchs would perfect this tactical system in the Hundred Years War (1337–1453) and help break the back
of the dominance of heavy cavalry. On the continent, two English kings, Edward III and Henry V, were victorious against the French during this war, utilizing light infantry archers and dismounted heavy cavalry in a defensive posture against the repeated charges of French lancers, with great success at Crécy in 1346 and Agincourt in 1415. Meanwhile, in the Swiss
Alps, farmer-militiamen were training with specially designed polearms to fight in close order against Habsburg and Burgundian heavy cavalry, winning a string of decisive victories in the fourteenth and fifteenth centuries at Morgarten, Laupen, Sempach, Murten, and Nancy. The success of the Swiss battle square brought first employment as
mercenaries in foreign armies, then emulation by enemies. By the close of the medieval period, heavy infantry battle squares and light infantry archers were common features in European armies. By the beginning of the early modern period (c.1500–c.1750), the four weapon systems were operating together again in a new combined-arms
synthesis.

The addition of well-articulated heavy infantry, based on the Swiss model, to the armies of France, Germany and Italy in the sixteenth century marks the return of a balanced combined-arms tactical system to western Europe. But the integration of this superior heavy infantry into European doctrine coincided
with the introduction of reliable hand-held gunpowder technologies. The sixteenth century witnessed the gradual replacement of longbows and crossbows with the muzzle-loading arquebus and musket. Although archers gave way to musketeers, pikemen persisted as a tactical entity until the invention of the ring bayonet in the eighteenth century fused heavy and light
infantry together, eliminating the need for the defensive characteristics of the pike.

The interest in all things classical that was the hallmark of the Italian and northern European Renaissance spilled over to warfare as a renaissance in tactical doctrine took place. Commanders in the early modern period reread the classical texts and recognized
the value of a balanced combined-arms tactical system, one that incorporated the new technology of gunpowder within a well-disciplined and professional rank and file. In the sixteenth century’s Italian Wars (1494–1559), France fought against the imperialist powers of Spain and the Holy Roman Empire for mastery of the Italian peninsula, and in the
process, all parties experimented with the ratio of musketeers and arquebusiers to pikemen. This experimentation led to an imperialist victory at the battle of *Pavia* against the French in 1525 and the gradual adoption of the Spanish *tercio*, which combined shock and missile units in the same formation. Tactically, *Pavia* showed the
prowess of heavy infantry pikemen and light infantry arquebusiers working together in the open field against enemy cavalry and battle squares. In this engagement, artillery played little part. So one-sided was the battle of Pavia that the decisive engagement all but disappeared from European warfare for more than 100 years.
Wanting to maximize ‘shot over shock’, Prince Maurice of Nassau in the late sixteenth and Swedish king Gustavus Adolphus in the early seventeenth century explored the Roman art of war and experimented with linear formations, winning victories against the imperialists in the Thirty Years War (1618–1648) at Breitenfeld and Lützen. Consequently, new
model armies emerged with the position of light infantry gunners ascending as the proportion of light infantry rose at the expense of heavy infantry, anticipating the role of firearms in modern warfare. With the addition of gunners to the tactical mix, a new age of warfare was dawning, one that drew on the contributions of the forty-eight centuries of western
warfare under survey in these volumes.

Relevance of the Combined-Arms Tactical System

The history of combined-arms tactical systems in the western world witnessed a watershed event in the fourth century bce. Warfare before the conquest of Persia by King Alexander III of
Macedon was characterized by the limited use of combined-arms forces. Bronze Age armies in Mesopotamia and Egypt and the early Iron Age empires of Assyria and Persia did utilize limited co-operation between farmer-militia infantry forces and their chariot-borne aristocratic masters. But for the most part, Near Eastern infantry levies were not
trained to fully participate in effective offensive action against enemy chariots, and later, against cavalry. Their role remained primarily defensive on the battlefield.

Across the Aegean in Greece, the invention of the heavy infantry battle square in the seventh century BCE witnessed for the first time citizen-militia trained to fight collectively in an offensive
manner. The Persian Wars between Persia and the Greek *poleis* exposed the light infantry and light cavalry of Asia to the heavy infantry of Europe, creating a new combined-arms synthesis. The conquest of the Greek city-states by Philip II of Macedon in the fourth century BCE fused the conqueror’s strong tradition of heavy cavalry with the
Greek world’s new tradition of limited combined-arms co-operation. The Macedonian king Alexander the Great’s victories at Granicus River (334 bce), Issus (333 bce) and Gaugamela (331 bce) represent a high point in pre-modern western warfare with the Macedonians fielding heavy and light infantry and heavy and light cavalry in a fully integrated and balanced
combined-arms army.

Tactically, utilizing a combined-arms system meant bringing to the battlefield the capabilities of both shock and missile combat. In the periods under study, this meant the ability to kill in close proximity in hand-to-hand engagements using hand-held weapons (shock) or at a distance using slings, javelins, spears, bows and,
later, handguns (missile). Modern military historians describe tactical systems with shock capabilities as heavy, while tactical systems that utilize missiles are described as light. Heavy weapon systems, both infantry and cavalry, are considered heavy because of their protective factor. Because they wore more armour, heavy infantry and heavy cavalry were better
able to perform their shock role as well as being better protected against lance and arrow, even though this added protection sacrificed tactical mobility. Heavy weapon systems relied on collective effort to be effective, and collective effort required discipline and training. The degree of discipline and training determined the offensive capability or
articulation of the units in combat.

Articulated tactical formations such as the Greek and Macedonian phalanx were capable of some offensive tactical mobility, keeping close order during an offensive march and then striking in a frontal attack. But the classical phalanx was not capable of attacking in all directions, nor could it protect
its own flank and rear. Well-articulated tactical formations such as the Roman legion, medieval heavy cavalry battle and Swiss battle square were capable of great tactical flexibility and responsiveness, wheeling and attacking or defending in many directions. Less articulated or unarticulated formations such as the Persian sparabara, Germanic
hundred or Scottish schiltron, because of their lack of drill and discipline, performed poorly in offensive shock action, preferring to remain on the defensive in static formations. Hand-to-hand shock combat rarely lasted very long because of the enormous physical and emotional strain on combatants. Most engagements lasted only a
few minutes, with total exhaustion setting in after only fifteen or twenty minutes of uninterrupted combat. If a battle lasted an afternoon or longer, then multiple engagements took place, compounding the emotional and physical strain of the event on the combatants.

Light infantry and light cavalry weapon systems
relied on a missile weapon system that dealt out death at a distance. These lighter units were less armoured than their heavier counterparts, and consequently had greater tactical mobility. Archers and javelineers, whether mounted or not, did not have to fight in close order to be effective: instead they usually fought in open formation where they could best use their mobility.
Because of this tactical mobility, light units were often used by ancient, classical, medieval and early modern commanders in guerrilla roles and as physical probes (skirmishers) against their less mobile but better protected heavy counterparts. But this mobility did little to protect them when shock combat ensued. Unable to withstand hand-to-hand
combat with enemy infantry and mounted shock troops, these light units often retired through the ranks of their heavier companions to act as flank and rear protection during the engagement.

Each weapon system had strengths and weaknesses as illustrated in the diagram explaining the tactical capabilities of the four weapon systems in ancient
and medieval warfare. With some or all of the weapon systems present and co-operating in a combined-arms synthesis, a general of the calibre of Alexander the Great, Hannibal Barca, William the Bastard, Batu Khan or Gustavus Adolphus proved irresistible on the battlefield.

Still, it should be remembered that the mere
presence of a combined-arms army under the command of a general who had showed brilliance on the battlefield in the past did not guarantee victory. History is replete with examples of outstanding commanders who fell victim to what the Prussian military theorist Carl von Clausewitz called ‘friction’ in his seminal work *On War*, published in 1832. Although Clausewitz
was a student of Napoleon and his campaigns, his appraisal of what has been called the ‘fog of war’ holds true in any era. Friction refers to the accidents, uncertainties, errors, technical difficulties or unknown factors on the battlefield, and to their effect on decisions, morale and actions in warfare. To Clausewitz, ‘Action in war is like movement in a resistant
element. Just as the simplest and most natural of movements, walking, cannot easily be performed in water, so in war it is difficult from normal efforts to achieve even moderate results.’ Friction, Clausewitz tells us, ‘is the force that makes the apparently easy so difficult’.
Figure 1. The Four Weapon Systems.
(a) Ancient Weapon Systems. An illustration of general rules of dominance in conflicts between different ancient weapon systems: (1) heavy infantry is generally dominant when defending against heavy cavalry; (2) heavy cavalry is generally dominant when attacking light infantry or light cavalry; (3) light infantry is generally dominant when defending against light cavalry; and (4) light cavalry is generally
dominant when attacking heavy infantry. Dominance between heavy and light infantry varies according to the period and unit type involved in the action. Based on Archer Jones, *The Art of War in the Western World* (Urbana and Chicago: University of Illinois Press, 1987), schematic 1.2.

(b) Medieval Weapon Systems. An illustration of general rules of dominance in conflicts between different medieval weapon systems:

1. heavy infantry is generally dominant when defending against heavy cavalry;
2. heavy cavalry is generally dominant when attacking light infantry;
3. light infantry is
generally dominant when defending against light cavalry or attacking heavy infantry; and (4) light cavalry is generally dominant when attacking heavy infantry or heavy cavalry. Based on Archer Jones, The Art of War in the Western World (Urbana and Chicago: University of Illinois Press, 1987), schematic 2.1.

The great commanders who fought, won and sometimes lost the battles that shaped the history of western civilization understood the repercussions
of friction when making war. They understood that the best strategies, bravest soldiers, most modern equipment and ingenious tactics did not always carry the day. Ancient, classical, medieval and early modern commanders recognized that each engagement carried the possibility of victory, with all its spoils, or defeat and possible death, enslavement.
or the extermination of their soldiers and families, and loss of homeland. Warfare, to these men and their cultures, was more than, in the famous statement by Clausewitz, ‘the continuation of politics by other means’. Warfare in the pre-modern world was instead, in the words of the British military historian John Keegan, ‘an expression of culture, often a determinant
of cultural forms, and in some societies, the culture itself'. And in the period under study here, a period without the Geneva Conventions and formal rules of war, the distinction between how ‘civilized’ and ‘barbarian’ peoples fought was often blurred, with all sides routinely killing or maiming combatants and non-combatants alike, and
enslaving or ethnically cleansing entire populations.

This monograph is by no means comprehensive. It is the second part of a two-volume introduction to the development of the art of war during western civilization’s ancient, classical, medieval and early modern periods. By pulling together both primary and secondary sources, it is my hope that this synthetic
work will help my undergraduate students at the American Military University and armchair military historians alike better appreciate the sophisticated nature of pre-modern warfare and the importance of organized violence in shaping western civilization’s history and culture. The story continues with the rise of Byzantium in the early
medieval period.
CHAPTER 1

THE EARLY MIDDLE AGES: THE RISE OF CAVALRY IN EASTERN EUROPE: BYZANTIUM AT
War

Rome’s Second Millennium: The Early Byzantine Army

Although the Western Roman Empire officially ended with the deposition of Romulus Augustulus in 476, the Eastern Roman or Byzantine
Empire (337–1453) lasted a millennium longer. The Byzantines, who called themselves *Rhomaioi* (Greek for ‘Romans’), continued to be associated with the achievements of the Roman Empire, even though their capital was Constantinople and their court language was Greek. During this millennium, the Eastern Roman Empire faced
numerous challenges from barbarian invasion and Islamic expansion, yet the Byzantine Empire was almost always ready to fight, and often for its very existence. The long Byzantine survival was due in part to the remarkable performance of a balanced combined-arms army.

The composition of the Byzantine army differed from
that of its Roman predecessor in that cavalry, rather than infantry, would take a dominant position. This switch in emphasis probably arose as a result of prolonged martial contacts with the Near East. The most formidable threat to the eastern part of the Byzantine Empire came from the successors of the Parthians, the Sassanid Persians, who fought, like
their forerunners, almost exclusively with light and heavy cavalry. The fate of the triumvir Marcus Licinius Crassus (c.112–53 bce) at Carrhae in 53 bce dramatically demonstrated the inadequacy of the Roman infantry-based tactical system for dealing with Parthian cavalry on its own terrain. For this reason, some Byzantine heavy cavalry,
called *clibanarii* or *cataphracts*, carried bows. Introduced in the second century by the Roman emperor Trajan (r. 98–117) and widely used in the east in the last years of the Roman Empire, the cataphract functioned as a heavily armoured lancer or as a mounted archer, fusing heavy and light cavalry into one weapon system. With the
adoption of the stirrup some time in the late sixth century, the cataphract became for the first time a true lancer because he could now use the synergy of the horse and rider and aim through his target, instead of jabbing down or loosening his spear with every pass as classical heavy cavalry had done for centuries.

Second to cavalry in
importance in Byzantine warfare was light infantry. Byzantine light infantry wore very little body armour and carried a composite bow with a quiver of forty arrows, a small shield and an axe for close combat. Infantry not skilled with the bow carried javelins. Warfare against mounted archers in the east illustrated the effectiveness of these foot bowmen over
enemy horse archers because light infantry fired bows with a greater range from a more stable platform, the ground.

Byzantine light infantry were supported in the field by heavy infantry modelled after classical infantry. Byzantine heavy infantry wore mail or lamellar armour and helmets, and carried a large round shield. Equipped with a long spear and sword, Byzantine
heavy infantry normally massed in phalanxes four, eight or sixteen ranks deep on the battlefield. Byzantine heavy infantry generally formed up as a second line behind the cavalry, relying on the cataphracts to break up the enemy formation before following up, or in the centre with cavalry on the wings.

By the early sixth century the Byzantine army’s combat
readiness had decayed significantly. The *palatini*, *comitatenses* and *limitanei* were replaced by a new army organization comprising three categories of troops, the *numeri*, *foederati* and *bucellarii*. The *numeri* were the regular troops of the empire, consisting of both infantry and cavalry units, though their combat capabilities had severely
eroded in the previous two centuries. The *foederati* were now a purely mercenary force made up of barbarian units, most notably the Huns. The *buccellarii* were armed retainers of Byzantine nobles who took an additional oath of fealty to the Byzantine emperor.

**Cavalry versus Cavalry: The Battles**
of Dara and Tricameron

The height of Byzantine power and territorial expansion took place only a century after the fall of the Western Roman Empire during the reign of Justinian (r. 527–565). Justinian ordered Byzantine armies to beat off Persian attacks on the eastern frontiers of the empire.
while also regaining parts of Italy from the Ostrogoths and north Africa from the Vandals, briefly restoring a Greco-Roman empire in the Mediterranean basin (Map 1.1). Trained as a soldier, Justinian never took command in the field once he assumed the throne; instead he relied on the battlefield genius of his generals Belisarius and Narses to fulfil
his territorial aspirations.

Born in Thrace around 505, Belisarius apparently joined the Byzantine army as a youth and rose quickly through the ranks of the royal bodyguard, becoming a tall and charismatic officer. His first command came in 529 against the Sassanid Persians in Mesopotamia. Justinian had recently created a new field army of Armenia to
assist the Army of the East in his war with Persia. The emperor placed the 24-year-old Belisarius in command of the Army of the East and charged him with concluding the war with the Persian king, Kavadh. A flashpoint on the frontiers was the strongly fortified border Byzantine town of Dara. In 530 Belisarius led his army of 25,000 men to Dara to keep it
from being besieged by a massive Persian host of 40,000 warriors. Dara had been reinforced by Justinian’s predecessor the emperor Anastasius (r. 491–518), and was the lynchpin of the Mesopotamian defences.
Map 1. The Conquests of Justinian.

When Belisarius arrived, he arrayed most of his heavy infantry behind a bridged trench just outside the walls
of the city, with a screen of light infantry staff-slingers and archers supported by Hunnic horse in front of the earthworks. He then divided his Greek and allied heavy cavalry equally and placed them on the wings, ordering half of the horses to be barded and the other half not. Belisarius probably had the forward cavalry mounts armoured so that they could
receive the enemy’s attack, and kept the rear horses unencumbered so that they might pursue the enemy more easily if given the chance. The right wing was commanded by Count John of Armenia, a man of considerable talent whose resolve would be instrumental in many of the young general’s victories. Finally, Belisarius held his
bodyguard, a reserve of clibanarii, behind the infantry and kept a hidden contingent of Hunnic horse behind a nearby hill, ready to charge the Persian right wing once it engaged the Byzantine left wing.

The attacking Persian host was quite impressive. Personally led by King Kavadh, it was a combined-arms force in the tradition of
great classical Mesopotamian armies of the past, complete with a reincarnation of the ‘Immortals’, an elite band of Persian heavy cavalry, and war elephants in the rear. The Persian army was arrayed in two dense lines, with the elite Persian cavalry placed on the wings of each line, backed by their own *clibanarii* and supported by detachments of Persian and Arabian light
horse. The forward Persian centre consisted of light infantry slingers, javelineers and archers, while behind them marched the conscript heavy infantry. Seeing Belisarius’ strong defensive position behind the trench, Kavadh decided to open the battle with a cavalry attack, ordering both of his wings forward against the Byzantine horse (Map 1.2(a)).
The king’s Immortal cavalry, backed by Persian and Arab horse, made progress on the Persian right, crossing the defenders’ ditch and pressing the Byzantine heavy horse backwards. But a co-ordinated counter-attack by 600 Hunnic cavalry from the left centre and the sudden appearance of the reserve barbarian horse from beyond the hill changed the tactical
situation (Map 1.2(b)). Struck in the flank and rear by the once hidden Hunnic cavalry, the Immortals and their allies fell back in disarray. At the same time, the Immortal-led cavalry at first enjoyed similar success on the other flank, pushing the Byzantine heavy cavalry on the right wing back against the city gates before Count John could rally the defenders. It
seemed as though the Persians were about to enjoy a double envelopment when Belisarius, noticing the Persian left was now detached from its centre, ordered 1,200 Huns to wheel and strike the flank of the victorious Persian left wing. Belisarius seized the moment and launched his elite cavalry reserve against the beleaguered Persian left wing.
attacked on three sides, broke and ran for their lives, swept from the battlefield by John and his reinvigorated cavalry (Map 1.2(c)).

Belisarius quickly recognized his fortunes had changed. The remaining Persian army in front of him was without a left wing to protect the mass of infantry in the centre. The Byzantine general ordered his mounted
bodyguard and the Hunnic horse to attack the enemy’s unprotected left flank, shattering the infantry formation with repeated heavy cavalry charges and clibanarii and light cavalry missile fire (Map 1.2(d)). After a brief pursuit, Belisarius rallied his men. Persian casualties were high, with some 8,000 men dead on the battlefield. King Kavadh
escaped the battle. Through adroit use of the defensive, Belisarius waited for his enemy to attempt a double envelopment, then defeated one flank, routed the other, and then scattered the centre. The battle of Dara illustrated the dominance of the cavalry arm in Byzantine tactics. Byzantine infantry, though present, played only a supporting role. Belisarius
won by neutralizing his opponents’ superiority in infantry by placing his own footmen behind a formidable entrenchment, thereby taking both forces’ infantry out of the fight. After that, well-timed attacks by Byzantine cavalry carried the day. The emperor was pleased with his young general’s victory, giving Belisarius the title of Master of Soldiers for the
Map 1.2. The Battle of Dara, 530.

(a) Phase I: King Kavadgh opens the battle, launching his cavalry against the enemy horse stationed on the Byzantine wings (1). The Persians make headway on their left, pressing back Count John’s Byzantine cavalry.
(2). (b) Phase II: The Byzantines’ Hun cavalry from both the left centre and the concealed reserve counter-attack the Persians’ right wing (1), driving the Immortals and the allied cavalry back (2). On the opposite flank, Belisarius realizes that the Persian horse are without support from their main body, and orders cavalry from the right centre and the elite reserve into action, supporting Count John’s beleaguered horsemen (3). The Persian horsemen break and flee (4).

(c) Phase III: Belisarius orders his right-flank cavalry to wheel against the Persian main body’s left flank (1), adding the weight of his elite
bodyguard and remaining cavalry reserve to the effort (2). (d) Phase IV: Repeated charges by Byzantine clibanarii, accompanied by light cavalry missile fire (1) shatters the Persian main body, which breaks and flees in disarray (2). Belisarius rallies his force after a brief pursuit. King Kavadh eludes his would-be captors (3), leaving some 8,000 dead on the field.

After Dara the Persians suffered several more defeats, and in 532 Kavadh’s successor agreed to a peace
with Byzantium with no time limit, the poorly named ‘Perpetual Peace’. By the unusual terms of this agreement Justinian was to pay the Persians 11,000 pounds of gold toward the upkeep of the Caucasian defences, and in return Byzantium could keep the fortress at Dara, but not as its headquarters in Mesopotamia. Both sides would return
strategic strongholds captured in the decades-old war. Finally, Persia swore eternal friendship and alliance with the Byzantine Empire. The treaty would last less than a decade.

In 532, the same year the ‘Perpetual Peace’ was signed, Justinian sent Belisarius and a small expedition made up mostly of soldiers from the Army of the East to conquer
the Germanic kingdom of the Vandals, located in what is now modern Tunisia. The reason for the invasion was a revolution in Carthage. The Vandal king Hilderic was dethroned by Gelimer, the great-grandson of Gaiseric, the Vandal chief who so thoroughly sacked Rome in 455 that the name of his tribe has rung down the centuries as a name for destroyers of
public property. Hilderic was a vassal of Justinian, and his appeal for aid from the Byzantine emperor became the pretext to launch an expedition to bring north Africa under direct Greek rule.

Sailing from Constantinople to a forward base in Sicily, Belisarius transported his expeditionary force on 500 ships manned by 20,000
sailors and escorted by 92 warships. In Sicily he waited for an intelligence report on the whereabouts of the Vandal fleet, learning that it was in Sardinia putting down a rebellion instigated by Justinian. With the formidable Vandal navy occupied, Belisarius set sail for north Africa in early September 533, landing his army of 10,000 infantry and
5,000 cavalry south of Caputvada (modern Ras Kapudia in Tunisia), 130 miles south of Cape Bon. After disembarking his army, Belisarius built a fortified camp and then sent heralds into the countryside explaining that the Greek expeditionary force was not there to punish the population, but bring the pretender Gelimer to justice.
This must have worked, for Belisarius proceeded unmolested northward up the coast toward the ancient city of Carthage. He sent an advance guard of 300 horse commanded by Count John to screen his march. Six hundred Hunnic foederati cavalry covered the main army’s left flank, while the fleet shadowed on the right. On 13 September, John’s van
reached the defile of Ad Decimum (the tenth milestone from Carthage).

When word of the Greek vanguard’s advance on Carthage reached Gelimer, he put Hilderic and his relatives to the sword, and prepared to attack the invaders. Gelimer’s strategy was a risky one, relying on the principles of manoeuvre and concentration. He instructed his brother
Ammatus, the commander in Carthage, to sally forth and engage the Byzantine van, while he took the majority of the Vandal host and attacked the rear of Belisarius’ main force. The third element of Gelimer’s strategy was a simultaneous attack by his nephew Gibamund, who would move over the hills from the west and attack the invaders’ left flank. But
success would require a careful co-ordination of not two but three columns, a difficult feat for any army in any age.

What took place next was a product of unfortunate timing. On 13 September, Ammatus left Carthage and struck the Byzantine van before Gelimer and Gibamund were in position. Ammatus was mortally
wounded and his forces panicked and fled. Gibamund struck next and was routed by the Hunnic flank guard. The third Vandal column, confused by the trek through hilly terrain, missed the rear of the Byzantine main army altogether and instead struck the front of the Byzantine host, now unprotected by the absence of Count John and his vanguard, which was now
making its way to sack Carthage. Gelimer’s sudden attack pushed the Byzantines back, and it looked as through the tide had turned in the favour of the Vandals when Gelimer discovered his brother’s dead body on the battlefield. Stopping his pursuit to bury Ammatus, Gelimer lost the momentum in the battle. Belisarius regrouped and counter-
attacked, driving the Vandals from the battlefield.

Belisarius entered Carthage on 15 September and began to reconstruct its defences for his own use. Gelimer retreated west 100 miles and recalled his brother Tzazon from Sardinia, where he was putting down the rebellion. Once reinforced, Gelimer marched on Carthage, stopping 18 miles short of his
target at the village of Tricameron. Gathering intelligence on his enemy, Gelimer realized that there were strains between Belisarius and his Hunnic allies. Vandal spies offered the Huns great rewards if they would turn against the Byzantines during the next engagement. But unknown to Gelimer, Belisarius learned of this intrigue and offered the
Huns a larger bribe if they stayed true. The Huns accepted Belisarius’ offer, though the general realized that the loyalty of his foederati was now in question.

Uncertain when his coalition might fracture, Belisarius decided to bring the battle to the enemy. By this time he faced an enemy army of around 50,000 men
(mostly cavalry), or about three times the size of his invading force. In mid-December he sent nearly all of his cavalry (4,500 horse) under Count John toward Tricameron, following the next day with his infantry and a 500-horse reserve, camping some distance from Gelimer’s position. The next morning the Vandal commander led his army out of their
encampment and stumbled upon Count John and his cavalry preparing lunch (Map 1.3(a)). Instead of seizing the moment and attacking, Gelimer waited for the Byzantines to mount up. John deployed men in three divisions, taking command of the centre, then sent a messenger to the main Byzantine camp (Map 1.3(b)). Belisarius
immediately led his 500 cavalry to reinforce John, leaving the Byzantine infantry to catch up at a steady march. Meanwhile, Gelimer ordered his own cavalry to mirror the enemy, deploying his horsemen into three divisions and giving command of the centre to his brother Tzazon. Gelimer ordered his troops to forsake the bow for the sword, in
essence favouring shock over missile warfare in the upcoming fight.

The battle of Tricameron began after a lengthy pause when Count John and a small contingent of selected horsemen crossed a brook and charged the Vandal centre, only to be rebuffed (Map 1.3(c)). John attacked again with a slightly larger force and was beaten back a
second time. Perhaps thinking himself charmed, John attacked a third time, this time with all of his guards and spearmen yelling at the top of their voices (Map 1.3(d)). In the mêlée, Tzazon was killed. Arriving on the battlefield, Belisarius ordered the remaining two cavalry divisions to attack the rapidly collapsing centre, precipitating a general rout
(Map 1.3(e)). With the whole of the Vandal cavalry in disarray, the Huns joined in the pursuit, pressing the remaining Germanic horse back into their fortified camp (Map 1.3(f)). The battle was not very costly in lives. Byzantine losses were less than 50 dead, while the Vandals lost around 800 men.
Map 1.3. The Battle of Tricameron, 533. (a) Phase I: Gelimer’s Vandal cavalry advance from their fortified camp (1) and encounter a force of Byzantine horse under Count John dispersed while preparing their midday meal (2). Inexplicably, Gelimer allows Count John’s forces to form for battle unhindered. Count
John orders his troops to mount and sends a messenger to Belisarius in the main Byzantine camp requesting reinforcements (3).  

(b) Phase II: Count John deploys his outnumbered force into three divisions, a move mirrored by Gelimer, who orders his brother Tzazon to take command of the Vandal centre. Gelimer orders his troops to stow their bows and use their swords in preparation for the impending clash.  

(c) Phase III: Count John opens the battle by charging across the brook separating the two forces (1). The Vandals rebuff the attackers who retreat to their starting point (2). The Byzantines regroup and
prepare to launch another assault. Belisarius approaches the battlefield with a contingent of cavalry (3), having left the Byzantine infantry to follow as quickly as they can. (d)

Phase IV: Gathering additional reinforcements, Count John launches a third attack (1). Tzazon is killed in the mêlée (2) and the Vandal centre begins to give way (3).

(e) Phase V: Arriving at the scene of the action, Belisarius orders the two remaining divisions into the fray (1). The Vandal formation collapses from the centre and they flee to the relative safety of their fortified camp (2), closely pursued by the Hunnic cavalry
Belisarius orders a halt to the pursuit, not wishing to assault the Vandal position until the Byzantine infantry (4) arrives. (f) Phase VI: As the Byzantines begin to encircle the camp (1), Gelimer panics and abandons his position (2). The Vandal cavalry follow suit (3), and the Byzantines enter the camp and begin to plunder, losing any semblance of cohesion. Fortunately for Belisarius, the collapse of the Vandal forces protects his now disorganized army from counter-attack.
Knowing he could not storm the Vandal camp without his foot soldiers, Belisarius waited patiently for his infantry to arrive. Gelimer panicked as he watched the Greeks begin to surround his camp. Silently, he mounted his horse and slipped out of
the noose, escaping to the mountains in the west. Leaderless, the Vandals soon followed, abandoning their camp to the Byzantines. Belisarius’ troops entered the camp and, breaking ranks, began to plunder. In moments, Belisarius’ victorious army disintegrated into a mass of thieves, illustrating the weakness of a mostly mercenary force. Had
the Vandals managed a spirited counter-attack at this moment, there was little doubt in the mind of the Byzantine historian Procopius that the invaders would have suffered a defeat. It would take Count John another three months to hunt down and capture Gelimer.

Belisarius defeated the Vandals in two battles, sending back the Vandal king
Gelimer and his treasury to Constantinople, then adding the surviving Vandals as foederati to his new Army of Africa. In 535 Justinian ordered his brilliant young commander to invade Italy and attack the Ostrogothic king, Vitiges. Over the next five years Belisarius conquered the peninsula, capturing the Gothic capital at Ravenna and all of Italy
south of the Po valley. When Justinian recalled him to Constantinople in 540 to fight the Persians after the ‘Perpetual Peace’ failed, Belisarius left behind a new Army of Italy and brought with him the Ostrogothic king and treasury. But a devastating epidemic of bubonic plague hit the Byzantine Empire hard, and Justinian faced various
rebellions over the next ten years in north Africa, Italy and the east. In the meantime, Belisarius had fallen out of favour with the emperor, who dismissed him for plotting to seize the throne. It was 552 before the treasury had recovered enough to send a new army to reconquer Italy.

Byzantine Combined Arms in Action: The
Battles of Taginae and Casilinum

Justinian replaced Belisarius with his most trusted court advisor, the septuagenarian eunuch Narses, a man with less than two years of actual military service. Narses would attempt to wrestle Italy away from the Ostrogoths, once and for all. A generation before, under the rule of
Theodoric the Great (r. 493–526), the Ostrogoths had created a strong Germanic kingdom, one that subscribed to a heretical version of Christianity called Arianism. A year after Theodoric’s death, Justinian was raised to the Byzantine throne, succeeding his uncle Justin I (r. 518–527). For the next quarter of a century, he pursued his reconquest of the
Mediterranean, paying special attention to Italy. The Byzantine emperor was convinced that he was divinely ordained to bring the wayward region back into the fold of Orthodoxy while imposing Greek hegemony on the peninsula.

For twenty years the armies of Byzantium fought the Goths throughout Italy, burning towns and cities and
pillaging the countryside. But the composition of the Byzantine expeditionary force changed as time went on as mercenaries began to fill the ranks, replacing the *numeris* and *bucellarii*. By the summer of 552 Narses led an army of over 20,000 men, but only the core were Byzantine, the rest being barbarian *foederati* made up of Lombard, Hunnic, Armenian,
Persian and Arab mercenaries. Keeping a large treasury in reserve to pay his troops if the pillaging dried up, Narses moved his multinational army from Ravenna toward the forces of the new Ostrogothic king, Totila, in central Italy. Hearing that Totila was advancing toward him, Narses made camp near modern Scheggia on the crest
of a pass over the Apennines and waited.

Totila left Rome and marched to the village of Taginae (near modern Gubbio), only 13 miles from where Narses was camped. Because the Goths possessed such a small standing army, Totila was forced to pull his garrisons from nearby cities to swell his ranks, in the end creating a host somewhat
smaller than the invading army. At Taginae, Narses dispatched a Greek herald to Totila demanding his surrender. In response, the Ostrogothic king broke camp the next morning and advanced to within two bowshots (perhaps 300 yards) of the Byzantine army.

Both commanders desired battle, forming their armies across a narrow, level valley.
In typical Germanic fashion when cavalry was present in great numbers, Totila arrayed his horsemen some distance in front of his infantry, with the intent of relying on repeated cavalry charges to break the enemy lines (Gothic infantry rarely reached the front lines except to dispatch the enemy or assist in the pursuit). Narses arrayed his troops in a concave
formation, placing his 8,000 foederati as heavy infantry in battle squares, then dismounting some of his Byzantine horse to strengthen his phalanxes. He then put some 8,000 light infantry archers on his flanks (4,000 on each side), protected by pointed stakes or perhaps on a ridge inaccessible from below. On the left and right, behind the archers, he located
his 1,000 heavy cavalry cataphracts, armoured lancers also equipped with bows. His concave array created, in effect, a dangerous killing zone for any enemy trying to attack the Byzantine centre.

Anxious to protect his vulnerable left flank, Narses dispatched fifty archers to occupy a small, detached hill on the left side of his line, where they took up position
(Map 1.4(a)). When Totila tried to take the hill with a contingent of heavy cavalry, the fifty held their ground again and again, beating back the Gothic cavalry’s numerous charges with missile fire. With the hill secured, Narses dispatched another 1,000 horsemen to the extreme left of his left wing just beyond the contested hill. This cavalry
force would act as a reserve, and, according to Procopius in his *Gothic War*, ‘at the moment when the enemy infantry began action [the Byzantine cavalry would] get behind them immediately … and place them between two forces’.

As the morning wore on, Narses left the initiative to Totila, but the Gothic king refused to attack until the
arrival of 2,000 cavalry reinforcements (Map 1.4(b)). As he waited, he entertained the troops on both sides with his outstanding equestrian skills, parading between the lines in his golden armour. Once the reinforcements arrived, Totila changed into the armour of a private soldier and joined the ranks of the Gothic cavalry.

After eating a small lunch,
Totila finally ordered the cavalry to charge the Byzantine centre, ignoring the Greek archers on both sides. But the *foederati* heavy infantry, buttressed with dismounted heavy cavalry, held. The halted Gothic cavalry then received a rain of arrows from the 8,000 Byzantine archers on the flanks, horses and riders killed alike by the hundreds.
(Map 1.4(c)). To aggravate the situation, the attacking cavalry soon found themselves pressed between the Byzantine defenders and their own approaching infantry. As the *coup de grâce*, Narses ordered his heavy cavalry reserve from behind the hill to attack the flank of the approaching Gothic infantry, rolling up their line and driving them
from the field (Map 1.4(d)). Surrounded and facing certain annihilation, the Gothic cavalry fled the battlefield, cutting their way through their own infantry. King Totila was mortally wounded leaving the battlefield, and died in a peasant’s hut nearby. Some 6,000 Ostrogoths perished in the battle, and those that were captured were massacred.
The battle of Taginae illustrated the power of a combined-arms tactical system working in concert against attacking shock cavalry and infantry. Unable to penetrate the defending Byzantine phalanxes, the Gothic cavalry found itself at the mercy of the Greek archers. Moreover, the failure (or perhaps inability) of the Ostrogoths to attack and
scatter the Byzantine bowmen on the wings, either by cavalry charge or infantry attack, gave the Byzantines the ability to attack with missiles and wear down the Gothic cavalry. But the Ostrogoths’ mistake of leaving the light infantry archers unmolested was not unique in western military history. French heavy cavalry lancers would make the same
mistake 800 years later against English longbowmen at the battle of Crécy. Finally, Narses’ order to use his cavalry reserve to attack the Gothic infantry at a propitious time shows a sophisticated grasp of tactics and a keen understanding of the tactical tendencies of his enemy.

After the battle of Taginae, Narses pursued the remaining
Goths to Rome then farther south to Naples, killing their new king and continuing his campaign of extermination. Finally, a truce was called at Monte Lettere, and the few surviving Goths were allowed to leave Italy and settle in any other barbarian kingdom they wanted.

Having taken Italy from the Ostrogoths, Narses next faced a force of perhaps 15,000
Franks raiding from the north in 554. Blocking the Franks’ route of escape, Narses met the raiders at Casilinum near Capua in south central Italy with an army of 18,000 men. Here, as at Taginae two years before, Narses dismounted some of his own heavy cavalry to strengthen his heavy infantry, placing them in three lines. On his flanks he placed the majority of his
heavy cavalry cataphracts. The Frankish army faced by Narses was similar to Germanic armies faced by the Romans centuries earlier.

Map 1.4. The Battle of Taginae, 552. 
(a) Phase I: As Totila arrives on the
field and deploys his forces (1), Narses dispatches a small contingent of archers to a detached hill to support the Byzantine left flank (2). A contingent of Gothic cavalry attempts to seize the hill (3) but is rebuffed by the archers firing down from the heights (4). Narses dispatches a reserve force of cavalry to the threatened area (5) and stands fast. The initiative passes to Totila, but the Gothic commander decides to await the arrival of additional cavalry forces (6) before attempting a general assault. (b) Phase II: His reinforcements having arrived, Totila launches an attack against the
squares of Byzantine heavy infantry and dismounted cavalry in the centre (1). Unmolested by the Gothic horsemen, Narses’ archers begin to loose volleys of arrows into the enemy’s tightly packed ranks (2) as the Ostrogoth infantry approach the fight (3). (c) Phase III: The Byzantine archers continue to shower the killing zone with arrows (1). This unrelenting fire inflicts hundreds of casualties, and the situation grows worse as the Gothic infantry attempt to press ahead (2). Confronted by resolute Byzantine defenders to their front and crowded from behind by their own foot soldiers, the Ostrogoths’ mounted
element begin to rapidly lose cohesion (3). (d) Phase IV: Narses launches his cavalry reserve against the Ostrogoth infantry’s right flank (1), which begins to roll up as the foot soldiers panic and begin to flee (2). The Byzantine archery continues to exact a heavy toll on the Gothic horse, which stampede through their own infantry (3) as they join the rout. King Totila is mortally wounded in the final action, dying in a nearby hut.

From the early sixth century to the beginning of the eighth century, the Franks and
surrounding Germanic kingdoms fought similarly. Infantry was by far the most prevalent weapon system, with Germanic infantry fighting in unarticulated battle-square formations or columns. Most Frankish soldiers were armoured in leather or, at best, mail, and carried a round or oval shield. Although Germanic nobility would most certainly be
armed with either the single-edged *scramasax* or a double-edged long sword, the primary weapon of all Germanic infantry, including the Franks, was the spear. Medieval sources identify a unique Frankish spear called an *angon*, which was not only special in its design but also in its use in warfare. Agathias describes the weapon as a unique barb-headed spear of
moderate length that could be used ‘if necessary for throwing like a javelin, and also in hand-to-hand combat’.

Besides the spear, Frankish infantry also employed a francisc (sometimes francisca) or throwing axe which, according to Procopius, ‘at a given signal and at first encounter, was thrown at the enemy’. The Frankish infantry’s ability to
use the spear and axe for either missile or shock combat created a fusion of light and heavy infantry not unlike the fusion seen in the classical period with the Roman legionary. The difference here was in the nature of battlefield articulation. The Roman legionary was a professional soldier who fought in a linear formation capable of great
tactical flexibility, while the Franks in the early medieval period were a militia who continued to attack in unarticulated formations, with missile troops screening the battle square or firing overhead from the rear.

In the sixth century, the Franks did employ a small number of heavy cavalry lancers. The Gauls had a long tradition of fielding lancers,
with the Romans often employing Gallic heavy cavalry as auxiliaries. But these lancers, devoid of stabilizing stirrups, were not the masters of the medieval battlefield yet. Diffusion of the stirrup from central Asia to medieval France would not take place until the mid-eighth century, with widespread use by the Franks only in the ninth century.
Except for the use of the *francisc* from horseback, light cavalry was almost non-existent in early Germanic warfare. When horses were employed, it was usually for reconnaissance or as mounted infantry. The tradition of light cavalry in medieval western civilization comes almost exclusively from contact with nomads from the Eurasian steppes, with the Magyars
(Hungarians) perhaps the most famous example of Christianized light cavalry horse archers. Still, heavily forested western Europe proved less than ideal for light cavalry, a weapon system which requires a great deal of real estate and fodder to be successful. Also, mounted archery was a skill that took years in the saddle to perfect, a pastime more
suited to Turkish and Mongol steppe warriors than Germanic agriculturalists west of the Alps.

At Casilinum the Frankish raiders formed up their battle squares opposite the Byzantines, then charged the Greek centre (Map 1.5(a)). The ferocious attack of the Germanic warriors broke the first two lines of Byzantine infantry, despite the presence
of dismounted heavy cavalry. As the Franks engaged the third and final line, Narses ordered forward his cataphracts on the flanks (Map 1.5(b)). Threatened by this double flanking manoeuvre, the Franks halted their charge and formed into a defensive square against the heavily armoured Greek heavy infantry (Map 1.5(c)). But the cataphracts did not
charge the Frankish battle square; instead, they employed their bows to shower the Franks with arrows. Unwilling to break formation for fear of being run down by those cataphracts with lances and swords, the Frankish square slowly withdrew to the rear. In their retreat, the Frankish formation lost cohesion, and the Greek heavy cavalry
charged, completely outflanking and breaking up the square (Map 1.5(d)). A horrible carnage ensued. Agathias tells us that the Byzantines lost only eighty men. For the Franks, only five men survived.

The battles of Taginae and Casilinum demonstrated the versatility of the combined-arms Byzantine army. At Taginae, Narses used heavy
infantry to stop the Gothic cavalry, then used his preponderance of light infantry archers to wear down the Germanic horsemen. At Casilinum, Narses used his heavy infantry to resist Frankish heavy infantry, bringing his hybrid heavy cavalry to bear, first to shower the infantry square with arrows, then to scatter and run down enemy infantry
when the formation broke. The composition of the Byzantine army and its reliance on a fusion of heavy cavalry and light infantry as the predominant tactical system gave the Eastern Roman Empire the flexibility to meet the many different fighting styles of its enemies.

Narses’ victory at Casilinum was absolute, and Italy emerged out of two decades
of Byzantine occupation ruined by war, famine and plague. The largest cities, such as Milan, Rome and Naples, were nearly depopulated, and the countryside’s agricultural economy was devastated. Eastern Roman rule would only last another fourteen years before the final wave of Germanic invaders, the Lombards, occupied the
northern two-thirds of the peninsula, ending forever Justinian’s dream of Greek rule over Italy.

The Byzantine Army in Transition: Themes and Tagmata

Justinian’s reign was the high-water mark for the Byzantine Empire. After his death in 565, the Eastern Roman Empire faced crisis
after crisis. Constantly besieged by the Slavs and Bulgars in southern Europe, Persians in Mesopotamia, and from the mid-seventh century onward, Islam from Africa and the Levant, the Byzantine Empire found its military and fiscal resources relentlessly stretched. Still, despite defeats that deprived it of all its African and Asian possessions except Asia
Minor, the Byzantine Empire maintained itself for centuries as a formidable eastern Mediterranean power.

Map 1.5. The Battle of Casilinum, 554. (a) Phase I: Narses forms his infantry, reinforced by dismounted
heavy cavalrymen, into a three-rank formation flanked by mounted heavy cavalry. These cataphracts use the bow as their primary weapon rather than the usual lance or sword. The Franks form opposite in several unarticulated battle squares. They open the action by charging the Byzantine centre. (b) Phase II: The Franks’ ferocious attack successfully penetrates the first two ranks of Byzantine foot (1). As they engage the last line of infantry, Narses orders his cataphracts into action. The Byzantine horsemen press inward towards the enemy flanks (2). (c) Phase III: Fearing a charge by the Byzantine
horsemen, the Frankish infantry press together into a large defensive square (1). Instead of charging, however, the cataphracts open a punishing fire into the flanks and rear of the tightly pressed Frankish square (2). Unable to reply to this attack without loosening their formation and opening themselves to a Byzantine heavy cavalry charge, the Franks slowly attempt to withdraw from the tightening noose (3). (d) Phase IV: The unarticulated Frankish formation loses cohesion as it retreats (1), an effect probably heightened by the presence of the Byzantine cataphracts on their flanks. Narses orders the
cataphracts to exchange their bows for lances and swords, and the heavy cavalry charge into the flanks of the rapidly collapsing Frankish square (2). The ensuing slaughter results in the near annihilation of the Frankish force.

Unable to sustain a professional standing army, Emperor Constans II (r. 641–668) settled his mobile armies in specific districts called themes (from which the tactical unit thema gets its
The new organization of themes introduced regionalized army groups under the command of a senior general or strategos. The themes now acted as both regional frontier troops and as mobile field armies. Outside of military organization, the themes were also an important part of imperial social structure. The soldiers of a particular theme were the
legal holders of the land itself, a development that came in the form of imperial land grants within the particular region, similar to the land grants during the early Roman Empire. Although the soldiers did not work the fields or run farms on a full-time basis, their ownership brought about a personal stake in the defence of their respective theme. The
theme became more than a military district; it was an economic and social entity as well.

Beginning in the mid-seventh century, soldiers of the themes supported themselves from land grants within their districts because the state’s only remaining means of supporting its soldiers seems to have been giving them land, most
probably from imperial estates. For the most part, the themes acted as a defensive force, but later emperors would take an interest in regaining lost territory. Emperor Constantine V (r. 741–775) created several elite cavalry units called tagmata, first as a reaction to a rebellious theme in northwest Anatolia, then for offensive campaigns against
the Arabs and Bulgars.

The basic administrative and tactical unit of the Byzantine army from the seventh century was the bandum, consisting of about 400 soldiers commanded by a tribune, and later by a count. The banda were about equally divided into infantry and cavalry, with the dominant weapon system being heavy cavalry. Light
infantry archers and javelineers usually accompanied the heavy infantry, acting as skirmishers and missile support. Five to eight banda (2,000–3,200 cavalry and infantry) formed a turma, two or three turmae (4,000–9,600 soldiers) constituted a thema, and three or four themae together became a Byzantine field army, usually numbering
25,000 to 30,000 men. The entire Byzantine army was not very large, probably never exceeding 150,000 men in total. For all practical purposes, the *thema* replaced the legion as the premier strategic unit of manoeuvre in Byzantine warfare.

The Byzantine army differed from its Roman predecessor in one significant way – the level of
professionalism in its military. Although the soldiers of the thema became increasingly a defensive militia force, the core of the Byzantine army were professional soldiers organized in homogenized cavalry or infantry units called tagmata, equal to the size of the thema. These soldiers were the best-trained troops in the empire, serving
as Constantinople’s garrison and as the chief expeditionary force for the emperor. When the emperor went on campaign, the *tagmata* and local *thema* combined to create a field army.

For the next 300 years Byzantine field armies enforced a conservative, careful strategy of limited military aims, seizing land in the Balkans from the Bulgars,
and territories in Anatolia, Syria and Armenia from the Muslims. But by the turn of the millennium, the overall professionalism of the Byzantine army dropped precipitously, forcing emperors to rely increasingly on foreign mercenaries, especially Russo-Swedish soldiers called the Varangian Guard. The Byzantines were hiring small bodies of these
mercenaries for expeditions as early as 911, with the Varangian Guard itself instituted by Emperor Basil II in 988. The Varangians lacked military lands and proved very loyal to Byzantine emperors who paid them well. By the beginning of the eleventh century, emperors added to their payrolls Normans, Germans and Turks, serving under their
own officers in units with their own organization. As the *themes* declined in combat efficiency, these mercenaries began to replace the Byzantine army rather than merely complement it.

**Heavy Cavalry versus Light Cavalry: The Battle of Manzikert**
In the eleventh century, the Byzantine Empire faced a new crisis on its eastern frontiers with the emergence of a new and dangerous convert to Islam, the Seljuk Turks. The Seljuks, like the Parthians before them, relied on light cavalry horse archers as their primary weapon system. These Turks proved irresistible on the battlefield, conquering the Muslim states
in what had been the northwest corner of the Sassanid Persian Empire and continuing their traditions of raids into and warfare with the Eastern Roman Empire. This conflict between the Byzantine army and Seljuk invaders culminated in one of the most important battles in western civilization, the battle of Manzikert in 1071, the results of which would
forever weaken a great empire and become a *casus belli* for the crusades.

The Byzantines were very familiar with the tactics of steppe light cavalry. With very little or no body armour and carrying only a curved sabre and sometimes a javelin, the Turkish warrior relied on his short composite bow, a quiver of thirty to fifty arrows, and the mobility
provided by his horse. His short powerful bow was recurved in shape and constructed in three parts: a thin central stave of wood (often maple, cornus or mulberry) laminated with sinew on the back and horn on the belly. This composite construction gave the Turkish bow a powerful draw weight, while the short recurve design allowed the steppe warrior to
shoot the arrow quickly, in any direction and at great distance. Furthermore, his archery skill was assisted by his novel equipment and riding position. Central Asian warriors used a short stirrup or ‘forward seat’, putting the rider’s weight over the horse’s shoulder instead of square on its back. This riding stance was very comfortable over rough
terrain and facilitated archery from horseback. Seljuk warriors rode a hardy breed of steppe ponies. These mounts possessed a combination of excellent qualities, including strength, stamina and the ability to subsist on very little food.

Like the Parthians before them, the Seljuk Turks relied on hit-and-run attacks from horseback, striking from a
distance with their powerful bows, and seldom mixing with the enemy in hand-to-hand combat. The Turkish horse archers were adept at the tactic of hovering just within bowshot of their enemy, then taking flight when their enemy offered battle, twisting their torsos and firing arrows backward at their pursuers in what is now called the ‘Parthian shot’. If
the pursuers seemed vulnerable in any way, the fleeing Turks would suddenly counter-attack, swarming their enemy and killing both men and horses. One Byzantine commentator and chronicler of the First Crusade, Princess Anna Comnena (the daughter of Emperor Alexius I Comnenus), described her father’s respect for Seljuk
tactics:

He [Alexius Comnenus] knew from long experience that the Turkish battle-line differs from that of other peoples ... but their right and left wings and their center formed separate groups with the ranks cut off, as it were, from one another; whenever an attack was made on right or left, the center leapt into action
and all the rest of the army behind, in a whirlwind onslaught that threw into confusion the accepted tradition of battle. As for weapons they use in war, unlike the Kelts [Franks] they do not fight with lances, but completely surround the enemy and shoot him with arrows; they also defend themselves with arrows from a
distance. In hot pursuit the Turk makes prisoners by using his bow; in flight he overwhelms his pursuer with the same weapon and when he shoots, the arrow in its course strikes either rider or horse, fired with such a tremendous force that it passes clean through the body. So skilled are the Turkish archers. The Seljuks excelled in the
feigned retreat. Sometimes, their retreats lasted many days, designed both to wear down their enemies and draw them away from their bases and towards a larger body of steppe warriors. Once their enemy tired, the Turks would wheel and strike or spring the trap.

To cope with the mobility and firepower of steppe horse archers, Byzantine doctrine
prescribed always keeping light infantry bowmen near the cavalry, never fighting with uncovered flanks or rear, and never permitting an army to disperse. ‘They were like flies that could be beaten off, but not driven away.’ The Byzantines long understood the importance of effective combined-arms co-operation when dealing with enemy light cavalry. But the overall
decline of the Byzantine army also affected the quality of Byzantine generalship, leading to the military debacle in Armenia at the battle of Manzikert in 1071.

From the late 1050s, Seljuk nomadic parties were making raids deep into Byzantine Armenia. The Seljuk Turks, who took their name from a successful chieftain (Seljuk, sometimes Saljuk), separated
from a larger Turkish tribe known as the Oghuz in what is today modern Kazakhstan and struck south-westward into eastern Persia in the 1040s, converting to Sunni Islam along the way. By 1055 the Seljuks had taken the Abbasid capital at Baghdad, forcing the Muslim caliph to bestow upon the Seljuk sultan, Tughril-bey, the title of ‘king of the East and the
West’. The Seljuks now controlled Transoxiana and all of Persia, but continued to press westward where their presence alarmed both the Byzantine Empire, with interests in Armenia, and the powerful Muslim Fatimid dynasty (909–1171) centred in Egypt. The Fatimids, who practised the rival Shia form of Islam, possessed land in the Levant stretching from
the Nile delta to Syria. To complicate things for the invading Turks, the Fatimids and Byzantines maintained an uneasy truce, allowing the Greeks to deal with threats in Italy and the Balkans, while the Egyptians became rich controlling the lucrative trade coming into the eastern Mediterranean. This balance of power would change with the arrival of the Turks.
By the late 1060s Seljuk Turks were migrating into Anatolia proper. As they moved past the borders and into Byzantine territory, they forced their sultan, Alp Arslan (Turkish for ‘Lion’), to intervene in the region. This provoked a Byzantine military response. In early 1071 Alp Arslan (r. 1063–1072) set out to consolidate his frontier, attacking several
Byzantine towns and capturing the fortress of Manzikert along the way (Map 1.6). The sultan was very familiar with Byzantine tactics, having suffered defeat at the hands of the Eastern Romans three times, and was well aware of their capabilities.
Map 1.6. Approaches to Manzikert, 1071.

The new Byzantine
emperor, Romanus IV Diogenes (r. 1068–1071), inherited a difficult strategic position. In the west, the Normans threatened Byzantine possessions in Italy and the Balkans, while in the east, Turkish raiding into Byzantine Armenia and eastern Anatolia forced the emperor to organize punitive expeditions against the marauders. In both 1068 and
1069 Romanus campaigned against the Turks, surprising them at Sebastea (modern Sivas) and clearing them out of the western province of Cappadocia, before being forced to retreat after a defeat near Akhlat, close to Lake Van. In 1070 Romanus was forced to deal with Norman incursions in the west, leaving his nephew, Manuel Comnenus, in charge of his
forces in the east. But Manuel was taken prisoner by Alp Arslan’s own brother-in-law, Arisiaghi, who began to hatch a plot with his captive to overthrow the sultan. Manuel convinced Arisiaghi to go to Constantinople, where the duplicitous Turk agreed to an alliance. When Alp Arslan asked for the traitor’s extradition and was refused, the sultan prepared for war.
The Byzantine emperor welcomed the prospect of war. Believing the Turkish sultan to be in Persia in the summer of 1071, Romanus, an able general who had already tasted victory against the Turks earlier in his reign (twice against Arslan), assembled an army of perhaps 30,000 men at Erzerum, some 80 miles from Manzikert in Armenia, with
the intention of retaking the city and neighbouring Akhlat and using them as bases of operation for a campaign against Alp Arslan in Persia. Romanus used his infantry to reduce captured cities in the borderlands, while employing his cavalry to search for the sultan’s forces. Arslan learned of the Byzantine emperor’s advance on Armenia as the Turkish army
encamped at Aleppo in northern Syria. The sultan immediately turned his army around and headed for the Armenian frontier.

In mid-August 1071 an advance portion of the Seljuk Turkish army met the main Byzantine army and skirmished near Lake Van. The Byzantine emperor retook Manzikert from the Turks, and hearing that the
advance guard of Arslan’s army was in the area, dispatched an army of allied Cuman or Russian heavy cavalry to meet them. The Turkish commander, seeing that numbers were now on the side of the Byzantines, withdrew. Whether this withdrawal was a feigned flight will never be known for certain, but the pursuing Byzantines were caught in the
signature horse nomad ambush, a sudden counter-attack by light cavalry horse archers that captured the Byzantine commander and forced the remaining Byzantine army to retreat in disarray.

By the time Romanus’ main army arrived on 18 August, the Turkish advance army, in true Seljuk fashion, was nowhere to be found. The
main Byzantine army then returned to camp, where during the night the Seljuks, joined now by Alp Arslan’s main army, returned in force, setting up their own camp 3 miles away. Seeing that Romanus possessed the larger army, the following morning the sultan offered a peace embassy to the emperor, who bluntly rejected it. Romanus wanted to settle the Turkish
problem with a decisive military victory, understanding that raising another army to meet the Seljuk threat would be both difficult and expensive.

After the failed parley between the two rulers, Romanus advanced against the Seljuk Turks at midday on 19 August with his armoured and mounted army arrayed in a single line on a broad front,
backed by a strong rearguard (Map 1.7(a)). The front line consisted of heavy cavalry from the various themes, with Romanus himself commanding from the centre. The second line consisted of foreign mercenary cavalry from Germany, Normans from Italy, and troops from eastern frontiers. The second line was commanded by Andronicus Ducas, a relation
of Romanus’ predecessor, Constantine X Ducas (r. 1059–1067). The Byzantine army was without any significant light infantry because Romanus committed this arm to a siege elsewhere. The absence of archers to support his cavalry units violated the central canon of warfare against steppe light cavalry.
Map 1.7. The Battle of Manzikert, 1071. (a) Phase I: Romanus forms his army in two lines, the first under his personal control and the second under Andronicus Ducas (1). He orders his heavy cavalry force forward against the Seljuk horse archers to his front (2). (b) Phase II: The pursuit continues for several hours, sweeping
through and continuing beyond the abandoned Seljuk camp (1). Alp Arslan’s mounted bowmen easily keep the heavier Byzantine horsemen at a distance while continuously harassing Romanus’ flanks (2). (c) Phase III: His army tiring and nightfall approaching, Romanus orders his army to break off the pursuit and return to camp; however, the order is late in reaching the wings, which continue to advance, separating them from the rest of the army (1). When they finally receive the order and begin to pull back, their formations are loose and gaps are apparent in their lines (2). The Turks quickly seize
this opportunity and intensify their attacks (3). (d) Phase IV: Recognizing the precarious position of his wings, Romanus orders his army to face about and attack the enemy. The units under his immediate command obey (1), but the emperor is betrayed by Andronicus, who spreads a rumour that Romanus has been killed. The traitor leads the second line back to camp (2), abandoning his erstwhile comrades to their fate.

(e) Phase V: Alp Arslan takes advantage of the sudden departure of half of his opponent’s forces and the approach of nightfall to surround the Byzantines (1). The right wing falls
first, attempting to face two sides at once (2). The left wing, separated from Romanus and the units from the Byzantine centre, fights courageously, but finally breaks under the hail of arrows arcing out of the deepening gloom (3). (f) Phase VI: The Turks press closer, encircling the remnants of the Byzantine centre. Romanus, surrounded by his Varangian Guard, is overpowered and captured. The survivors fleeing the field are pursued through the night, and by dawn the professional core of the Byzantine army has been destroyed.
In the face of the Byzantine heavy cavalry advance, the Turkish centre retreated, easily keeping their distance on their lightly burdened mounts. On the wings, the Turks attacked the Byzantine flanks, showering the Greek cavalry with arrows.
Although Turkish missiles probably did not kill many of the armoured riders, the horses did suffer and many riders lost their mounts. Moreover, Byzantine cataphracts no longer possessed the skill of mounted archery present in earlier centuries, and proved no match for the more experienced Turkish light cavalry horse archers.
The Byzantine advance went on for several hours, overrunning the abandoned Seljuk camp (Map 1.7(b)). But as evening approached, Romanus commanded his tired army to turn around and return to camp. The Byzantine centre obeyed, but the wings did not receive the order in time, and when they did, failed to keep a tight formation. With breaks
appearing in the line, the Turkish horse archers pressed their attack (Map 1.7(c)). Romanus countered by ordering the first line to turn around again and threaten the harassing bowmen. But the second line, commanded by Ducas, refused to stop and face the enemy as ordered. After spreading a rumour that Romanus had been killed, Ducas led the second line
back to camp, abandoning the emperor and half the Byzantine army to its fate (Map 1.7(d)).

As darkness fell on the battlefield, the Seljuk Turks took full advantage of the reserve’s disappearance to surround those who remained. Enveloped by the Seljuk horse archers, Romanus’ right wing tried to face both ways, but
disintegrated under a hail of arrows. The left wing, now isolated from the centre, fought bravely, but finally broke (Map 1.7(e)). The Turks then concentrated on the centre. Here, Romanus, surrounded by his Varangian Guard, was finally overpowered and captured (Map 1.7(f)). The remaining Byzantine units fled the battlefield, followed by a
close and bloody pursuit that continued throughout the night. By dawn, the Turks had destroyed the flower of the Byzantine professional army.

Although the Byzantine defeat can be attributed in large part to the political infighting of the Byzantine nobility, one major factor was Romanus’ frantic attempt at engaging the Turks in a
pitched battle. The Turks continued to retreat and pull back in the face of the numerically superior Byzantines until they became spread out and unorganized. This thinning of the Byzantine formations allowed the Turks to successfully envelop Romanus’ army.

The battle of Manzikert demonstrated what the Byzantines had long known,
that heavy cavalry could not cope with light cavalry without light infantry support. Although light cavalry did not have a great margin of superiority in mobility, its modest advantage enabled it to refuse battle while still employing its bows against the slower heavy cavalry. Just as Greek light infantry peltasts avoided shock combat with heavy infantry
hoplites while wounding and killing them with missiles, so the Turkish horse archers had defeated Byzantine heavy cavalry. When Romanus offered battle against the Turks without light infantry support, he was ignoring 500 years of Byzantine doctrine, and sending his army to its destruction. The defeat at Manzikert marked the end of the traditional Byzantine
army, an army already in serious decline. With the destruction of Romanus’ first line came the destruction of the *tagmata* regiments and eastern *thema*es, forcing later emperors to rely even more on mercenaries to supplement their manpower needs.

The sultan later released Romanus for a healthy ransom to be paid over fifty years and a treaty ceding the
border region from Antioch in Syria to Manzikert. But the emperor’s enemies seized power in Constantinople in his absence. Romanus was captured and blinded in the ensuing civil war, his wounds mortal. The new Byzantine emperor, Constantine X’s son Michael VII, proved unable to stem the massive migration of Seljuk Turks into Anatolia – the traditional conscription
lands for the Byzantine army. Anatolia would be lost forever to the Greeks. The Eastern Roman Empire, now practically defenceless, feared for its very existence. Desperate times called for desperate measures, and in 1095 Emperor Alexius I Comnenus (r. 1081–1118) appealed to Urban II (pope 1088–1099) for western assistance. This appeal led
directly to the formation of the First Crusade in 1095.

In the wake of losing nearly half the Byzantine army at Manzikert, the Seljuk Turks seized much of Anatolia and the Levant, including the cities of Antioch, Damascus and Jerusalem. Alp Arslan was killed in 1072 while campaigning in Transoxiana. He was succeeded by his seventeen-year-old son
Malikshah, a capable leader who ruled for twenty years. Malikshah finished what his father had begun, pressing deeper into Anatolia, destroying cities and ethnically cleansing or enslaving hundreds of thousands of Byzantine citizens. Despite these advances, the Seljuk Empire was already in decline. After Malikshah’s death in 1092,
Seljuk nobles fought among themselves. It was this fragmentation that allowed the Roman Catholic crusaders to establish themselves in the Levant.

The Byzantine army, deprived of the territory from which it drew much of its manpower and horses for its cavalry, continued its decline. Though Byzantine appeals in the late eleventh century to
the west for military assistance helped initiate the crusades, even these allies turned against the Eastern Roman Empire’s long-term interests. In 1204 the Venetians, backed by a crusader army, conquered Constantinople, installing their own candidate on the throne. The result of the Fourth Crusade was the Latin kingdom of Constantinople
that stretched from Greece to Asia Minor. Even when Byzantine rule was re-established in 1261, the empire remained weak for another two centuries until the Ottoman Turks finally captured Constantinople in 1453, ending a thousand years of Byzantine civilization.
CHAPTER 2

THE EARLY MIDDLE AGES: INVASION AND RESPONSE: THE RISE OF HEAVY CAVALRY IN
Western Europe

The Rise of the Franks and the Battle of Tours

The fall of the Western Roman Empire in 476 created a power vacuum in western Europe into which two very different bodies were pulled – the Roman Catholic Church and various Germanic
kingdoms. The strongest of these new kingdoms, that of the Franks, occupied the territory that is today the Netherlands, Belgium and northern France. In 496 the Frankish king Clovis (r. 480–511) converted to Catholicism and his subsequent alliance with the papacy brought the Catholic Church’s organizational capabilities to the Germanic
kingdom. Sanctioned by the pope and allied with Catholic missionaries, Frankish kings and nobles spread Catholicism and civilization east of the Rhine and ushered in three centuries of Frankish cultural and political dominance in western European affairs.

By the middle of the seventh century the Frankish government was so
decentralized that wealthy and prominent men who had earlier received political appointments now viewed their positions as hereditary, creating in effect a self-perpetuating noble class. Serving the labour needs of these dukes, counts, barons and knights was an underclass of peasants. By the end of the seventh century, most peasant farmers lost
their land to the nobility and became serfs, with only about 10 per cent of Frankish farmers remaining free landholders.

Eventually, a succession of weak Frankish kings under the Merovingian dynasty (c.500–751) led to the practice of actual power being wielded by a royal official known as the major domus or mayor of the
palace. Through this office the next Frankish dynasty, the Carolingian, rose to power. One of the early mayors, Charles Martel (d. 741), earned his military reputation as an ardent campaigner, consolidating the power of his office and expanding Frankish hegemony in Austrasia and Neustria in what is now roughly northern France and north-west
Germany (Map 2.1). He was able to defeat a Neustrian army near Malmedy (716), and again near Cambrai (717). But the mayor faced a new challenge to his rule with the expansion of Islam into the Iberian peninsula.
Map 2.1 Merovingian and Carolingian France.
Islam exploded out of the Arabian peninsula in the decades after the death of Muhammad in 632. Within a generation, Muslim armies had destroyed the Sassanid Persian Empire and taken half of the Byzantine Empire’s possessions away. By 661 the new ruling dynasty in Damascus, the Umayyads, continued to push eastward towards the Indus River and
westward across north Africa, reaching Morocco in the early eighth century. During this time of unprecedented military success, Islamic law developed the concept of *Dar al-Islam* (the ‘House of Islam’) and *Dar al-Harb* (‘House of War’). In accordance with the Koran, Christians and Jews in occupied zones were placed under a protected status as
Dhimmis or ‘People of the Book’ because all three religions shared Hebraic origin. Their worshipping rights protected, Christian and Jews in Umayyad territories had only to pay an additional poll tax in return for military protection – theoretically they could not be raided or attacked in any way. Still, despite Islam’s cultural magnificence and
tolerant attitude toward Christian and Jewish subjects already within their territory, Muslim leaders continued to thirst for more conquests to fill their coffers, thereby expanding the *Dar al-Islam* to new regions. This expansion extended into south-western Europe with far-ranging consequences.

In 711 an Arab-led Muslim army crossed the Strait of
Gibraltar from north Africa and quickly conquered Visigothic Spain. This initial invasion force was an army of occupation, consisting of 12,000 Berber foot soldiers and only 300 cavalry.1

Within a year of this conquest, the Muslims began raiding north of the Pyrenees. These initial raids were relatively minor, but in 732 a large Muslim army led by the
dynamic and popular governor of Spain, Abd ar-Rahman, crossed the Pyrenees and invaded Aquitaine. After crushing the duke of Aquitaine’s army near the city of Bordeaux, the invading army advanced north along an old Roman road toward the city of Orleans in Burgundy.

The constitution of Islamic armies varied by region and
purpose. Abd ar-Rahman’s army was not an army of occupation, but rather a large expeditionary force of between 20,000 and 25,000 cavalry, supported by a small contingent of infantry. The high percentage of cavalry present indicates a raiding rather than occupying force, rebutting a popular belief that the Muslims were bent on including western Europe in
their empire. It consisted mostly of recently converted Berbers and other Moors, led by Arabs. Riding high on the tide of a century of military victory and territorial conquest, this Muslim army was driven by religious fervour that translated into a seemingly irresistible militarism. The pace of Islamic conquest forced the Arabs to include more junds
or regional armies in their ranks. These junds fought for booty more than ideology, swelling the ranks of Islamic armies in times of victory, and evaporating in times of trouble. The Muslim army that marched toward Frankish territory in 732 was a well-armed, disciplined and experienced army of plunderers.

Islamic cavalry in the eighth
century comprised both light and heavy units and was relatively lightly armoured and mobile. Heavy lancers balanced by stirrups were not yet common in north Africa so mounted shock combat consisted of charges with sword and light lance. And unlike classical heavy cavalry and their Byzantine counterparts, Muslim heavy cavalrymen were comfortable
dismounting and fighting on foot next to their infantry. Light cavalry were also present, using tribal weapons such as javelins and bows as their primary offensive arms. But the famous Islamic horse-archer using the powerful composite short-bow was mostly a product of Islamic conversions of Eurasian steppe nomads, most notably the Seljuk Turks, and was not
a decisive factor in this expedition north of the Pyrenees.

During battle Muslim horsemen usually arrayed in three formations (centre, and right and left wings) made up of dense masses of tribal contingents, then charged as a wild unarticulated mass, striking as heavy cavalry shock troops with their swords and light lances.
These mounted troops often attacked at dawn, while infantry attacks were launched during cover of darkness or from ambush during the warmest and coldest time of the year. Heavy infantry fought in units eight to eleven ranks deep, with light infantry archers on the flanks or in the front, shouting the Islamic battle cry ‘Allahu Akbar’
(‘God is great’) as they met the enemy. If the initial attack failed to break up enemy formations, the Muslim troops would retreat and re-form, then attack again in an unarticulated charge.

Word of the Muslim invasion reached Charles Martel while he was engaged in operations along the upper Danube River, forcing him back to Austrasia to evaluate
the situation. The duke of Aquitaine, who escaped the debacle at Bordeaux, urged the mayor to move south immediately to intercept the Muslims, but Charles, perhaps knowing something of the nature of Muslim armies, wanted to wait until they were over-encumbered with plunder. Islamic armies had a tendency to acquire large amounts of treasure,
slowing the pace of the raid. And Muslim commanders were reluctant to discourage looting because the majority of their troops fought solely for that purpose. As the laden Muslim army neared Poitiers, the Frankish mayor readied his army to meet it.

Charles Martel’s army included his loyal nobles, their retainers and servants, as well as Neustrian and
Australasian allies, those Aquitanians who had escaped north to fight, and a large number of infantry conscripts swelling the ranks to protect their homes. The total number varies from 30,000 to 80,000, but only 15,000 to 20,000 were actually mounted, and it was this mounted contingent that actually rode toward the Arab forces in early October 732. Most, if not all, of the
Frankish nobles and their retainers were mounted, which gave Charles the strategic mobility he required to move from Austrasia to the area near Tours in pursuit of the Muslim army.

The Frankish army that faced the Muslim horsemen at Tours was in the process of evolution. It was no longer the purely infantry force that met Narses at Casilinum in
554, nor was it a force that fought from horseback. Charles Martel’s army was primarily a force of mounted infantry who dismounted to fight. Once dismounted, these troops fought in the same dense, unarticulated fashion as they had centuries earlier, with men from the same estate or towns standing together and feudal vassals gathered around their lords.
Still, Martel did possess some heavy cavalry as shock troops, perhaps as many as a few thousand. The wealthier noble horsemen wore mail hauberks and helmets, and carried round convex shields and used their long swords as frequently as their lances for attack, while lesser vassals wore little or no protection, usually just a helmet, carrying a shield and employing a light
lance, long sword or scramasax. These less armoured heavy cavalry often used javelins as well, creating a fusion of heavy and light cavalry. Stirrups, if present at all, were certainly not a common feature on Frankish cavalry in the early eighth century. When widely used in the early ninth century, stirrups would revolutionize mounted shock combat and
lead to the dominance of heavy cavalry on European battlefields.

As Charles secretly moved his army to intercept the invaders, the Muslims halted temporarily by the fortified city of Poitiers. Leaving part of his army to invest the city, Abd ar-Rahman advanced to the Loire River, near Tours, plundering en route. The sack of Poitiers undoubtedly
provided the Arab commander’s army with a great deal of plunder, adding to the considerable amount of treasure acquired since the invasion began. But the Muslim army became disorganized while besieging Poitiers. Discipline was suffering because of the greed for spoil, and the army was totally oblivious to the approaching Franks. Abd ar-
Rahman was preparing to besiege Tours when his scouts suddenly discovered Charles Martel’s army marching toward the city. Rather than expose his plunder to danger, Abd ar-Rahman dispatched it south in a wagon train, then lifted the siege of Tours and withdrew slowly back to Poitiers. Martel pursued the retreating Muslim army,
almost certainly with his mounted contingent.

For six days the Muslims withdrew, fighting delaying actions and pressing for Poitiers. Using his superior mobility, Martel finally outmanoeuvred the Arab general by bringing his mounted army parallel to the Muslims’ escape route, forcing Abd ar-Rahman to offer battle. The Muslims
made camp between Tours and Poitiers, probably near Cenon on the Vienne River. The Franks encamped near the Muslims and prepared for the coming engagement.

As dawn broke, Charles Martel deployed his troops on some high ground, forming his dismounted infantry into a number of large unarticulated battle squares (Map 2.2(a)). Charles realized his mounted
warriors were no match for the skilled Muslim horsemen, and so he dismounted most of them to strengthen his battle squares. He did, however, maintain a small contingent of cavalry in order to counter the Muslims’ greater mobility and plug breaches in his infantry lines. The Frankish mayor harboured a realistic fear that his conscript infantry would break under the
ferocity of Muslim charges, so he placed his veteran heavy infantry in the very front ranks of the battle squares to better resist the Muslim mounted attacks. Martel’s battle squares were probably very similar to the defensive shield wall formations that the Anglo-Saxons used against Norman heavy cavalry charges 334 years later at the battle of
Hastings.

The Muslims opened the battle just after dawn with several cavalry charges (Map 2.2(b)). These attacks were subsequently repeated all along the lines, but their piecemeal nature made little impression on the Frankish shield walls. The Muslims enjoyed much more success using their horse archers against the lightly armoured
or unarmoured conscripts in the centre of Charles’s battle squares. Throughout the morning and afternoon, groups of Moors and Berbers threw themselves again and again at the Frankish lines, but the defenders’ shield walls held (Map 2.2(c)). Unable to co-ordinate a unified and cohesive charge against the Franks, Abd ar-Rahman lost many of his
horsemen in small unit charges. As evening approached, the exhausted Frankish veterans in the front ranks began to fail and the Muslims opened several breaches in the lines, cutting their way into the vulnerable centre of the Frankish army.

At the very moment when the battle seemed to be turning in favour of the Muslims, word spread among
those hacking their way into the Frankish centre that the Franks were looting their camp. Whether by accident or design, a contingent of Frankish horse rode around the Muslims’ left flank and rear and began attacking the raiders’ tents and wagons. More concerned with their war treasure than the battle at hand, the Muslim attack wavered, with some
horsemen breaking away from the fighting in order to rush back and protect their threatened base (Map 2.2(d)). Sensing a change of fortune, Charles ordered his troops onto the offensive. The force and suddenness of the Frankish counter-attack surprised Abd ar-Rahman and he was left exposed as he attempted to rally his retreating troops. Frankish
horsemen found the Arab general and killed him (Map 2.2(e)). News of Abd ar-Rahman’s death turned a frantic Muslim withdrawal into a general rout. As darkness fell, a furious Frankish counter-attack forced the Muslim army back into its camp.

The Franks returned to the protection of their own camp and spent an uneasy night on
constant alert to a Muslim nocturnal attack. But, to their great surprise, the Franks discovered the next morning that the Muslims had fled during the night, abandoning all their plunder. In all, perhaps 10,000 Arabs were killed at Tours. Most of the Muslim wounded were offered no quarter, given their previous record of murder and pillage in Christian
territories. Frankish casualties went unrecorded, but were probably moderate. Charles refused to pursue the fleeing Muslims, preferring instead to take the treasure for himself and his army.

Charles Martel’s victory over the Muslim invaders was a near-run thing. Still, the battle illustrated how competent a commander the Frankish mayor was. He
understood the strength and weaknesses of his own army, and those of his enemy. On word of the Muslim expedition, Martel quickly organized and dispatched an intercepting force, mounting it for greater strategic mobility. Once battle was offered, Martel showed his understanding of the weapon systems. Unwilling to meet the more experienced
Moorish and Berber cavalry on the field, he dismounted his own troops and placed his veterans in the forward ranks of the shield walls, giving his troops the ability to withstand a full day of Muslim cavalry charges. Most importantly, he seized the initiative when he saw the Muslim charge falter on word of a successful Frankish flank attack on the Muslim camp. This
decisiveness changed the momentum of the battle and carried the day.

Map 2.2. The Battle of Tours, 732. (a) Phase I: Finally forcing
Abd ar-Rahman’s Muslim army to offer battle after a six-day pursuit, Charles Martel’s Frankish army forms on high ground, his dismounted heavy infantry forming the fronts of several unarticulated battle squares. The Muslim army deploys into three similarly unarticulated wings composed of heavy and light cavalry as well as horse archers. The Muslim army closes the gap with the Franks deployed on the hillside (1). (b) Phase II: Abd ar-Rahman opens the action, charging the Franks across the breadth of their line (1), but the assault lacks co-ordination, being executed by small units of horsemen
rather than larger, more cohesive elements. The attacks continue through the day, and though the Frankish shield-walls stand firm, casualties among the unarmoured Frankish conscripts in the centre of the squares begin to mount as the Muslims’ horse archers make their presence felt (2). (c) Phase III: As nightfall approaches, the Muslim attacks begin to weaken the veteran Frankish heavy infantry (1). Gaps begin to appear in the line (2) through which Muslim cavalry make several breaches, penetrating into the centre of the Frankish battle squares. While the battle rages between Abd ar-
Rahman’s horsemen and Charles’s infantry squares, a portion of the Frankish cavalry reserve swings past the Muslim left and rear and strikes the treasure-laden tents and wagons of the Muslim baggage train (3). (d) Phase IV: As word that their plunder is in jeopardy begins to spread, Muslim cavalrymen turn away from the battle area and move to protect their threatened base (1). Recognizing his good fortune, Charles orders his army to counter-attack (2). (e) Phase V: The speed and ferocity of the Frankish counter-attack catches Abd ar-Rahman by surprise and the Muslim leader is caught and killed by
Frankish cavalry (1) while trying to rally his retreating army. News of his death turns withdrawal into rout, and the Islamic forces flee back to the remains of their camp (2). As night falls, Charles order his army into camp, planning to renew the attack in the morning, but daylight finds the Muslim forces gone, having abandoned their plunder and fled.

The Frankish victory at Tours was also a great strategic victory for Christian Europe, blunting a significant
raiding expedition into southern Gaul. However, the victory in itself did not save western Europe from the onslaught of Islam. Charles Martel would face other Muslim raiders in southern France, and a persistent Islamic presence north of the Pyrenees would not be vanquished until his son Pepin III (‘the Short’) pushed the Muslims from Septimania
in 759. The armies of Christianity and Islam continued to battle south of the Pyrenees for another seven centuries, with the last Islamic outpost of Granada in Spain surrendering to Isabella and Ferdinand in January 1492.

The battle of Tours was also a great political victory for Charles Martel, securing his position as the most powerful
man in France. The Carolingians controlled the office of the mayor of the palace from the mid-seventh century until 751, when the pope crowned Martel’s son Pepin (r. 751–768) as the new Frankish king, sanctioning an official change of dynasty. The Carolingian dynasty ruled France until 987. The ascent of Pepin’s son Charlemagne to the Frankish
throne in 768 ushered in the first post-classical empire in western Europe.

The grandson of Charles Martel, Charlemagne (from Carolus magnus in Latin, ‘Charles the Great’ in English) built on the accomplishments of his father and grandfather. During his forty-six-year reign between 768 and 814, Charlemagne undertook an unprecedented
fifty-four military campaigns, greatly expanding the territory of the Frankish kingdom. And even though the Frankish army was relatively small compared to armies of the classical period (modern estimates vary from 5,000 to 35,000 men, excluding attendants), it was sufficient to carve out the largest state western Europe had seen since the fall of the
Western Roman Empire some 300 years earlier. His impressive military and political achievements even won him the title of ‘emperor of the Holy Romans’ from the papacy on Christmas Day 800.

Charlemagne’s campaigns took him to many areas in Europe. In 773 he led his army into Italy, crushing the Lombards and crowning his
son king of Italy. Four years later Charlemagne crossed the Pyrenees into northern Spain. This campaign proved disappointing. Despite the annihilation of his rearguard at Roncesvalles by the Basques in 778, Charlemagne and his successors were successful in eventually establishing the Spanish March, a string of fortifications in Catalonia.
which served as a defensive bulwark against Muslim raiding and a future base of operations for the Christian reconquest of Spain in the eleventh century.

Charlemagne was more successful in his eastern campaigns in Germany. In 787 he invaded Bavaria and brought that region under his rule. In 790 his Frankish armies marched east along
the Danube and met and utterly eradicated the Avar empire in the Balkans, seizing wealth accumulated in two centuries of raiding and adding it to his own treasury. Perhaps Charlemagne’s greatest success came in Frisia and Saxony, a region in northern Germany between the Rhine and Elbe rivers. Beginning in 772, Charlemagne set his sights on
the conquest and conversion of these regions, but resistance was fierce (Charlemagne campaigned in Saxony in 772, 785, 792–793 and 798–803). It was not until 804, after eighteen annual campaigns, that Saxony was finally pacified and added to the Carolingian domain.

Charlemagne never developed a regular standing army; instead, he relied on
feudal levies to raise his forces. It did not take the emperor long to assimilate new regions into his military machine. Just two years after bringing Saxony into the kingdom, Charlemagne created a sliding scale of military contributions, ordering five Saxon vassals to equip a sixth to campaign in Spain, and two to equip a third for Bohemia, while all
were required to campaign against regional threats. In 807 he issued a capitulary decreeing all nobles in the realm holding a *benefice* (a lease of land) were obligated to undertake military service. If a noble failed to muster for war, he risked the confiscation of his estate. Charlemagne perfected this system to the point where he could raise several annual
levies and conduct operations on multiple fronts, including Germany, Bohemia, Brittany and Spain.

The composition and equipment of Charlemagne’s army was also continuously evolving. Initially, the Carolingian army comprised mostly infantry, but as campaigning took him farther and farther from his base in Austrasia, Charlemagne soon
relied increasingly on mounted troops over infantry. His numerous capitularies point to the raised status of cavalry. Between 792 and 793 he issued regulations requiring vassals to have a horse, shield, lance, sword, dagger, bow, quiver and arrows. In other royal decrees wealthier nobles were ordered to come to war wearing mail and were asked to bring
rations for three months of service and clothing for six. Furthermore, these greater magnates were to make certain their own vassals came on campaign with a standardized panoply consisting of shield, spear, bow and twelve arrows. Even attendants were required to be armed with bows.

Charlemagne’s military success was not founded on
the decisive engagement; indeed history records him present at only three battles during his lengthy reign. The Carolingian emperor’s success was instead based on a well-trained and experienced feudal fighting force wearing down the enemy through a strategy of attrition, and the ability to raise several armies for annual campaigns in different
regions. He also recognized the impending threat to his empire, building and garrisoning forts along his borders with the Muslims, Danes and Slavs. He even went so far as to try to maintain his superiority in military equipment by threatening the forfeiture of all property to anyone selling mail hauberks to foreigners, and death to any who
exported Carolingian swords out of the country. Finally, perhaps Charlemagne’s greatest military legacy was his emphasis on cavalry as an instrument of strategic mobility. And though the stirrup-stabilized lancer, probably present in limited numbers during Charlemagne’s reign, did not revolutionize battle tactics in
the late eighth and early ninth centuries, heavy cavalry’s importance as the centrepiece of the Carolingian tactical system was a harbinger of things to come. As we shall see, several events in the ninth and tenth centuries elevated the position of this shock cavalry on the battlefields of western Europe and led to their dominance in medieval warfare – the
invasions of the Muslims, Magyars and Vikings, and Europe’s response, the rise of feudalism and heavy cavalry’s adoption of the stirrup.

The Ninth- and Tenth-Century Invasions: Muslims, Magyars and Vikings at War
The early medieval period witnessed the migrations and invasions of numerous peoples into Europe. The incursions of Germanic tribes had been part of the dissolution of the Western Roman Empire in the fifth century. Later, the expansion of Islam across north Africa and into the Iberian peninsula threatened Carolingian civilization and ended any
hope of making the Mediterranean a Christian lake. But in the ninth and tenth centuries western Europe was besieged by a new wave of invasions of several non-Christian peoples. One old enemy, the Muslims, attacked from the south, and two new ones, the Magyars and Vikings, attacked from the east and north (Map 2.3).
The first wave of Islamic expansion ended under the Abbasid Caliphate (750–1258) in the middle of the eighth century, creating an empire which stretched from Spain to Persia. Gradually, Muslim commanders began to utilize sea bases in their occupied territories in north Africa, Spain and southern Gaul to attack the southern coastline of Christianized
Europe. They invaded and occupied Sicily in 827 and raided Italy, even threatening Rome in 843. Muslim forces also destroyed Carolingian defences in northern Spain and conducted raids into southern France, attacking merchants and religious pilgrims crossing the Alps.

The Magyars were a Finno-Ugric speaking people from western Asia with many
similarities to the Turks. When in the ninth century the Byzantine emperors bribed them into attacking the Bulgars, the latter in turn encouraged a people known as the Pechenegs to attack the Magyars. Consequently, the Magyars were forced into eastern and central Europe, and established themselves in the Carpathian basin. From their bases in Hungary, the
Magyars launched devastating raids westward into Germany, France and Italy, some thirty in all, between the years 898 and 955. The Magyars fought as they had on the Eurasian steppes, as fast-moving and lightly equipped horse archers. Abbot Regino of Prum noted the Magyars ‘killed few with their sword but thousands with their
arrows’. As mounted raiders, the Magyars sought slaves and moveable wealth and, like the Muslims and Vikings, were quick to take advantage of their enemy’s political dissension. In Germany, Saxony and Bavaria were hit hardest, and both regions paid tribute to the raiders in the 920s. But fortunes reversed for the Magyars in the 930s and 940s, and by the early
950s they were poised for what would be their final raiding expedition into western Europe.
Map 2.3 The Muslim, Magyar and Viking Invasions.
In 954 a massive Magyar army of over 50,000 men swept through Bavaria and central France as far west as Aquitaine. The Magyars had come west as the allies of the rebel Duke Conrad of Lotharingia, but their raids farther west showed their true inclinations. This transgression across southern Germany aroused the new king, Otto I, into action. The
son of the Saxon king Henry I, ‘the Fowler’ (r. 919–936), Otto wanted to repeat his father’s decisive victory against the Magyars at the battle of Riade near Merseburg in 933. Otto assumed the throne in 936 and spent the first years of his reign putting down rebellions in Bavaria, Franconia, Lorraine and Saxony, and shoring up the frontier with
the Magyars. But the size of the Magyar incursion in 954 convinced the German nobles to put aside their differences and rally around the royal standard. Otto put an army into the field in the late summer of 954, but failed to locate the enemy before the end of the campaigning season. The Magyar host retreated to Hungary and wintered on familiar soil.
In late June 955 the Magyars returned to raid Bavaria again with a large army, though historians are unsure precisely how large a host it was. Led by Lel, the Magyar gyula or general, the invading army laid siege to Augsburg on 8 August, but abandoned the city after only one day when news reached him of Otto’s approaching army. Instead of playing to
the inherent strengths of light cavalry and avoiding a set-piece engagement as they had the summer before, the Magyars moved to the nearby Lech River and made camp, seemingly inviting a pitched battle.

Otto approached the Magyar position from the north-east, making camp upriver from the invaders. His army was made exclusively of heavy
cavalry units pledged to him by his vassals in Bavaria, Saxony, Franconia, Swabia and Bohemia. Even Duke Conrad came true, adding his banner to the German king’s cause. Otto’s army numbered between 7,000 and 8,000 men, a purposefully small mounted force capable of strategic surprise and great tactical mobility. He hoped to use this small but better
armoured cavalry army to defeat his more numerous but lighter protected enemy, just as his father had done twenty-two years earlier at Riade (Merseburg). The strategy of relying on the strategic mobility of cavalry to hunt down invading raiders had served Charles Martel well at Tours in 732, and it would also be a strategy used by the French in their conflict with
English raiders during the Hundred Years War in the fourteenth and fifteenth centuries. Ordering his men to fast and pray the night before the battle, and joining them at Mass on the morning of 10 August, Otto mounted his army and trotted toward the Magyars through broken terrain in order to counteract Magyar light cavalry skirmishers.
Like all medieval armies, the order of march was dictated by nationality, battlefield reputation and personal relationship with the leading lord. On this day, the vanguard was held by three divisions of Bavarians, followed by the Franks (commanded by the now amicable Duke Conrad). Otto commanded the Saxons in the middle of the column,
followed by two divisions of Swabians and the Bohemian cavalry in the rear, charged with escorting the army’s baggage train. Each division had a strength of roughly 1,000 men. As the German host rode down the eastern bank of the Lech River, they failed to notice a Magyar light cavalry force riding in the opposite direction on the western bank, hidden by
banks overgrown with foliage (Map 2.4(a)). The Magyar light cavalry crossed the Lech and attacked the rear of the German column, raining arrows on the Bohemians guarding the baggage, and the rout spread to the two Swabian divisions, who broke and fled (Map 2.4(b)). Instead of pressing their advantage, the victorious Magyars then stopped to pillage the
baggage train, giving Otto much needed time to redress his lines. The German king ordered Duke Conrad and his Franks out of column and to the rear, where they quickly ran down the dismounted pillagers, then, forgoing pursuit, returned to assist their comrades in the major engagement (Map 2.4(c)). With his rear now protected, Otto ordered his army from
column into line of battle, gambling that the weight of a heavy cavalry charge would overwhelm his opponent and win the day (Map 2.4(d)).

Map 2.4. The Battle of Lechfeld, 955. (a) Phase I: King Otto’s German host
(including a contingent of Franks under the Magyars’ erstwhile ally Duke Conrad) moves towards gyula Lel’s invading army through broken terrain along the Lech River. On the opposite bank and screened by the rugged terrain, a Magyar light cavalry force moves to strike the rear of the German column (1). (b) Phase II: Striking swiftly, the Magyar horse archers rout the Bohemian contingent guarding the German baggage train (1). The panic spreads to the two Swabian divisions (2) and the Magyars pause to pillage the German wagons (3) rather than mount a pursuit. (c) Phase III: Otto orders
Conrad and his Frankish contingent out of column to attack the now dismounted Magyar pillagers (1), who are swiftly destroyed (2). (d) Phase IV: With the rear of his column now secure, Otto re-forms his army (1) and the German column continues towards the Magyar position (2). (e) Phase V: Otto orders his army to deploy from column to line (1). Lel’s Magyar cavalry follows suit, slightly overlapping the German flanks (2), the gyula placing his most reliable, better-armed horsemen in the front rank of his formation. (f) Phase VI: Seeking a quick decision, each side charges (1), the Germans depending
on their heavier weight and greater shock power, the Magyars counting on their greater numbers and manoeuvrability to gain victory. As the opposing ranks converge, the Magyars loose a volley of arrows into the German ranks (2) but fail to check their enemy’s advance. Otto’s horsemen increase their gait to a full charge as they close with the horse archers. (g) Phase VII: Before the horse archers can launch a second volley of arrows, Otto’s heavy cavalry crash into their ranks (1). As the lightly armoured Magyar cavalry begin to give way under the onslaught of the armoured German lancers, Lel
orders a portion of his army to feign retreat (2), hoping to induce a pursuit on the part of individual knights and turn the tables on his foe. (h) Phase VIII: The Magyar ruse fails, and under relentless German pressure Lel’s forces begin to break and flee (1) from the battlefield. Many of the refugees drown in attempting to cross the Lech in an effort to escape; those that attempt to hide in the area’s forests are betrayed by the local peasantry and are captured.
As the German heavy horse arrayed for battle, Lel ordered his own larger contingent of cavalry to mirror the enemy formation, slightly overreaching the German
The gyula placed his most loyal and best-equipped troops in the forward line and the remainder of his horse in a second line. Magyar light cavalry, like the Scythians and Parthians before and Turks and Mongols after, fought primarily as horse archers with composite bows. In hand-to-hand combat, Magyar warriors wielded
sabres with a slight curve or maces, and wore very little armour, if any at all. Lel knew his light cavalry were no match for the German heavy cavalry in front of him in shock combat, but he did enter the battle outnumbering his enemy five to one. Wanting a decisive encounter, both armies rode toward a fateful collision (Map 2.4(f)).
Otto’s heavy cavalry kept good order as they closed with the enemy, transitioning from a trot to a gallop to a full charge just before contact with the oncoming Magyar light cavalry. At this moment, Otto is said to have shouted: ‘They surpass us, I know, in numbers, but neither in weapons nor in courage. We know also that they are quite without the help of God,
which is the greatest comfort to us.’ As the two armies closed, the Magyars let loose a volley of arrow shafts at the charging Christians, no doubt thinning their ranks a little, but the German line held and reached the enemy before a second volley could be launched (Map 2.4(g)). The Magyar formation began to collapse under the weight of the German heavy horse, and
Lel ordered a portion of his light cavalry to fall back in the signature steppe warrior mock retreat, but the Christian nobles failed to take the bait (Map 2.4(h)). The Magyar lines collapsed as horse and rider scrambled to get out of the way of the charging lancers, only to be pushed into the Lech. Fighting continued for some ten hours. Casualty figures
are not given for either side, though probably the German rearguard suffered heavily in the first exchange, and it is known that Duke Conrad was slain by a Magyar arrow piercing his throat, his reputation redeemed. Those few Magyars who escaped the river attempted to hide in the countryside, only to be pointed out to the pursuing Germans by local peasants.
Instead of ransoming the Magyar princes and nobles back to their vassals as was customary for the time, Otto ordered them hanged, then sent the rest of the barbarians back to their homeland minus ears or noses.

The Magyars were crushed at the battle of Lechfeld by Otto I, a victory that won him the title of holy Roman emperor, an honour
sanctioned by both Byzantium and the papacy. German holy Roman emperors would dominate the political affairs of central Europe for the next two and a half centuries. The battle of Lechfeld also ended once and for all Magyar raiding in western Europe. By the end of the tenth century the Magyars had converted to Roman Catholicism and
settled down to establish the kingdom of Hungary. Under King Stephen I (r. 997–1038) and his descendants, it grew into a powerful Christian kingdom, one that would bear the brunt of other nomadic invasions from the east, most notably the Mongols and Ottoman Turks.

By far the most devastating and widespread attacks of the period came from the Vikings
of Scandinavia. The Vikings were a Germanic people based in Norway, Sweden and Denmark, and their movements constitute the final wave of Indo-European migration. Warriors, traders, superb shipbuilders and sailors, the Vikings in their trademark longships pushed south from their homeland and attacked the whole of Europe. Norwegian Vikings
moved into Ireland and western England, while the Danes attacked eastern England, Frisia and the Rhineland, and navigated rivers to enter western Carolingian territories. Swedish Vikings controlled the Baltic Sea and pushed into Slavic areas in eastern Europe. Moving into northwestern Russia, the Swedes sailed up and down that
region’s rivers to Novgorod and Kiev, and established fortified ports in these areas, ultimately influencing the development of early Russian civilization. Sailing down the Dnieper and Don rivers to the Black Sea, they made contact with the Byzantine Empire as both traders and raiders, and the Byzantine emperor even hired Russo-Swedish Vikings, the Varangians, as
his personal bodyguard. The Vikings also sailed west and settled in the Faroes, Iceland, Greenland and, for a short time, North America.

The Viking age of expansion and conquest had its beginnings in a culture permissive of ship-based raiding. The shore raid or strandhogg was an age-old Viking tradition, one where warriors would beach their
longship, round up cattle and sheep, then sail off. This form of medieval livestock rustling was even done in Scandinavia itself until it was outlawed by the centralized monarchies that rose in the ninth and tenth centuries, forcing the strandhogg into foreign waters. Incursions against continental Europe and the British Isles brought more opportunities, with Vikings
returning from their seasonal raids with young women and healthy youths for the thriving slave trade.

Early Viking raids were carried out normally in the summer, with Scandinavian warriors sacking coastal villages and towns, destroying churches and monasteries, and easily defeating local, mostly infantry-based militias. In the
first decades of the ninth century, Viking raiding involved small numbers of ships and was mostly directed against Europe’s coastline. But the death of Charlemagne in 814 and the chaos that followed under the weak rule of his son and successor Louis the Pious offered an attractive target for Viking marauders. As news spread of the wealth and vulnerability
of the Frankish interior, Vikings appeared in greater numbers. By the 830s larger Danish fleets were threatening England as well with seasonal raids. During the winter of 840–841, the Norwegian Vikings switched from seasonal raids to wintering in enemy territory, staying for the first time on a small island off the coast of Ireland. When the
Carolingian empire erupted into civil war at the death of Louis the Pious in 843, Vikings set up permanent bases at the mouth of the Loire and Seine rivers, then launched raids inland, sometimes on ships, sometimes on captured horses.

The size of Viking armies also varied depending on the period. Early ninth-century
Raids consisted of a few longships and maybe 100 warriors. But by 865 Viking activity in western Europe was concentrated in a ‘Great Army’ made up of fleets of hundreds of ships carrying thousands of Viking warriors and led by several Scandinavian kings. Between 865 and 879, and again between 892 and 896, the ‘Great Army’ plundered
England, with the Danes occupying an area known as Danelaw in north-eastern England. Accepting Christianity, the Danes were eventually assimilated into the larger Anglo-Saxon kingdom, giving their greatest warriors, the *huscarles*, to the English king as bodyguards. On the continent the ‘Great Army’ devastated Flanders, raided deep into the Rhine
valley, and even laid siege to Paris in the winter of 885–886 with perhaps as many as 40,000 men and 700 ships, though probably the numbers involved were much smaller.

But as widespread as the Viking raiding and invasion was, the Vikings were, in fact, not particularly good at winning battles. Many of their victories came from attacking soft, undefended
targets such as churches and monasteries well stocked with ecclesiastical treasures and Mass wine. When regional armies finally organized and offered determined resistance in the late ninth century, the fortunes of the Vikings changed. In England the Saxon king Alfred the Great (r. 871–899) built walls around his towns, creating *burhs*, and founded the first
English navy in 875 to intercept Danish fleets at sea. In France cities were walled (or if dilapidated by neglect, re-walled), and fortified bridges were constructed across major rivers to close access to the interior. Unaccustomed to fortifications, the Vikings usually moved on. Moreover, when battle was offered by the defenders of a realm, the
Vikings often preferred negotiations or withdrawal to a set-piece engagement. At the beginning of the ninth century, Viking warriors were not the well-armoured, disciplined fighting machines of legend, but rather traders and raiders who became well off as pirates. As word of the first Viking success spread among their countrymen, more and
more Scandinavians entered the marauding profession. The core component of most Viking armies was composed of freemen bondi (sometimes drengs, thegns or yeomen). The bondi were the standard infantry levy units of the army and consisted of normal Viking men such as farmers and labourers. The bondi could be organized into the smaller ‘pirate bands’ or
raiding groups or into larger infantry blocs when attached to a royal army or large territorial force. These troops ranged in fighting ability, and as the Viking age progressed, many men gave up their farms to become full-time warriors. Besides making up the bulk of the normal infantry, some of the bondi performed a skirmishing role and would have most likely
been armed with bows or other missile weapons.

There was no standardized Viking panoply, but typical Viking arms and armour consisted of sword or battleaxe, spear, and a round, wooden shield 30 to 40 inches in diameter with a central iron boss. Chiefs and veterans might also wear a leather helm or metal *spangenhelm* (a forerunner to
the Norman *conical helm*) and ring-reinforced leather jerkin or mail hauberks. Vikings, like their Germanic forebears, preferred the sword as their primary offensive arm, though the expense of this weapon often forced warriors to use axes and spears. The very best swords were imported from Frankish lands (despite Carolingian capitularies threatening...
capital punishment if arms sellers were caught), though Scandinavian craftsmen usually fitted them with ornate hilts and grips of precious metal, bone, horn and walrus ivory. Viking sword blades were usually pattern-welded and double-edged, averaging 32 inches in length, with a shallow fuller on each side to reduce the weight of these hefty blades.
Battleaxes and spears were also used by Scandinavian warriors. The axe, which had been nearly abandoned in warfare in the rest of Europe, found favour again in the hands of Vikings. Three types of battleaxe were used during this period: the *skeggox* or ‘bearded axe’, so-called because of its asymmetrical blade and used in the eighth century; an intermediate type
usually referred to as a ‘hand axe’; and the *breidox* or ‘broad axe’, first seen at the end of the tenth century and made famous by the huscarles at the battle of Hastings. The broad axe took its name from the blade’s distinctive crescent shape, large size (usually 12 inches along its curved edge), and 5 foot haft. This long-hafted axe also became the signature weapon
of the Varangian Guard.

Viking spears were of light and heavy varieties: the former were thrown as javelins and had narrow blades and slim shafts, while the latter were used for shock combat and had broad, leaf-shaped blades and thicker, often iron-shod shafts. Both types of spear blade were socketed and some had short side-lobes jutting out just
above the socket. This last type is often referred to as the Viking ‘winged’ spear. Finally, archery also held an important, if ancillary, place in Viking warfare, as can be seen by the role missile-fire played in both land and naval engagements. The bows themselves were of various types, including short and long varieties of self-bows. Composite bows were also
used, perhaps because of contacts with steppe peoples. In battle the Vikings attacked and defended in typical Indo-European fashion. Offensively, they utilized the ‘boar’s head’ wedge array, concentrating the shock impact of the attack on a small frontage with the aim of breaking through the opponents’ formation. Once the enemy’s line had been
breached, Viking warriors broke into individual combat, cutting and slashing with their swords, or swinging their two-handed axes. Defensively, the Vikings formed a shield wall five or more men deep, standing close enough to lock shields and presenting a frontage of only 1 1/2 feet per man. If light infantry archers and javeliners were present, they
usually stood behind their companions and fired over their heads at the enemy. Vikings rarely used cavalry as a tactical system; instead they mounted infantry for strategic mobility and dismounted for battle.

A Viking Battle at Sea: The Battle of Nisa

The primary instrument of
Scandinavian overseas aggression was the longship. Long, narrow-keeled and flat-bottomed vessels with beautifully carved arched prows, the first longships carried around thirty-five warriors. They were made of oak using clinker construction (overlapping planks held together with clinch bolts) with a mast amidships and one bank of oars on each side.
Controlled with two steering oars, these vessels had shallow draughts making it possible for them to navigate up rivers and along coastlines, giving the Vikings unprecedented strategic mobility. The *Gokstad* ship, built in the second half of the ninth century, was over 76 feet long and 12 feet wide, and drew less than 34 inches of water, giving it the ability
to sail up rivers and estuaries into shallow waters only 3 feet deep. Longships were also easy to beach and portage over short distances using rollers and manpower.

After 1000, the Scandinavians built larger warships, known as drekkars or ‘dragon ships’, capable of carrying perhaps as many as eighty warriors on raiding expeditions, invasions and,
curiously, large naval engagements against rival Viking fleets. These larger, taller vessels were particularly suited for the last purpose because, unlike longships, drekkars had high, planked decks fore and aft, from which arrows and spears could be rained down on their opponents’ decks. Apparently difficult to manoeuvre in battle, these medieval
dreadnoughts were sometimes lashed together ‘stem to stem and stern to stern’ to create large, floating battlefields of oak, canvas and rope. Often dozens of Viking ships were tied together, with the larger drekkars placed in the middle of the line as a command post for kings and commanders, while unfettered longships protected the flanks of the
tethered vessels. A contemporary historian, Saxo Grammaticus, explains the benefits of lashing ships together for combat:

Having ordered the ships in a line, they joined them together with grapples, so that being bound together the fleet might easily ride down any enemy in its path. And when they were brought together for this
purpose, they were joined together solidly, for flight or victory, as it would not be possible for anyone to break free from his colleagues. Thus they planned to make their weakness strong by this tactic.

Not built for ramming, Viking ships could not duplicate the tactics of the ancient triremes, and so
medieval sea battles usually consisted of closing on an opposing vessel, grappling the two ships together and then fighting in close quarters until one side was defeated, the enemy ship captured or, if damaged, scuttled. In the case of large engagements, one side chose to take the defensive by lashing their ships together, while the attacking navy either moved
in on the tethered flotilla as individual ships, grappling, clearing and cutting away ships one by one, or attacked as a tethered armada itself. In these ship-to-ship battles, the Vikings attempted to match larger ships to smaller and favoured missile fire from bows and spears over hand-to-hand shock combat. Because of the nature of this attrition warfare, Viking sea
battles tended to drag on far longer than engagements fought on land, often taking hours to conclude.

Map 2.5. The Battle of Nisa, 1062. (a) Phase I: From his 70-oar drekkar, King Harald III Hardrada leads a
300-ship Norwegian fleet to an appointed location to battle King Sveinn Estridson’s Danish fleet. (b) Phase II: The Danes fail to arrive at the rendezvous at the appointed time, leading Hardrada to believe they have refused the challenge. He orders half of his fleet, containing his militia troops, to return home (1). The Norwegian fleet, reduced in number but crewed by Hardrada’s finest warriors, continues on (2). (c) Phase III: As half of Hardrada’s fleet sails out of sight, the Danes suddenly appear, 300 strong (1). Hardrada prepares to fight, ordering most of his remaining longships to be lashed
together side by side (2). Two groups of vessels remain untethered to protect the Norwegians’ flanks (3). (d) Phase IV: Estridson follows the Norwegian lead and orders the Danish fleet to close up and rope together (1). The Danish king seizes the initiative and orders his fleet to row towards the enemy (2). Hardrada orders his force to follow suit (3), and the two sides slowly close with each other as daylight begins to fade. (e) Phase V: The opposing lines clash, and the air is filled with arrows as Danish and Norwegian archers ply their deadly trade. The fight continues through the night, and neither side is
Phase VI: The deadlock is broken when one of the Norwegian flank elements under the command of Earl Hakon Ivarsson sails around the main battle and drives off the smaller Danish vessels (1). Several hours later, Hakon reinforces a failing flank (2) and drives back the Danes. The Norwegians offer no quarter and begin to clear the Danish vessels (3), boarding Sveinn Estridson’s flagship last (4). By dawn, seventy of the tethered Danish longships are cleared of opponents and the Norwegians are victorious, though Sveinn Estridson is able to escape.
One such long sea battle took place at Nisa on 9 August 1062 between the fleets of King Harald III Hardrada of Norway and King Sveinn Estridson of Denmark. This was the second battle between the two rival monarchs and seems to
have been joined by mutual consent. Hardrada, unhappy about being unable to conquer Denmark despite successful annual raids, hoped for a large decisive victory over Estridson. Having raised a large army from the whole of Norway, Hardrada placed the men on 300 ships, leading the armada from his own seventy-oar drekkar (Map 2.5(a)). He
sailed to the appointed spot at the prearranged time and waited for his Danish foe to arrive, but Estridson’s fleet was not there. Believing the Danes had refused battle, Hardrada dismissed the half of his ships containing the militia to return to their farms and prepared for another year of raiding (Map 2.5(b)). Those warriors who remained were the veterans of
numerous raids, and some may have fought at Haradrada’s side during his days in Russia and Byzantium. One of the Varangian Guard’s more distinguished soldiers, Haradrada spent most of his twenties in the Byzantine emperor’s employment, rising to become the ‘leader of all of the Varangians’ and then returning to Norway to
become king in 1047.

But as half of the Norwegian navy sailed out of sight, the Danish fleet appeared, 300 ships strong (Map 2.5(c)). Refusing to flee from his numerically superior enemy, Hardrada ordered his remaining ships lashed together, placing his own ‘dragon ship’ in the centre of the line. Unfettered longships protected the flanks,
including the warships of Earl Hakon Ivarsson. Mirroring the Norwegians, Estridson ordered his warships roped together in a line, his own ship in the centre, and seizing the initiative, rowed against the enemy (Map 2.5(d)). As the tethered Danish line slowly rowed forward, Hardrada ordered his own Norwegian fleet to meet the advancing Danes. The two
bound Viking armadas clashed as the sun began to set.

According to both Danish and Norwegian sources, the battle lasted into and throughout the night, with both sides evenly matched (Map 2.5(e)). The prominent role of missile warfare in ship-to-ship combat is evident from a poem written about Hardrada’s prowess as an
archer:

Norway’s king was bending
His bow throughout that night,
Raining a shower of arrows
On the white shields of Denmark,
Bloody spear-points opened holes in iron armour;
Shields were pierced by arrows
From Harald’s deadly dragon.
Hardrada’s prowess with a bow was not unusual, and Viking sources tell us that numerous Viking heroes died by missile fire, including Harold Bluetooth, King Hakon and, ironically, perhaps Harald Hardrada himself.

The turning point came hours into the battle when Earl Hakon Ivarsson ordered his warships from their
flanking position to sail around the main battle group and prey on smaller and weaker Danish vessels (2.5(f)). Hours later, Hakon’s warships buttressed a failing flank, forcing the Danes back. Sveinn Estridson’s warship was the last boarded. No quarter was given and those Danes not killed jumped overboard. By dawn Estridson’s fleet was defeated
and no fewer than seventy of the Danish king’s tethered ships had been cleared.

Estridson escaped the slaughter by jumping into the water and swimming for Hakon Ivarsson’s ship. Donning a disguise, the Danish king was brought on board and inexplicably led to shore on Hakon’s order, eventually escaping back to Denmark. Though initially
recognized as the hero of the battle, the earl was quickly condemned by the Norwegian king and exiled. Ultimately, the battle of Nisa proved indecisive. Two years later, in 1064, the two kings signed a peace treaty ending years of Norwegian raiding, and King Harald Hardrada looked to the west for new lands to conquer. In 1066 a massive Norwegian fleet set sail for
England in the last great invasion of the Viking age.

Response to Invasion: The Rise of Heavy Cavalry in Western Europe

When the Carolingian world began to disintegrate in the face of Muslim, Magyar and Viking raiding and invasion in the ninth and tenth
centuries, a new social organization arose to meet the foreign threats. In the ensuing chaos, distances were too great, communication too primitive, the aristocracy too firmly entrenched, and the Frankish army too small and unwieldy for the Carolingian monarchy to assume strong leadership in defending the realm. Military responsibility descended more and more to
the aristocracy, who were better able to protect their regions from the sudden depredations of foreign raiding and invasion. Western Europe’s response to this second wave of invasions was the development of a sophisticated social organization known to historians as feudalism (from the Latin word *feudum* meaning ‘fief’).
Feudalism contained two component parts – a personal element called *vassalage* and a property element called the *benefice*. The practice of vassalage was derived from Germanic society and was based on a warrior chief attracting followers to himself on certain conditions, primarily military. It was grounded in the practice of the *comitatus*, the following
of a great chief, which was described by the Roman author Tacitus in his work *Germania*. In Germanic practice, this relationship between chief and followers was one between social equals. By the eighth century, one who served a lord in a military capacity was known as a vassal.

Feudalism also contained a property element, which was
ultimately fused with the personal element of vassalage. In the late Roman period it became customary for the owners of *latifundia* to hire retainers to work for the owner, with the lord providing a grant of land or *benefice* as payment. In the chaos of the early medieval period, the *latifundia* became the medieval manor, the hereditary possession of
greater and lesser Germanic lords. From the seventh century onward, these manors were increasingly worked by serfs rather than peasants, poor agriculturalists who traded manual labour for protection against Muslim, Viking and Magyar raiders.

Because of the expense of the knight’s panoply and the time and practice required to become a skilled equestrian
and lancer, the medieval heavy cavalryman needed to be economically supported. Consequently, lords who wanted the services of this new and expensive weapon system were required to grant each vassal a benefice, a piece of land from their hereditary possessions that provided the vassal’s economic support. In return for this grant of land the
vassal provided the lord with military service. By the ninth century, the benefice became the fief as it acquired new characteristics involving the exercise of political power. The fief differed from the benefice in that the vassal enjoyed the rights of jurisdiction or political and legal authority within his fief.

In the eighth century, under the Carolingian mayors of the
palace, the personal element of vassalage developed to the point where vassals were holding benefices. This economic arrangement emerged out of the mayor’s need for a specialized warrior, the heavy cavalryman. Heavy cavalry in the early medieval period was gradually evolving. Merovingian heavy cavalry present at the battle of Tours
in 732 used franciscs from horseback and loosed their spears during passes. But during the reign of the age’s most powerful monarch, Charlemagne (r. 768–814), an improved heavy shock cavalry made its appearance in western Europe utilizing larger horses, standardized arms and armour, and emphasizing the sword and lance as its primary weapons.
The stirrup-stabilized heavy cavalryman also made his appearance during the reign of Charlemagne, but not in sufficient numbers to affect cavalry tactics. The real impact of the stirrup on medieval warfare would not be felt until after Charlemagne’s death in 814. The stirrup, which was believed to have originated in China, was probably
introduced to the west some time before the eighth century either by the Byzantines, the Muslims, or the Avars. When combined with a saddle built up at the pommel and cantle for longitudinal support, the stirrup welded rider and horse together. Rather than thrusting out himself, the lancer now held his weapon at rest in the crook of his arm, using the combined weight of
his body and his charging mount to deliver a blow of unprecedented violence. Utilizing the energy of the horse and the new-found stability provided by the stirrup, this new heavy cavalry used its spears as lances to defeat its enemies and secure a position at the top of the social hierarchy.

The Franks became famous for the irresistible charge of
their heavy cavalry, and their tactics spread from France to all of western Europe. The appearance of the stirrup-stabilized horsemen altered the balance of power among the four weapon systems. This change was especially important because it appeared at a time when western European armies could no longer field well-articulated heavy infantry to oppose the
lancers. With the marriage of stirrup and heavy cavalry lancer, the dominant weapon system of the Middle Ages had made its appearance.

The rise of medieval heavy cavalry can be traced in the technological evolution of arms and armour, with the centrepiece of the knight’s offensive arsenal being his sword. The evolution of the cavalry sword in Europe
dates back to the Roman *spatha* and Germanic swords of antiquity, long narrow weapons designed for slashing rather than thrusting. In the Germanic world, the sword was a symbol of manhood, sometimes given to a boy at birth or at his naming, or presented at his majority as a symbol of his rite of passage from child to warrior. These weapons were
often given personal names and became heirlooms passed on from generation to generation. In Charlemagne’s many capitularies that refer to weapons, the sword is always prominent and was often represented as the cavalryman’s primary weapon.

Evidence of the primacy of the sword in the Carolingian cavalryman’s panoply can be
seen in the disappearance of the francisc and single-edged scramasax in the eighth century, replaced by the 44 inch long sword, better suited by its reach for combat on horseback. The mail shirt lengthened to cover the hips, and mail greaves or chausses also appeared. The round shield gave way to a kite-shaped shield in order to protect the equestrian’s leg.
These changes offered superior protection for the knight against his unmounted foes, while giving him the necessary reach to kill them. By 1000, all of the essential elements of knightly equipment were in place.
CHAPTER 3

THE HIGH MIDDLE AGES: HEAVY CAVALRY DOMINANT

The Norman Conquests of England and Italy
In the ninth and early tenth centuries, a second age of invasions besieged western Europe, threatening the re-emerging civilization of the Latin kingdoms. From the north came the Vikings and from the east, the Magyars, while Muslim pirates still plagued the Mediterranean. One western European monarch’s solution to this devastating raiding was to
utilize an ‘if you can’t defeat them, employ them’ strategy. In 911 the Frankish king Charles the Simple did just that, concluding a treaty with a Norwegian chief named Rollo and asking him to settle at the mouth of the Seine River, in effect creating a Viking buffer state in northern France. Rollo converted to Catholicism, married Charles’s daughter,
and founded Normandy, the ‘land of the Northmen’. Soon, the Normans assimilated into French culture, exercising their untamed military prowess within the framework of feudalism.

Armed with long swords and protected by their trademark conical helm, mail hauberk and kite shield, Norman knights became an irresistible juggernaut on the
battlefield. By the middle of the eleventh century, the Normans were the pre-eminent heavy cavalry in western Europe. As Norman military power grew, so did their political aspirations, and southern Italy and Sicily were their first conquest. At first the Normans came to Italy as mercenaries, serving the Byzantines against the Muslims or fighting for
Lombard noble families against the Greeks. From their first success at Salerno in 1016 to the unification of lower Italy and Sicily into the kingdom of the Two Sicilies in 1129, Norman strength was sufficient to drive the German emperor Henry IV out of Rome and take Pope Gregory VII under their protection. The Normans even considered the conquest of
the Byzantine capital of Constantinople.

But Norman conquests would not be limited to the Mediterranean. The Norman lord William the Bastard (c.1028–1087), seventh duke of Normandy and direct descendant of Rollo, laid claim to the English throne after the death of the Anglo-Saxon king Edward the Confessor. The duke of
Normandy made good on his claim by crossing the English Channel in late September 1066 with an army of 11,000 Norman, Breton and Flemish men, challenging Edward’s successor, King Harold Godwinson, at the battle of Hastings in south-east England.

The autumn of 1066 proved to be a difficult time for the new Anglo-Saxon king, a
monarch who awaited two invasion fleets to challenge his throne. In January, on the very day Edward the Confessor was laid to rest, Harold Godwinson, earl of Wessex, was proclaimed king of the Anglo-Saxons by the Witan or Grand Council in London. But Harold realized his claim would not go uncontested. In Norway, King Harald Hardrada wanted to
re-establish the Viking claim to the English throne. The victor at the sea battle of Nisa only four years before, Hardrada intrigued with the new Anglo-Saxon king’s brother, Tostig, the disgruntled earl of Northumbria. In order to reinstate Tostig in northern England and establish a foothold for further conquest, Hardrada launched an
invasion fleet of 300 ships in mid-September. The Viking fleet entered the Humber River and disembarked a force of 9,000 men 10 miles south-east of York, their intended target, where they were joined by Tostig’s supporters (Map 3.1).

On 20 September, Hardrada met and defeated an Anglo-Saxon army of perhaps 4,000 men at Fulford Gate. The city
of York quickly surrendered, and Hardrada pulled out of the city to the safety of Riccall, east of York, where his fleet was anchored. The news of the English defeat at Fulford reached Godwinson in London, where he was waiting to see which of the two expected invasion forces would strike first, the Norwegian in the north or the Norman in the south. Harold
immediately gathered a mounted force of 8,000 men and marched north to York.

Harold Godwinson’s army consisting of 2,000 of his personal bodyguard, the huscarles, and perhaps another 6,000 members from the *Select Fyrd*, a body of Anglo-Saxon nobles and freeman organized since the Viking invasions of the ninth century to defend England.
The core of Godwinson’s rapid deployment force was the huscarles, made up of Danish volunteers, Saxon household troops and professionally trained and equipped relations of the king and earls. Protected like their Viking forebears in ring-reinforced leather jerkins or mail, these soldiers wore conical helms and carried large 3 foot round shields or
kite shields. The huscarles’ primary offensive arm was the large Viking broad axe, with its characteristic 5 foot haft, swung with both hands in an overarm motion from the left side in order to hit the opponent on the unshielded side. As secondary weapons, the huscarles used short spears and javelins, thrust overarm or thrown.
Besides his huscarles, chosen members of the Anglo-Saxon army known as the Select Fyrd accompanied Harold. The Select Fyrd consisted of both a trained warrior class of thegns (similar to the Viking bondi), landowners of 100 acres or more who were obligated to
serve in the Anglo-Saxon army during wartime or a military emergency once per year, and of trained peasants or *fyrdmen*, paid per term served, usually two months per year. The thegns and fyrdmen fought side by side with no class distinction in a heterogeneous mix, defending Anglo-Saxon England since the battle of Maldon in 991. In battle, the huscarles,
thegns and fyrdmen fought as infantry, using horses for strategic mobility and dismounting for combat. Anglo-Saxon tactics owed much to earlier Germanic and Viking trends toward unarticulated infantry and there is little evidence that the Anglo-Saxons possessed a true heavy cavalry arm prior to 1066.

The huscarles and Select
Fyrd were supported on campaign by the local peasant militia, sometimes called the *General Fyrd* or *Great Fyrd*. These levies usually fought locally to protect their hearth and home, but as soldiers they were the least dependable element of the Anglo-Saxon army. When in combat, the General Fyrd usually occupied the rear ranks behind their more able
and better-armed comrades. The placement of peasant
levies in the rear had changed little since late antiquity when
the Franks and Goths fought with the experienced warriors
in front, forming the outer edge of the boar’s head
formation, and the lesser-armoured troops behind.

Unencumbered by the slow-
marching General Fyrd, long
supply lines, or a baggage
train, Godwinson’s mounted army traversed 190 miles from London to Yorkshire in just five days, arriving in Tadcaster, 10 miles south of York (see Map 3.1). Sealing off Tadcaster in order to maintain strategic surprise, Harold moved into York under cover of darkness, then marched in the early morning hours of 25 September the 8 miles toward Stamford
Bridge, where Hardrada and Tostig awaited negotiators from York (Map 3.2(a)). As the English army moved over and down the hill toward Stamford Bridge, Hardrada was caught completely off guard. One third of the Viking army was left behind in Riccall, while many of those men present at the bridge were without helmets or armour. Hardrada
dispatched messengers back to Riccall to bring reinforcements, then deployed a small detachment of soldiers as a delaying force on the York side of Stamford Bridge directly in the path of the English advance.

As the English column crashed into the Viking rearguard, Hardrada rushed his men across the bridge and formed them up in a shield
wall on a ridge dominating a meadow, about 300 yards from the Derwent River (Map 3.2(b)). Despite the valour of the Viking rearguard (according to the Anglo-Saxon Chronicle, one lone Norseman killed forty Anglo-Saxons on the bridge before being overwhelmed), the English eventually gained the bridge and spilled out over into the meadow on the other
side. Harold re-formed his lines, then attacked up the ridge (Map 3.2(c) and (d)).

At first, the Vikings held their ground behind their shield walls, but then, deceived by a feigned withdrawal, Hardrada himself broke ranks and, leading his own huscarles, launched a premature counter-attack (Map 3.2(e)). It is at this moment that Hardrada may
have taken an arrow in the throat. Nevertheless, the huscarles surged and buried the Norse king under a fury of English blades. Even the late arrival of a relief force from Riccall could not turn the battle in the Vikings’ favour. As darkness neared, the surviving Norse were pursued by remounted English troops back to the waiting Viking fleet at
Riccall, where, with their backs up against their longships, they were drowned or slaughtered (Map 3.2(f)). When King Harold rounded up the Norse survivors of the battle and placed them aboard their captured Viking ships for the trip home, only 24 of the original 300 ships were needed to carry them back to Norway.

Harold Godwinson won a
decisive victory over the Norsemen at Stamford Bridge, forever ending the threat of another Viking invasion force on English soil. After the battle, the badly injured Anglo-Saxon army limped back to York, where, on 1 October while resting and enjoying a victory feast, news arrived that William the Bastard had landed at Pevensey on 28
September with 11,000 men. Unwilling to let the Normans pillage his subjects in south-east England, Godwinson gathered his weary but undefeated army and rode south to defend his crown.
Map 3.2 The Battle of Stamford Bridge, 1066. (a) Phase I: Harald Hardrada and his Norwegian army, accompanied by Tostig, the brother of the newly crowned Anglo-Saxon king, Harold Godwinson, await a party of negotiators from York near Stamford Bridge (1). The unexpected appearance of an Anglo-Saxon force
under Godwinson (2) sets off a flurry of activity in the Viking camp. Hardrada deploys a rearguard (3), orders his army to the far side of the Derwent River (4) and dispatches a messenger to Riccall for reinforcements (5). (b) Phase II: Heavily outnumbered by the English column (1), the Vikings’ hard-fighting rearguard is inexorably driven back to and across the bridge (2). Their valiant stand has purchased precious time, allowing Hardrada to begin forming a shield wall on a ridge dominating a riverside meadow (3). (c) Phase III: Finally overcoming the last remnants of the Viking rearguard,
the English forces pour across the bridge (1) and form in the meadow (2) as the invaders finish forming their shield wall (3). (d) Phase IV: Harold launches an attack uphill (1) against the Viking shield wall (2), but the defenders hold their ground. (e) Phase V: Harold orders a feigned retreat and Hardrada takes the bait. The Vikings break the integrity of their shield wall and pelt down the slope after their foes (2). They are met by a flurry of arrows (3), and Hardrada may have fallen at this point in the battle, an arrow piercing his throat (4). A Viking relief force from their fleet’s anchorage at Riccall
arrives too late (5) to tip the scales in the Norsemen’s favour as Harold orders an Anglo-Saxon counter-attack. (f) Phase VI: As nightfall approaches, the English forces regain their mounts and launch a pursuit (1). The fleeing Norwegians (2) are finally brought to bay at Riccall, where many are drowned or slaughtered at the edge of the river. Harold gathers the survivors and places them aboard captured longships for their return voyage. Out of the original invasion fleet of 300, only 24 ships are needed for this task.
King Harold covered the 190 miles from York to London in five days, a testimony to the strategic mobility of medieval armies (see Map 3.1). In London, he ordered his army to resupply and put out a call to arms for the General Fyrd. But reports
that William was ravaging the English countryside compelled Harold to cut short his recruitment and move to where William was waiting at Hastings. On 13 October, Godwinson arrived at Caldbec Hill, 8 miles from Hastings, and put out a call for the local fyrd to join him. By nightfall his force totalled perhaps 8,000 men, including 2,000 huscarles, and 2,000 to
3,000 troops from the thegns and Select Fyrd. The balance of the army came from the local peasant militia or General Fyrd.

Godwinson most likely planned to conduct a surprise attack against William, but his arrival at Caldbec Hill so late in the day cost him the initiative in this campaign. Without surprise, Harold recognized his exhausted and
relatively inexperienced army could not launch a successful attack against William’s forces at Hastings in the same manner that brought him victory against Hardrada at Stamford Bridge. Understanding the extreme vulnerability of his unarticulated infantry army to Norman shock cavalry on level ground, Harold decided to take the defensive with the
hope of exhausting the Normans. On the morning of 14 October, Harold ordered his Anglo-Saxon army to Senlac Hill, deploying his infantry along a 1,100 yard front straddling the only exit road from Hastings, thereby blocking William’s access to the English heartland.

William the Bastard’s scouts discovered Godwinson’s army on the
evening of 13 October, then informed the duke that they were approaching. After spending a night in his camp at Hastings on full alert, William gathered a force of about 8,000 troops (leaving 3,000 men to garrison Hastings) and struck out in the early hours of 14 October in search of the Anglo-Saxons. The invading army approached Senlac Hill
deployed in column just as Harold was finishing his own deployment. The largest contingent of William’s army, the Bretons, anchored his left, while the Normans took up position in the centre, and the Franco-Flemish allies formed up on the duke’s right.

Whereas Harold’s army was an infantry force made up of some 8,000
spear-, axe-, sword- and javelin-wielding troops, William’s army was a true combined-arms force, consisting of 4,000 infantry, 3,000 mounted knights and 1,000 bowmen. William arrayed his forces in three lines. In the first line he placed his archers and crossbowmen, in his second, his heavy infantry, and in the third line, his heavy cavalry.
The Norman commander understood the power of the combined-arms tactical system, and he intended to employ his forces in recognition of each arm’s strengths.

Godwinson arrayed his army on Senlac Hill in a shield wall seven ranks deep across a front 1,100 yards wide. In typical Saxon fashion, he placed his best
troops, the huscarles and thegns, in the front ranks (Map 3.3(a)). Behind these experienced warriors he placed his Select Fyrd, and in the rear were the levies of local militia from the General Fyrd. Harold commanded the English from a small hill behind the lines, surrounded by members of his personal bodyguard, the huscarles.

The battle of Hastings began
at mid-morning when Norman light infantry archers moved slowly up the slope toward the English position, then opened fire on the English shield wall (Map 3.3(b)). William hoped that his archers would thin the ranks of the English line. The Norman arrow barrage did not break up the English infantry, and William ordered his archers to withdraw and
his heavy infantry into the attack. As the Norman infantry advanced uphill, it came under attack by a hail of javelins, spears and sling bullets. Fierce fighting ensued when the invaders crashed into the English shield wall. As the infantry clashed, William ordered his cavalry to attack, but the mounted knights failed to penetrate the English lines.
(Map 3.3(c)). On William’s left the Bretons, who met the English line first, became confused and disengaged in order to regroup at the bottom of the hill.

The apparent flight of the Bretons forced William to disengage his centre and right to cover his exposed left flank (Map 3.3(d)). The English right, which repulsed the Bretons, broke ranks and
counter-attacked down the hill. At this moment the rest of William’s army began to waver, and rumour spread that William had been killed. To rally his men, William personally led his bodyguard into a meadow and lifted his conical helm, reassuring his men that he was still alive. The duke of Normandy then ordered his centre to wheel left and pursue the Anglo-
Saxon counter-attack, cutting it off from any support from the ridge (Map 3.3(e)). Godwinson watched helplessly from Senlac Hill as hundreds of his men were surrounded and slaughtered.

At midday William ordered another assault against Godwinson’s shield wall. Once again, the continental archers attempted to break up the Anglo-Saxon line, and
once again the infantry attacked, but the shield wall held (Map 3.3(f)). William himself led the cavalry charge, and had his horse cut out from underneath him. But at the end of the second attack, the English held firm, and the Normans withdrew to their original position down the hill.

During the afternoon, both sides regrouped and rested
Although the two Norman assaults had not breached the Anglo-Saxon line, the attacks were taking a toll on the English defenders. William’s use of alternate shock and missile attacks caused casualties and demoralized a force that received both forms of attack passively. Without light infantry and a cavalry arm, Godwinson had no choice but
to remain on the defensive and absorb the Norman attacks.

Some time in the late afternoon, William assembled his forces for one last assault on Godwinson’s position. This time, William ordered his archers to target the rear ranks of the shield wall where the General Fyrd was located. This angle of attack allowed the archers to continue their
shower while the Norman infantry and cavalry engaged the enemy. As the Norman archers rained death down on the Anglo-Saxon rear, William ordered his infantry to attack up Senlac Hill again, closely followed by a cavalry charge. With daylight fading, the English line began to falter under the attack.
Figure 3.3 The Battle of Hastings, 1066. (a) Phase I: As Harold Godwinson puts the finishing touches on his army’s deployment into a seven-rank shield-wall, William the Bastard’s invading army deploys from column into line facing the English positions on Senlac Hill. (b) Phase II: At mid-morning, William orders his
archers forward, hoping to thin the English ranks and weaken the shield wall (1). As it becomes apparent that the Norman archers are failing to break up Harold’s formation, William orders them to withdraw (2) and orders his heavy infantry into motion (3). (c) Phase III: As William’s infantry collide with the English shield wall (1), the duke orders his heavy cavalry forward (2). Even with the additional weight hurled against them, the English fail to break. William’s Breton forces on his left (3), having been engaged longer than their comrades, begin to lose cohesion and withdraw in an attempt to
regroup (4). (d) Phase IV: The Breton withdrawal forces William to begin to disengage his line in an attempt to protect his now exposed left (1), as the victorious English right break ranks to pursue the Bretons down the hill (2). The apparent flight of the Bretons and a report that William has been killed cause the Norman army to begin to waver (3). At this moment of crisis, William shows himself to his men to disprove the rumour, and rallies his forces (4).

(e) Phase V: William wheels his centre and encircles the over-extended and unsupported English (1), destroying them and snuffing out their
counter-attack (2). (f) Phase VI: Having regrouped his forces, at midday William orders his archers to attack Harold’s shield wall yet again (1), followed by another infantry assault (2) and cavalry charge (3), the latter led by the duke himself. None of these manoeuvres succeed in breaking the English line, and the Normans withdraw to the base of the hill. (g) Phase VII: As the day wears on, both sides regroup (1). Harold’s English army has absorbed a great deal of punishment without inflicting much in return. William orders another assault, this time ordering his archers to target the English rear (2). This
shift in trajectory allows the Norman infantry and cavalry to press their attack (3) and they begin to make inroads in the English shield wall. During this attack, Harold is struck in the eye by an arrow and falls wounded (4). (h) Phase VIII: A band of Normans cuts its way through to Harold’s position and kills the king (1). Now breached in many places (2), the English shield wall begins to disintegrate as word of their leader’s death spreads. Although small groups of huscarles fight to the death, the English forces begin to flee the battlefield (3), and the victorious Normans overrun the ridge.
All along the English front, Norman infantry and cavalry were penetrating the shield wall. It was at this moment that an arrow struck King Harold in the eye. As Harold
lay wounded, a group of Norman knights fought their way to his headquarters and killed him (Map 3.3(h)). News of the king’s death spread quickly through the Anglo-Saxon ranks, breaking the defenders’ morale. Although small handfuls of the huscarles fought on to the end, a general rout ensued and the Normans overran the ridge.
The battle for Senlac Hill proved to be a deadly struggle between Anglo-Saxon infantry and a Norman combined-arms army utilizing heavy cavalry as its centrepiece. But one must remember that heavy cavalry did not win this battle by itself, but in co-operation with heavy and light infantry. In fact, the battle was only won when William stopped
using his archers, infantry and knights piecemeal and used them in concert for the final assault on Senlac Hill, killing a king and destroying the flower of Anglo-Saxon nobility. William of Normandy emerged from the fray as William the Conqueror, and on Christmas Day 1066 was proclaimed King William I by the Anglo-Saxon Witan.
The complete conquest of England was not immediately achieved by the victory at Hastings. William faced scattered Saxon resistance until 1069. During the conquest, William ordered a Norman motte-and-bailey castle built in every important borough (perhaps 550 of these fortifications were built between 1066 and 1087) and appointed a Norman vassal to
serve in each district as his governor. William was careful to take title to the whole of England and make his vassals swear an oath of personal loyalty to him in return for their fiefs. William ensured that the Norman form of centralized feudalism would replace the patchwork of earldoms that had dominated Anglo-Saxon England for centuries. He
also extended his control to southern Scotland in 1072, initiating centuries of border wars with the Scots. Because he and his heirs retained the title of the duke of Normandy, at his death in 1087, William left an Anglo-Norman empire that would be a source of conflict between England and France for centuries to come.

The Norman conquest of
England in 1066 was preceded by the Norman conquest of southern Italy and Sicily beginning in the early eleventh century. At this time, the southern half of Italy was in a state of near anarchy. Although the area was nominally under Byzantine control, most of the inhabitants were not loyal to their Greek landlords. Norman adventuring in
southern Italy was first recorded in 1017, when a man named Melus rebelled against his Byzantine lords in Baro with the aid of 250 Norman knights. Melus and his forces met the Byzantine governor at the battle of Cannae, and were soundly defeated. Only a few Norman knights survived the battle. Despite this inauspicious entrance into Italian affairs,
the Normans were in great demand in Italian armies, and began arriving on the peninsula in large numbers. Norman knights were hired as mercenaries by Lombardian, Langobardian and Byzantine rulers, often fighting on opposing sides for whatever lord would pay for their services.

In 1030 a Norman knight named Rainulf was given a
castle and benefice by the duke of Naples as payment for helping him back into power. In the following decades, several more Norman knights became landholders, while some even became lords in their own right. Before long, the Lombards, who regretted inviting the Normans to Italy in the first place, were joined by the papacy, the Byzantines
and the Holy Roman Empire in trying to prevent the creation of a strong Norman state in southern Italy. But in the end, their efforts failed when a combined German and Lombard army was defeated by the Normans at the battle of Civitate in 1053. After Civitate, control of southern Italy and Sicily was firmly in the hands of the Normans.
One of the primary architects of these conquests was Robert Guiscard (1016–1085), a Norman adventurer who built an army from the ground up out of local brigands. By 1057 Guiscard was the duke of Apulia. Over the next quarter of a century, Guiscard solidified his power base in southern Italy and Sicily, then turned his attention toward the east and
Byzantium.

In 1081 Guiscard crossed the Adriatic and laid siege to the coastal city of Durazzo (ancient Dyrrachium) in what is now Albania. He landed his force on a small peninsula west of the mainland and made camp at the citadel of Dyrrachium. To aid the besieged city, the new Byzantine emperor, Alexius I Comnenus, sent a large relief
force consisting of mostly mercenaries and Serbian allies, with only a sprinkling of native Byzantine troops. The emperor planned to attack the Norman camp from three directions: from the north across a swamp and down the peninsula, from the east across a bridge, and by sea from the south. But before the Byzantines could converge on the Norman
camp, Guiscard sallied from the camp across the bridge and burned the span behind him to prevent the flight of his own men (Map 3.4(a)).

The Byzantine vanguard, consisting of Varangian mounted heavy infantry, was the first to arrive on the battlefield. These unarticulated infantry men were armed and armoured like their Scandinavian
cousins the huscarles with 5 foot hafted broad axes and protected by conical helms, mail, and round shields slung on their backs. The commander of the vanguard, Nampites, was given a small contingent of light cavalry archers by Alexius to use against the Normans. The emperor ordered his vanguard commander to use this light cavalry to break up the
Norman lines, then exploit the tears with follow-up infantry attacks. Nampites disregarded these orders.

Without waiting for the main force to arrive, Nampites ordered the Varangians to dismount and boldly attack the right wing of the Norman lines before it arrayed for battle, driving both foot and horse into the sea (Map 3.4(b)). The
element of surprise favoured Nampites in much the same way it had favoured Godwinson at Stamford Bridge. Still, Guiscard was quick to turn his flank and he counter-attacked the vanguard with a cavalry charge, cutting off the greater part of the relief force, and surrounding and isolating the remaining infantry on a small hill near the coast by the
deserted Chapel of St Michael (Map 3.4(c)). Here, like the battle of Hastings (but on a smaller scale), the Normans made good use of heavy cavalry and light infantry archers with alternating shock and missile attacks.
Map 3.4 The Battle of Durazzo, 1081.

(a) Phase I: Robert Guiscard’s Norman army makes camp at the citadel of Dyrrachium and lays siege to the town of Durazzo. The Emperor Alexius dispatches a force to attack the invaders through the swamps to the north of the enemy camp, across the bridge to their east, and from the
sea to their south. Guiscard learns of the approach of the Varangian vanguard (1) and orders his force across the bridge (2), burning the span behind them to prevent retreat. (b) Phase II: Disregarding his orders to use an attached element of mounted archers to break up the enemy formations and to wait for the arrival of the main body, Nampites launches an immediate assault with his dismounted Varangian infantry against the Norman right (1). Hit before being fully deployed, the Norman horse and foot are driven into the sea (2). (c) Phase III: Guiscard quickly refuses his flank and
launches his heavy cavalry in a charge that cuts off many of the Varangians (1). Lacking the tactical cohesion of their foes, many of Nampites’ men are slain. Those not killed in the counter-attack flee to a small hill and the chapel of St Michael (2). (d) Phase IV: Guiscard’s forces surround the chapel (1). The surviving Varangian infantry are burnt alive as they seek shelter in the building (2). When the Byzantines’ main body finally arrives, it refuses to engage the victorious Normans and leaves the area.

After the majority of the
Varangians were killed by the combined-arms efforts of the Normans, the remaining northmen were burned out of the chapel. At Durazzo, the Varangian infantry were killed to the last man (Map 3.4(d)). When the other Byzantine mercenaries and allies arrived, they refused to engage the victorious Normans, and left without striking a single blow. The
battle of Durazzo showed again the inferiority of medieval infantry in combat against feudal cavalry supported by light infantry.

By looking at the Norman successes in England and southern Europe, we can see how sophisticated medieval combined-arms tactics were in the eleventh century. In both regions, Norman heavy cavalry was the dominant
feature in each success, but it by no means acted alone. Although combined-arms co-operation was limited in the medieval period, it was often essential to the success of a battle. Light infantry archers assisted Norman heavy cavalry at Hastings and Durazzo, and in both cases archers protected the mounted knights and wore down the enemy ranks, causing tears in
the enemy formation that could be exploited by their own lancers.

Though the Normans made good use of the available tactical systems, the classical definition of combined arms was not in wide use by other commanders in the high Middle Ages. As the period continued, the value of using cavalry and infantry in cooperation would be lost on
most medieval commanders, leading to the dominance of heavy cavalry in western European warfare. Furthermore, this dominance on the battlefield was reinforced by the mounted aristocracy’s pre-eminent position in medieval society, a position that increasingly placed the militia foot soldier as a second-class citizen, one that would be used as fodder.
on the battlefield. Perhaps most significantly, the ability of medieval heavy infantry militia to resist the aristocratic heavy cavalry alone virtually disappeared from the battlefields of western Europe for nearly 300 years. Heavy cavalry’s dominance in medieval warfare would persist until the thirteenth century when the application of light
infantry tactics in cooperation with well-articulated heavy infantry battle squares returned to challenge the knight’s position at the top of the military order.

Medieval culture revolved around the knightly class, whose hereditary membership was primarily defined by the ability to fight as shock cavalry. Indoctrination into
this military caste began at puberty with a long residency and training among peers in the household of a great lord. After learning the necessary skills of horse management, etiquette, and mounted and unmounted combat, the squire was dubbed a knight at his majority in either an elaborate church ceremony or on the field of battle. Training usually began around the age
of twelve. The young squire was taught how to choose and look after a mount, as well as how to ride. He was also instructed in the use of a wide variety of weapons such as the spear, sword and shield, axe, mace, and flail, as well as unarmed combat such as wrestling. Once he could manage a horse, he learned how to hunt, a valuable skill which taught the use of
terrain and available cover, and select lines of advance. Mounted combat was emphasized. As a knight he entered a martial fraternity that valued individual valour and honour gained through battle over co-operation with one’s peers and social inferiors on the battlefield.

This emphasis on individual warfare can best be seen in the emergence of tournaments
in the early twelfth century, essentially medieval job fairs where knights could show their wares and build military reputations. Here, the skills of fighting on foot and on horseback in jousts were perfected. A knight’s primary goal was to capture an opponent and ransom him back to his vassals, thereby gaining both capital (weapons, armour, horses and
money) and reputation. In 1177 the English knight and future regent of England, William Marshal (1146–1219), made a tour of the tournament circle with a Flemish knight named Roger de Gaugi. Within one ten-month period the pair defeated 103 knights, taking their horses, harness and equipment as their spoil. These early tournaments were
very realistic and participants were often maimed or killed, which led to a more formalized and less dangerous tournament in the later medieval period.

The growth of tournaments in the early twelfth century was but another attempt to contain the martial atmosphere that accompanied the expansion of feudal warfare in the high Middle
Ages. In the absence of strong, centralized monarchical authority, a culture of violence emerged. Civil disputes and criminal cases alike ceased to be adjudicated by the enfeebled royal power and were instead settled by the sword. The unarmed segment of the population, the church and the peasants, increasingly became victims. The
prevailing anarchy stimulated a response from the strongest institution of the medieval period, the Catholic Church, which launched two movements designed to limit and contain the warrior aristocracy’s violent behaviour.

In the ‘Peace of God’ (first pronounced in 989), the Church threatened spiritual sanctions against anyone who
plundered or violated a church, struck an unarmed member of the clergy or robbed a peasant. The prohibition was later extended to knights attacking merchants or pilgrims and destroying mills or vineyards. Early in the eleventh century the second movement emerged. The ‘Truce of God’ asked the mounted aristocracy to forgo the
pleasure of war on Thursdays, Fridays, Saturdays, Sundays and holy days, and to refrain from acts of violence at all times in and around churches.

Although how much the Church’s sanctions curtailed the knightly class’s behaviour is debatable, their impact on the mounted warrior’s psychology and on the institution of knighthood was significant. The collective
oaths helped create a class-consciousness that included acknowledging a personal responsibility to the Catholic Church and to the unarmed population. In fact, by prohibiting attacks on the clergy and the poor, the Church was advocating a new knightly mission as active protector of both.

Moreover, the oaths taken to enforce the Peace and Truce
of God married the institutions of war and religion in western Europe and helped establish how the aristocratic heavy cavalryman defined himself. These perceptions became codified in the high Middle Ages in *chivalry* (after *chevallerie*, meaning ‘skill on horseback’ in French), essentially a fusion of Germanic and Christian cultural elements.
into a new code of honour. From the eleventh century onward, chivalry was reinforced by the religious ceremony of dubbing to knighthood, the adoption of distinguishing emblems and blazons (and the science of heraldry to develop and interpret these symbols of station), and the emergence in the twelfth century of court poets known as troubadours.
to sing the praises of knights living, past and legendary.

Perhaps the most conspicuous example of the marriage of religion and warfare in medieval Europe can be seen in the rise of military orders dedicated to fighting the enemies of Christendom in Church-sponsored holy wars known as crusades. Beginning in the twelfth century, these militia
Christi or ‘soldiers of Christ’ fought the infidel in crusades in Spain, the Holy Land and eastern Europe with various degrees of success. In each of these regions, the Knights Templars, Knights Hospitallers, Teutonic Knights, and the Spanish orders of Calatrava, Santiago and Alcantara performed their military duties with a monastic discipline in stark
contrast to the often uncontrollable individualism of traditional knights.

The Crusades: Latin Heavy Cavalry in the East

It was the energetic papal reformer Gregory VII (pope 1073–1085) who first sanctioned lay knights as *militia Christi* to fight against the infidel, focusing the
martial energies of the mounted aristocracy away from one another and toward the perceived threat of Islam. He did this in part because of Christian successes against Muslims in Sicily and Spain, and because of a new wave of Islamic territorial expansion that threatened the very existence of Byzantium after the loss at Manzikert. Unlike previous popes who
advocated peace, Gregory discarded this pacifist ideology in favour of the ‘theory of the two swords’. Gregory believed, as the temporal representative of St Peter and the Vicar of Christ, that the pope held two swords: a spiritual blade to be drawn by his own hand, and a secular one to be drawn at his command by nobles and knights serving as ‘soldiers of
Moreover, Gregory added a powerful spiritual incentive: ‘taking up the cross’ and going on crusade granted the knight a papal indulgence, essentially a total remission of sins both past and future. Gregory’s vision of the Christian soldier who wins salvation by military action provided the ideological and psychological motivation for
crusade. All that was needed was a *casus belli*, and that was provided by the Byzantine emperor’s call for help to Gregory’s successor and protégé, Pope Urban II.

In the late eleventh century the Byzantine Emperor Alexius I Comnenus appealed to Pope Urban II to use his influence in western Europe to dispatch military aid in order to assist the emperor in
recovering the Anatolian districts lost after the battle of Manzikert. Urban II seized upon this request to justify a much more ambitious project, the recovery of the Holy Land from control of the Muslim Seljuk Turks and Arabs in the region. At a Church council at Clermont in central France in November 1095, Urban preached the First Crusade to nobles and commoners alike,
unleashing a river of enthusiasm that exceeded even the pope’s expectations. This ‘call to arms’ initiated cultural and military contacts with the Levant that pulled the Latin kingdoms out of feudal warfare in western Europe and directly again into the streams of Eurasian history.

The armies of the First Crusade (1095–1099) were
led by a half-dozen French and Norman nobles, including Hugh of Vermandois, brother of King Philip I of France; Robert of Normandy, brother of King William II of England; and Bohemond of Taranto (eldest son of Robert Guiscard and a participant at Durazzo in 1081) and his very capable nephew Tancred. Joining these Norman lords from
England, France, Italy and Sicily were Raymond of St Gilles, count of Toulouse, and Godfrey of Bouillon, duke of Lower Lorraine. Within eight months of Urban’s sermon at Clermont, thousands of knights and tens of thousands of infantry enlisted under the banners of these great regional princes, and, together with thousands of religious pilgrims, set out
by land and sea for their base of operations at Constantinople. They arrived in the Byzantine capital in late 1096.

When the soldiers of the First Crusade first set off from Constantinople for the Holy Land in the spring of 1097, their initial contact with the Seljuk Turks reinforced their belief in the superiority of mounted shock combat. In
June the crusaders besieged the Seljuk capital at Nicaea on Lake Ascania, just east of the Sea of Marmara in Asia Minor. When the sultan of Nicaea returned from Armenia to relieve the city, his Turkish cavalry was beaten back by the more heavily armoured European knights. Pressing their siege, the crusaders breached the outer walls. But when they
began their attack the following morning, the knights found that the Turkish garrison had surrendered to the Byzantine emperor during the night. Denied pillaging rights over the city, the crusaders set off south-east across Asia Minor in two columns about equal in size and about a day’s march apart.

Bohemond of Taranto
commanded the first column, consisting mostly of Normans from France and Italy. A day behind marched the second column, mostly Lorrainers and Provençals, led by Raymond of Toulouse and Godfrey of Bouillion. The first column came out of the forested mountains of Bithynia alone and found itself harried by Seljuk Turkish horse archers. On 30
June, Bohemond’s crusaders camped at the ruined city of Dorylaeum in central Anatolia, then resumed their advance the following morning.

Map 3.5 The Battle of Dorylaeum,
1097. (a) Phase I: Upon receiving word of an approaching Turkish army, Bohemond dispatches a messenger to locate the second crusader column (1). He orders his infantry to make camp (2) and readies his cavalry to locate the foe (3), but before they can establish their camp or deploy for action, the larger Turkish army is upon them (4). The Turks encircle the Latin camp (5), and their initial assault presses the Christian knights back into their infantry (6). (b) Phase II: The encircling Turks launch hit-and-run missile attacks against the beleaguered crusaders (1) all around
the perimeter. Some of the Franks grow restless and small groups of cavalry attempt to pursue their tormentors (2) who easily outdistance the heavier horse. The crusader cavalrymen, cut off from their infantry support, are easily surrounded and cut down by the Seljuks (3). (c) Phase III: Gaps begin to appear in the crusaders’ lines and the Turks launch a sabre charge into the gaps (1). Just as Bohemond’s forces begin to disintegrate, the second crusader column under Godfrey and Raymond arrives on the field (2). The Latin heavy cavalry strike the rear of the Turkish formation and begin to roll up
their left flank (3). (d) Phase IV: Recognizing his opportunity, Bohemond launches mounted charges from within the camp against the rapidly disintegrating Turkish flank (1) as Godfrey’s and Raymond’s fresh forces surge forward (2). Unable to re-form and hard-pressed from front, rear and flank, the Seljuk army is transformed into an incoherent mass of individuals seeking nothing more than survival. The crusaders show no quarter and inflict perhaps as many as 3,000 causalities as the remnants of the Turkish army flee the field (3).
distance, the crusaders’ scouts reported a large Turkish army advancing on them. Recognizing the numerical superiority of the approaching Turks, Bohemond sent a messenger to find the second column and ordered his infantry to make camp, since – and in typical medieval fashion – he judged his footmen to be tactically ineffective against the
mounted enemy warriors (Map 3.5(a)). But before the camp could be set up and before the Christian knights could deploy, the large Turkish host appeared and encircled the crusaders, pushing the knights back into the infantry. A European eyewitness to this attack stated: ‘After we had set ourselves in order the Turks came upon us from all sides,
skirmishing, throwing darts and javelins and shooting arrows from an astonishing range.’

After a while, some of the Frankish lancers grew restless and attempted mounted sorties against the Seljuk light cavalry. But the Latin heavy cavalry could not reach the faster Turkish horse archers, who rode off only to rapidly cut back and swarm the
pursuing knights, separating the hapless European heavy cavalry from their infantry support (Map 3.5(b)). For six hours, the remainder of Bohemond’s troops held their ground while Turkish horse archers wore down the crusaders, killing men and horses. A contemporary described the scene, stating the crusaders were ‘crushed one against another like sheep
penned up in a fold, hopeless and panic-stricken, we were shut in by the Turks on every side’. Under a shower of Turkish arrows, the crusader line began to form gaps.

At midday, the Turks organized a light cavalry sabre charge into the rapidly disintegrating crusader force (Map 3.5(c)). At that moment, Frankish knights from the second column rode
up and struck the Seljuk flank and rear. Bohemond’s messengers had found the second column encamped some 6 or 7 miles away. On receiving the news, Godfrey and Raymond immediately mounted up and, leaving their infantry to guard the camp, spurred off for the battlefield. The arrival of the Christian heavy cavalry completely surprised the formed Turkish
cavalry, who had neglected to reconnoitre the second column’s march. The Seljuks had no time to turn and form a new front. The charge of thousands of crusader heavy cavalry struck the Turkish centre from the rear, rolling up the horse archers’ left flank. Seeing the arrival of a relief force, Bohemond ordered an attack the moment his allies appeared at the rear
of the enemy, catching the Turkish left wing between the two Christian forces (Map 3.5(d)). The crusader knights’ charge was incredibly decisive, inflicting perhaps 3,000 casualties on the Turks. Christian losses were about 4,000 men in total.

The one-sided victory won at Dorylaeum became a model battle for the crusaders, with the heavy
casualties inflicted on the Turks only reinforcing western prejudices concerning the strength of their heavy cavalry. For the Turks, the shock of losing so many of their light cavalry to these strange medieval juggernauts would delay a fully organized military response on their part, but reorganize they would. After completing their
march across Anatolia, the forces of the First Crusade split into two armies, one under Baldwin of Boulogne and Tancred going on to establish Christian rule over Edessa in Armenia in March 1098, and the other under Bohemond of Taranto and Raymond of Toulouse marching south down the eastern coast of the Mediterranean toward the
Holy Land. This second army nearly starved before capturing Antioch in a protracted siege in June 1098. By the time the crusaders stood before Jerusalem in mid-June 1099, their fighting strength was reduced to only 14,000 men.
Map 3.6 The Crusader States.
Under the leadership of Godfrey of Bouillon, the crusaders began a siege of Jerusalem, building three large siege towers and launching attacks against the city’s defences. After difficult fighting, the crusaders finally breached the walls on the night of 13 July, putting tens of thousands of Muslims and Jews to the sword. A month later, the crusaders confirmed
their grip on the Holy City when they defeated a relief army sent from Egypt at the battle of Ascalon. At Ascalon, a crusader army surprised the Egyptian camp at dawn on 12 August. In the mêlée that followed, the entire Muslim army was shattered. By the early twelfth century, the crusaders had carved out feudal possessions in the Levant consisting of
the kingdom of Jerusalem, the county of Tripoli in Lebanon, the principality of Antioch and the county of Edessa in Armenia (Map 3.6).

Once settled in, the crusaders adopted a defensive strategy centred on the seizure of existing fortified places such as Muslim and Byzantine-era castles and walled cities. This strategy was coupled with an
aggressive castle-building programme, dotting the Levant with literally dozens of new castles over the duration of the twelfth and thirteenth centuries. Despite their prolific use of fortifications, the crusaders continued to rely heavily on their field armies to defend against Muslim counter-attacks. But because manpower was an almost
irreplaceable commodity, the crusaders avoided pitched battles whenever possible. Battle was offered only as a last resort or when the odds seemed overwhelmingly in the crusaders’ favour.

The Muslim Counter-Crusade: The Dominance of Latin Heavy Cavalry
Challenged

It did not take long for the Muslim counter-crusade to begin. As early as 1101 the Seljuk Turks effectively cut the land-bridge between Constantinople and the Holy Land, forcing the crusaders to send supplies and reinforcements by sea. The challenges of maintaining Latin possessions so far from western Europe forced the
crusaders to seek new ways to meet their manpower needs. Here, the use of a new incarnation of the ‘soldier of Christ’ and employment of indigenous troops would play increasing roles in the defence of the crusader states.

After the First Crusade the bulk of the responsibility for maintaining the Christian presence in the Holy Land was borne by members of the
military orders, with the first Knights Templars arriving in the Holy Land around 1118 as protectors of Christian pilgrims. Templars subscribed to the monastic vows of chastity, poverty and obedience, but were given carte blanche to kill the infidel because their enemies were the enemies of Christ, and their murder was ‘not homicide but malicide’.
Within a few decades, the Knights Hospitallers and Teutonic Knights joined the Templars in the region, recruiting new members in western Europe and building important fortifications and maintaining garrisons in Syria, Lebanon and Palestine. As the twelfth century unfolded, the role of the military orders in the defence of the Holy Land expanded,
with the discipline and dedication of the warrior-monks marking them as the elite shock troops in any crusading army.

Furthermore, to supplement their numbers and readdress the tactical disadvantage to Seljuk horse archers, the crusaders hired *Turcopoles*, indigenous mercenaries who served the western knights as mounted archers and other
types of light cavalry. These troops, often the product of Christian and Muslim marriages, became a standard feature of crusading warfare, serving as large native contingents in the armies of lay rulers and the military orders, while often retaining their own officers.

In 1144 the Islamic counter-crusade intensified when a Seljuk Turkish army overran
the county of Edessa, provoking Pope Eugenius III to preach the Second Crusade (1146–1148). The relief effort was organized by Bernard of Clairvaux (later St Bernard) and joined by King Louis VII of France and the holy Roman emperor Conrad III of Germany. Islam’s military response to the Second Crusade would be to reapply light cavalry tactics against
the invading crusaders, this time with favourable results. Ironically, this tactical lesson was taught on the site of the first crusader victory. At the battle of Dorylaeum II in 1147, Conrad lost nearly his entire expeditionary force to the Islamic ruler Nur ed-Din’s mounted Seljuk bowmen. Only Conrad and a few knights fought their way out of the ambush and
returned safely to Nicaea. With this defeat, the Second Crusade fizzled out.

After the Second Crusade, the crusader states were increasingly threatened from the north and east by Nur ed-Din’s forces, while those of the Kurdish general Saladin (1138–1193), his nephew and lieutenant, threatened from the direction of Egypt. After Nur ed-Din’s death in 1174,
Saladin became the greatest of the Muslim generals, reunifying Syria and Egypt under the Ayyubid Sultanate. With the crusader states now surrounded by a united Muslim power, Saladin pressed home his military advantage.

In 1187 Saladin’s army besieged Tiberias on the Sea of Galilee. The new king of Jerusalem, Guy of Lusignan,
stripped the defences of Palestine in order to assemble a large army of 1,200 knights, 2,000 Turcopole light cavalry and 10,000 infantry at Sephorie for a relief expedition to Tiberias. On 3 July the army marched out from Sephorie and, after advancing about 10 miles, was surrounded by Turkish horse archers (Map 3.7(a)). The crusader column
continued its march under harassment, with the van advancing within 3 miles of Tiberias and the Sea of Galilee, a destination with added importance because of the toll the summer sun was taking on the Christian forces. To make matters worse, the crusaders needed to cross a range of hills about 1,000 feet high before they could descend to the lakeshore. To
meet this threat, Saladin arranged the largest force he had assembled to date, a combined-arms army of 18,000 infantry and cavalry, across the crest of this range and waited for the crusaders’ advance.

At the rear of the crusader column, members of the Knights Templars and Hospitallers became separated from the rest of the
army. Fearing the loss of his elite shock cavalry, King Guy ordered the army to encamp where it stood (Map 3.7(b)). After spending an uneasy night under a barrage of Turkish arrows, Guy took up the march again on the morning of 4 July, but this time not across the pass toward Tiberias, but north toward the village of Hattin and the closest source of
Map 3.7 The Battle of Hattin, 1187. (a) Phase I: King Guy of Jerusalem’s army departs Sephorie and heads towards Tiberias to raise water.
Saladin’s siege of that city (1). After about a 10-mile march, the crusaders find themselves surrounded by fast-moving Turkish horse archers who open a steady harassing fire against the Latin columns (2). A gap begins to open between the crusaders’ centre column and the elite cavalry of the Templars and Hospitallers in the rear (3). (b) Phase II: Guy decides to make camp for the night (1), to allow his rearguard to close up with the rest of the army. The crusaders spend a restless night punctuated by showers of Turkish arrows (2). Meanwhile, Saladin’s combined-arms force awaits the advance of the Christian forces
(3). (c) Phase III: Rather than moving to relieve Tiberias, Guy turns his forces towards the nearby village of Hattin in hopes of finding water (1). The Turkish hit-and-run attacks continue (2) and the crusader infantry, weary and thirsty, break (3) and begin to drift towards the Horns of Hattin (4). (d) Phase IV: Once again, the Templar and Hospitaller cavalry are heavily engaged (1), forcing Guy to halt to allow them to close with his main body (2). Count Raymond of Tripoli decides not to wait and leads his cavalry in a breakout to the north (3), scattering the encircling horse archers (4). (e)
Phase V: The surviving crusader infantry on the Horns are easily destroyed by Saladin’s forces (1), which then turn their attention to the beleaguered knights (2). Twice during the day Guy orders his cavalry to charge the Turks in an effort to break out (3), but to no avail. As the Latin casualties mount, Guy finally orders his men to dismount and surrender. The king is captured and an irrereplaceable crusader army is destroyed.

As the crusaders advanced, Saladin’s warriors surrounded
the Christians again. Thirsty and disheartened, the crusader infantry broke away from the mounted knights and clambered up a pair of hills called the Horns of Hattin (Map 3.7(c)). Meanwhile, at the rear of the column, the Templars and Hospitallers were again heavily engaged, forcing Guy to halt a second time so as not to separate his main force from the elite
cavalry of the military orders. One of Guy’s commanders, Count Raymond of Tripoli, refused to sit and wait. He rallied his knights and charged the Turkish archers, bursting through and escaping into the northern hills (Map 3.7(d)).

Turkish troops easily overcame Guy’s infantry on the hills, then turned toward the king of Jerusalem and his
remaining knights. Twice the crusaders attempted a mounted charge through the Turkish lines and twice their charges failed (Map 3.7(e)). After taking heavy casualties, Guy ordered his knights to dismount and surrender. The king of Jerusalem was captured, and a large crusader army, such as could not be fielded again from local resources, was destroyed,
paving the way for further Islamic inroads into Christian lands. The defeat of the Christian force at the battle of Hattin precipitated the fall of Acre, Jaffa, Ascalon, Gaza, Jerusalem and some fifty crusader castles. By 1188 only the Christian cities of Tyre and Antioch held on to spur Europe to another crusade.

In the space of two years,
Saladin undid what the Frankish invaders struggled almost a century to build. But the fall of the Holy City to the infidel gave new force to Pope Gregory VIII’s pleas to the western world for another crusade, the third. In response to Saladin’s success, the kings of England and France and the holy Roman emperor joined together in a call to arms to free the Holy Land
again.

The Third Crusade (1189–1192) began poorly when the holy Roman emperor, Frederick I Barbarossa (r. 1152–1190), drowned in a river crossing in Anatolia in 1190 attempting to open a land route to the Holy Land. But King Richard I (r. 1189–1199) of England and King Philip II Augustus (r. 1180–1223) of France continued to
the Levant by sail. The Anglo-French force of perhaps 30,000 men recovered Acre in July 1191, but quarrels between Richard and Philip caused the French king and some of his troops to return home, leaving Richard in charge of leading the remaining army to recover Jerusalem.

Second only to Edward III as England’s greatest warrior-
king, Richard researched the disastrous march to Tiberias that led to the defeat at Hattin and vowed not to make the same mistakes. For his own move south to recapture Jerusalem, he hugged the coast, resupplying his army of perhaps 1,200 knights and 10,000 infantry by sea using Italian merchant ships (Map 3.8(a)). To protect his army from Saladin’s troops, the
English king organized his forces into a sophisticated combined-arms formation, one that offered mutual support.

King Richard divided his infantry and cavalry into twelve groups, each with about 100 knights protected by heavy and light infantry. He then formed the twelve groups into five unequal divisions. In the vanguard,
Richard placed the Templars, their Turcopole light cavalry, and foot soldiers. Next came Richard’s own subjects, Bretons, Angevins, Normans and English, followed by the French and Syrian contingents. In the rearguard rode the Knights Hospitallers and their Turcopoles and infantry support.

The crusaders’ order of movement placed the supply
columns next to the shore where they could be resupplied by the Italian fleet, with the twelve groups of cavalry riding inland, protected by heavy and light infantry on the outside, forming a continuous column. The march south from Acre to Jaffa was slow and disciplined. Rest days, always near a water supply and where the fleet could bring up
food and water and rescue the wounded, alternated with marches.

As soon as the crusader advance began, Muslim horse archers shadowed the column, harrying the Christians. But the hit-and-run tactics which served Islamic light cavalry so well against the Europeans in the First and Second Crusades and at Hattin did not bear
fruit against Richard’s combined-arms army. When Saladin’s mounted bowmen approached within short-bow range, they suffered terrible losses to Richard’s light infantry crossbowmen located in the outer column. Firing from the ranks of shielded heavy infantry, the English crossbowmen outranged their Turkish counterparts, killing great numbers of Saladin’s
men.

On the evening of 6 September, the crusaders camped in the cover of a marsh next to the beach just 10 miles north of Jaffa. Morning revealed a Muslim army in the 2 mile gap between the Forest of Arsuf and the Mediterranean Sea. Believing he could push the crusaders into the sea, Saladin launched an ambush with
20,000 troops (perhaps half of whom were cavalry) from the Forest of Arsuf across a front 2 miles wide. As Muslim mounted and unmounted archers shot arrows at the rear of the crusader column, the Islamic lancers charged (Map 3.8(b)). The Hospitallers in Richard’s rear guard lost a great many horses and eventually found themselves pushed back into their own
ranks. Restraining his men, the English king tried to wait until the enemy’s horses were exhausted, but the heat and casualties among the rearguard eroded the warrior-monks’ patience. Before Richard could command an attack, the Hospitallers and French knights in his rearguard passed through their infantry and charged (Map 3.8(c)).
Map 3.8 The Battle of Arsuf, 1191. (a) Phase I: King Richard orders his army to make camp on the evening of 6 September (1). The following morning the five divisions of crusaders move out once again (2),
their march paralleled by the Italian supply fleet (3). Having failed up to now in disrupting the Latin advance with traditional hit-and-run tactics, Saladin gathers a combined arms force of 20,000 and launches an ambush against the crusader column (4). (b) Phase II: The crusaders’ rearguard is struck first as archers, both horse and foot, attack the moving column (1). As the missile fire begins to disrupt the march, the Islamic lancers charge their foe (2). Richard orders the crusaders to continue moving, hoping that Saladin’s horses will tire in the fierce heat. (c) Phase III: As their ranks become compressed
under enemy pressure and casualties from heat and Turkish arrows mount, the Hospitallers and French knights in the rearguard lose their patience and mount a countercharge through their infantry screen (1) as the column continues to march towards the village of Arsuf (2). (d) Phase IV: As the crusaders’ lead elements reach Arsuf, Richard orders the cavalry of his centre divisions to charge the Muslims (1). The flat terrain and close proximity of Saladin’s forces favour the Latin heavy cavalry. The Muslims begin to break under the crusader attacks and begin to be pushed back towards the forest (2). (e) Phase V:
The crusaders launch yet another charge (1), led by Richard himself, which pushes the Muslims back into the forest (2). Pressed between the difficult terrain and the Latin cavalry, Saladin’s army is defeated, losing 32 emirs and 7,000 soldiers.

As the crusader vanguard reached the protection of the gardens of the city of Arsuf, Richard ordered a second charge, sending the centre divisions against the Muslims
The flat terrain and close proximity of the enemy created ideal battle conditions for the crusader heavy cavalry who pursued the enemy for about a mile. Crusader knights attacked three times, with Richard himself leading the third charge that swept the Muslims back into the forest (Map 3.8(e)). Pressed between the Christian column (Map 3.8(d)).
and the forest and unable to get out of the way of the charging knights, 32 emirs and 7,000 Muslims died.

The battle of Arsuf demonstrated again the power of a heavy cavalry charge against unarticulated infantry. The crusaders’ success at Arsuf, like the Normans’ at Hastings and Durazzo, was accomplished in no small part because of heavy cavalry’s
close co-operation with light infantry crossbowmen and the heavy infantry who protected them. But the crusaders’ experience in the Holy Land also revealed weaknesses in the lancers’ capabilities. Heavy cavalry was vulnerable to missile attack from both mounted and unmounted enemies. How individual western European kingdoms addressed this vulnerability
would lead to changes in the relationship between heavy cavalry and the other weapons systems, and ultimately to the demise of the medieval knight.

Between 1097 and 1291, soldiers from the Latin kingdoms of western Europe conquered the Holy Land, carving out territories and modelling them after feudal possessions in their
homeland. But the military success of the First Crusade did not last. Succeeding crusades in the twelfth and thirteenth centuries attempted to win back territories lost between the Second and Third Crusades, but with limited success. In 1291 the last European possession in the Holy Land, the port city of Acre, fell again to the Muslims.
The impact of the crusades on the way Europeans fought was far-ranging. Contact with Byzantium and the Near East affected western European fortification and siegecraft, leading directly to the construction of castle complexes and ways to reduce them. Tactically, the invading mounted cavalry would meet their greatest challenge in the incumbent
weapon system of the Near East, light cavalry. The conflict between these two cavalries would teach valuable lessons to the western Europeans about the strengths and weaknesses of their own mounted shock combat and the importance of combined arms when dealing with enemy light cavalry. But these lessons were not only learned in the Levant. On the
Iberian peninsula, Christian commanders adapted to the novel tactics and technologies of the Moors in their four-and-a-half-century struggle with Islam known to history as the Reconquista, or ‘Reconquest’ of Spain.

The Crusades: The Reconquista in Spain and Portugal

In the early summer of 711,
Muslim invaders from north Africa had crossed the Strait of Gibraltar and attacked the Iberian peninsula. This Arab-led Berber army crossed from Morocco to the southernmost tip of Spain, landing on a huge rock the Arabs named Jebel Tariq (‘Rock of Tariq’), after their commanding general, from which the modern-day Gibraltar derives its name. General Tariq ibn
Ziyad’s military expedition was the latest of a series of Islamic conquests that brought lands stretching from Morocco to Persia under the banner of the Crescent Moon. Although Tariq was an Arab, he commanded an army that was made up mostly of Berbers, a north African people recently converted to Islam. After gathering more Arab reinforcements from
north Africa, the Muslim army swept north, defeating the army of the Christian Visigothic king Rodrigo at Guadelete in July, then marched north again and seized the Christian capital at Toledo. Visigothic resistance melted away and by 714 nearly the entire peninsula lay under Arab rule. The Arab conquerors quickly established an Islamic state in
what they called *Al-Andalus*, known to historians as Moorish Spain.

After the rival Abbasid dynasty ended the Umayyad Caliphate in Damascus in 750, the surviving Umayyad ruler set up an independent caliphate in Spain, but was held in check by the Spanish March put in place by Charlemagne in the 770s. But as the Carolingian Empire
began to lose its power and influence in the middle of the ninth century, this Spanish March became vulnerable to Moorish attacks. Christian Barcelona was sacked in 852, and the Spanish March fractured into what would become the smaller kingdoms of Aragon, Navarre, Castile and Leon.

In 1031 the Umayyad Caliphate disintegrated into
twenty-three small and relatively weak states, called the Taifa kingdoms. No longer threatened by a strong centralized Islamic state to the south, the small Christian kingdoms in northern Spain were finally able to attempt expansion. In 1064 the duke of Aquitaine joined the Catalonians and Aragonese and attacked Barbastro, cutting its water supply and
taking the city after a forty-day siege. The Christians massacred the Muslim men and enslaved their women and children. And although Barbastro was retaken by the Muslims, this attack is usually considered the opening phase of the Spanish Reconquista. What began as a regional conflict eventually evolved into a pan-European crusading movement,
complete with military orders and papal sponsorship.

Like Carolingian France, Christian Spain adopted feudalism in an attempt to meet its manpower needs, but the term ‘feudal’ should be used sparingly here. Although there was an institutionalized requirement for lords to provide troops for their monarchs, it was a far cry from the strict Frankish
feudal system developed north of the Pyrenees, mostly because of its uneven application by the various Spanish kingdoms. The Spanish rulers in Aragon, Navarre, Castile and Leon maintained the right to summon armies in times of need, but the overall effectiveness of these peasant levies was suspect, and these monarchs’ reliance on
mercenaries (both Christian and Muslim) began to take a toll on the combat effectiveness of their armies. However, through the use of milites (professional, full-time soldiers, armed with lance and spear) and caballeros villanos (non-noble knights supported by termed benefices), these Spanish kings created capable armies for the reconquest of
central and southern Spain and Portugal.

As the Christians pushed south of the sierras and onto the high plains, long-distance raiding or *cabalgadas* increased in importance. Military campaigns involved raiding and the besieging and capture of cities. And once land was liberated from the infidel, these same Christian monarchs used captured
castles and fortified towns or built new ones to pacify recently conquered land or as bases to launch raids deeper into enemy territory. This expanding Spanish frontier became, in the words of one well-respected historian, ‘a society organized for war’.

Eventually, as towns were liberated, they were divided by their new Christian landlords into cabalerias
(cavalry portions exempt from taxation) and *peonias* (infantry portions where taxes were paid), and areas of land were granted to settlers *(peones)* who were willing to provide the assigned obligation. Peones who became rich enough could become *caballeros villanos*. The numerous Muslim Andalusian troops who remained to serve in Christian
armies were simply listed as non-noble *cavallers* or horsemen.

With access to more land to support cavalry, the composition of the Christian feudal army began to change, with lords fielding more cavalry at the expense of infantry. Spanish lords did utilize Frankish-style heavy cavalry, but added a lighter version to their tactical mix.
These light cavalry mounts were thoroughbreds (*jinetes*) equipped with low saddles, shorter stirrups, and specially shaped palate bits for increased control (and therefore mobility). This new bit allowed for neck reining, which gave the rider more control over his mount. The short stirrup and low saddle differed from those of knights from the rest of Europe who
sat securely straight-legged on high saddles, a position ideal for shock combat using lances. This new Spanish light cavalry’s short stirrup and low saddle also allowed for quick remounting, and the smaller and faster mounts were better suited to counter the lighter and more agile Muslim light cavalry horse archers and mounted javelineers that used the karr-
wa-farr (simulated flight) as their best offence. This new Christian light horse went so far as to adopt a similar feigned retreat, known to the Spanish as torna-fuye.

The Christians fought with a combined-arms tactical system which included unarticulated heavy infantry, light infantry bowmen and javelineers, northern European-style heavy cavalry
and the new, Moorish-inspired light cavalry. Christian troops were usually better armoured than their Muslim counterparts, with noble and non-noble milites and cavallers wearing mail hauberks, separate mail coifs and metal helmets, and armed with maces, cavalry axes, sword and, if properly saddled, lances.

The Islamic forces engaged
against the Spanish Christians were primarily cavalry, with mounted soldiers outnumbering the foot soldiers. Muslim and Christian light troops, both mounted and unmounted, used javelins (weapons discarded north of the Pyrenees after the Viking age) and powerful composite bows effectively, but Muslim light cavalry and light
infantry generally went to war unarmoured. The Muslims also utilized an ancient Berber strategy of using camel laagers as a screen from which to launch attacks (the smell of Berber camels confused Christian horses untrained to work with this type of animal), and were still using stationary infantry phalanxes as a defensive formation, supported by light
infantry bowmen and javelineers. North African Berber troops, like Mongol warriors centuries later, were also trained to manoeuvre silently to the sound of massed drums, a sight which no doubt unsettled their Christian adversaries.

The Battles of Sagrajas and Las Navas de Tolosa
In the last decades of the eleventh century, Christian armies swept south into central Spain and Portugal, but they were soon challenged by a resurgent Berber power from north Africa, the Almoravids (1085–1147). Berber involvement was initially spurred in 1085 by King Alfonso VI of Castile-Leon’s capture of the Muslim
stronghold of Toledo. The Muslim ruler of Seville, al-Mu’tamid (r. 1069–1091), appealed for aid from north Africa, and the Almoravids sent troops to blunt further Christian expansion. The Almoravid commander, Yusuf ibn Tashufin, moved his army from his secured port of Algeciras in north Africa to Badajoz in Castile. Shortly after landing, Yusuf’s
ranks were swollen by al-Mu’tamid and his Moorish contingents from Granada, Seville and Malaga.

King Alfonso, now besieging Saragossa, was forced to lift his siege and raise an army for a *fossato* (major expedition). In addition to his levies from Castile and Leon, Christian contingents were sent by the king of Aragon. A Castilian
mercenary force under the command of Alvar Fanez was recalled from Valencia, and individual knights from elsewhere in Christendom (France and Italy) are reported to have joined Alfonso’s banner. After a year of preparation, the two forces met at Sagrajas on 20 October 1086.

There are no precise records on the size and composition
of each host, but the Muslims probably possessed superior numbers. Yusuf, not trusting al-Mu’tamid and his Andalusian contingents, placed them in front of his own Almoravid troops, with a ditch and a small hill separating the two Muslim forces. Perhaps Yusuf intended his unreliable Moorish allies to slow down or diffuse the Christian
assault, and then counter-attack with his superb Berber army. The Christians camped about 3 miles away. Between the two hosts lay the Guadiana River.

For three days the armies watched, waited and observed each other’s tactical capabilities, as heralds attempted to negotiate a day for the battle (contemporary sources do not tell us if a date
was reached). Finally, before daybreak on 23 October (a Friday, the Muslim sabbath), the Christians crossed the river and attacked the forward Moorish formation in two waves, the first wave of Aragonese commanded by Fanez, and the second by King Alfonso himself (Map 3.9(a)). Al-Mu’tamid’s Andalusian contingents barely had time to form a line
when the Aragonese crashed into their ranks. Within moments, most of the Moorish line crumbled and fled south-west in the direction of the nearest Muslim fortress at Badajoz, with Fanez and his men in hot pursuit. Only the Sevillians, under the command of al-Mu’tamid, held their ground.
Map 3.9 The Battle of Sagrajas, 1086. (a) Phase I: After three days of mutual observation by the two armies, the Christian forces, organized into two waves, launch an attack across the Guadiana River (1). Alvar Fanez’s Aragonese mercenaries strike al-Mu’tamid’s Moors in the first Muslim line (2). The Andalusians’ formations...
are broken, with the exception of the Sevillians under al-Mu’tamid himself, and flee towards the Muslim stronghold at Badajoz (3). (b) Phase II: Fanez and his Aragonese cavalry set off in pursuit of the Moors fleeing towards Badajoz (1). King Alfonso orders his larger Spanish contingent to charge the Almoravid line beyond the protective ditch (2). As the Muslim line gives way (3) and Alfonso presses on to the Berber camp (4), Yusuf orders his reserves into action using drum signals. Abu Bakr leads a division of Moroccans into action to assist al-Mu’tamid (5), while Yusuf sweeps past the Christians’
unprotected flank to fall on Alfonso’s camp (6). (c) Phase III: Learning of the attack on his camp, Alfonso hastily confers with his subordinate commanders and orders a return to the Christian camp (1). The Spanish forces suffer heavy casualties fighting their way back (2) but succeed in reaching their camp where they form a new line (3). As Alfonso organizes his surviving knights into a defensive line, Fanez returns from his pursuit (4), only to abandon the king after quickly assessing the grim situation (5). (d) Phase IV: Emboldened by the defection of Fanez’s mercenaries, the now reinforced Moorish forces from
the first line launch a counter-attack (1). The Muslim forces are soon joined by some of the Andalusians that had earlier fled towards Badajoz in an apparent karr-wa-farr (2). The situation grows increasingly desperate for Alfonso. As night approaches, Yusuf spots a gap in the Spanish line (3) and orders in his elite ‘Black Guard’ (4). Alfonso is wounded, but the king’s bodyguard rallies and carries him out of the fray to the safety of a nearby hill (5). The Muslim forces sack the Christian camp as the king and some 500 survivors manage to escape the scene of their defeat under cover of
darkness.

With the majority of the Moorish line routing, King Alfonso ordered the second, larger Spanish force into action (Map 3.9(b)). These better-armed and more heavily armoured Christian cavalry pushed through the remnants of the first Muslim formation and hit the second Almoravid line, smashing the
Berber front, then crossed the ditch to strike the Berber camp beyond. At this moment, Yusuf ordered most of his reserves into the fray, orchestrated by drumbeats. A division of Moroccan tribesmen under the command of Yusuf’s lieutenant Abu Bakr reinforced al-Mu’tamid, while Yusuf himself swept around the Christian flank
and fell on Alfonso’s camp. When the king of Castile-Leon learned of this attack on his rear, he held a hasty war council and decided to remove himself from his precarious position (Map 3.9(c)). Despite heavy casualties, the Spanish knights fought their way back to their camp and formed a new line.

About the same time
Alfonso had re-established the line in front of his camp, Fanez returned to the battlefield, only to leave again after appraising the situation. The flight of Fanez and his mercenaries invigorated the Muslim first line, who counter-attacked aggressively, soon joined by many of the Andalusians who had originally fled toward Badajoz in an apparent karr-
Alfonso now was confronted with the very real possibility of being surrounded and annihilated, and as the afternoon waned, the Christian position became more desperate. Finally, Yusuf saw a gap in the Spanish ranks and ordered his elite ‘Black Guard’ into the fray. This reserve was made up of 4,000 black Africans,
who cut their way through the Christian lines and severely wounded Alfonso. The king’s bodyguard successfully rallied, and in the confusion which often accompanies nightfall on a battlefield, pulled their fallen king to a nearby hill as the Muslims sacked and burned the Christian camp. Under the cover of darkness, Alfonso and 500 of his knights, most
of whom were wounded, escaped.

Despite their predominance in heavy cavalry, the Christians were unable to carry the day at Sagrajas. Here, the individual initiative, skill and courage of the Christian knights were unable to overcome the sheer numbers, steadiness and tenacity of their Muslim adversaries. The retreat of
Fanez complicated matters for Alfonso, who had to face the full force of Yusuf’s fury without any relief.

The Christian defeat at Sagrajas gave the Muslims control over southern Spain, though they failed to press their advantage. Yusuf returned to north Africa to cope with a succession crisis, leaving only 3,000 cavalry to assist al-Mu’tamid in
consolidating his new possessions. Alfonso, beaten but not broken, made a play for Valencia in 1087, this time with the famous Spanish mercenary Rodrigo Diaz de Vicar (c.1040–1099), known to history as ‘El Cid’ (from the Arabic for ‘The Lord’), on his side. The Cid was actually under Muslim contract during the battle of Sagrajas protecting the city of
Saragossa, but he came back to the Christian cause only months after the Spanish defeat.

Christian successes in Valencia forced al-Mu’tamid to appeal once again to Yusuf for aid, and the Almoravid leader crossed to the Iberian peninsula again in the spring of 1089, laying siege to Aledo. In response, Alfonso raised a new royal army for
another *fossato* and called for the Cid to join him in relieving the city. But the two Christian armies failed to converge on the Muslim force as planned, and Alfonso blamed the Cid for the mishap. Now without royal sponsorship, the Cid moved up the Spanish Levant and captured numerous coastal cities, Christian and Muslim alike. The Cid’s successes
ended only at his death in 1099, but while he lived he embodied the martial and political skill required to survive and even flourish in late eleventh-century Spain. Although essentially a mercenary who fought for both Christian and Muslim rulers, he became a national hero for Spain. His legend is immortalized in the Poem of the Cid, the earliest and
greatest surviving literary epic of Castilla, composed several decades after his death. As time went on, his life became surrounded by heroic and pious legends. In the process, Rodrigo the man was transformed into ‘El Cid’, the legend whose exploits against the Muslims symbolized the spirit of the age.

The first decades of the
twelfth century witnessed a resurgence in military activity in Spain, spurred on by the military successes of the First Crusade and the recapture of Jerusalem in the Holy Land (Map 3.10). As western Europe ‘took up the cross’ and went on crusade, many lay nobles and knights offered their military service to the Christian monarchs in the Spanish March instead of
making the long journey to the Levant. Eager for success on two fronts against Islam, the papacy gave permission for the Knights Templars and Hospitallers to establish themselves in Iberia, and by 1156 the Spanish had created their own military order, the Knights of Calatrava, to police the area south of the Guadiana River.

But by the 1140s,
Almoravid power was in decline, and a new north African caliphate, the Almohads (1147–1220s), became a force in Iberia. In 1147 the Almohads crossed the strait and captured Seville, while that same year English, German and Flemish crusaders captured Lisbon after an extraordinary siege. For the next half-century, the Almohads sparred with the
Christians for control of central Spain. The Christians, now led by King Alfonso VIII of Castile (1158–1214), managed to make headway with the assistance of the Spanish military orders (Knights of Calatrava, Knights of Santiago, formed in 1170, and Knights of Alcantara, formed in 1176), captured Cuenca in 1177, and pushed south to Plasencia and
Trujillo. Routed by the Almohads at Alarcos in 1195, Alfonso would avenge this defeat at Las Navas de Tolosa in 1212.
The Christians resumed the *Reconquista* against Moorish territory in the south of Spain at the beginning of the thirteenth century. Alfonso severed a peace treaty with the Almohad caliph, al-Nasir (known to Christians as Miramamolin), and raided as far south as Granada. In 1212 al-Nasir brought a large army
across from Morocco, landing in Seville, and prepared to defend his realm against the Christian invaders.

The Christian host that gathered in Toledo in the spring of 1212 was a multinational army organized under the papal banner of Innocent III (pope 1198–1216), the greatest of the papal monarchs. Besides Alfonso, the kings of Aragon,
Portugal, Leon and Navarre also joined the army, making the campaign a national effort. Knights and soldiers soon flocked in from France, Italy and even as far away as Germany to swell the ranks of Alfonso’s army. By Easter an army of perhaps 30,000 heavy cavalry and infantry prepared to march south to face a Moorish and Berber army that probably
outnumbered them.

On 20 June the crusaders left Toledo and headed south. As the Christian army marched, the French contingent broke away and, seeking plunder, attacked Malagon on 24 June, massacring the garrison. A week later, the French broke ranks again and captured Calatrava, the seat of power of the military order of the
same name. But Alfonso denied the French pillaging rights and instead returned the city to the crusader order. Infuriated by the king of Castile’s decision and frustrated by the lack of plunder, all but 130 knights of the French contingent abandoned their bishops and returned home to France.

Encouraged by this desertion, al-Nasir left his
base at Jaen and moved to the foot of the Losa canyon to block the Christian advance. With the assistance of a shepherd, the crusaders descended down a narrow defile into the plain of the Mesa del Rey to the west of the Muslim vanguard, forcing al-Nasir to take a strong defensive position on the slopes of a nearby hill (Map 3.11(a)). The Almohad caliph
formed his infantry into square, placing his heavy infantry in the first rank. Next came light infantry with spears, javelins and slings. Archers stood in the rear ranks. Al-Nasir placed his Andalusian heavy cavalry and Berber light horsemen on the wings. Shallow rocky ravines now separated the two hosts. Both armies spent the next day, Sunday 15 July,
preparing for the battle ahead.

Alfonso organized his army in typical medieval fashion into three divisions, with a reserve. The centre was made up of men from Castile and Leon under the command of Diego Lopez de Haro. King Pedro II of Aragon commanded the left wing, buttressed by Knights of Santiago and Calatrava, while the right was under the
banner of King Sancho VII of Navarre. Alfonso remained in the rear with the remainder of the knights of the military orders, forming the reserve division.

The crusaders opened the battle of Las Navas de Tolosa on the morning of 16 July with a series of frontal heavy cavalry charges all along the line led by Diego Lopez, but the Almohads repulsed the
Christian heavy horse (Map 3.11(b)). Later in the morning, the Muslims counter-attacked in a vicious assault with their Andalusian and Berber horse, but these troops were held up in a brilliant defensive stand by the Spanish light infantry, who thinned their ranks with missile fire from slings, bows and crossbows, allowing the Christian knights to re-form
What happened next turned the tide of the battle. A dispute between al-Nasir’s Andalusian and Berber troops led to the desertion en masse of the Andalusian contingent. Taking advantage of this crisis, Alfonso ordered his reserves to join the two wings under Pedro II and Sancho VII (Map 3.11(d)). This action shattered the Almohad
line, with Sancho breaking through the Muslim defenders and reaching al-Nasir’s magnificent gold-embroidered tent. Despite a valiant effort by the caliph’s African ‘Black Guard’, armed in traditional fashion with spears and large hide shields, the knights of Navarre rode them down and seized the royal pavilion (Map 3.11(e)). Al-Nasir fled the field and
escaped back to Jaen, where he would be dead within a year. The Muslim army he left behind was annihilated as the Spanish line surged forward. Almohad losses were substantial – perhaps as much as a third of the entire army – though this is difficult to ascertain because of the outrageous claims of contemporary Christian chroniclers and the desertion
of the Andalusian troops.

Figure 3.11 The Battle of Las Navas de Tolosa, 1212. (a) Phase I: With the assistance of a local guide, the crusader army under King Alfonso VIII of Castile debouches from a
narrow pass onto the Mesa del Rey and approaches al-Nasir’s Almohad host from the west (1). Al-Nasir reorients his forces from north to west to meet this threat and places his army in a strong defensive position (2) on a hillside facing the Christian forces. Separated by a ravine-dotted plain, both sides spend a day preparing for battle. (b) Phase II: The crusaders open the action, Diego Lopez (1) leading a series of heavy cavalry charges (2) against the Almohad positions on the hillside. The Spanish efforts to dislodge al-Nasir’s forces are handily repulsed (3) and the Muslims prepare to launch their
own attack late in the morning. (c)

Phase III: The charge of the Andalusian and Berber horse (1) is met by a shower of missile fire from the Spanish light infantry screen (2). The hail of sling stones, arrows and crossbow bolts drives the Muslim cavalry back (3) and buys the time that the Christian heavy cavalrymen need to re-form (4). (d) Phase IV: The tide suddenly turns against al-Nasir as his Andalusian cavalry deserts his army (1) after a dispute with the Berber light horsemen. Seizing the opportunity, Alfonso orders his reserves to bolster the Spanish wings (2). (e) Phase V: The crusaders surge
forward against the now weakened Almohad wings (1). King Sancho’s right wing smashes through to al-Nasir’s personal tent (2). Al-Nasir’s ‘Black Guard’ fails to check the Navarrese onslaught and scatters (3). Al-Nasir flees the field (4) and the remainder of the Muslim army is crushed as the crusader line surges forward (5).

Christian casualties are stated at twenty-five or thirty knights, a farcical number when one takes into
consideration the ferocity and duration of this battle. Christian casualties must have been heavy, especially among the military orders who historically had borne the brunt of the fighting. Despite the difficult terrain, the crusader victory owed much to the heavier arms and horses of the Christian forces, but was no doubt sealed with the desertion of the Moorish
Andalusian contingent. Still, the Christians won using a combined-arms effort, with heavy cavalry providing the offensive punch while infantry held fast against Muslim cavalry charges.

The Spanish victory at Las Navas de Tolosa was the most important of the Reconquista, leading to continued success in campaigns on the Balearic
Islands (1229–1235), Cordoba (1236), Valencia (1238) and Seville (1248), while in the west, the Portuguese pushed south and reached the Algarve coastline by 1248. After 1224 the Almohad Empire fell apart in a civil war complicated by religious and racial hatreds. Within forty years of the victory at Las Navas de Tolosa, the Christians
controlled the whole of Andalusia, leaving only Granada in the south to the Muslims. In 1492 the city of Granada fell to the Spanish monarchs Ferdinand and Isabella, ending 800 years of Muslim rule in Spain.

Medieval Horse Breeding and Logistics

The foundation of medieval
heavy cavalry was the warhorse itself. The horse had to be a warrior in its own right, capable of entering the chaos of battle at a charge without panicking at the sounds and smells of warfare. It needed to be strong enough to carry a fully armoured man into the fray and fierce enough to take an aggressive part in the battle. Such horses were difficult to find and they
did not occur naturally, but from a process of selective breeding and training.

During the classical period, Greek and Roman horse breeders specially bred horses for entertainment and warfare. Horse riding was introduced into the Greek Olympic games as early as 648 BCE, and Greek friezes indicate the existence of large and lighter breeds.
characteristic of Eurasian stock. In fact, Alexander’s own horse, Bucephalus, which died in India at the age of thirty, was almost certainly of Bactrian descent. The popular Roman pastime of chariot racing required a special breed from the north African province of Numidia, while Roman cavalry mounts were acquired from as far away as Transoxiana.
But because a variety of horse breeds had reached the Mediterranean basin in the classical period, it should not be thought that the supply of quality horses was assured. Generations of careful breeding for size, speed and controllability could be quickly lost if any stallion that was not specially selected covered a good mare. And if quality mares mated at
will, the result could be disastrous. In the late Roman and early medieval periods, the introduction of uncontrolled breeding destroyed hundreds of years of selected genetics, resulting in horses unsuited for mounted warfare.

In the early medieval period, most riding horses were what would now be considered ‘cold-blooded’
mounts, relatively heavy-boned, slow and unresponsive to commands. Mounts of this period were of medium size (between 14 and 15 hands, and 800 and 1,000 pounds), with no particularly distinguishing features. But horse breeding evolved throughout the medieval period, with stables in western Europe interbreeding ‘hot-blooded’ breeds from the
east, such as the Arabian, with western mounts. Islam’s expansion across north Africa and into the Iberian peninsula in the seventh and eighth centuries brought the Arabian breed into Moorish Spain. From the eleventh century onwards, Norman contacts with Spanish breeders (both Christian and Muslim) led to an influx of superior warhorses north of the
Pyrenees. Even William the Conqueror was known to have ridden at least one excellent Spanish horse at Hastings. Norman contacts with Muslim breeders in Sicily and southern Italy also augmented their selection of warhorses.

After the crusades, larger Anatolian and Iranian ‘Nisaean’ breeds were introduced to western Europe.
The result of these systematic breeding policies was a superior mount, the destrier, with the finest destriers including Arabian blood acquired via Andalusian or other Spanish breeds. As a result, destriers were far more expensive than any other mount, costing between 700 and 800 times more than the cheapest horse.

The destrier itself was
usually a stallion, and the size of the warhorse increased throughout the high Middle Ages, reaching its largest proportions in the fourteenth century. Although historians and hippologists argue about the dimensions of the typical warhorse, the *magnus equus* or ‘great horse’ of the late Middle Ages was a sturdy steed of 17 hands (as opposed to the 12 or 13 hands of
average horses) and 1,200 to 1,300 pounds, capable of supporting its own barding and a knight in full plate armour. But the added encumbrance took its toll. Horses suffered from increased fatigue and dehydration, and the practice of targeting horses, earlier considered ‘bad war’, was now becoming commonplace on a battlefield where knights
were increasingly encased in a metal carapace. Consequently, medieval cavalrymen required more mounts when they went on campaign.

By the middle of the thirteenth century, a single knight was supported by a retinue called collectively the lance garnie, consisting of the knight himself, a mounted squire and two mounted light
infantry archers. The squire carried the knight’s armour on a packhorse, and also tended to the knight’s warhorse, which was never ridden unless in battle. With six or more horses attached to every knight, no mounted expedition of any size could rely on finding sufficient forage on the way, forcing the army to carry its own fodder and increasing further the
number of horses required.

Military expeditions and battles in medieval western Europe were much smaller than those of the classical period, and the well-organized professional supply system that supported the Roman war machine was absent in the localized and decentralized environment of medieval Europe. Few regions could sustain armies
for prolonged periods of time, and with poor communications, troops were dependent for supply on fixed points, usually magazines located in castles or walled cities. Because obligatory feudal service was for short periods during the warmer months, campaigns were rarely long, except for sieges. When on campaign, early medieval armies either lived
off the countryside or, because of poor logistical support, they evaporated.

But logistics improved by the high Middle Ages, with the emergence of important political leaders capable of marshalling significant resources for military campaigns. For instance, William of Normandy built 700 ships, including 200 horse transports, for his
invasion of England in 1066. During the crusades, Latin armies in the Near East were required to march long distances over barren country, forcing the western Europeans to learn logistical organization or perish. In fact, during the First and Second Crusades, more men died from starvation or lack of fodder for their horses than from any other single cause,
including Muslim swords and arrows. King Richard I of England demonstrated a keen grasp of logistics during the Third Crusade by establishing an intermediate supply base on Cyprus, by exploiting the logistical potential of sea power in his march from Acre to Ascalon, and by his refusal to besiege Jerusalem without adequate logistics. Richard’s Levantine campaign,
distinguished by his brilliant combined-arms tactics at the battle of Arsuf in 1191, reveals the sophistication of medieval supply and support.

Medieval logistics, like medieval warfare as a whole, suffered from a lack of centralized authority. But medieval warfare did continue to benefit from Roman civilization. Networks of Roman roads and bridges
were maintained and expanded, while old Roman walls were incorporated into medieval fortifications. When centralized authority was present, medieval commanders were capable of amazing feats, such as supporting an amphibious assault against England and large expeditionary forces to the Near East and north Africa.
CHAPTER 4

HIGH MEDIEVAL WARFARE: THE MONGOL INVASION OF THE WEST

‘Storm from the East’: The Mongol Art of War
As Islam was embroiled with its counter-crusade against the Christian infidel in the Holy Land, a new, more ominous threat was emerging from the east. Mongol and Turkish tribesmen, under the charismatic leadership of the Mongol warlord Temuchin (1167–1227), were massing for the greatest conquests in human history. Genghis Khan (the title Temuchin took in
1206) and his powerful nomadic confederation swept out of Mongolia and conquered northern China and Korea by 1216, then spread westward across central Asia to invade Persia. By the end of 1221 Genghis Khan had crushed the Islamic Khwarizmian Empire in Transoxiana and invaded the Ukrainian steppes. There, in 1223, a combined army of
Kievan and allied Asian nomads turned back the Mongol invaders at the battle of Kalka River. Genghis Khan died in 1227 before he could avenge this defeat, but he had already created the largest contiguous land empire yet seen in human history.

The secret of the Mongols’ military success was a combination of strategic
mobility, effective tactics and the quality of the Mongol warrior and mount. Consisting entirely of light and heavy cavalry (with the exception of some auxiliary units), the Mongol army was organized on the decimal system. The largest manoeuvre unit was the tuman, consisting of 10,000 men. Three tumans (30,000 men) normally constituted a
Mongol army. The *tuman* itself was composed of ten regiments or *minghans* of 1,000 men each. Each *minghan* contained ten *jaguns* or squadrons of 100 men. The *jagun* was further subdivided into ten troops of ten men called *arbans*. This novel tactical flexibility allowed the Mongol army to strike with the speed and force of a hurricane, confusing and then
destroying its enemies, then disappearing back into the grasslands like its Scythian, Magyar and Seljuk forebears. Though often described as a ‘horde’ of warriors by their civilized adversaries, the Mongol army was usually much smaller than that of its opponents. In fact, the largest force Genghis Khan ever assembled was less than 240,000 men, sufficient for
his conquest of Transoxiana and north-west India. The Mongol armies which later conquered Russia and eastern Europe never exceeded 150,000 men.

The typical Mongol army was a pure cavalry force consisting of about 60 percent light cavalry and 40 percent heavy cavalry. These two weapon systems co-operated in an unprecedented
manner to bring to bear the strengths of missile and shock combat against the enemy. Mongol light cavalry were required to reconnoitre for the army, act as a screen for their heavier counterparts in battle, and provide missile fire support in attacks, and follow-up pursuit once a battle was won. These light horsemen were armed in characteristic Asiatic fashion.
with two composite bows (one for long distance and one for short), two quivers containing at least sixty arrows, two or three javelins and a lasso.

The Mongol composite bow was larger than most of its central Asian cousins, with a hefty pull of up to 165 pounds and an effective range of 350 yards. Quivers carried arrows for many purposes:
light arrows with small, sharp points for use at long ranges, heavier shafts with large, broad heads for use at close quarters, armour-piercing arrows, arrows equipped with whistling heads for signalling and incendiary arrows for setting things on fire. The Mongol warriors were so adept at mounted archery that they could bend and string the bow in the saddle and then
loose the arrow in any direction at full gallop.

The Mongol light trooper usually did not wear hard body armour, though he did often wear a padded gambeson and employ a wicker shield covered in thick leather. In combat, he replaced his thick woollen cap with a simple hardened leather or iron helmet if available.
cavalry were better protected, with warriors wearing leather, mail or lamellar cuirass and metal helmet, and their mounts wearing leather barding. The primary weapon of the heavy cavalryman was a 12 foot lance, though curved and straight sabres and small battleaxes and maces were also present among the elite. All warriors were required to wear a long,
loose raw silk undershirt next to their skin for added warmth and protection. If an enemy arrow penetrated the steppe warrior’s body, it would usually fail to pierce the silk, instead carrying the resilient fibre with it into the wound. By simply pulling on the silk, a field surgeon could easily extract the arrow.

Military service was compulsory for all Mongol
adult males under the age of sixty, and like all steppe societies, there was no such thing as a civilian. Nearly born in the saddle and raised to be effective mounted hunters and herders, these Mongol warriors were inured to the hardships of the Eurasian steppes, facing extremes in weather and lacking the luxuries, rich food and soft mattresses of
sedentary living. This harsh lifestyle forged warriors with strong minds and bodies, capable of almost superhuman endurance in the saddle. On the march, each tuman had its own herd of remounts following behind, with each steppe warrior having at least three remounts. This allowed him to ride at speed for days, slowing only to tap a vein in
the weakest horse for nourishment. Mongol troopers were responsible for their own food and equipment, cutting down the size of the supply train and virtually abolishing the need to maintain a base camp.

The horses themselves were also very highly trained, with Mongol warriors preferring mares over stallions as warhorses. The Mongols’
original mounts were what are known today as Przewalski’s horses, thick and strong beasts with broad foreheads, short, powerful legs, and a reputation throughout the steppes for their courage and stamina. Broken and ridden hard for their first two years, these horses were then put out to pasture for the next three years to develop a herd
mentality. Afterwards, they were trained for warfare. After the fall of Khwarizm, these horses were crossbred with the larger, hot-blooded Arabian breeds, creating a larger mount of between 14 and 15 hands, with some as large as 16 hands. These warhorses were treated as comrades-in-arms. Horses ridden in battle were never killed for food, and when old
or lame, were put out to pasture to live out their last days. When a warrior died, his mount was sacrificed and buried with him so that he would have a companion for the afterlife.

Mongol commanders understood the importance of the principles of surprise, offence and manoeuvre in military operations, of seizing and maintaining the initiative
in battle, even if the strategic mission was defensive. When a Mongol army was on campaign, each *tuman* usually advanced quickly on a broad front, maintaining only courier contact in between the 10,000-horse divisions. To facilitate good communication between field armies and headquarters, permanent staging posts or *yams* were established behind
advancing armies at approximately 25 mile increments. These *yam* stations acted as a kind of pony express for the Mongols, giving commanders the ability to send messages back and forth at the rate of 120 miles per day. When the enemy was located, information concerning his strength, complement, position and direction of
movement was relayed back to headquarters, and in turn disseminated back to local commanders. Once intelligence had been gathered and the plan coordinated, the main force converged and surrounded the adversary, while other elements continued to advance and occupy the country behind the enemy’s flank and rear, threatening
their lines of communication. If the enemy force was small, it was simply destroyed, but if it proved formidable, then Mongol generals used manoeuvre, terrain and their enemy’s predilections to best advantage.

If the enemy army was stationary, the Mongol general might command his main force to strike it in the rear, or turn its flank, or...
engage and then feign a retreat, only to pull the enemy into a pre-planned ambush using an elite light cavalry corps called the *mangudai* or ‘suicide troops’ (an honourable title more than a job description). The function of the *mangudai* was to charge the enemy position alone, and then break ranks and flee in the hope that the enemy would give chase. If
the enemy pursued, the Mongols would lead them into terrain suitable for ambush.

If the enemy’s position was not precisely known, the main Mongol army advanced along a broad front in several roughly parallel columns behind a screen of light cavalry. The main force galloped along in five ranks, the first two of which were
heavy cavalry and the last three light cavalry. Riding way out in front and on either flank were three separate light cavalry detachments. When the enemy was encountered, the Mongol army reacted quickly. The contacted outriders automatically shifted to protect the main force as it wheeled to meet the threat. Once the vanguard was engaged, the light
cavalry in the main force galloped through the ranks of the heavy cavalry and joined the other horse archers. What took place next was a classical employment of missile and shock combat reminiscent of the battles of Carrhae and Dorylaeum centuries earlier.

Co-ordinating the attack in an unnerving silence without battle cries or trumpets
(signals were given by flags), the Mongols began their assault with light cavalry riding up and down the enemy’s front lines, showering his ranks with well-aimed javelins and arrows. Once light cavalry missile-fire had thinned the enemy’s ranks, the horse archers broke away to either flank, leaving the heavy cavalry to drive in the final
blow. Mongol lancers usually advanced at a trot and in silence. It was only at the last possible moment that the charge was ordered by striking the great naccara, a large kettledrum carried by a camel. With a single blood-curling scream, the Mongol heavy horse attacked.

In combat, the Mongols would close in from many directions if possible, taking
advantage of any disorder or confusion their swarming tactics created. The famous thirteenth-century Italian merchant and Eurasian traveller Marco Polo gives us a description of Mongol tactics, though he called the Mongols by the generic name of Tartars:

When these Tartars come to engage in battle, they never mix with the enemy, but
keep hovering about him, discharging their arrows first from one side and then from the other, occasionally pretending to fly, and during their flight shooting arrows backwards at their pursuers, killing men and horses, as if they were combating face to face. In this sort of warfare the adversary imagines he has gained a victory, when in
fact he has lost the battle; for the Tartars, observing the mischief they have done him, wheel about, and make them prisoners in spite of their utmost exertions. Their horses are so well broken-in to quick changes of movement, that upon the signal given they instantly turn in every direction; and by these rapid maneuvers many
victories have been obtained.

Sometimes, Mongols would even send out small detachments to start large prairie fires or set fire to settlements to deceive the enemy or mask movements.

Another area of success for the Mongol war machine was its ability to reduce walled cities, thereby leaving no enemy strongholds in the
wake of their conquests. After initially developing a train using Chinese siege weapons, equipment, techniques and operators, the Mongols soon made their own improvements and developed their own techniques. The Mongols were also quick to include in their siege train weapons encountered in their conquests. From the Chinese, the Mongols adopted the
torsion-operated light and heavy catapult, and from the Khwarizm, they adopted the tension-operated ballista and a central Asian version of the trebuchet, a powerful engine operated by counterpoise.

Like all cavalry-based armies, the Mongols preferred an open field engagement over siege warfare. But if an enemy city refused to open its gates,
Mongol generals had numerous ways to gain access. Siege weapons, towers and battering rams were brought to bear, but if these techniques proved ineffective, the Mongols would often attempt to set the city on fire, compelling the inhabitants either be burned alive, or to open their gates. If the wall was breached, a favourite but ruthless Mongol
tactic was to herd captives in front of their own dismounted troopers, forcing the defenders to kill their own countrymen in order to bring fire on the attackers.

Once the Mongols took the city, it was pillaged and its garrison and inhabitants were often put to the sword. Genghis Khan routinely eradicated entire populations in his campaigns against the
Khwarizmian Empire, depopulating and destroying Balkh, Merv and Nishapur along the way. Men, women and children were separated, distributed like cattle among the *tumans*, and decapitated. Their heads were then stacked in pyramids to serve as monuments to Mongol cruelty and warnings to the steppe warriors’ enemies. Even the dogs and cats were
killed. The Mongols spared prisoners, artisans, engineers and men of military age so that they could assist in the next siege, digging trenches, building ramparts or acting as fodder for the assault.

The Mongols used their catapults, ballistae and trebuchets not only against city walls, but also against enemy field positions. These artillery pieces shot
containers filled with burning tar to create smoke screens, or firebombs and grenades to create tears in the enemy’s lines. The Mongols also perfected a medieval version of a ‘rolling barrage’, with cavalry units advancing under catapult and ballista fire. The Mongols even made use of rudimentary rockets made from bamboo wrapped in leather, though these weapons
were very inaccurate and unreliable.

The Mongol Invasion of Europe: The Battles of Liegnitz and Sajo River

Genghis Khan’s second son and heir, Ogotai, ordered a Mongol army of between twelve and fourteen tumans westward into Russia again.
In December 1237 a Mongol army led by Genghis Khan’s grandson Batu Khan swept down on the city of Riazan, taking the city after a five-day siege. The Mongols favoured winter operations, using the frozen marshes and ice-covered rivers to enhance strategic mobility. Over the following year, the Mongols proceeded to lay waste to north-western Russia,
destroying cities, towns and villages.

At the same time, another Mongol army commanded by Batu Khan’s chief of staff, Subotai, pushed into southwest Russia, taking Kiev in December 1237. Russian princes, under the leadership of Alexander Nevsky (so named after his victory over the Swedes at the battle of the Neva in 1240), repelled the
Mongol assaults against Novgorod and Pskov, but even these late successes could not turn the tide against the steppe warriors. With the Kievan kingdom destroyed and southern Russia occupied by the Golden Horde, the principalities of northern Russia finally submitted to Mongol rule and became client states. Although practice of the Eastern
Orthodox religion was allowed to continue, Russia would remain under Mongol rule for the next 200 years.
Europe.

After subduing Russia, Batu Khan extended the Mongol conquests westward in a three-pronged attack against Poland, Hungary and Romania (Map 4.1). In Poland, the northern army under Batu’s lieutenants Baidar and Kadan sacked and burned Krakow on Palm Sunday 1241. Bypassing
Breslau, they converged on the city of Liegnitz (modern Legnica), where Henry, duke of Silesia, had collected a formidable army made up of militia Christi (Teutonic Knights, Templars and Hospitallers) and Polish and German lay knights and men-at-arms to bar the way into the Holy Roman Empire. Confronting the Mongols on a plain south of Liegnitz in a
place since known as the *Walstadt* or ‘chosen place’, Henry’s army of around 25,000 men took up positions on level ground with his mounted knights in the van and his large infantry host behind.

The Mongols faced an experienced Christian army at Liegnitz. For over a century, German Catholics had pushed north and east from the Holy
Roman Empire, often at the expense of Slavic princes. The German eastward drive was not sponsored by royal or papal policy, but rather a movement led by local nobles. German military gains were consolidated by a massive eastward migration of German peasants who were settled in numerous agrarian villages. Consequently, regions such
as eastern Germany and western Poland were not only conquered, they were brought within the Catholic fold.

Spearheading these campaigns were the military orders, led by the Teutonic Knights based in Prussia. Never as influential as the Templars and Hospitallers in the Holy Land, the Knights of the Teutonic Order found a purpose in the spread of
Catholicism to pagan and Orthodox Christian areas in central Europe, and later, the Baltic states. Well trained and well armed with sword and lance, and protected by long-sleeve mail hauberks, flat-topped great helms and shields, the military orders functioned as the elite shock troops of these Baltic crusades. They built numerous castles to subdue
the countryside and used their skills as heavy cavalry in devastating annual campaigns against infantry-based militias superior in numbers but inferior in tactical capabilities. The Mongols would prove to be a superior opponent.

The battle of Liegnitz began on the morning of 9 April 1241 when Duke Henry ordered his German heavy
cavalry to charge the approaching nomadic light cavalry, only to have it beaten back by flights of Mongol shafts (Map 4.2(a)). Undeterred, Henry ordered a second, larger charge, committing the remainder of his heavy horse, including the Polish knights and the military orders. But this time, the Mongol light cavalry wheeled and took flight.
Emboldened, the Christian heavy cavalry pressed the attack, pursuing the horse archers off the battlefield (Map 4.2(b)). But things were not as they seemed for the Christian nobility. As the knights became strung out, the pursued mangudai wheeled their more agile mounts and reversed direction, peppering the Christian heavy cavalry with
arrows, aiming their shafts at the well-armoured knights’ mounts (Map 4.2(c)). To add to the confusion, the Mongols set up a smoke screen between Henry’s infantry and his trapped knights, hiding the two forces from one another. As Henry watched from among his infantry, the Mongol horse archers and lancers emerged from the smoke and attacked his
footmen, routing the Christian infantry (Map 4.2(d)).

Map 4.2 The Battle of Liegnitz, 1241.  
(a) Phase I: Duke Henry’s Christian forces sally forth from Liegnitz to confront the advancing Mongols on the plain of the Walstadt (1). Henry
orders his German cavalry to charge the enemy horse archers (2), but they are met with a hail of arrows (3) which force them back. (b) Phase II: Henry orders a second charge with his remaining heavy cavalry (1), including his Polish knights and elite military orders. The Mongol light horsemen wheel and retreat (2), and are pursued by the slower-moving Christian knights, opening a gap between themselves and their infantry (3). (c) Phase III: In trying to close with the swiftly moving horse archers the Christian knights begin to lose their cohesion, and their formations become strung out. The Mongol
bowmen quickly reverse direction and engage the knights (1). More Mongol cavalry join the fray (2) and approach the Christian infantry undetected because of a smoke screen set between them and their cavalry (3). (d) Phase IV: As Henry watches, Mongol horse archers and lancers emerge from the clouds of smoke and plough into his infantry, which quickly begin to rout (2). The duke is cut down as he tries to flee the battlefield with some of his bodyguards (3), and the surviving Christians are easily picked off by the fast-moving Mongol cavalry (4).
trying to escape with three bodyguards, his men picked off one by one by Mongol horse archers. Henry pushed his mount until it collapsed, and he tried to run in his armour until the steppe warriors rode him down. The day ended with his head on the end of a pike, which was then carried around the walls of Liegnitz. Although accurate casualties do not
exist for this engagement, what is known is that most of the crusaders, together with the Polish aristocracy and the flower of northern Europe’s knightly class, lay dead on the Walstadt. The Mongols cut off an ear of every fallen Christian warrior to make an accurate body count. Nine bags of ears were collected from the European dead and sent to Batu Khan as tribute.
The battle of Liegnitz in Poland would be the first of three Mongol victories in central Europe in a one-week span, each of them characterized by unprecedented strategic mobility and timing.

While Baidar and Kadan were sweeping through Poland, Batu Khan’s central army was moving across the Carpathian Mountains and
into the Hungarian plain at breath-taking speed, moving at some 60 miles per day over rough terrain and through deep snow. Hovering close to Pest, Batu taunted the Hungarian king, Bela IV, and an army of perhaps 80,000 men, including European-style heavy cavalry (including his own elite shock troops, the Knights Templars) and even some light cavalry
nomadic mercenaries. Bela’s army was huge, and by medieval standards, quite good, and he felt he had a large enough host to meet the Mongol invasion. But unknown to the Hungarian monarch, it was 9 April, the same day as the debacle at Liegnitz, some 400 miles to the north-west. A day later, the southern Mongol army stormed Hermannstadt and
destroyed the army of Transylvania. Unaware of his strategic position between two victorious Mongol armies, Bela took Batu’s bait and moved away from Pest in search of a decisive battle.

As the Hungarians advanced, the Mongols retreated slowly ahead of them for two days. Batu and Subotai rode ahead of the army to inspect the battlefield.
where the engagement would take place. On the afternoon of 10 April, the Mongols rode over the heath and crossed the only stone bridge over the Sajo River and continued another 10 miles westward into the woods (Map 4.3(a)). Bela arrived at the Sajo in the evening, then sent 1,000 Hungarian horsemen across the bridge to reconnoitre the woods. Finding nothing but
Mongol horse tracks, they returned to guard the bridge as the remainder of the Hungarian army made its camp on the heath (Map 4.3(b)). For added protection, Bela drew hundreds of wagons in a circle around the tents, securing them with ropes and chains. If the Mongols wished to attack the Hungarian position, they would have to cross a lone
bridge guarded by 1,000 horsemen and then penetrate a makeshift wagon fortress.

Map 4.3 The Battle of Sajo River, 1241. (a) Phase I: King Bela IV’s Hungarian army pursues a Mongol army under Batu Khan from the vicinity of Pest to the confluence of
the Sajo and Tisza rivers (1). Unbeknownst to Bela, Batu and Subotai had already reconnoitred the area and chosen it as a battlefield. The faster-moving Mongol horsemen cross the only bridge over the Sajo and disappear into the forest (2). Bela orders a reconnaissance into the thicket on the far side of the river, but the Hungarians fail to locate their foe and return to the south-west bank of the river. (b) Phase II: Posting a detachment at the bridge (1), Bela’s army establishes a camp (2) and encircles it with wagons chained together for additional protection. Meanwhile, Batu and his officers
survey the enemy positions from a hilltop overlooking the field (3). Though confident in the strength of its position, Bela’s army is actually boxed in by marshes to the right, the Sajo to the front, and the forests of the Lomnitz and Diosgyor to the left and rear. (c) Phase III: As night falls, Batu orders Subotai to take 30,000 horsemen through the hilly terrain to the Sajo (1), where they are to construct a bridge across the river. Batu moves the remainder of the army into position to attack the Hungarians across the stone bridge (2). (d) Phase IV: Batu orders his Mongol horse archers into action (1), but Bela’s
heavy cavalry detachment is able to hold them off because of the narrow approach at the bridge (2). The brave stand of the guards buys sufficient time for the Hungarians’ main force to sortie from the camp and advance to the bridge (3). In the meantime, Subotai’s force begins its bridging task (4).

(e) Phase V: Unable to overcome their Hungarian opponents across the narrow bridge, the Mongols employ seven light catapults as field artillery (1), hurling incendiaries into the ranks of Bela’s force (2). The ensuing disorder creates an opportunity for Batu and the Mongols to swarm
across the contested span (3) and begin to deploy on the heath. (f) Phase VI: Batu slowly deploys his forces (1), fixing the Hungarians’ attention upon his archers and subtly arranging his formation in such a way as to leave the Hungarians vulnerable to Subotai’s undetected force approaching from the west (2). Bela launches charge after charge into the numerically inferior Mongol ranks (3), and the steppe warriors’ lines begin to thin. Inexplicably, Batu orders his surviving archers to begin to encircle the Hungarian heavy cavalry (4). (g) Phase VII: As Batu’s depleted ranks form a crescent-shaped
formation to confront Bela’s superior force (1), Subotai’s fresh archers appear behind the Hungarian formations and begin to form their own crescent (2), threatening to encircle the heavy cavalry. As the Mongol arrows rain down, Bela realizes he has lost the initiative and orders a withdrawal (3) to his fortified camp. (h) Phase VIII: Pressing home their attack (1), the Mongols bring up their field artillery (2) and begin launching incendiaries into the fortified camp (3). The Hungarians attempt to charge the siege machines, but are driven back. After several hours of pounding, Hungarian morale
begins to collapse as Mongol lancers begin to mass for the coup de grâce (4), but a gap opens during this movement (5) and a trickle of Hungarian fugitives through this opening soon becomes a flood. Bela’s closest followers remain and are slaughtered. The Hungarian survivors fleeing through the gorge towards Pest are hunted down by the merciless horse archers and the Christian army is effectively destroyed.
Looking down from a hilltop above the Hungarian encampment, Batu and his officer corps surveyed the terrain. On the right of the Christian position were the
marshes of the Tisza, ahead of them was the Sajo, and on their left and behind them the hills and forests of the Lomnitz and Diosgyor. He must have felt as though he had his enemy ‘trapped like cattle in a corral’. The only escape route was back west through the gorge from which they came.

When night fell, Batu ordered Subotai to take
30,000 cavalry through the hills and quickly build a wooden bridge across the Sajo beyond the heath (Map 4.3(c)). The movement of such a large force should have alerted the Hungarian defenders, but Bela’s scouts detected nothing. Batu’s strategy was a simple one: engage the Hungarian king’s front, while Subotai secretly moved into position and
attacked the rear. The battle of Sajo River began just before dawn on 11 April when Batu with 40,000 men launched a cavalry attack against the stone bridge (Map 4.3(d)).

King Bela’s guard held the bridge until reinforcements arrived from the camp, and it seemed as though the dense ranks of defenders could hold out forever against the narrow
column of Mongol cavalry. But Batu solved the problem by bringing up seven light catapults to bombard the far side of the bridge with incendiaries and grenades (Map 4.3(e)). Confused by the tactical use of siege artillery on the battlefield, the Hungarian ranks drew back from the bridge in disorder, allowing the Mongol horse to cross the stone bridge safely.
behind a ‘rolling barrage’.

Batu Khan’s steppe horsemen pushed off the bridge and formed up on the centre of the heath slowly, consciously turning the Hungarian army and orientating it so that Subotai’s force could strike it in the rear (Map 4.3(f)). Outnumbering the Mongol force arrayed in front of him by two to one, Bela launched
wave after wave of Hungarian heavy cavalry charges against the nomads. For two ferocious hours, the Mongols fought off the Hungarian nobility with missile fire, but casualties were high. At this moment, Batu inexplicably ordered his dangerously depleted ranks to stretch out into a half circle as if to surround the Christian troops (Map 4.3(g)). And just
as the Hungarian heavy horse were preparing to finally break through the thin Mongol line, Subotai arrived on the battlefield and arrayed his fresh 30,000 cavalry in a matching half circle behind the defenders. As the two crescents converged behind a rain of arrows, the Hungarians realized that they had lost the initiative, and withdrew in good order back
into their fortified camp. The Mongols surrounded the circled wagons and pressed their attack.

Batu now ordered Mongol artillery forward to pound the Hungarian encampment with incendiaries (Map 4.3(h)). Sensing this danger, Bela rallied enough knights to charge the siege weapons, but they were driven back. Consequently, the Hungarian
encampment suffered several hours of pounding, with most of the tents burned and the integrity of the wagon fortification wrecked. As Hungarian morale plummeted, Mongol heavy cavalry lancers began to mass for the coup de grâce. But the concentration of Mongol lancers created a gap in the attackers’ lines in front of the gorge to the west. Seizing this
opportunity, a few Hungarian horsemen made a run for the gorge and escaped. Soon, many others followed, throwing down their arms and armour to lessen the burden on the mounts. With a wholesale collapse imminent, only the Templars and Bela’s most faithful troops stayed to protect the camp. Formed up in a wedge, these brave soldiers were cut down by
Mongol missile fire then smashed by the final Mongol heavy cavalry charge. Sharing the fate of their brothers-in-arms two days earlier at Liegnitz, the Templars died to the man.

Meanwhile, the runaway column was beginning to stretch out over the heath and through the gorge, just as the Mongols had planned. Now the Hungarian rout took on
the characteristics of a Mongol hunt, with horse archers riding on both sides of the column, picking off the riders one by one with arrow, lance or sabre. Soon, the heath became a sea of riderless horses, and the road for 30 miles back to Pest was littered with Christian dead. The battle of Sajo River cost the Hungarians dearly. Conservative estimates place
the number of dead at 60,000 men, or three-fourths of the entire army. Bela miraculously escaped from the battle unrecognized, fleeing across the foothills and taking a fresh horse from his faithful each time his own faltered. He made his way south, ending his days in exile in Croatia.

The battles of Liegnitz and Sajo River illustrated all the
characteristics of Mongol steppe warfare, including feigned retreat, ambush and encirclement. These engagements also showed the inherent strength of light and heavy cavalry tactical systems working together, first to wear enemy forces down, and then to finish them off. The Russians, Poles and Hungarians all failed to recognize the theory behind
the Mongol attacks, believing erroneously that their well-armed and armoured feudal heavy cavalry could meet and beat the combined-arms tactics of the steppe warriors. Without a large contingent of light infantry to fend off the nomadic horse archers, the Christian armies could not negate their enemy’s mobility and firepower. Because of the relative brevity of the Mongol
campaigns in eastern Europe, the Russians, Poles and Hungarians did not have the time to adjust to the steppe warriors’ tactics in the same way the Latin crusaders did in their campaigns against Seljuk light cavalry in the Levant. The crusaders’ understanding of the proper use of combined arms, especially the use of light infantry to neutralize light
cavalry, would have been essential had western Europe been forced to defend itself against prolonged Mongol depredations.

After destroying the flower of Hungarian chivalry at Sajo River, the Mongols returned to Pest and burned the city. The steppe warriors then rode up and down the east bank of the Danube River terrorizing the countryside.
depopulating entire regions. One favourite ruse was to promise the Christian peasantry protection if they harvested the crops, then once the work was done, the Mongols killed them. They even used Bela’s royal seal, captured from the camp, to forge proclamations to prevent the mustering of a new army. For eight months, the three Mongol armies laid
waste to central Europe, sacking Buda and threatening Vienna. Mongol detachments seeking Bela even penetrated south and west until they reached the Adriatic.

With both pope and holy Roman emperor mobilizing Europe to resist further westward penetrations, the Mongols disappeared as quickly as they came. In December 1241, the death of
Ogotai forced Batu and Subotai to return to the new Mongol capital at Karakorum to elect a new great khan, ending forever the Mongol threat to Europe. The last great Mongol invasion was directed at the Near East in the second half of the thirteenth century.

The Mongol Invasion of the Near East
Mongol hostilities resumed in the Near East in 1256 under Genghis Khan’s grandson Hulagu, but this time the target was Islam. Years of succession problems in Karakorum had disrupted the momentum of Mongol conquests, and the western Eurasian khans were anxious to spread Mongol hegemony across the Euphrates and into Syria and Egypt. The new
great khan, Mangu, rewarded Hulagu’s fidelity in the succession fight with newly conquered lands centred in Persia and Khorasan, then charged him with subjugating the caliph in Baghdad and the destruction of the last remaining great power in the Near East, the Mamluk Sultanate in Cairo (Map 4.4). As a prelude to his attack on Syria and Egypt, Hulagu
decided to isolate the two smaller independent Islamic powers which stood on either side of Syria’s eastern flank, the Ismaili Order of Assassins in the north and the Abbasid Caliphate in the south.
The last caliph in Baghdad, al-Mustasim Billah, was little more than a figurehead for the once-powerful Abbasid Caliphate, a ruler whose power had been eroded by hundreds of years of outside invasion and internal civil war. The Abbasid revolution of 750 was followed by a long process of political
disintegration as one province after another broke free of the caliphs in Baghdad. By the mid-tenth century, the local Persian aristocracy treated the Arabic caliphs as puppets. A century later, in 1055, the Seljuk Turks conquered Baghdad, and then turned their military might against the Byzantine Empire with devastating results, culminating in the victory at
Manzikert in 1071. Seljuk power declined in the early twelfth century in the face of the Latin crusades, but by the 1190s Islam had blossomed again under the leadership of Saladin, recovering in Egypt and Syria under the Ayyubids, with Ayyubid control ultimately usurped by their own soldier-slaves, the Mamluks, in 1250.

But even as the thirteenth
century witnessed the successful Islamic counter-crusade against Christian possessions in Palestine and Lebanon, Islam itself was under siege by a powerful sect known as the Ismaili Order of the Assassins. This radical Shi’ite sect had terrorized orthodox Islam from their mountain fortresses in northern Iran for nearly 200 years, using
political murder and subterfuge in an attempt to overthrow the existing Sunni order. Though their main targets were the rulers of Islam, their daggers also found some victims among the Latin crusaders, who brought their name and fame back to Europe, giving Christendom the term ‘assassin’ for the first time.

Drawing on assistance from
troops from the Golden Horde, Hulagu Khan entered Persia in 1256 with an army of over 100,000 men and a very substantial siege train manned by a thousand crews of Chinese engineers. The Ismaili mountain fortresses were his first objective. As the Mongol military machine reduced castles in Mazanderan, Meimundez and Alamut, the last master of the
Assassins, Rukn ad-Din, threw himself on the mercy of Mangu Khan, journeying to the court in Karakorum, only to be denied an audience. He was murdered on the way back to Persia, kicked to death by his escorts. By February 1257 over 100 of the Ismailis’ castles had been demolished, their inhabitants, including women and children, slaughtered. The
Mongols had accomplished in mere months what the Islamic world had tried to do for two centuries: end the Assassins’ reign of terror.

Hulagu next sent letters to the caliph of Baghdad, ordering him to dismantle his walls and come to the khan’s tent and swear allegiance. Mustasim refused, replying that many armies had failed against Baghdad in the past.
Unfortunately, centuries of neglect had left the city’s walls dilapidated, and its garrison of some 50,000 men were ill-equipped and poorly trained. The caliph also failed to heed the warnings of his generals to conscript more soldiers. And even though his position as the Abbasid caliph gave him the political authority to summon assistance from the whole of
Islam, the only two regional powers left, Syria and Egypt, refused to assist him. Finally recognizing the gravity of his situation, the caliph ordered the walls repaired only one day before the Mongols arrived. His patience at an end, Hulagu commanded the Mongol army to converge in four columns on Baghdad. In response, Mustasim ordered a force of 20,000 cavalry to
delay the steppe warriors’ advance. As the Muslim army approached, the Mongols broke the dikes on the banks of the Tigris River, flooding the garrison’s camp and cutting off their line of retreat. Only a few Muslim warriors survived the flood and the engagement with Hulagu’s vanguard, returning to the city with the throngs of refugees.
A ditch and rampart having been dug around Baghdad’s walls, Hulagu ordered the bombardment to commence on 30 January 1258. After seven days of uninterrupted barrage with the trunks of palm trees, foundation stones and shot, the caliph offered his submission, but the khan would accept nothing short of unconditional surrender. On the morning of 6 February the
Mongols stormed and captured the entire eastern wall. Over the next seven days the city was pillaged and its libraries, universities, mosques and palaces burned. The garrison was put to the sword, and the caliph and his three sons were sewn up in Persian carpets and trampled to death under the hooves of Mongol horses. Baghdad, once the cultural and
intellectual centre of the Islamic world, lost a few hundred thousand of its inhabitants. The carnage was so great that the Mongols were forced to abandon their camps because of the stench of decomposing corpses.

With the Assassins and Abbasids now destroyed, Hulagu Khan now turned his attention toward Syria. His ranks had actually swelled to
perhaps 300,000 troops with the addition of new tumans and new Muslim vassals, including a contingent of 16,000 Christian crusaders sent by King Hayton of Armenia. Faced with an overwhelming army, the sultan of Syria turned in desperation to the Mamluks for assistance, but his cry fell on deaf ears. In Cairo, the new Mamluk sultan Kotuz
had no intention of helping the Syrians. Instead, he executed the khan’s ambassador and prepared for the impending Mongol invasion.

Cavalry versus Cavalry: The Battle of Ain Jalut

In the autumn of 1259 Hulagu crossed the Euphrates and pushed into Syria, then
moved toward the crusader states in the Levant. Though a Buddhist, Hulagu was surrounded by Christians at his court. His senior wife was a Christian, and so was his favourite commander, Kit-Boga. Hulagu was pragmatic when it came to adding knowledgeable assets to his campaign, and the crusaders were well versed in warfare in the Levant. Many of the
Latin crusaders in the northern principalities recognized that resistance to the Mongol horde was futile, and joined the steppe warriors in their war against Syrian Muslims, hoping that the alliance would return to Christian control their greatest prize, Jerusalem. When King Hayton I of Armenia rode south to join the khan, he was joined by his
son-in-law Count Bohemond VI of Antioch and Tripoli. This would be the only western European army ever to march beside the Mongols, though other western commanders would seek Mongol support. Joined by these additional Christian crusaders, Hulagu besieged Aleppo, taking the city and massacring its inhabitants. The victory proved to be a
mixed blessing. Hulagu rewarded Hayton and Bohemond with territories that had been won from them by the Muslims over the years, but the pope excommunicated the pair and their soldiers for fighting with the infidel.

By late March 1260, other terrified Muslim cities capitulated, including Damascus. Syria was now
under Mongol rule and Hulagu took the title Ilkhan of Persia. Hulagu next looked toward the Mamluks in Egypt. But just as the death of Ogotai had saved western Europe from further Mongol incursions, news arrived from Karakorum that the great khan, Mangu, had died of dysentery, forcing Hulagu to return to Mongolia. The Ilkhan postponed the attack
on Egypt and withdrew most of his army into Azerbaijan, leaving his general Kit-Boga and three *tumans* (30,000 men) behind to control the newly conquered territories in Syria.

In Cairo, Sultan Kotuz saw the departure of Hulagu’s main army as an opportunity to strike with a numerically superior force against the Mongol rearguard. Kotuz
pulled together a large army of perhaps 120,000 men, including Mamluk soldiers from Egypt, and fugitives from failed Islamic campaigns (Bedouin tribesmen and Turcomans). Wanting to add to his numbers and secure his lines of communication, Kotuz sent a letter to the Latin crusaders, asking them to join him. The crusaders were torn
by the offer. The grandmaster of the Teutonic Knights in Acre argued that an alliance with the Mongols was still the best policy, while others, fearing excommunication and military reprisals by their European comrades-in-arms, chose the middle ground, offering the Mamluk army safe passage and logistical support in their expedition into Syria.
The Mamluk vanguard left Cairo in late July under the command of Kotuz’s very capable general, Baybars. Like most of his Mamluk brothers, Baybars was born a Kipchack Turk on the steppes of southern Russia, where he was captured by the Mongols as a youth; he was then resold to an emir in Egypt (Mamluk is Arabic for ‘slave’). There, he was trained as a young
man in the Egyptian tradition as a warrior slave, perfecting his skills as a rider, archer, lancer and swordsman. The Fatimid (909–1171) and Ayyubid (1171–1250) rulers of Egypt were the first to build armies of slave soldiers, and some, like Baybars, even rose to positions of power and influence, commanding the armies of caliphs and sultans. But in 1250 the Mamluk
slaves usurped the power of their Ayyubid masters and founded a dynasty that would last over two and a half centuries.

After years of arduous training, these young Mamluk warrior slaves would graduate and be freed, then be enrolled into their master’s household as his elite personal soldiers. One fourteenth-century Mamluk training manual,
entitled *Wish of the Warriors of the Faith*, showed a blending of nomadic and civilized military practices, placing an emphasis on various tilting techniques and mounted archery, and illustrating the importance the Mamluks placed on both heavy and light cavalry. As elite soldiers, these Mamluks were dressed in mail or lamellar armour and wore
conical iron helmets with mail coifs, protected very similarly to Persian, Greek and Byzantine cataphracts. Their shields were small and round, perfect for warriors who used both shock and missile combat from horseback. The Mamluks also utilized European-style straight and double-edged swords and maces, much like their crusader neighbours.
When news of the Mamluks’ approach reached Kit-Boga, he prepared to meet the Islamic army, but a rebellion in Damascus slowed his progress. Meanwhile, the Mamluks moved north and camped outside Acre, and, as promised, received crusader assistance. Mongol spies reported back to Kit-Boga on the size and complement of the Islamic army, and though
he recognized that he was outnumbered nearly five to one, he left Damascus with an army of some 25,000 men, mostly Christians and made up of Mongols, Georgians and Armenians. On 3 September 1260 he crossed the Jordan River and rode along the plain of Esdraelon between the mountains of Gilboa and the hills of Galilee. Entering the valley
where David slew Goliath near the village of Ain Jalut (‘Goliath’s Spring’), Kit-Boga’s Mongol army met the Mamluk vanguard under Baybars (Map 4.5(a)).

The Mongol cavalry charged the Mamluk van, which broke under the ferocity of the steppe warrior attack and fled up the valley. Kit-Boga gave chase, but the Mongols were falling for
their own ruse. Baybars was playing the traditional steppe warrior game of luring an attacker with a retreat. By all accounts, his forces fought hard, though he still anticipated that his van would not be able to meet Kit-Boga's charge. The Mongols pursued the broken vanguard to where Kotuz and a large force of Mamluks were arrayed across the valley
ahead of them (Map 4.5(b)). But even with vastly superior numbers, Sultan Kotuz was too cautious to attack the Mongol flanks. Understanding his tactical situation, Kit-Boga committed himself to engaging the entire Mamluk host, pressing into the rear of the Mamluk van as it reached its lines, then ordering the remainder of his army to
wheel right and run the Mamluk front rank toward Kotuz’s left wing. Baybars escaped, but his van was destroyed and the left wing crumbled under the Mongol sweep. For most of the morning, the sultan tried desperately to regain his left flank, pulling men across from the right wing and covering with shock and missile countercharges,
whittling away at the Mongols (Map 4.5(c)).

Eventually, Kotuz was able to regain his flank, and with his more numerous cavalry now on either side of the Mongols, the moment was right for a final attack. Taking off his helmet so that his troops could recognize him, Kotuz rode out in front of his bodyguard and led the final cavalry charge (Map 4.5(d)).
The Mongol army fought well, with Kit-Boga ordering his men to fight to the last man, but eventually it was overwhelmed by the Mamluks’ superior numbers. Mongol battlefield casualties were around 1,500 warriors, while the rest scattered in flight. Local peasants joined in the slaughter, burning the fugitives alive as they hid in fields. Those few who
escaped travelled north and sought sanctuary with King Hayton in Armenia. Although Mamluk casualties went unrecorded, they were probably moderate. Kit-Boga’s head was immediately sent back to Cairo with the first news of the Mamluk victory. Kotuz entered Damascus in triumph.

The Mamluks won at Ain Jalut using a combination of
superior numbers and ruse, finally destroying the myth of Mongol invincibility. The Mamluks’ Turkish origins gave them a familiarity with the tactics of their steppe warrior enemy, while training as Egyptian slave soldiers showed them the benefits of well-armoured heavy cavalry, a tactical system closely associated with civilizations in the Near East. When the
two forces met at Ain Jalut, the Mongols faced an army that mirrored its own tactical capabilities, and unlike the Christian armies defeated in Russia and eastern Europe, the Mamluks possessed tactical symmetry. Ain Jalut also marked the ascent of the Mamluks as the next great regional Islamic power. Within a year, Baybars assassinated Kotuz, seizing
the throne as sultan of Egypt and Syria. Taking advantage of discord among their enemies, Baybars’ descendants defeated and expelled the last of the crusaders in Acre in 1291, ending their 200-year occupation of the Levant.

Eventually, the Mongol rulers in the Middle East took on the attributes of the peoples they had conquered.
Mongol elites converted to Islam, Persian influence became predominant at court, and cities began to be rebuilt. By the fourteenth century, the Mongol Empire all across Eurasia began to disintegrate. But the damage to the old Islamic centres was done. The Abbasid Caliphate had been extinguished and the new centre of Islamic civilization was now in Cairo. The
Mamluk dynasty continued to flourish until defeat by Napoleon at the battle of the Pyramids in 1798. Having regained the throne after the French withdrawal, it was finally defeated by the Ottoman Turks in 1811.

In Russia, Mongol suzerainty also began to unravel during the fourteenth century when Christian princes challenged Mongol
rule. When a Mongol army was dispatched to reassert order, a Russian army under Grand Prince of Muscovy Dmitri Ivanovich (r. 1359–1389) defeated it at the battle of Kulikovo Field in 1380, destroying the mystique of Mongol military power in Russia. Gradually, the princes in Muscovy rose to predominance using their close relationship with the
Mongol khans to increase their wealth and expand their possessions.

Map 4.5 The Battle of Ain Jalut, 1260. (a) Phase I: Kit-Boga’s Mongol cavalry encounters Baybars’ advance guard of the Mamluk army near the village of Ain Jalut. The steppe
horsemen launch a ferocious charge (1) and the Mamluks break and flee back up the Jordan River valley (2). Kit-Boga gives chase, falling for what is a normal Mongol ruse – drawing an enemy into a trap through feigned retreat. (b) Phase II: The fleeing Mamluk survivors draw nearer to their main force under Kotuz (1), but the sultan is wary of the Mongols and stands fast, even though he outnumbers the steppe warriors. Kit-Boga orders part of his force forward (2) to crush the enemy vanguard while another element sweeps right (3) to assault the Mamluks’ left flank. Baybars manages to gain the safety of
the Mamluk main body (4), but the remainder of his force is destroyed.

(c) Phase III: Kotuz pulls troops from his right flank (1) and rushes them across the field to buttress his assailed flank (2). For most of the morning, the Mamluks trade charge and countercharge with their Mongol opponents (3), slowly eroding the strength of Kit-Boga’s outnumbered force and regaining the left flank. (d) Phase IV: The Mamluks’ superior numbers enable them to work cavalry forces around the Mongol’s flanks and rear and trap the survivors (1). Kotuz rides out in front of his bodyguard and removes his helmet to
identify himself to his troops as he leads a final charge (2). Kit-Boga orders his men to fight to the end but they are quickly overwhelmed, with few escaping to fight another day.

By the reign of Prince Ivan III (r. 1462–1505), a new Russian state was born. Ivan, later known as ‘the Great’, annexed other principalities and took advantage of dissension among the Mongols to throw off their
yoke by 1480. He invaded the lands of the Lithuanian-Polish dynasty and added territories around Kiev, Smolensk and Chernigov to his new Muscovite state. During his reign, the Romanov dynasty was born, and the gravity of Russian civilization was now centred in Moscow.
CHAPTER 5

Late Medieval Warfare: The Return of Light Infantry

The Apex of Chivalry and the Battle of Bouvines
Knights in the high and late medieval periods (c. 1000–c. 1500) fought on the battlefields of Europe in two very different ways, mounted or dismounted. On the continent, especially in France, Germany, Hungary and Spain, mounted shock attacks were favoured over dismounted warfare. In mounted combat, a typical heavy cavalry formation was
drawn up in a continuous shallow line, three or four ranks deep, with 1,000 to 2,000 cavalry deploying with a frontage of perhaps half a mile. This arrangement of heavy cavalry formed what was called a *bataille* (from which the word *battle* is derived). Each bataille was broken down into smaller tactical units called *banners*. These were usually recruited
through family, lineage or feudal relations, and were supposed to stay grouped around a battle flag or a leader (called a *banneret*), or were united by a common war cry.

By the eleventh century, heavy cavalry articulation was refined to the point where the units were so closely formed that the horses were touching each other in
formation. In the *Chanson de geste* we read: ‘The Barons are so closely packed as they advance that if you throw a glove on their helmets it would not fall to ground within a mile.’ Other contemporary references state that if a ‘glove, apple or plum had been thrown amongst them, it would not have fallen to the ground but on the vertical lances’, for example,
or that ‘the wind should not be able to blow through’ the lances. Even allowing for poetic exaggeration, medieval heavy cavalry units were capable of manoeuvring and fighting in extremely close order on the battlefield.

Close order within heavy cavalry formations facilitated greater tactical command, control and communication, and prevented victims from
escaping between the passing chargers, presenting an opportunity for medieval horsemen to mow down infantry with lances, maces, swords, axes and hooves. The heavy cavalry bataille rarely engaged the enemy in a single clash, but banner by banner, often beginning from the right. A banner’s charge began slowly, taking care to keep in line, then picked up
speed until the moment of contact. It was best to have room beyond the target in order to follow through with momentum. When heavy cavalry faced unformed infantry, it attempted to isolate and destroy it.

Still, good order and a uniform charge were not natural to noble heavy cavalry. The fighting ethic of the medieval knight was
based on personal fame, personal honour and personal courage. To fight with peers and social superiors in a co-ordinated charge often meant subordinating the possibility of personal valour to a group. In fact, the natural trend of knights on the battlefield was for the individual to break out of rank and dash forward, as illustrated in the battle of Arsuf in 1191. These two
contrasting styles of mounted warfare, discip-lined and undisciplined, were illustrated in one of the pivotal battles of the high Middle Ages, the battle of Bouvines in 1214.

Bouvines was a significant turning point in the decades-old conflict between England’s Angevin Empire in western France and the ambitions of the Capetian dynasty. The origins of the
recent struggle reached back to 1204, when the greatest of the Capetian kings, Philip II Augustus of France, successfully seized Angevin lands in Normandy, Brittany, Anjou, Maine, Poitou and Touraine, greatly reducing the size of King John of England’s continental possessions. Distressed, John decided to resurrect the strategy of his father, Henry
II, and older brother Richard I, and seek allies in the princes of the lands between France and Germany, most notably Ferrand, count of Flanders, Renaud of Danmartin, count of Boulogne, and Henry I of Brabant, whose daughter married Otto IV of Brunswick, the nephew of King John.

Otto claimed to be king of
Germany and holy Roman emperor, and became even more personally involved when Philip supported a rival claimant to the imperial throne, one Frederick II of Hohenstaufen. Frederick was a man handpicked by the powerful Pope Innocent III, the same pontiff who extended the papal banner to the Spanish victors at Las Navas de Tolosa in 1212.
Innocent’s influence also held sway in England. The pope had placed the country under interdict when John refused the pontiff’s candidate for archbishop of Canterbury. The interdict lasted seven years and weakened the monarch’s standing among his people and his magnates. Desperate for papal aid after the loss of his Angevin lands, John willingly did what no
English monarch had done before and made England a papal fief.

With the civil war in Germany between Otto and the Hohenstaufens stalemated, John intrigued with Otto to recover his lost territories in France, forcing Philip to head off the coalition by invading England. Unfortunately for Philip, the French fleet was
destroyed in the battle of Damme in May 1213. Relieved, John prepared his own invasion of France as his allies skirmished against France’s northern and eastern flanks throughout the whole of 1213. Finally, on 15 February 1214, the English monarch marshalled an army of mercenaries (his Anglo-Norman barons would not follow him) and landed an
expeditionary force at the port city of La Rochelle in the traditional Angevin stronghold of Aquitaine.

Once in France, John dispatched William Longsword, earl of Salisbury, to bring the coalition into action. Next, John moved north and spent the beginning of the campaign subduing Poitou and incorporating a large number of Poitevan
knights into his army. He then moved into Brittany and captured Nantes in mid-June. To block John’s advance, Philip ordered an army of some 800 knights and more infantry under the command of his son Prince Louis to intercept the English king as he was besieging La Roche-au-Moine in Anjou. When the two hosts met, John’s newly acquired Poitevan knights
refused to fight their French overlord. Enraged, John withdrew from the campaign. Still, John’s efforts did tie down the prince and his contingents, thus weakening the French king as his enemies assembled at Valenciennes on 23 July. Philip marched into Flanders wielding fire and sword, reaching the city of Tournai on 26 July. His army
consisted of 1,400 knights and 5,000–6,000 infantry. That same day, seemingly unaware of the French king’s proximity, Otto ordered his allied army of similar strength (around 1,400 knights and perhaps as many as 7,500 foot) to encamp at Mortagne, 7 miles south of Philip. When the French and allied pickets discovered how close their armies were to one
another, the leaders of each host were forced to take immediate action.

That evening Philip held a war council to consider an attack, but was advised that the ground near Mortagne was not suitable for mounted combat. The French decided to withdraw west to Lille. It is possible that Philip was manoeuvring in order to delay the conflict, hoping that
some of the allied forces would evaporate before battle was joined. The following morning, a Sunday and sabbath day (27 July), Philip’s army broke camp and marched in column toward Lille along the well-preserved Roman road. One strategic variable lay in the French army’s path, the bridge over the River Marque at Bouvines, 25 miles west of
Tournai. This bridge acted as a choke point, and crossing it was a potentially dangerous but necessary manoeuvre. It is estimated that the French army would have been strung out in column for about 5 miles as it crossed the bridge, presenting an attractive target to the coalition army. This opportunity was not lost on Otto and his commanders. As the French army was
breaking camp on Sunday morning, Otto called a war council to decide what to do. He and Renaud of Boulogne were reluctant to fight on the sabbath, but after some heated debate, the German emperor ordered his army to pursue the French, marching on a parallel Roman road that joined the Tournai–Lille road just east of the bridge at Bouvines in the hope of
attacking the French in the vulnerable position of crossing the span.

Inexplicably, Philip was initially unaware of his enemy’s intentions, which were discovered only after two of his vassals, the viscount of Melun and Bishop Guerin of Senlis, observed the movement of the allied army and reported its pursuit to the French king.
Guerin, who was Philip’s commander-in-chief and a member of the Hospitaller Order, returned to report to the king, while the viscount moved on to occupy the north-westerly road to Bouvines in an effort to delay and harass the coalition army (Map 5.1(a)). The French king was eating lunch and resting near the bridge at Bouvines when he learned
that the rearguard of his army, under the command of Odo, duke of Burgundy, was engaged with leading elements of the imperial forces, including Fleming crossbowmen, light cavalry and knights. By this time the majority of the French host had already crossed the bridge.

Philip was in a difficult position. If he continued his
march to Lille he placed the duke of Burgundy and his rearguard in peril, and the French king could not afford to lose his best cavalry. Moreover, if his rearguard were annihilated, his entire army would be placed in jeopardy. Perhaps fearing this, Philip decided to turn and fight. He commanded the bridge widened to speed the return of elements that had
already crossed. Gathering a sizeable force of cavalry around him, King Philip headed off towards the enemy (Map 5.1(b)).

When Otto and his allies arrived they found Philip’s cavalry already arraying for battle. It was mid-afternoon, and the sun shone on the shoulders of the French and in the eyes of the west-facing coalition. Philip used his
cavalry as a screen for his slowly deploying infantry, knowing that if the allied army attacked his own as it recrossed the bridge, all would be lost (Map 5.1(c)). On the right, the duke of Burgundy’s rearguard was reinforced by Bishop Guerin’s horse, forming a new contingent of 600–700 knights. Philip commanded the centre, mounted on his
steed next to the fleur-de-lys. There is little evidence that a third division on the left was ever fully constituted before the battle began, though Guerin took great pains to make sure that he had enough cavalry to protect his flanks. The bishop arranged all of the French knights in a disciplined line so that they could fight on one front, yet stay close enough together to
maintain cohesion as heavy cavalry.

Wary of this large number of French heavy horse, the German emperor hastily deployed his army from column into proper battle form, with its expanding frontage constantly mirrored by the French. The total front extended to about 1,000 yards. Otto created a similar cavalry force on his own left,
made up of knights from Flanders and Hainaut and commanded by Count Ferrand, to screen his own deployments. Otto placed himself and his knights and foot in the centre. Count Renaud of Boulogne and William Longsword, earl of Salisbury, commanded the right wing. There is evidence that special combined-arms tactics were used here.
Renaud put his heavy infantry into a circle or square two ranks deep, then launched his cavalry through an opening in the formation in order to withdraw under cover of the infantry’s spears. This coordination between infantry and cavalry indicates a preponderance of infantry in this division.
Map 5.1 The Battle of Bouvines, 1214. (a) Phase I: After learning of the proximity of Otto’s army, Philip orders a march from Tournai to Lille (1). As the end of the column nears the bridge at Bouvines, a force under the viscount of Melun and Bishop Guerin (2) detect the approach of the imperial force (3). Guerin rushes back to
Bouvines to locate the king (4), while Odo, duke of Burgundy, orders the rearguard (5) to detour onto the Mortagne road to support Melun and confront the approaching enemy (6).

(b) Phase II: Guerin finds the king near the bridge (1) and Philip quickly assesses the situation. He directs the bishop to take command of the right wing (2), consisting of Odo’s, Melun’s and Guerin’s own troops, orders the bridge widened, and directs the rest of his army to cross back over the river and deploy (3) to meet Otto’s imperial forces (4).

(c) Phase III: Philip deploys his cavalry (1) to screen his infantry columns as they arrive (2).
On the imperial left, the cavalry of Count Ferrand of Flanders (3) perform the same duty for the rest of Otto’s troops as they move onto the field (4). Count Renaud of Boulogne and William Longsword, earl of Salisbury, command Otto’s deploying troops on the right wing (5). On the French right, Bishop Guerin forms his cavalry into a tightly arrayed linear formation (6) and opens the action, launching his lightly armoured sergeants against the Flemish lines (7). (d) Phase IV: The Flemish nobles refuse the challenge offered by the common sergeants, who are turned back by crossbow fire (1). The sight of
the fleeing sergeants proves too tempting a target and many of the Flemish knights charge out as individuals (2), tiring themselves and their horses for no perceivable gain. To the left of this action, the imperial deployment is completed as Otto takes command of the centre (3) and Renaud’s infantry on the right forms an enclosure from which the cavalry can operate with a measure of protection (4). Philip’s infantry slowly moves into position (5).

(e) Phase V: Guerin orders his knights forward in a series of charges against the tired Flemings (1), one of which, under Melun, penetrates the enemy’s
line completely and returns back through it (2). Ferrand’s formations begin to break under the repeated attacks (3), and the wounding and subsequent surrender of the count (4) hastens the disintegration of the left wing. Meanwhile, Otto launches his centre division (5) as the French infantry finishes deploying. The foot soldiers are shaken (6) and Philip survives a close call as German knights and infantry penetrate to his position (7). (f) Phase VI: The French regroup and Philip launches a countercharge (1) that cuts through the coalition infantry. It is the German emperor’s turn to come under
personal attack (2) as Otto’s bodyguard narrowly succeeds in saving him from death or capture. To the south, the Flemish wing collapses (3) and the battle begins to turn in favour of the French, though Renaud, launching sallies from within the walls of his infantry formations (4), continues to resist on the imperial right.

(g) Phase VII: The French launch a concerted combined-arms attack
against Renaud’s position (1), and the count’s division finally collapses under the intense pressure (2). This is the final straw, and the coalition force disintegrate and rout from the field (3). Philip orders a pursuit of only 1 mile (4), not wanting to risk losing valuable prisoners as nightfall fast approaches.

Once his flanks were secure, Bishop Guerin seized the initiative and sent a
contingent of 150 sergeants (lightly armoured horsemen of non-noble birth) forward to harass the Flemings. The Flemish knights despised these commoners and refused to come out against them (Map 5.1(d)). Since the sergeants’ horses were not protected by barding, many of these mounts were killed by allied infantry, probably from missile fire. Then a few
Flemish knights left the ranks of their division to participate in the mêlée, riding down the sergeants as they fought on foot or attempted to retreat. A contemporary of the battle, Philippe Mousket, commented on the Flemish cavalry, ‘no one was in order, everyone charged as they wished’. The bishop’s ploy to goad his enemy into battle by offering men beneath their
station to fight worked marvellously. Consequently, many of the Flemish knights were already tired when the real battle opened.

After the sergeants were repulsed by the Flemish horse, Guerin ordered a series of disciplined cavalry charges by his nobles and their handpicked knights, beginning with knights from Champagne under Pierre de
Remi, followed by the count of St Pol, the count of Beaumont, Matthew of Montmorency, and the duke of Burgundy, who was unhorsed and then rescued by his knights surrounding him (Map 5.1(e)). The viscount of Melun and his men succeeded in penetrating the enemy line and charging back through it—a sure sign the Flemish were weakening under the
repeated attacks.

The disparity in discipline between the French and allied forces was evident. In the words of another eyewitness, Anonymous of Bethune:

The king [Philip] put his echelons in formation and they rode forward. You could see among them noblemen, much rich armor and many noble banners. The same was true for the
opposite side, but I must tell you that they did not ride as well and in as orderly a manner as the French, and they became aware of it.

The better-ordered formations of French knights carried out many devastating attacks against Ferrand’s more loosely packed formation. After three hours of these steady charges, the French
finally cut their way through to the wounded count of Flanders. Ferrand’s surrender took the fight out of his troops, and the imperial left wing soon began to disintegrate.

Meanwhile, Philip’s infantry had arrived on the battlefield and had only just taken position in front of their liege when Otto and his centre division attacked. The
levies were thrown back and the German emperor’s knights broke through and threatened Philip’s position. Philip’s bodyguard countercharged, but in the confusion some of Otto’s infantry broke through and unhorsed the French monarch. He was saved only when another French knight, Pierre Tristan, dismounted and offered his mount to his
king. As the French bodyguard fought their way to protect Philip, he leapt quickly into the saddle and was whisked away to the rear.

The French decided to give as good as they got and counter-attacked, pressing their way deep inside the coalition lines and reaching the German emperor’s position (Map 5.1(f)). A French nobleman, Gerard la
Truie, tried to kill Otto with his dagger, but the blow glanced off the emperor’s mail and struck the royal mount in the eye. Enraged, the horse sprung up and bolted, then fell again some distance away. Another French knight, Guillaume des Barres, reached the emperor again, but could not prise him from his saddle. The emperor’s bodyguard pulled
the French nobleman from his horse. Fighting now on foot as the Germans pressed him, Guillaume was saved only by the timely arrival of fifty French knights.

One modern historian describes the battle of Bouvines as actually ‘two battles within a battle, a cavalry battle to the south and a general melee to the north’. After the capture of Ferrand
and the subsequent collapse of the imperial left wing, the battle began to turn in favour of the French. In the north, the mêlée became a fluid tug-of-war with rapidly changing front lines, as can be seen by first the French king and then the German emperor threatened with death or capture. But within this confusion there existed a determined defence led by
Renaud of Boulogne. As stated above, Renaud ordered his infantry force of about 700 men into a double-ranked circle or square, then placed his mounted knights within its centre. These knights sallied out to attack the French only to return to the safety of the infantry formation. This combined-arms arrangement worked well until the whole
formation was overwhelmed by 50 French knights and 2,000 of their supporting infantry (Map 5.1(g)). Contemporary chroniclers do not tell us precisely where this last stand took place. After the collapse of Renaud’s division the coalition effort fell apart. Philip gave the order to pursue the enemy for only one mile. Night was falling
and the French king was afraid that if he gave chase some of his important prisoners might escape. The French succeeded in capturing 131 enemy knights, including 5 counts and 25 bannerets.

The battle of Bouvines provides an excellent example of the variety of tactics used in high medieval warfare. The battle opened
with a purely cavalry engagement between the well-disciplined French right wing and Ferrand’s unruly knights. Bishop Guerin’s use of orderly small-unit attacks to dictate the tempo of the battle was brilliant, slowly wearing down his enemy while probing for weaknesses. The next phase saw a general mêlée showcasing combined-arms
operations with French and coalition knights attacking with the support of foot soldiers, as well as infantry working in close co-operation defensively with heavy cavalry under Renaud de Danmartin.

Politically, the battle of Bouvines reshaped the balance of power in western Europe. King John, though not physically present at the
battle, lost both coin and prestige. As a consequence, many of his barons rebelled and accepted the claims of Prince Louis of France to the English throne (a serious claim, since many of these barons were Norman French in both outlook and culture). These barons seized London on 17 May 1215, and by June 1216 Louis was governing from London. John’s death
1216 did not end the rebellion, which was finally put down by England’s regent and greatest knight William Marshal (holding power for the nine-year-old Henry III) at the battle of Lincoln.

King Philip was the overall winner at Bouvines. His battlefield success translated into increased hegemony over Flanders and consolidation of control over formally
Angevin lands. Coupled with lands taken in 1204, Philip’s royal possessions tripled as a result of Bouvines. Many historians mark this victory as the beginning of centralized French rule in the medieval period. Still, these gains would not stand without a challenge. A century later, another English monarch, Edward III, would once again claim these French
possessions and initiate the Hundred Years War.

The Transitional Thirteenth Century

The thirteenth century witnessed a gradual rise in the importance of light infantry. As the crusaders returned from the Levant to western European battlefields, they brought with them a new appreciation for the
effectiveness of light infantry, an appreciation that would raise the position of archers and crossbowmen on the battlefield, but in varying degrees. In England, Anglo-Norman border wars against the Welsh and Scots produced a profound respect for the range and power of the longbow, while on the continent, well grounded in chivalry and feudalism,
Italian crossbowmen mercenaries would be utilized as a subordinate arm to French and German noble heavy cavalry.

Light infantry archers and crossbowmen were not uncommon in western European warfare before the thirteenth century. Light infantry was easily conscripted because the bow was a peasant weapon used
for hunting (and poaching), and the crossbow was a point-and-shoot mechanical device that took a short time to master, an ideal characteristic for use by city dwellers. But the high Middle Ages was the plateau of chivalry, a time when the mounted nobleman lancer ruled the courts and battlefields of western Europe. In this social climate, weapons systems of the
common man, no matter how effective, were looked down upon in a contempt born of fear. So powerful was this fear that the medieval period’s most powerful institution, the Catholic Church, passed legislation at the Second Ecumenical Lateran Council in 1139 anathematizing all who used the crossbow and bow in wars between Christians (later, the
killing of infidels with missile weapons was acceptable). In many ways the Catholic Church was bowing to the demands of a noble class who feared death by arrows and bolts from a distant, anonymous killer.

The basic construction of the crossbow was a small bow attached to a stock that provided a groove for the bolt. The bowstring was held
in place when cocked by a simple trigger mechanism. Early crossbows used a wooden bow, and the string could either be drawn by hand or with the aid of a simple claw or goat’s foot. But by the thirteenth century the crossbow had evolved with the addition of a composite bow made of horn, sinew and glue. The composite crossbow required
a stronger cocking mechanism, a problem solved with the invention of the windlass. The windlass used pulleys attached at the butt end of the stock to a winding mechanism which, when hooked onto the bowstring and wound, would draw the string to the trigger. By the fifteenth century the bow of the crossbow was made entirely of metal, increasing
its power, range and ballistic impact. With a maximum range of almost 500 yards and the ability to pierce the best plate armour, the metal crossbow became the most dangerous non-gunpowder missile weapon in use by medieval light infantry.

Although medieval commanders recognized the importance of combined arms in winning on the battlefield,
commanders differed in how they respected and employed light infantry. On the continent, crossbowmen were often favoured over archers because of the small amount of skill required to operate their weapon. The French crown regularly employed Italian mercenaries renowned for their skill with the crossbow. In England, King Edward I (r. 1272–1307) first
conquered the Welsh, then assimilated their native weapon, the longbow, into his army, creating a very dangerous weapon system for use against the Scots and later, by his successors, against the French.

The Welsh and Scottish Campaigns: The Longbow, the Schiltron and the
Return of Infantry to Western Europe

The Welsh longbow was a selfbow, constructed from a single, carefully shaped piece of wood, usually yew. The bow received its name from its unusual length (up to 6 feet 4 inches). It could achieve a maximum draw weight of 185 pounds, though draw weights of between 60
and 160 pounds were a common range. These powerful longbows could hurl small-headed arrows as far as 300 yards, depending on the size and weight of the arrowhead. Moreover, the skill required to shoot a longbow was substantial. To master the weapon took many years and constant practice, and a fully trained longbowman was a
formidable military asset capable of piercing mail consistently and plate armour at short ranges, and attaining a rate of fire of up to twelve arrows per minute, far faster than a crossbow. This extraordinary rate of fire, combined with the sheer numbers of archers employed by English monarchs, created a ‘killing zone’ – a narrow fronted area around 200 yards
deep into which several thousand arrows could be launched per minute. These ‘killing zones’ were instrumental in English victories in the Anglo-Scottish conflicts and the Hundred Years War against France.

In response to the vulnerability of mounted lancers to the arrows and bolts of light infantry, knights
began to use metal plates to strengthen their mail armour at particularly vulnerable points (such as the shin and knee), creating a transitional armour known as plate mail. But as the threat of enemy missiles became more prevalent, heavy cavalrymen added more and more plates until a complete suit of plate armour was worn by the beginning of the fifteenth
century. Knightly weapons also changed in response to this new plate armour. Swords became shorter and wider, and often had reinforced, sharp points for thrusting, rather than slashing attacks. There was also a movement away from edged weapons toward contusion weapons, such as the mace, flail and hammer, and piercing weapons, such as the
military pick – weapons better suited to attack the flat protective plates encasing the aristocratic warriors.

King Edward I’s campaigns in Wales taught him valuable tactical lessons in how to employ light infantry against a stubborn guerrilla army. Beginning in 1276, he employed southern Welsh longbowmen against their cousins in the north. Earlier
attempts by Anglo-Norman kings to quell the Welsh Marches failed because the Norman heavy cavalry was severely restricted in the mountainous terrain of Snowdonia in northern Wales. To overcome the rebellious Welsh, Edward assembled a large force of troops with few cavalry and many bowmen, spearmen, carpenters and diggers. The
English king quickly put down the rebellion and initiated an ambitious castle-building project to dominate northern and central Wales, including the spectacular Edwardian castle complexes at Flint, Caernarfon, Harlech, Conwy and Beaumaris. Though over the next two decades Edward would face multiple rebellions by the Welsh, his effective
combination of castle building and an infantry-based army would eventually subdue them. With Wales under English control, Edward looked north for his next adversary.

Medieval Scotland, like Wales, was a rugged country with strong feelings of independence. Since the Norman Conquest, the English and Scottish had
fought a tug-of-war for the border regions of Cumbria and Northumbria. But instead of local chiefs squabbling over land, Anglo-Norman kings increasingly faced a Scottish kingdom unified and adopting Norman social, political and military institutions. Moreover, the Scots were consistently able to field large armies and carry the war far beyond the
borderlands and into England itself (Map 5.2).

The Scottish were fierce warriors who fought in formations called *schiltrons* (sometimes *schiltroms*). These battle squares and circles were very similar to the boar’s head formation of the early medieval period, in that both formations were unarticulated and, being a militia formation, inexpensive
to operate. The schiltron placed countryman beside countryman, each holding a long infantry spear or pike before him to discourage enemy heavy cavalry charges. The schiltron worked best as a defensive formation, and, like most medieval infantry arrays, its offensive capabilities were limited, though there is evidence that Scottish commanders wielded
the schiltron successfully at propitious times. Because Scottish warriors were mostly peasants, the quality of their arms and armour varied greatly. Most likely, a front-line pikeman was protected by a mail hauberk or padded gambeson and wore a kettle helm or iron cap, while his poorer comrades, lacking body armour, stood behind him in the schiltron. The
Scots also possessed some Norman-modelled heavy cavalry and light infantry archers, and, as a combined-arms army, they presented Edward with more of a challenge than had the raid-and-ambush tactics of the Welsh.
Map 5.2 The Anglo-Scottish Border
The war in Scotland began well for Edward I. In 1296 the English captured Berwick and massacred the Scottish garrison. The next year, while Edward fought the French, the Scots rebelled, decisively defeating an English army at Stirling Bridge and raiding northern England. Edward turned his full attention to
Scotland in the summer of 1298, invading the lowlands with a large army consisting of 3,000 heavy cavalry and over 13,000 infantry, of which some 10,000 were light infantry archers.

Marching overnight from Edinburgh into Stirlingshire, scene of the 1297 disaster, Edward’s vanguard attacked a Scottish muster point at Falkirk on 22 July (Map
5.3(a)). As the majority of the surprised Scottish cavalry fled, William Wallace, the Scottish commander, ordered the remaining infantry into four schiltrons and positioned them on a hill behind soft, swampy ground, braced for the inevitable English cavalry charge. Wallace then arrayed his light infantry bowmen between the schiltrons and on their flanks.
Map 5.3 The Battle of Falkirk, 1298.

(a) Phase I: Advance elements of Edward I’s army attack a Scottish muster site at Falkirk (1), scattering most of the Scottish light cavalry (2). William Wallace orders the infantry to form four schiltrons (3) on a hillside fronted by some marshy terrain and deploys his archers on the flanks and
in the intervals between the schiltrons (4) in anticipation of an English heavy
cavalry charge. (b) Phase II: The 
English vanguard charges (1). Unable
to shake the tightly packed ranks of 
the schiltrons, the heavy cavalrymen 
succeed in driving off the Scottish 
archers (2). Edward arrives on the 
field (3) and stops his knights from 
mounting a second charge. The king 
orders his archers forward (4) to 
soften up the bristling pike circles 
with missile fire. (c) Phase III: 
Subjecting the schiltrons to a deadly 
hail of arrows, the longbowmen soon 
open gaps in the Scottish formations 
(1). Edward orders his heavy cavalry
to charge through the openings (2) and the slaughter begins. (d) Phase IV: The unarticulated Scottish infantry are quickly destroyed, unable to resist the armoured horsemen assailing their flank and rear from inside their formerly invulnerable formations. Without the cohesion afforded by the tight ranks of the schiltron, the Scottish survivors are slaughtered (1), while Wallace manages to escape into the woods with a few of his followers (2).

The English vanguard did charge, dispersing the
Scottish light infantry but failing to tear the four schiltrons (Map 5.3(b)). As the English knights were forming up for a second charge, Edward arrived and called instead for his longbowmen to come forward and fire on the enemy battle circles. Under a deadly rain of arrows, the Scottish lines gaped, creating openings for the armoured horsemen.
English knights penetrated the schiltrons, and slaughtered the Scots with lance and sword (Map 5.3(c) and (d)). Wallace and a few of his men escaped into the woods. Edward’s men relentlessly hunted down the Scottish rebels, and Wallace himself was finally captured at Glasgow in 1305. He was hanged, then drawn and quartered at Tyburn. But
although Scotland was under foreign occupation, the people remained unconquered. After Wallace’s martyrdom, Robert ‘the Bruce’ (later King Robert I of Scotland) rallied his countrymen and continued the war.

King Edward I’s victory at Falkirk was reminiscent of the earlier battles of Hastings and Durazzo, where heavy
cavalry and archers worked together against dense heavy infantry positions. But the unusual aspect of the battle of Falkirk was the steadfastness of the Scottish infantry formations. Here the Scottish schiltrons held their ground and withstood repeated English cavalry charges, only to be finally defeated by a combined-arms attack by English light infantry and
heavy cavalry. Falkirk stands as a harbinger of battles to come in the fourteenth century, where heavy infantry alone in a defensive posture held its own against the mounted aristocracy and other infantry formations.

The high Middle Ages (c.1000–c.1300) saw close co-operation between heavy cavalry and the subordinate arms of heavy and light
infantry, a co-operation that brought victory to medieval commanders time and time again. But the late Middle Ages (c.1300–c.1500) witnessed a closer co-operation between heavy and light infantry against the dominant weapon system of the age, heavy cavalry. In England and Scotland and on the continent, heavy infantry increasingly provided the
defensive backbone to light infantry’s deadly counterpunch or took a decisive offensive role in combat.

One example of heavy infantry’s ability to meet and defeat enemy heavy cavalry and light infantry attacks can be seen in the later campaigns of the Anglo-Scottish Wars, specifically the battle of Bannockburn in 1314. After
the death of Edward I in 1307, his ineffectual son and heir, Edward II (r. 1307–1327), abandoned the war against Scotland. During the next seven years Robert the Bruce united Scotland under his rule and forced the English out of all castles north of the Tweed River, except Berwick and Stirling. When the latter English strongholds came under
siege, Edward II marched north with a strong army of over 20,000 men, including 2,500 mounted knights, 3,000 light infantry longbowmen and nearly 15,000 foot soldiers.

To meet the English invasion, King Robert followed the example of Wallace at Falkirk and deployed his 5,000–6,000 heavy infantrymen in three
schiltrons echeloned to the left behind a marsh and on a hill (Map 5.4(a)). Robert anchored his left flank in a patch of dense woods and his right flank on a bend in the stream. For a reserve, the Bruce held back a force of 500 heavy cavalry.

On the morning of 24 June, Edward II offered battle. To attack the Scots the English had to bring their much larger
army across the burn, or brook, and a marshy area dotted with pools of water. Just as the English completed this task but before Edward II could deploy his cavalry or infantry across the 2,000 yard front, Robert changed his mind and ordered an attack on the still forming English formation, ‘executing that rarity in war, an infantry attack on cavalry’ (Map
As the three Scottish schiltronns steadily advanced over the mile that separated them from the English cavalry still forming up in front of their own infantry, one group of English lancers broke away and countercharged the Scottish schiltronns. In the words of the Lanercost chronicler: ‘The two hosts came together, and
the great steeds of the knights dashed into the Scottish pikes as into a thick wood; there arose a great and horrible crash from rending lances and dying horses, and they stood locked together for a space.’ The English cavalry, halted in front of the pressing Scottish pikemen, proved incapable of effecting anything.

Meanwhile, as the other Scottish schiltronns came up to
engage, Edward sent his longbowmen around the Scottish left flank. But King Robert, who served at Falkirk and knew well the potential of longbow fire to destroy the cohesiveness of his schiltrons, committed his 500 reserve cavalry to the task of dispersing the English archers (Map 5.4(c)). With no longbowmen to menace them, all of the Scottish pikemen
joined battle, pressing the English cavalry back into their own immobile infantry hemmed in between the retreating English horse and the marsh pools they had to cross to reach attack position (Map 5.4(d)). With the rear infantry ranks useless and the spears of the Scots creating havoc among the cramped men and horses of the invaders, the English army
finally broke. Although Edward himself barely managed to escape capture, his army suffered greatly. Exhausted by their attack and bogged down in the marshy ground along the burn, the English were cut down or drowned by the victorious Scots (Map 5.4(e)). It was the greatest loss ever suffered by English knighthood in a single day. The Scots
reportedly lost only two noblemen, but a large number of pikemen.

Map 5.4 The Battle of Bannockburn, 1314. (a) Phase I:
Preparing to meet Edward II’s English invaders, King Robert deploys his heavy infantry in three schiltrons and his horse as a reserve (1). Edward’s army crosses the Bannockburn (2) and must pick its way through a marshy area dotted with pools of water (3) before it can deploy to face the Scottish forces on the hillside. (b) Phase II: Robert reconsiders his battle plan and decides to attack the still-deploying English. The Scottish schiltrons slowly advance down the hillside towards Edward’s position (1). One group of English cavalry charges the oncoming pikemen (2) and the two forces
collide, splintering lance and pike, but the infantry continue their inexorable approach. Edward dispatches his archers around the Scottish left flank (3) in an attempt to check the enemy. (c) Phase III: Recognizing the threat to his flank, Robert orders his cavalry reserve to charge the English archers (1) who are quickly dispersed (2). The schiltrons press forward and the English cavalry begin to slowly give ground, unable to shake Robert’s infantrymen. (d) Phase IV: Confronted by the slowly moving walls of bristling pikes, the English cavalry is pressed to the rear (1), but their withdrawal is hampered by their
own infantry (2) who are unable to retire quickly because of the marshy pools along the Bannockburn. The English formations rapidly lose cohesion because of the terrain and the crushing weight of the Scottish infantry. (e) Phase V: Although the front ranks of Robert’s schiltrons are thinned by the desperate English cavalry, the Scottish formations cannot be checked, pressing the invaders deeper into the swamp (1). The English army finally breaks and attempts to flee the field (2), but many are cut down or drowned in the attempt, though Edward manages to escape (3).
The battle of Bannockburn is unusual in the annals of medieval western European warfare in that cavalry served as a subordinate arm to heavy infantry. By dispersing the English light infantry and removing the very real threat of a rain of wooden shafts, the Scottish heavy cavalry allowed their pikemen to successfully move against the
English lancers. At Bannockburn, the English erred by placing themselves between a determined enemy and dangerous terrain, presenting the Bruce with an opportunity to change the tenor of the battle with an offensive charge. But in the next major battle it was the Scots that suffered from overconfidence and a refinement in English tactics.
In 1333 Edward II’s son and heir, the brilliant young King Edward III (r. 1327–1377), took advantage of a civil war in Scotland and laid siege to Berwick. On 19 July a Scottish relief army of perhaps 14,600 men encountered the twenty-year-old English monarch’s army of 10,000 troops besieging the castle at Berwick. The Scots, under the command of
Lord Archibald Douglas, the regent for young King David II, seized the nearby high ground at Halidon Hill.

Aware of the numerical superiority and superior position of his foe, Edward III positioned his troops across from Halidon Hill on flat ground in a concave formation, placing his heavy infantry in the centre, and his light infantry longbowmen on
the left and right flanks and in the gaps between his infantrymen (Map 5.5(a)). He then dismounted his knights ‘against the ancient tradition of their fathers’ to reinforce his infantry, creating for the first time what would be called the English defensive tactical system, a combined-arms formation that mated the superior defensive capabilities of heavy infantry
with the powerful offensive potential of light infantry archers.

The Scots, emboldened by their earlier success at Bannockburn and recognizing that Berwick could not be relieved until the English were defeated in open battle, took the offensive and marched down Halidon Hill toward the English formation (Map 5.5(b)). As the Scots
descended the hill, Edward ordered his archers to fire on the massed Scottish infantry, creating disorder in their ranks and aiding in their slaughter (Map 5.5(c) and (d)). The Lanercost chronicler writes: ‘Now the Scots approaching in the first division were so grievously wounded in the face and blinded by the host of English archery … that they were
helpless, and quickly began to turn away their faces from the arrow flights and to fall. ’ Still, many of the Scottish infantry reached the English lines, where fierce hand-to-hand combat ensued, but in the end, the Scots were unable to break the English line (Map 5.5(e)). As the battle continued, more Scots pressed from below, only to be targeted by Edward’s
longbowmen. Finally, the Scottish infantry routed and Edward ordered his knights to remount and pursue the fleeing troops as far as 8 miles (Map 5.5(f)). Perhaps as many as 10,000 Scotsmen lost their lives at Halidon Hill, including the general in charge and regent, Archibald Douglas. English casualties were paltry in comparison, estimated at under twenty
men, including only one knight and one man-at-arms. Throughout the high Middle Ages close combined-arms co-operation between heavy cavalry and light infantry served Norman and English commanders well. Successes at Hastings, Durazzo and Falkirk all demonstrated the effectiveness of shock and missile tactics against static infantry defensive positions.
But the return of light infantry and the emergence of disciplined infantry formations and the revival of aggressive infantry tactics gave medieval commanders new tools to fight with. The battle of Halidon Hill marks the beginning of the English defensive tactical system. Edward III and later English monarchs would perfect this tactical system in the
Hundred Years War and help break the back of the dominance of heavy cavalry. Edward’s use of the longbow at Halidon Hill, with its outstanding range, rate of fire, and impact power, also illustrated the possibilities of combining light infantry bowmen with dismounted knights and heavy infantry in a purely defensive capacity. Using this combined-arms
approach, Edward won all his major land battles against France and Scotland, including Halidon Hill (1333), Crécy (1346), Neville’s Cross (1346), Poitiers (1356) and Najera (1367), and in each case against numerically superior forces.
Map 5.5  The Battle of Halidon Hill, 1333. (a) Phase I: Marching to the relief of Berwick, the Scottish regent, Lord Archibald Douglas, seizes control of Halidon Hill, just west of the castle and city (1). King Edward III recognizes the threat from the numerically superior Scots and arrays his forces carefully, interspersing
archers with his infantry (2), moving his knights into a supporting position (3) and ordering them to dismount (4).

(b) Phase II: Recognizing that he would have to defeat the English in battle to assist the beleaguered fortress garrison, Lord Archibald orders his Scottish infantry down the hill at the English line (1). (c) Phase III: Edward orders his archers to open fire on the densely packed infantry approaching across the plain (1). The Scottish ranks are disrupted (2) as men begin to fall, but they press on. (d) Phase IV: The deadly rain of arrows continues (1) and the Scottish formations begin to lose cohesion (2).
as the dead pile ever thicker upon the ground, and some begin to seek survival (3) rather than share the fate of their comrades.

(e) Phase V: A still sizeable number of Scottish infantry manage to close with the English line (1) but are unable to make any impression on Edward’s troops. The archers continue to fire (2) and more and more Scots begin to rout (3).

(f) Phase VI: The remaining Scottish infantry break and rout (1). Edward orders his knights to remount (2) and the horsemen pursue the fugitives across the plain (3). The regent is killed (4), as are some 10,000 Scotsmen.
The Hundred Years War

The conflict that came to be known as the Hundred Years War (1337–1453) between England and France began when the English King Edward III, the grandson of
the French monarch Philip the Fair, laid claim to the French throne when the French King Charles IV died without a male heir. To further complicate matters, Edward was also a major landholder in France, with titles and possessions dating back to the Norman conquest of England in 1066. Piracy in the English Channel and territorial disputes in Gascony
acted as a primer for the war, which broke out in May 1337 and lasted until 1453.

The Hundred Years War pitted the English defensive combined-arms tactical system against the more orthodox and offensively orientated French continental system. Though the French way of war was in appearance a combined-arms system, its over-reliance on heavy
cavalry lancers precluded them from fully utilizing their light infantry. Two major campaigns during the war, Crécy and Agincourt, exemplify the differences between the two systems. In these campaigns the French continued to use what had been successful for centuries, while the English showed an amazing ability to adapt tactically over the long war.
In contrast to the continental system, the army that the English King Edward III brought to France was essentially a professional one, made up of knights and well-paid, highly motivated freemen. These freemen were, for the most part, light infantry longbowmen who had perfected their archery skills over years of campaigning in the Anglo-
Scottish Wars. But the English combined-arms tactical system was used in a defensive capacity on the continent, relying on the inevitability of the heavy cavalry charge to seal their enemy’s fate on the battlefield. The French nobility did not disappoint them.

English nobility became, in essence, the backbone of the
English defensive tactical system by dismounting to reinforce the infantry, bolstering morale and putting their noble selves in the same danger as the common soldier. The English were very fond of dismounting defensively because their preferred method of attack on the continent, the mounted raid or *chevauchée*, encumbered the English army...
with treasure, slowing it down sufficiently for a French army to intercept. The chevauchée was intended to destroy French resources, damage the enemy’s prestige and enrich English soldiers.

An unusually detailed description of a medieval army advancing into enemy territory comes from the Chanson des Lorrains, written in the early thirteenth
The march begins. Out in front are the scouts and incendiaries. After them come the foragers whose job is to collect the spoils and carry them in the great baggage train. Soon all is in tumult. The peasants, having just come out to their fields, turn back, uttering loud cries. The shepherds gather their
flocks and drive them towards the neighbouring woods in the hope of saving them. The incendiaries set the villages on fire and the foragers visit and sack them. The terrified inhabitants are either burned or led away with their hands tied to be held for ransom. Everywhere bells ring the alarm; a surge of fear sweeps over the
countryside. Wherever you look you can see helmets glinting in the sun, pennons waving in the breeze, the whole plain covered in horsemen. Money, cattle, mules and sheep are all seized. The smoke billows and spreads, flames crackle. Peasants and shepherds scatter in all directions. The above description is by no means specific to the
medieval period. The armies of Thutmose, Alexander, Hannibal, Caesar and Genghis Khan operated similarly in enemy territory. The fourth-century Roman commentator Vegetius tells us ‘the main and principal point in war is to secure plenty of provisions for oneself and to destroy the enemy by famine. Famine is more terrible than the sword.’
Even the English King Henry V, the commander at Agincourt, is rumoured to have said that ‘war without fire is like sausage without mustard’. Protecting the spoils became central to the success of any military campaign. During the Hundred Years War, when the French did catch up to the encumbered English army, the commanding monarch
would order his men to seize a defensible position and prepare for the French onslaught.

The difference in character between the continental system and the English defensive system is significant. The former was based on knighted heavy cavalry, favouring the offensive and elevating the individual on the battlefield.
The English system was based on freemen infantry reinforced by dismounted nobility, favouring the defensive and effective combined-arms co-operation. Though social tensions did exist, the relationship between the English nobility and their freemen was a professional one, based on respect for each other’s martial capabilities. The
relationship between the French nobility and their men-at-arms was often antagonistic, with the French knights treating their light infantry mercenaries and conscripts as little more than fodder.

These two tactical systems clashed numerous times during the Hundred Years War (Map 5.6), with the French suffering defeat at the
hands of English longbowmen right from the beginning of the conflict at the naval battle of Sluys (1340), and at Morlaix (1342), Auberoche (1345) and St Pol de Leon (1346). But of all the campaigns of the 116-year war, the battles at Crécy in 1346 and Agincourt in 1415 stand out as powerful demonstrations of the dominance of the
English tactical doctrine over the French heavy-cavalry-based system. Crécy and Agincourt reveal how the French failed to adapt over the duration of the war to the tactics of the invading English.
The English Tactical System Tested: The Battles of Crécy and Agincourt

England’s first great land victory over the French in the Hundred Years War came at the battle of Crécy in western France in August 1346. A
naval victory over the French at Sluys six years earlier had given the English command of the channel, affording Edward III the chance to pursue his hereditary claim to the French throne in a direct challenge to French suzerainty. On 12 July, Edward landed near the western tip of Normandy and set off on a raiding expedition. Edward’s strategy
was three-pronged: to pillage Normandy and evade French attempts at interception, to draw off French forces menacing English possessions in the south, and to rendezvous with an allied Flemish army invading France from the north-east. After a successful *chevauchée* across Normandy, Edward finally turned east and approached the Seine River.
near the large city of Rouen. Here he found that the French monarch, Philip VI (r. 1328–1350), had arrived in the city first and now blocked all the fords and bridges across the river.

Marching east toward Paris, with the French army following on the opposite bank, Edward won a bridge near Poissy by brilliant feinting and counter-
marching, only to be beaten to the Somme River at Amiens by Philip’s army. Unable to secure a bridge across the Somme and trapped between an advancing French army and the river, Edward was forced to risk crossing the waterway at low tide. A blocking French force on the opposite bank further complicated the crossing. Ordering his
rearguard to hold off the French army moving in for the kill down the left bank of the Somme, Edward commanded his vanguard archers to wade across the river and secure a bridgehead through which the English army could pass to safety. Unable to pursue the English because of the rising tide, Philip was forced to recross the Somme farther upstream,
giving Edward time to find a suitable defensive position from which to fight the battle he now knew was inevitable.

Treasure-laden and exhausted after a 300-mile long chevauchée, King Edward’s men retreated to the small village of Crécy, pursued by a numerically superior French army. Early in the morning of 26 August, Edward drew up his army of
8,500 men (two-thirds of whom were light infantry longbowmen) in a defensive position on a low hill facing the road where the French would approach (Map 5.7(a)). Edward arrayed his heavy infantry and dismounted knights in three battles on the forward slope of the east rise of the Crécy–Wadicourt road. The right battle was under the nominal command of the
king’s eldest son, the future Edward IV, the prince of Wales, then a seventeen-year-old, while the earl of Northampton commanded the left corps. Edward commanded the centre division, and used the nearby woods as rear protection and his baggage wagons for flank protection, while a windmill provided his command post.

The village of Crécy’s
steep, terraced hillside allowed the English monarch to deploy his longbowmen to best advantage on the flanks of the heavy infantry line. To further protect themselves against enemy cavalry charges, the longbowmen spent the day preparing the battlefield by digging ditches and driving iron-shod wooden stakes into the ground in front of their positions. These
makeshift obstacles usually had the added benefit of funnelling enemy cavalry into the dismounted cavalry and infantry ranks, allowing archers to rake the mounted attackers’ flanks.

The pursuing King Philip divided his army of 20,000 into eight divisions for marching, placing his 6,000 Genoese crossbowmen in the vanguard. The French,
expecting a long chase, were surprised to find the English army arrayed for battle on the hillside. Since it was now late in the day, Philip gave orders to defer action until the next morning. But the French knights, seeking personal glory, insisted on an attack, even though most of the main army had yet to arrive, depriving the noblemen of most of their supporting
cavalry and infantry (except for the Genoese crossbowmen who arrived in the van). Unable to control his troops, Philip gave the order to attack (Map 5.7(b)).

The Genoese crossbowmen were sent forward first to exchange fire with the English archers, but the crossbowmen lacked the protection of their *pavises*, large rectangular body shields.
that were still on the baggage wagons. The medieval chronicler Jean Froissart tells us that the English longbowmen:

Then advanced one step forward, and shot their arrows with such force and quickness, that it seemed as if it snowed. When the Genoese felt these arrows, which pierced their arms, heads, and through their
armor, some of them cut the strings of their crossbows, others flung them to the ground and turned around and retreated. Unprotected and unable to match the rate of fire of the longbowmen, the Genoese were outshot and forced back down the slope (Map 5.7(c)). As the Italian light infantry fell back, the French heavy
cavalry rode them down in disgust on their way up the hill (Map 5.7(d)).

The English longbowmen next turned their arrows on the advancing French knights. Under a withering barrage of arrows, none of the French cavalry from the first charge reached the English line:

For the bowmen let fly among them at large, and did not lose a single shaft,
for every arrow told on horse or man, piercing head, or arm, or leg among the riders and sending the horses mad. For some [horses] stood stock still, and others rushed sideways, and most of all began backing in spite of their masters, and some were rearing and tossing their heads at the arrows, and others when they felt the bit
threw themselves down. So the knights in the first bataille fell, slain or sore stricken, without seeing the men who slew them. The second charge failed as well, as the heavy cavalry’s barding proved incapable of stopping the longbow’s shaft (Map 5.7(e) and (f)).
Map 5.7  The Battle of Crécy, 1346.  
(a) Phase I: King Edward carefully arrays his army on a terraced slope near Crécy, digging ditches in the field to the front (1) to disrupt cavalry attacks and driving stakes in front of the archers’ positions (2). Woods protect his rear (3), his baggage train covers the left flank (4), and a
windmill (5) provides the king with a view of the approaching foe. (b) Phase II: King Philip VI’s army approaches the English position. Philip attempts to order a delay until the next day, when the remainder of his army will be up. Some of his knights halt (1), but most of the others press forward (2) in a search for glory and Philip gives in, unable to control his nobles. He orders his lead formations, Genoese crossbowmen, forward (3), even though their pavises, large rectangular body shields, are loaded on baggage wagons far to the rear. (c) Phase III: As the Genoese crossbowmen
approach the English lines, Edward’s longbowmen let fly (1). An earlier rainstorm had dampened the strings of the crossbows, while the English were able to easily unstring and protect theirs from the elements. This, coupled with the already greater range of the longbow, results in disaster for the unprotected Genoese. Without their pavises, they lose heavily to the English arrow storm and soon break for the rear (2). (d) Phase IV: Disgusted with the performance of their foot, the French knights ride down the Genoese fugitives (1) as they advance up the slope towards the English position (2).
(e) Phase V: Their advance disrupted by the ditches dug by the enemy archers (1), the first French charge is greeted by clouds of English arrows (2). Tightly packed and pressed from behind by their comrades, the French offer a large target to the longbowmen and the casualties swiftly mount. (f) Phase VI: The French continue launching charges against the English position, the archery fire funnelling their remaining forces towards the centre of the field. (g) Phase VII: French knights manage to close with the English line several times, but with little effect, though the young Black Prince finds he is a repeated
target for enemy attacks (1). The French have launched perhaps as many as fifteen assaults on the English line without making an impression on their foe, all the while suffering greatly from the merciless longbow fire (2). (h) Phase VIII: The French survivors finally turn and retreat (1), unable to shake Edward’s forces on the ridge line. In contrast to Philip’s heavy losses, the English suffer little in the battle.
With the archers on the flanks, the French charges were funnelled towards the centre of the English lines where Edward’s son, the teenage ‘Black Prince’,
commanded. The prince himself became the target of many direct attacks, and despite being ‘compelled to fight on his knees’, he and his men held their position against the continual onslaughts of French cavalry (Map 5.7(g)). In all, the French heavy cavalry charged the English position fifteen times, and though some French horsemen did manage
to meet the defenders’ lines, Edward’s dismounted knights and heavy infantry proved irresistible to the cavalry charges (Map 5.7(h)).

When the mists cleared on the morning of 27 August and the last of the French were driven away, Edward allowed his men to break ranks and strip the dead. In spite of a numerical superiority of two to one, the French lost 1,500
knights and squires, including the king of Bohemia, the duke of Lorraine, 10 counts, 83 bannerets and perhaps as many as 16,000 men-at-arms. English casualties were stated as two knights, one squire, and 40 infantrymen and archers.

Sixty-nine years later, in 1415, another English king, Henry V (r. 1413–1422), faced a strategic
situation similar to that which Edward III met at Crécy. After decades of conflict, the French were beginning to adjust to the English defensive tactical system by dismounting the majority of their nobility and attacking the invading English on foot. Throughout the remainder of the Hundred Years War, the French knight strapped on more plate armour to defend
himself from enemy arrows and bolts, and adopted heavier and shorter hammers, maces, flails and staff weapons (halberds, billhooks, glaives, military forks and poleaxes) more suitable for dismounted heavy infantry. Because these weapons often required two hands to be effective, the shield was discarded for practical use, only surviving for heraldic
A man of unlimited ambition and great military skill, King Henry decided to take advantage of the political division in France and revive Edward III’s claim to the French throne. Henry then assembled an army at Southampton, and on 13 August 1415 landed it near the mouth of the Seine and besieged the city of Harfleur,
which capitulated on 22 September. After providing a garrison for Harfleur, Henry set out on 8 October for Calais with a small army of about 6,000 men (5,000 longbowmen and 900 dismounted knights and men-at-arms) and a week’s rations, enough for the 100-mile march (see Map 5.6).

But the French, conspicuously absent from
the siege of Harfleur, chose then to attack the invading English army. Unable to cross the Somme River because of flooding and French defences, the English were forced to swing inland on their return journey to Calais and cross at Amiens. The delay allowed the pursuing French army to block Henry’s path, forcing the English monarch either to continue to
try to evade the French, or to stand and fight. Henry decided to fight. On the evening of 23 October he ordered his small army, hungry, tired and sick from dysentery, to make camp south of the villages of Tramecourt and Agincourt. The larger French army encamped between the two villages, north-west of the English position.
For days before the two armies camped, French contingents had been arriving to swell the ranks of the defending army. By the evening of 23 October, it numbered perhaps 25,000 men, a huge army for the period. The constable of France, Charles d’Albret, commanded the large French host in name, but his leadership was undermined
by the presence of so many dukes and counts that his position was more analogous to a president of an unruly war council than a battlefield general. And though the constable, aware of the effectiveness of the English longbowmen, wanted to receive Henry’s army in a defensive engagement, the dukes and counts of France convinced him to move from
the defensive and attack the English.

The resulting French battle plan advocated a combined-arms approach, first sending light infantry archers and crossbowmen forward against the English right flank while heavy cavalry charges simultaneously attacked the English rear in a double envelopment. Finally, dismounted French knights
and their men-at-arms were to engage the English centre on foot as allied light infantry archers and crossbowmen pinned down the enemy longbowmen. Attacked from all directions and overwhelmed by superior numbers, the English centre would collapse; the French would win the day.

The narrow frontage forced the French to array in three
batailles, one behind the other. The first division contained 8,000 heavy infantry, 4,000 archers and 1,500 crossbowmen, commanded by the constable himself. Behind this stood a second heavy infantry bataille of similar size. The third division contained the heavy cavalry, a formidable force between 8,000 and 10,000 knights and mounted men-at-
Realizing the size and complement of his foe, King Henry chose a position at the end of a muddy, ploughed field between two patches of woods in order to narrow the front to 800 yards, thereby mitigating French numerical superiority. Conforming to the English defensive tactical doctrine so successful decades earlier at Crécy and
Halidon Hill, Henry placed two divisions of dismounted cavalry and foot soldiers in the centre and his light infantry longbowmen on each flank. His centre numbered about 900 men, including many great lords from England and their armed retinues. Henry split his 5,000 archers into two equal divisions of 2,500, then placed them on the flanks of
the small centre of heavy infantry.

Both armies arrayed for battle about 1,000 yards apart at around eight in the morning. As the French sat around their standards eating breakfast and forgiving each other for old quarrels, King Henry was deliberating with his war council. The council agreed that there was nothing to be gained by waiting to
attack. English troops were already weakened by hunger and disease, and, unlike the French who were in friendly territory, there was no chance of gathering much needed supplies. Believing the only option was to attack, Henry ordered his tiny force to advance against the enormous French host (Map 5.8(a)). Exercising great care in their slow advance over ground
sodden from autumn rain, the English army moved within bowshot of the French, perhaps 220–250 yards from the enemy. Once in position, the longbowmen made an irregular hedge of sharpened stakes, then took position behind it in preparation for enemy cavalry charges. As the French reacted to the audacity of the English advance, Henry ordered his
longbowmen to fire into the enemy vanguard (Map 5.8(b) and (c)).

Under a rain of longbow shafts, the French crossbowmen in the van hastily returned fire, then retreated back through the ranks of their heavy infantry and effectively out of the battle (Map 5.8(d)). The initial heavy cavalry charge against the English archers
also did not go as planned. The two flank charges were seriously disorganized and undermanned, and could not be directed at the invaders’ flanks because they rested on woods. Instead, the French horsemen attacked the English light infantry across the recently ploughed, rain-soaked field, charging headlong into the archers’ stake defences. Although
only three French knights died in this attempt at the English lines, the retreating mounts made easy targets for English bowmen. Maddened horses bolted from the battlefield or, worse, into the 8,000 men of the now advancing French first infantry division, causing it to lose its cohesion. Exhausted by the clinging mud, the French infantry had little
momentum when they reached the English line. And though the dismounted French knights and their heavy infantrymen did manage to meet the English centre in hand-to-hand combat, their numbers suffered from being culled by devastating longbow fire (Map 5.8(e)).

Moments later the second French division joined in,
numbering perhaps 6,000 knights, but on the narrow and congested front their numbers were no advantage. The closely packed soldiers could not wield their weapons, and those who fell to the ground could not easily regain their feet because of the weight of their plate armour. Henry then ordered his agile and unencumbered archers into the mêlée.
Dropping their longbows, the archers drew axes and swords and sallied out from behind their stakes to meet the dismounted French knights (Map 5.8(f)). As the third French division looked on, refusing to enter the fray, the English army pressed forward, killing, beating down or capturing all who opposed them.

In an engagement perhaps a
half-hour in duration, thousands of French knights, squires and common soldiers were killed, and some 2,000 French notables surrendered to the English. While the English were sorting out the living from the dead, their camp was sacked by the local French militia (Map 5.8(g)). Fearing that he was being attacked from the rear while a third French division of
several thousand men remained in front of his position, Henry ordered the massacre of all prisoners. His English knights refused the ignoble act and the massacre was carried out by one squire and 200 of his archers. Many important Frenchmen were murdered, including the constable, three dukes and seven counts. Since Henry returned to England with at
least 1,000 noble prisoners, he must have called a halt to the slaughter. Nevertheless, Henry’s actions at Agincourt demonstrated a coldly professional approach to warfare, one decidedly different from the stereotype of a chivalrous monarch.
Map 5.8 The Battle of Agincourt, 1415. (a) Phase I: King Henry V orders his tired, sick and hungry men to array themselves for battle (1), his dismounted men-at-arms in the centre flanked by longbowmen. The French ready their bivouac between the villages of Agincourt and Tramecourt, separated from the English by a
ploughed field (3) bordered with woods. Henry seizes the initiative and orders his men forward (4). (b) Phase II: The English advance to a point within bowshot of the enemy, their flanks protected by the woods approaching the edge of the field (1). Henry’s archers are ordered to drive stakes into the ground in front of their positions (2) to defend themselves against the inevitable French onslaught. (c) Phase III: The French advance (1) behind a screen of crossbowmen (2), and Henry orders the English archers to open fire (3) on the approaching foe. (d) Phase IV: After an ineffective return of fire, the
French crossbowmen retreat through the ranks of the infantry following them (1), unable to withstand the English longbow fire. The planned French flank attack fails as well, as the English flanks are protected by the trees, forcing the horsemen to approach the archers’ stake-lined fronts (2). Lacking strength, and hampered by the wet, ploughed ground, the knights retreat (3). The English arrows find their mark in the French mounts, and the maddened horses plunge into the ranks of the oncoming foot (4), severely disrupting the advance.

(e) Phase V: Their formations in ruins
from the deadly longbow fire, remnants of the French first division (1) manage to engage the English centre, but with little effect. Right behind them are the heavy infantrymen of the second division (2), but the narrow frontage and the added congestion created by the incessant archery fire from the flanks negate their numerical advantage. (f) Phase VI: Unable to effectively wield their weapons in the tight press of men and slipping in the slick mud, the French cannot maintain a cohesive front. Henry orders his archers to drop their bows and attack their disadvantaged foe with axes and
swords (1). As the slaughter on the flanks escalates, the remaining Englishmen press forward (2), killing or capturing thousands. The heavy cavalry of the French third division looks on (3), unwilling to advance into the mêlée.

(g) Phase VII: While the English gather prisoners (1), a local militia force attacks the English camp and
baggage train (2). Fearing an attack from the rear while still faced with a fresh division of French heavy cavalry to his front, Henry orders the prisoners slaughtered (3). The English knights bulk and the order is finally carried out by a squire and 200 longbowmen, though there is evidence to suggest that Henry ordered a halt to the massacre at some point. The French third division does not attack and the English win a victory against heavy odds.

The English victory at Agincourt was astonishing
considering the odds against the invaders. Outnumbered perhaps four to one and fighting on perfectly open, flat ground, the English deviated from the defensive doctrine so successful at Crécy and Halidon Hill and brought the battle to the French. Once within bowshot, English archers swept the French light infantry from the field, then concentrated their
fire on the cavalry charges. Here, the sodden terrain slowed the attacks and those horses that did make the English line failed to negotiate the archers’ stakes. In the end, the battle was won in a contest between dismounted knights and their infantry allies, a battle that favoured the agile and less encumbered English light infantryman-turned-shock
trooper over his well-armoured French adversary.

Henry V went on to conquer Normandy and negotiate the French crown for his dynasty. In 1420 he signed the Treaty of Troyes and married the French princess Catherine of Valois (daughter of the periodically insane Charles VI, who agreed to take Henry V as his regent and successor). But sickness
overtook the brilliant English king, resulting in his untimely death in 1422 at the relative young age of thirty-five. Charles died only two months after Henry, and the future of France was again in question.

The final phase of the Hundred Years War is closely associated with the reign of the French monarch Charles VII. After the death of Joan of Arc in 1431, Charles
continued to press his advantage. He made peace with Burgundy in 1435, denying England its most potentially on the continent. He liberated Paris from the English a year later, after a fourteen-year occupation. After their defeat at Fromigny, the English lost Bayeux and Cherbourg, and consequently their traditional bastion of Normandy. The
French went on to dislodge the English from their stronghold at Bordeaux in Gascony, the same region that sparked the conflict 116 years before. By 1453 only Calais remained as an English possession.

After the success of the Hundred Years War, English longbowmen found themselves a wanted commodity in the ranks of
continental armies. This recognition of the power and importance of missile weapons in combat would solidify the return of light infantry tactics throughout western Europe. No longer was the light infantry arm subservient to heavy cavalry: by the end of the Hundred Years War it had fully returned to European military doctrine. But without well-
articulated heavy infantry, the return of a balanced combined-arms tactical synthesis was still incomplete. While the Anglo-French struggle was under way, another tactical awakening was taking place in the Swiss Alps, one which, when combined with the return of light infantry, would forever destroy the dominance of heavy cavalry
in western Europe.
CHAPTER 6

Late Medieval Warfare: The Return of Heavy Infantry

The Rise of the Swiss Battle Square

Although medieval
commanders had long known the importance of foot soldiers as the backbone of their defensive formations, the return of heavy infantry capable of well-articulated offensive action began with the Swiss, who rediscovered this weapon system in their struggle with the Austrian Habsburgs and the duchy of Burgundy. As early as the beginning of the fourteenth
century, the Swiss had developed heavy infantry who fought in a battle square that rivalled the best from the classical period and profoundly affected the development of European warfare in the late Middle Ages and beyond.

Fighting on foot came naturally to the poor Swiss mountaineers, suiting both the rugged terrain of their
homeland and their limited resources. Isolated from the feudal mainstream of western Europe by the Alps and organized into small rural valley communities, the Swiss subscribed to the old Germanic tradition whereby all able-bodied men were expected to participate in their *Waldstaaten* or forest canton militia (Map 6.1). Also in the old Germanic
tradition, Swiss cantonal societies were organized around clans, with clan leaders and aldermen serving on local councils that ruled through laws of their own making. Consequently, Swiss society was more democratic, less rigid and more unstructured than medieval societies elsewhere. But as the Middle Ages waned, the democratic ideals of the poor,
rural forest cantons came under attack by the periodic encroachments of the neighbouring Habsburgs of Austria and Burgundian lords who wanted to impose their own feudal structures on the Swiss cantons.

Forced to take up arms to maintain their self-determination, the Swiss developed a militia-based tactical system shaped by
their own social and economic realities. Like classical Greek citizen militia of two millennia before, the Swiss adopted the battle square or phalanx, based on a simple, distinctive heavy infantry doctrine and drilled themselves in its application. Before the late medieval period, these cantonal armies were essentially defensive in design and capability, but as
the fourteenth century unfolded, Swiss militias gained the training, discipline and experience necessary for effective offensive action, and the Swiss heavy infantry tactical system was born.
The Swiss phalanx went...
through a period of evolution in size, composition and armament during its history. The early Swiss phalanx was composed of two or more cantonal contingents, called *banners*, because this is where the standards of the contingents were displayed. Each banner was commanded by its own officers and was divided into subunits called *fahnleins*, or ‘little flags’, of
between 50 and 150 men. Fahnleins were further subdivided into ten-man squads called *rotten* or sections. In the early fourteenth century, when the Swiss Confederation was still small, the cantonal phalanx contained perhaps 900 heavy infantrymen arrayed in a formation of 30 ranks by 30 files. But as more cantons joined the confederation in
the late fourteenth and fifteenth centuries and a national army was born, the size of the battle square increased to 50 ranks by 50 files and around 2,500 men.

The articulation of the Swiss phalanx was excellent, with the battle square organized in deep files. Before the battle of Laupen in 1339, the normal configuration of Swiss forces was the *keil* or
wedge formation. This tactical array was less a wedge than a column, narrower than it was deep. When attacked by enemy cavalry, the pikemen in the *keil* faced outwards and lowered their pikes, creating a bristling hedgehog that would be difficult to approach on horseback. By the battle of Laupen, this formation evolved into a true battle
square, with the columns becoming squarer as the width of the formation increased.

By simply following the man ahead, the Swiss battle square could maintain its integrity, avoiding gaps like the smaller Roman maniple of the classical age. And like legionaries in the Roman maniple, Swiss infantrymen did not form a line on the
battlefield, but usually arrayed in three squares in echelon or in a chequerboard formation reminiscent of the Roman quincunx. These squares consisted of a vanguard or Vorhut, smaller than the main body and often including skirmishers armed with crossbows or handguns; a main body or Gewalthut much larger than the advance guard; and a rearguard or
Nachhut, which was usually smaller than the main body as well. The Swiss drilled, marched and even advanced to the attack to the sound of the drum, with some authorities stating that the troops marched in cadence. Swiss drill was sophisticated enough to defend the square in all directions when halted, but unlike usually immobile medieval heavy infantry, the
Swiss stressed the offensive, and the militias drilled constantly to improve articulation, producing a battle square comparable to the Macedonian phalanx in manoeuvrability, cohesiveness and shock power.

Initially unarmoured and with no shield, the early Swiss militiaman fought with a *halberd*, a broad-headed axe
with an 8 foot handle that had a point for use as a short pike, and a spike opposite the axe blade to hook a cavalrymen’s reins or puncture his armour. This weapon proved its worth on the battlefields of Morgarten, Laupen and Sempach in the fourteenth century, but subsequent battles in the fifteenth century between the Swiss phalanx and enemy formations
showed the weakness of the short-hafted halberd as an offensive weapon, especially against well-armoured cavalry charges. The Swiss infantryman responded to this threat by adopting a long-hafted pike 10 to 18 feet long with a 10 inch long spearhead, giving him a formidable reach. By 1425 the pike was replacing the halberd as the primary
offensive weapon of the Swiss army. By the end of the fifteenth century over two-thirds of the Swiss infantry were armed with this polearm.

When arrayed in a defensive posture for battle, the Swiss infantry square utilized the first four ranks of pikemen to create a ‘hedgehog’ or hollow square formation, levelling their pikes outward on all
four sides to discourage cavalry charges. Each of the five ranks held their pikes at a slightly different angle to achieve the hedgehog effect, with the first rank kneeling down and holding their pikes near the ground, the second rank stooping down and supporting the butt with their right foot, the third rank holding the pike at waist level, and the fourth rank
levelling the spearhead at the enemy’s head. The men behind these ranks held their pikes sloping upward to the front to protect the square from missile fire. If the phalanx was advancing in an offensive manoeuvre, all pikes were held at chest level with the spearhead pointed slightly downward for a downward thrust.

As their military and
economic fortunes improved, Swiss infantry gradually armoured themselves with steel caps and breastplates, though no standard-ization of armour ever took place throughout the rank and file, and infantry in the interior of the square continued to wear leather jerkins or padded jackets. Better protected, the armoured pikemen became the major offensive element
of the phalanx, though some halberdiers were retained in the centre of the square, where they could attack any enemy, cavalry or infantry that breached the pike wall.

The Swiss tactical system also recognized the need for ancillary weapon systems to support the pikemen and halberdiers in battle. Light infantry crossbowmen, and later handgunners, were
usually deployed as skirmishers in front of the vanguard of the main force, engaging the enemy to provide time for the main heavy infantry force to deploy from column to square. Once the phalanx was in position, the light infantry usually retreated between the files and formed in the rear where they acted as flank and rear protection. Also, by the
beginning of the sixteenth century, the Swiss stationed within the phalanx special shock troops armed with two-handed swords, morning stars (maces topped with a bristle of long, sharp spikes) and Lucerne hammers (polearms similar to the halberd, but with a three-pronged hammer for the striking area instead of an axe blade). Their mission was to rush out of the pike
wall and engage the enemy in close quarters combat.

As the Swiss gained more experience in raising conscript armies, and as these armies grew in size and tactical complexity, strict regulations were introduced governing military service. By the mid-1400s three different kinds of troops were in existence: the *Auszug* or elite forces, composed of
mostly unmarried men between the ages of eighteen and thirty; the *Landwehr*, or primary combat force, composed of men willing and able to leave home if the need arose; and the *Landsturm*, or levée en masse of all able-bodied men, a reserve force called to arms only in an emergency. The Swiss were also the first army of the period to repair damaged
weapons and armour and take responsibility over soldiers wounded in battle and their widows and children. By 1500 the professionalism of the Swiss army was unsurpassed and ‘free groups’ of Swiss troops found themselves a wanted commodity as mercenaries in foreign armies.

Heavy Infantry
versus Heavy Cavalry: The Battles of Morgarten, Laupen and Sempach

As early as 1315 at the battle of Morgarten, the Swiss demonstrated the ability of their well-trained heavy infantry militia to defend their homeland against the heavy cavalry of their Austrian neighbours. For
more than twenty years the tensions between the Swiss forest canton of Schwyz and the Austrian Habsburgs stewed as the Austrian monarchy attempted to bring the region under Habsburg hegemony. When the holy Roman emperor Henry VII died in 1314, the citizens of the canton of Schwyz declared their support for the Bavarian candidate, forcing
Duke Leopold of Austria to assemble a feudal army from Habsburg lands in Swabia and friendly Swiss cities. In November 1315 Leopold prepared to march into the high forest canton of Schwyz and squash the growing rebellion before it spread to other areas of the country.

The host that Duke Leopold assembled at Zug was composed of between 2,000
and 3,000 men altogether, including perhaps 1,500 mounted knights and an equal number of squires, light infantry crossbowmen and levied unarticulated heavy infantry. Confident in the ability of this sizable army to deal with the peasant uprising in the upland valley of Schwyz, Leopold placed his army in columns and marched south down the
eastern shore of Lake Aegeri towards the city of Schwyz (Map 6.2(a)). This route ran through a narrow pass between steep mountains and the lake itself, presenting an excellent place for an ambush.

Knowing the Austrian route in advance, the Schwyz commander Werner Stauffacher marched an army of between 2,000 and 4,000
men (mostly halberdiers with a few crossbowmen) to a ridge above Lake Aegeri that overlooked the narrow mountain road below. The road itself snaked between a steep hillside that led to the ridge and a steep bank which led to the lake below. To best exploit the terrain, Stauffacher sent a small detachment of engineers to the road to hastily build a
timber and rock wall. He then reinforced this blocking force with his light infantry crossbowmen, stationing them behind the makeshift obstacle in order to stop the Austrian heavy cavalry from quickly overrunning the defensive position. After blocking the mountain road, the Swiss commander hid most of his men in a shallow ravine atop the ridge until
Leopold’s vanguard of Austrian heavy cavalry appeared.

Stopped by the timber and rock wall, the Austrian vanguard began to pile up as the rest of the column marched and trotted forward. Aware of his precarious position but believing he faced only a small delaying force, Leopold ordered the knights in the front bataille to
dismount and attack the Swiss position and remove the obstacle (Map 6.2(b)). As the defending crossbowmen fended off the approaching dismounted knights from behind the wall, the main body of Swiss attacked from the ridgeline. At first throwing rocks and rolling tree trunks down the slope, the Swiss followed up with a sudden and violent infantry
attack. The Swiss phalanx moved out of the ravine and across the edge of the ridge, then descended with gathering momentum on the first division of the Austrian column trapped by the extreme terrain and the density of its own army on the road below (Map 6.2(c)). Moments later, the Swiss halberdiers were inside the ranks of the enemy cavalry,
dismembering bodies and killing horse and dismounted knight alike (Map 6.2(d)).
Austrian army under Duke Leopold advances along the shore of Lake Aegeri (1) to put down a peasant uprising in Schwyz. A Schwyz army commanded by Werner Stauffacher waits in ambush, a force of crossbowmen deployed behind a makeshift wall of timber and stone (2) blocking the narrow road, and another of halberdiers in a shallow ravine atop the ridgeline (3) looking down the steep slope towards the approaching enemy. (b) Phase II: Leopold orders his vanguard to dismount (1), reduce the blockade and kill the defenders. The Schwyz crossbowmen open fire on the
advancing Austrians (2) as the remainder of Leopold’s men begin to bunch up on the narrow path (3). High above the congested column, Stauffacher’s men roll boulders and tree trunks down the steep slope into the Austrians (4). (c) Phase III: The Swiss phalanx emerges from the ravine and advances down the slope (1), gaining momentum as they charge the lead Austrian division (2). The Austrian column becomes even more compressed as the pressure from the rear units increases (3). (d) Phase IV: The Swiss infantry fight their way into the midst of the Austrian ranks and begin slaughtering both man and
beast with their halberds (1). Leopold is forced to fight his way through his own troops to escape (2). (e) Phase V: The Swiss halberdiers begin to cut their way through the remaining Austrian troops, many of whom are driven into the lake and drown. The Swiss take no prisoners in the action, helping to establish a reputation for ferocity in battle.

The Swiss heavy infantry hacked and hewed their way through the Austrian vanguard, then began
working their way down the congested column toward the second bataille where Leopold himself commanded. Unable to push past the timber wall, the duke was forced to literally fight through his own knights and infantry to escape the trap. As the battle raged, many of the Austrians were forced off the road and drowned in the lake below (Map 6.2(e)). Leopold
escaped, but perhaps 1,500 of his knights and infantrymen died. Chronicling the battle some twenty-five years later, the monk John of Winterthur writes: ‘It was not a battle, but a mere butcher of Duke Leopold’s men; for the mountain folk slew them like sheep in the shambles: no one gave any quarter, but they cut down all, without distinction, until there were none left to
kill.’

From the battle of Morgarten onward, the Swiss would pride themselves in their battlefield brutality. Breaking with the long medieval tradition of ransoming enemy knights, the Swiss offered no quarter to their foes on the battlefield and any prisoners taken were killed later. The result of this deliberate psychological
warfare was a reputation that struck terror into their enemies, adding to the mystique of this emerging tactical system.

The battle of Morgarten marks the return of well-articulated heavy infantry to western Europe after a thousand-year absence. Aided by terrain, tactical surprise and parity in numbers, Swiss heavy infantry took the
offensive and destroyed a combined-arms feudal army without the use of heavy cavalry. And though the victory had as much to do with Leopold’s stupidity in allowing himself to be ambushed as it did with excellence in Swiss tactics, the battle did illustrate what a well-disciplined and motivated peasant infantry levy could do against the
flower of Austrian chivalry.
The Swiss victory at Morgarten established the three forest cantons (Schwyz, Uri and Unterwalden) as a military confederation to be reckoned with. Within a generation after Morgarten, the rebellion against the Habsburgs developed into a union of city republics and rural republics, spreading down into the lowlands.
These forest cantons entered into an alliance with the city of Lucerne in 1319, resulting in the origins of a Swiss confederation capable of challenging foreign hegemony. Over the next few decades, Swiss success on the battlefield stimulated the cause for Swiss nationalism, spurring the alliance’s enemies to open aggression.

When in 1339 the city of
Bern, the largest and most important urban community south of the Rhine, threatened an alliance with the Swiss Confederation, Bern’s enemies to the west in Burgundy marched eastward and laid siege to the city of Laupen, 10 miles south-west of Bern. The Burgundians took advantage of years of civil wars to extend their boundaries at the expense of
the Swiss, going so far as to support Swiss lords unwilling to join the growing confederation. Under the command of Count Gerard of Vallangin, the besieging Burgundian army was joined by local lords and their levies, swelling to perhaps 12,000 infantry and 1,000 mounted knights.

Dismayed at the strength of this coalition, the Council of
Bern asked the forest cantons for aid, offering them both an alliance and monetary subsidies. Unwilling to tolerate a strong Burgundian presence in Swiss affairs, the forest cantons joined with the Bernese militia and, using the cover of the forest, moved undetected to a spot very close to Laupen. On the afternoon of 21 June, the Swiss army assumed a
defensive position on the Bramberg, a grassy hill 2 miles east of the besieged city (Map 6.3(a)).

The Swiss force was commanded by an experienced Bernese knight named Rudolf of Erlach and numbered 6,000 men, including 1,000 men from the forest cantons. Believing the enemy would sooner or later have to break their siege and
challenge an army at their backs, Erlach arrayed 1,000 halberdiers from the forest cantons on the left, just outside the skirts of the woods along the crest of the gentler slope of the Bramberg. The Swiss centre consisted of three 900-man Bernese phalanxes armed with long infantry pikes, unusual weapons for Swiss militia at this early date.
These three battle squares were arrayed 30 men wide by 30 men deep. On the right, Erlach placed a larger Bernese battle square 2,000 strong, arrayed 50 men wide by 40 men deep. Finally, Erlach deployed a small contingent of light infantry crossbowmen, supplemented by a few medieval handgunners, in front of the phalanxes and in the gaps
between the battle squares. To distinguish themselves from their enemy on the battlefield, the Swiss sewed white crosses on their clothing, an emblem later adopted as the national symbol.

Count Gerard was surprised by the sudden appearance of the Swiss relief army, but was granted time to array his own numerically superior forces
when the Swiss took a defensive position on the Bramberg. He placed all of his 1,000 heavy cavalry on his own right wing opposite the confederate halberdiers, intending to charge up the gentler slope of the hill and then turn the Swiss flank inward. The count then placed his 12,000 heavy infantry in the centre and right wings. Anchoring the
centre were a cadre of well-equipped heavy infantry from the coalition city of Freiburg, while the left was occupied with a large contingent of unarticulated infantry described by contemporary chroniclers as ‘raw and ill-armed bands’.

The battle of Laupen began late in the afternoon when Count Gerard ordered a general assault up the
Bramberg toward the Swiss position. As the mass of coalition cavalry and infantry climbed the hill, Erlach ordered his light infantry forward to meet the attack with bolts and shot (Map 6.3(b)). After some initial skirmishing, the Swiss crossbowmen and handgunners filtered back through their heavy infantry squares. As the light infantry
made its way to the back of the phalanxes, several ranks of the centre Bernese phalanx broke and ran for the protection of the woods. Undeterred, Erlach ordered his entire army downhill to engage the enemy (Map 6.3(c)).
Map 6.3 The Battle of Laupen, 1339. (a) Phase I: The Swiss army deploys along the crest of the Bramberg, just east of Laupen (1). Halberdiers from the forest cantons are on the left, three Bernese pike
squares in the centre, and a much larger square of Bernese infantry is on the right, screened by and interspersed with light infantry crossbowmen and a few handgunners (2). The Burgundians interrupt their siege of the town and array themselves opposite the enemy relief force on the low hill (3). Gerard orders a general advance (4). (b) Phase II: The Swiss crossbowmen and handgunners open fire on the advancing troops (1) and then fall back through their infantry squares (2), re-forming to the rear of their phalanxes. Several ranks of Bernese infantry break and run for the woods
to the rear (3). (c) Phase III: Erlach orders the Swiss infantry to charge (1), and the coalition and Freiburger infantry scatter (2). On the Swiss left, the charging halberdiers (3) collide with the oncoming heavy cavalry. Unlike the infantry, the horsemen withdraw in good order and re-form (4). (d) Phase IV: The Burgundian heavy cavalry charge the halberdiers (1), who quickly form a hedgehog (2) against the assault; however, the short-hafted halberds fail to provide much protection against the knights. Erlach orders his infantry squares to wheel left to assist their beleaguered comrades (3), catching the enemy in
the flank and rear. (e) Phase V: The Swiss charge (1) shatters the enemy cavalry. Many are killed and the survivors scattered (2). Swiss losses are light and are almost entirely from among the ranks of the halberdiers on the left.

The Swiss halberdiers from the forest cantons clashed head-on with the massed heavy cavalry directly to their front. Though the Swiss infantry’s downhill charge
shattered the Freiburger and coalition infantry in the centre and on the left, the well-trained Burgundian feudal heavy cavalry on the right fell back, re-formed and counter-attacked the forest canton halberdiers, striking the square’s front, flank and rear. Under attack, the halberdiers halted and formed a hedgehog, lowering their weapons and facing their
formation in all four directions to repel repeated charges by feudal cavalry (Map 6.3(d)). But the short-hafted Swiss halberd, ideal for inflicting horrible wounds against enemy foot and horse during the offensive, was not as efficient as the long-hafted pike in keeping enemy cavalry at bay when in a defensive formation.

Seeing the beleaguered
halberdiers, Erlach ordered his victorious Bernese phalanxes to wheel 90 degrees and strike the heavy cavalry attacking the forest canton units on the Swiss left, catching the enemy horsemen in the flank and rear with complete surprise and shattering the enemy horse (Map 6.3(e)). And though casualties were generally light where infantry clashed,
the flank attack against coalition cavalry caused heavy casualties, with perhaps as many as 1,500 nobles and commoners dying. Three counts and eighty barons and bannerets were killed, along with several hundred of their men-at-arms. The victors displayed twenty-seven feudal banners and seventy crested helms as trophies when they returned
home the next day. Swiss casualties were moderate and almost entirely among the men of the forest cantons.

At the battle of Laupen, Swiss militia demonstrated that it could win a battle under less favourable circumstances than the battle of Morgarten, specifically on an open field against unarticulated heavy infantry supported by feudal cavalry.
The Swiss victory at Laupen also illustrated the tactical mobility and capacity of the battle square to defend against all-round attacks, even when the defenders were wielding short-hafted halberds.

Having begun as a defensive alliance between three forest cantons in 1307, the Swiss Confederation had, by 1386, grown into a formal political
and military alliance designed to safeguard Swiss national independence from intrusion by the house of Habsburg. The city of Lucerne joined the confederation in 1332, while Zurich joined in 1353, Zug and Glarus in 1352, and Bern in 1353. As the Swiss Confederation grew and became more confident in its military capabilities, it began to challenge Habsburg
possessions south of the Rhine. In 1386 the Swiss took the offensive and attacked the small town of Sempach, sacking Habsburg fortresses and laying to waste agricultural areas loyal to the local Habsburg lord, Duke Leopold III, nephew of the Leopold defeated at Morgarten.

In the summer of 1386 Leopold raised a formidable
army of 4,000 men, including 2,500 feudal infantry and 1,500 knights and mercenaries, and marched into Switzerland to punish the Lucerners and regain his lost territory. He marched on Sempach and surrounded the city, entrapping its garrison, then continued further along the road to intercept any Swiss relief forces moving in east from Zurich. The
strength of the Swiss army in and around Sempach was between 6,000 and 8,000, and the vanguard marching on Sempach consisted of between 1,500 and 2,000 men composed entirely of the levies from Lucerne. As the two hosts moved toward each other, neither army deployed advance scouts. Around noon on 9 July, lead elements of two armies stumbled into
each other on a hillside road, a mile and a half north-east of Sempach, near the village of Hildisrieden (Map 6.4(a)).

Immediately after making contact with the Austrian vanguard, the Swiss deployed for battle on a piece of level ground halfway up the terraced slope of the mountainside. Meanwhile, the Austrian army, marching in three batailles, was strung
out in column when their van made contact. The first corps was Austrian and commanded by John of Ochenstein, the second corps by the duke himself, and the third division was composed of Alsatian, Swabian and hired mercenaries under the command of the count of Hohenzollern. Well aware of the Swiss phalanx’s ability against mounted attacks,
Leopold ordered the knights of the first division to dismount and fight as heavy infantry (Map 6.4(b)). He believed his heavy cavalry’s lances would make excellent infantry spears, outreaching the enemy’s halberds, and that their superior plate armour would protect them in their assault against the less protected Swiss militiamen. The remaining two Austrian
divisions remained mounted and ready to charge the Swiss infantry square once it had lost cohesion.

Believing the entire Swiss army was in front of him, Duke Leopold commanded his light infantry crossbowmen to harass the Swiss phalanx, then ordered his dismounted knights up the hill to attack the weakened Swiss battle square (Map
Wielding their lances as infantry pikes, the Austrian knights waded into the Swiss formation. Soon, Swiss losses mounted and the phalanx began to collapse. As the Lucerne banner fell into Austrian hands, Leopold prepared to order a general cavalry charge against the disintegrating Swiss square.

But before the Austrian duke could order the cavalry
to the attack, the main body of the Swiss army appeared over the rise near the village. Led by the men of Uri, the Swiss army immediately moved from line of column into the attack, smashing into the flank of the dismounted knights (Map 6.4(d)). The sudden assault was devastating. Fresh and superior in numbers, the Swiss halberdiers hacked and
hewed into the Austrian knights who were themselves becoming exhausted after fighting for an hour in plate armour. Watching the knights of his first division being trampled under the Swiss assault, Leopold jumped from his horse and ordered the mounted and dismounted knights of his second corps to follow him into the fray.
Marching north-east from Sempach (1), Duke Leopold’s Austrian army is unaware of the approach of a Swiss force moving towards him on the
same road (2). The Swiss vanguard and the Austrians’ first division spot each other and begin to deploy (3). (b) Phase II: Recognizing the threat from the Swiss phalanx, Leopold orders his lead division to dismount (1) and deploys light infantry crossbowmen (2) to fire into the Swiss battle square to begin chipping away at the formation (3). (c) Phase III: The Swiss battle square begins to lose cohesion (1) and Leopold orders his dismounted knights into the fight (2). The Austrians inflict heavy losses on the Swiss, and Leopold readies his mounted knights for a charge (3) to finish off the disintegrating phalanx,
but before the duke can order his horsemen forward, the Swiss main body appears over the rise towards Hildisrieden (4) and heads down the slope towards the action. (d) Phase IV: The Swiss quickly deploy from column into battle square (1) and smash into the flank and rear of the dismounted first division (2). Fatigued after an hour of fighting and faced with a seemingly unstoppable mass of fresh halberd-wielding infantry, the Austrians begin to rout (3). Leopold leaps from his horse and orders his division forward against this new menace (4). (e) Phase V: Before Leopold can launch his counter-
attack, the Swiss wheel their square in a devastating assault on the Austrian flank (1). Though the Austrian knights fight bravely, they are gradually overcome by the Swiss halberdiers (2). The count of Hohenzollern, commanding the Austrian reserve, panics and orders a precipitate retreat (3), causing the squires and pages tending to the second division’s horses to look to their own safety and flee as well, abandoning their masters, including Duke Leopold, to certain death at the hands of the Swiss infantry (4).
But before the counter-attack of the Austrian second division could form, the attacking Swiss phalanx turned 90 degrees and struck the Austrians (Map 6.4(e)). In the swirling mêlée, Duke Leopold and his knights fought well, but in the end they were overcome by enemy halberdiers. Watching the disintegrating situation from a distance, the
commander of the Austrian reserves lost his nerve and turned and fled the field. Once the third division left, the squires and pages who were tending the horses of the second division also fled, abandoning those knights who were able to disengage from the mêlée. Exhausted and outnumbered, these knights were cut down where the Swiss found them.
Austrian casualties were 1,800 men, including the duke himself, three counts, five barons and seven bannerets. Swiss losses were about 120 men and mostly among the vanguard.

When the corpses of the fallen at Sempach were exhumed in 1898, archaeologists discovered that almost all of the Austrian dead had been killed by
having their skulls split open by halberds. Leopold’s tactical calculation to have his dismounted knights use their lances as infantry pikes against Swiss heavy infantry halberdiers proved disastrous. If the halberd was too short for an effective defence against enemy heavy cavalry, in close quarter combat it worked murderously well against the lance. At the
battle of Laupen, Swiss heavy infantry proved they could beat the knight on his horse, while at the battle of Sempach they proved they could beat him dismounted as heavy infantry, on fair ground and with no great disparity in numbers.

As the Swiss expanded their confederation, they began to threaten the power of the Habsburg dynasty. In the
spring of 1444 the Habsburg emperor Friedrich III asked the French king Charles VII for assistance with the growing Swiss alliance. Charles dispatched a huge army of 40,000 men to penetrate confederate territory through Alsace, securing Basle as a bridgehead. On receiving news of an invasion army, the confederate city of Bern sent a small
reconnaissance force of 1,200 men northward to observe the French army. But at the Birs River near the small hospital of Saint Jacob, the Swiss army was confronted by the entire French host.

Refusing to retreat, the 1,500 Swiss infantrymen grouped immediately into three squares, levelled their pikes and launched an attack into the French lines. In what
became known as the battle of Saint Jacob-en-Birs, the Swiss squares made a profound impression when they attacked a French army, even though they were outnumbered perhaps fifteen to one. French cavalry assaults on the flanks of the battle squares halted the Swiss, then the French used their crossbowmen to wear down the immobile squares.
After five hours of rebuffing enemy cavalry charges, the Swiss managed to withdraw to the small hospital of Saint Jacob, which was surrounded by a wall high enough to offer some protection. The disciplined Swiss stood their ground and, in the face of artillery barrages and crossbow bolts, suffered heavy casualties. As the walls of the hospital were reduced
to rubble, the French foot stormed the courtyard. In the bitter hand-to-hand combat that followed, the Swiss died to a man. Like the Spartans’ defence at the battle of Thermopylae nearly two thousand years earlier, the Swiss stand at Saint Jacob-en-Birs elevated the status of the battle square in western European warfare.
The Burgundian Wars: A New Combined-Arms Synthesis versus Swiss Heavy Infantry

The reputation of the Swiss tactical system was further enhanced in campaigns against the duke of Burgundy, Charles the Bold (r. 1465–1477). Charles had operated
with impunity against the French crown following his defeat of King Louis XI of France (r. 1461–1483) at Monthlhéry in 1465. After Charles’s follow-on victories at Liège (1466) and Brustem (1467), he turned his attention to the Swiss on his eastern front. Here, the growing Swiss Confederation provided the military opposition to his plans. In
order to weaken the Swiss, the duke of Burgundy planned to divide and conquer, cutting a path through the alpine alliance with the most modern army he could assemble.

To meet this objective, Charles fielded a well-financed combined-arms army of 30,000 men, consisting of Burgundian heavy cavalry, Flemish heavy
infantry pikemen, Italian light infantry pikemen, Italian light infantry crossbowmen, German arquebusiers and mounted light infantry English longbowmen. Traditionally, Burgundian armies were small, with mercenaries making up at least 30 per cent of any force. But Charles’s grand ambitions required a larger fighting force, and beginning in the early 1470s, the duke
strove to create permanent troops in mixed units (companies) of heavy cavalry, heavy infantry and light infantry archers, crossbowmen and handgunners, supported by the most modern artillery available.

Gunpowder technologies appeared on the battlefields of western Europe some time in the middle of the thirteenth
century. Gunpowder was first utilized as a weapon by the Chinese prior to 1000 ce, where it was made into bombs and rockets. The likely conduit of diffusion from China was through Islamic lands to Byzantium or to Spain, then north of the Pyrenees to western Europe. References to gunpowder weaponry were included in armouries in Lille, Lucca,
Aachen, London and Siena in the late 1330s and 1340s, and it appeared at the sieges of Tournai in 1340 and Calais in 1346–1347, and perhaps even at the battle of Crécy in 1346.

The first cannon made in Europe, in the early fourteenth century, were vase-shaped tubes which fired huge darts like those shot from the old Roman *ballistae*. Over time the darts gave way
to round stone or metal projectiles and the barrels evolved into a straight tube. But over the next 150 years gunpowder weaponry underwent a spectacular evolutionary process as guns became less frequently forged and more frequently cast, increasing both reliability and durability. These improvements also allowed gunsmiths to make their
weapons both much larger and much smaller, with the largest guns being capable of destroying medieval castle and city walls, and the smallest weapons eventually being handheld by a new breed of light infantryman, the medieval handgunner. Though poor construction and an elementary firing mechanism made early small arms an unreliable weapon
system in the late medieval period, the light infantry handgunner would increasingly play a role on the battlefield next to archers and crossbowmen in the final wars of the period.

As gun barrels became longer and the art and science of casting iron improved, specialized siege artillery called *bombards* began to have a devastating effect on
medieval fortifications. These early cannon were expensive to build and operate, and difficult to transport, and to be effective they needed to be just yards away from the target wall. Once in place, bombards fired stone shot weighing as much as 900 pounds, breaching walls and reducing towers almost at will. In 1409 the duke of Burgundy purchased two
bombards that could hurl stones weighing between 700 and 900 pounds. The ‘Dulle Griet’ or ‘Great Bombard of Ghent’ was a forged iron cannon over 16 feet long with a 25 inch calibre. It could fire a stone shot weighing more than 750 pounds. These cumbersome weapons could be aimed in one of five ways – by placing a fixed mount on terrain at the desired angle;
by mounting the cannon on a fixed axle to provide its aim; by using the terrain and axle together to aim the weapon; by using a rock or wall to adjust the aiming angle; and finally, by adding a calibrated aiming mechanism to the mount to change the angle of attack.

But changes in the fifteenth century improved the range and impact power of siege
artillery. In the early 1400s a process called ‘corning’ began to be used when making gunpowder, mixing brandy, vinegar or even human urine into the black powder to form it into tiny pellets. Air flowed between the pellets allowing the powder to burn much faster and more evenly, greatly increasing the power of gunpowder weapons. By
1450 siege artillery further improved when stone shot was replaced by cast-iron balls, which had less ‘windage’ (space between projectile and the interior of the bore) and therefore attained greater muzzle velocity and impact energy. During this time, cannon were made in all different bore sizes, with little or no standardization until the late
fifteenth century.

Initially, gunpowder weapons had more of an impact on sieges than they did on the battlefield. But with the adoption of smaller field artillery in the fifteenth century, medieval commanders had at their disposal another kind of missile platform to menace enemy formations. These guns began to appear more
frequently on the battlefield, including many battles under survey here: at Agincourt in 1415, at Grandson and Murten in 1476, and at Nancy in 1477. But medieval field artillery still suffered from being too large and unwieldy to move easily on the battlefield, and therefore often became ineffective after the initial stages of the battle.

True field artillery did not
make its sudden and dramatic appearance until the final decade of the fifteenth century, when the French invaded Italy. Here, these new guns, mounting new and lighter cast-bronze cannon on two-wheeled carriages pulled by horses, gave the French unprecedented tactical mobility against enemy formations and entrenched artillery positions. But
France’s artillery supremacy on the battlefield was soon reversed by dramatic Spanish improvements in infantry small arms and tactics. As a result, field artillery declined in importance in the sixteenth century, except in the attack and defence of fortifications and in naval warfare.

To assist in the transition from a medieval to a modern army, Duke Charles
published three detailed military instructions or ordinances every year from 1471 to 1473, standardizing the use of uniforms, armour and weapons for each man, and grouping them under conductors in companies with a designated hierarchy of numbered banners. By 1473 these *Compagnies d’ordonnance* numbered 900 men, based on a nine-man
lance of heavy cavalry made up into four squadrons, with each squadron supported by 25 men-at-arms, 25 light horse, 25 valets and 75 mounted light infantry archers, further supported by contingents of 25 crossbowmen, 25 pikemen and 25 handgunners, all on foot. Unable to achieve these numbers with recruitment, Charles continued to employ
foreign mercenaries. After conquering Lorraine, Duke Charles marched into Alsace and took the surrender of the city of Grandson in February 1476. His execution of the garrison there solidified Swiss opposition, and on 2 March a relief army of 10,000 men arrived to block the Burgundian invasion. Recognizing he outnumbered the Swiss army
three to one, Charles planned a defensive engagement, one that would capitalize on the confederation’s aggressive way of fighting. After launching two heavy cavalry charges into the unyielding Swiss ranks, the duke prepared for the inevitable, a Swiss heavy infantry counter-attack into his own centre. Employing a tactic similar to those used at Marathon and
Cannae, Charles ordered his centre to pull back in the hopes of crushing the advancing Swiss squares in a double envelopment. But despite superior numbers, the Burgundian duke’s men lost their nerve and the planned retreat of the centre became a rout. Pressing forward with murderous efficiency, the Swiss mowed down the rear of the fleeing army, killing
300 invaders, and captured the Burgundian camp and over 400 artillery pieces. Swiss casualties were 200 men.

Map 6.5  The Battle of Murten, 1476.
(a) Phase I: Pausing in his siege of Murten, Charles the Bold constructs a defensive position, the Grünhag (1), in anticipation of a Swiss relief army. As the days drag on without any sign of the Swiss, the Burgundian defences are lightly manned, as most of the troops remain in camp to the west. (b) Phase II: The Swiss relief force finally appears, bursting from the forest and heading for the undermanned Grünhag to their front. The Swiss screen of light infantry skirmishers (1) is followed by an advance guard of
pikemen (2), a main body (3) and rear guard (4) of halberdiers, and is supported by a force of allied cavalry (5). (c) Phase III: The Swiss skirmishers and the first ranks of the pike square suffer heavy losses as they come under concentrated fire from the Burgundian archers, crossbowmen, handgunners, and light artillery (1) as the Swiss battle squares manoeuvre across the field (2). The allied cavalry on the Swiss left prepare to attack the Burgundian horse to the right of the Grünhag (3). (d) Phase IV: A timely manoeuvre by the Swiss vanguard (1) succeeds in flanking the Grünhag and the Burgundian centre begins to break
(2). The Swiss halberdiers roll forward (3), cutting off any possible escape to the south as the Burgundian heavy cavalry break and flee (4) under the assault by the allied horsemen. (e) Phase V: As the Burgundian centre dissolves into desperate bands of fugitives (1), the allied cavalry join in the attack (2). The Swiss show no quarter as they wade into the remnants of Charles’s army, and a sortie by the Murten garrison strikes the Burgundian force in the rear, contributing to the ensuing massacre.
Despite the rout at Grandson, Charles quickly re-formed his army and resumed his invasion of confederate territory. It took several months to piece together his artillery train, but with this completed, Charles moved his army and on 9 June laid siege to the walled city of Murten, recently reinforced by a garrison of 500 Bernese men and, ironically, the
majority of the captured Burgundian artillery. Over the next week, the captured artillery had a devastating effect on the Burgundian assaults, but on 17 June, Charles ordered his heavy bombards to be brought forward, and the besiegers successfully breached the southern walls. But even an eight-hour infantry assault against the damaged walls
could not overwhelm the Swiss defenders, and on 19 June, Charles halted the attacks and turned his attention to the east, where a large Swiss army was expected to emerge in relief of Murten.

Map 6.6 The Battle of Nancy, 1477.
(a) Phase I: Duke Charles the Bold of Burgundy deploys his small army in a defensive position behind a shallow stream south of Nancy (1), his left flank anchored on the Meurthe, and his right on heavily wooded terrain. The Swiss army’s main body and rearguard approach the Burgundian front (2), fixing Charles’s attention, while the advance guard advances undetected through the trees on the Swiss left (3). (b) Phase II: The sudden appearance of a Swiss square from the woods on their flank (1) takes the Burgundians by surprise.
Unable to reorient themselves to meet the ferocious assault, the right flank begins to roll up (2). At the same time, the Swiss main body smashes into Charles’s centre (3), quickly overrunning the outnumbered Burgundians (4). (c) Phase III: Overwhelmed by the two-pronged attack (1) and greatly outnumbered, the Burgundian army is shattered (2). Duke Charles himself is felled by a Swiss halberdier in the midst of the slaughter (3).

Charles the Bold ordered his troops to prepare for the
defensive, and construct a ditch and palisade entrenchment known as the Grünhag, manned by light infantry and artillery (Map 6.5(a)). He intended to use his bowmen, handgunners and field artillery to create a killing field, then exploit the chaos with his flanking cavalry. But 21 June passed without the arrival of the Swiss, forcing Charles to
stand down his army. Finally, on 22 June, a large Swiss relief force of 25,000 men exploded out of the woods and into the undermanned Burgundian defences (Map 6.5(b)). At the time of the Swiss arrival, only 2,000 light infantry manned the Burgundian centre, with 1,200 heavy cavalry in support. The rest of the duke of Burgundy’s troops were
eating in the camp some distance away.

Advancing from the northeast through the Birchenwald forest, the Swiss army was concealed until it was only a mile away from the Burgundian lines. The Swiss attacked from a column of three battle squares, supported by a vanguard of 5,000 light infantry skirmishers, protected by a
contingent of 1,200 heavy cavalry on the left. Behind the van, 12,000 Swiss heavy infantry made up the centre square, followed by another 7,000 heavy infantry in the rear. The three Swiss squares marched in echelon, with the centre and rear squares set back and to the left of the vanguard.

Behind the Grünhag, the Burgundian men-at-arms
(including mercenary English longbowmen) were ready for the impending attack, and the first wave of the Swiss vanguard suffered heavy casualties from concentrated crossbow, longbow and light artillery fire (Map 6.5(c)). For a moment, the momentum of the initial Swiss assault was checked, but shrewd manoeuvring by part of the Swiss vanguard allowed the
attackers to bypass the earthworks and turn the enemy’s flank. With the Grünhag in friendly hands, the centre and rear squares surged westwards to cut off any Burgundian retreat to the south (Map 6.5(d)).

Meanwhile on the Swiss left flank, the 1,200 allied heavy cavalry scattered the Burgundian horse, then galloped on to attack the now
fleeing Burgundian centre. There was no escape route for Charles’s new model army, and the Swiss, pledging no quarter, took no prisoners (Map 6.5(e)). A timely sortie by the Swiss garrison in Murten aggravated the Burgundian situation, striking the broken army in the rear. In the ensuing massacre, the duke lost 12,000 men, cut down or drowned in nearby
Lake Murten. Swiss casualties were light, only 410 men. The Burgundians also lost their artillery park, with the Swiss profiting by the acquisition of another 200 guns.

Charles the Bold’s third and final battle against the Swiss took place at Nancy in January 1477. Driven out of Switzerland in the autumn of 1476, the duke took up a
strong defensive position behind a shallow stream south of the city of Nancy, the capital of Lorraine, once again blocking the likely angle of attack with his artillery (Map 6.6(a)). But his army was by now only around 12,000 men. The sudden appearance of the main Swiss force of 20,000 from the woods took the Burgundians by surprise, with
the van circling to the left and attacking the Burgundian flank (Map 6.6(b)). In a co-ordinated strike, the Swiss fell on Charles’s troops, wielding their pikes and halberds. Attacked on two sides by overwhelming numbers, 7,000 Burgundians were killed, including Charles himself, his head split open by a halberd stroke (Map 6.6(c)). In less than a year,
the Swiss defeated three Burgundian armies. The battle of Nancy ended the power of Burgundy forever, allowing Charles’s other nemesis, King Louis XI of France, to finally incorporate the duchy and its innovative military institutions into his kingdom.

Despite a relatively balanced combined-arms tactical system, the
Burgundian duke’s new model army was unable to ‘match the discipline of the Swiss or cope with the élan of their assaults’. Charles’s failure stemmed from taking on the best heavy infantry in Europe. Swiss militia armies were large and quickly mustered, but they could not stay in the field for long. Charles’s aggressive strategy of seeking battle brought his
armies into conflict with a motivated enemy fighting to protect its homeland. Nevertheless, his combination of horse, foot and artillery was to become a model for European armies for centuries to come.

After the death of Charles the Bold at Nancy in 1477, the Swiss acquired a reputation for invincibility that lasted until the battle of
Marignano in 1515. They created a heavy infantry weapon system that could do more than passively resist cavalry charges or engage in sieges. Disciplined and relatively well articulated, the Swiss battle square was capable of offensive manoeuvre and all-round defence. And like English light infantry longbowmen, Swiss heavy infantry found
themselves a wanted commodity on the battlefields of Europe, with Swiss mercenaries soon employed as mercenaries in armies all over the continent. Impressed with the success of the Swiss battle square in the wars against Burgundy, Louis XI added 6,000 Swiss mercenaries armed with halberd and pike to his own army in 1479, and in 1497 a
cadre of 100 Swiss elite were officially organized as the French king’s personal bodyguard, the *Garde des Cent Suisses*. In Italy the Swiss hired themselves out to Italian mercenary commanders or *condottieri* (from the Italian term *condotta*, the contract negotiated between Italian city-states and military entrepreneurs). Moreover,
this innovation in heavy infantry bred imitation, and other nations developed their own pikemen modelled on the Swiss. The Germans had the most success with their Landsknechts, who also fought abroad as mercenaries.

By the close of the medieval period, the Swiss method of fighting would be diffused to all of western Europe. Niccolò Machiavelli (1469–
1527), writing in the early 1520s, found that all infantry imitated the Swiss. By the middle of the sixteenth century, French, Spanish, German and Italian armies used what has been described as the Swiss way of warfare, even if they adopted the Swiss phalanx in modified form. Pikemen, increasingly supported by light infantry handgunners, remained a
persistent tactical entity on European battlefields well into the early modern period.
CHAPTER 7

The ‘Military Revolution’ and Early Modern Warfare

From Medieval to Early Modern Warfare: The
Military Revolution of the Sixteenth Century

Warfare in western civilization was transformed in the sixteenth century. The introduction of newer, more powerful firearms with the ability to penetrate any armour in common use radically altered infantry and cavalry tactics. New infantry
and cavalry tactics brought with them changes in military organization, and a new emphasis on order and discipline and the collective training needed to bring it about. Careful training was essential if an infantry battle square was not to disintegrate into a stumbling mass of individuals, unable to resist a determined onslaught of enemy lance, pike or shot.
To gain the knowledge necessary for this greater battlefield articulation, early modern tacticians and commanders mined the long-neglected treatises of classical Roman and Greek ‘professors of tactics’, most notably Aelian, Vegetius and Leo. Of the three, Vegetius’ treatise of Roman military wisdom was the most widely read and available in the sixteenth
century, having been read for centuries. His work earned a new lease of life with Machiavelli’s publication of *The Art of War* in 1521, which leaned heavily on the fourth-century Roman author. Aelian’s translation into Latin in 1550 added a new dimension to the study of Roman tactics, for unlike Vegetius, Aelian’s work was written during the reign of
Trajan at the height of the *Pax Romana* and focused on the infantry tactics that made the Roman army the most well-articulated in the history of pre-gunpowder western civilization. Inspired by classical tactical doctrines and armed with new martial technologies, battlefield commanders initiated a ‘military revolution’ in the early sixteenth century.
Central to the success of this ‘military revolution’ was the widespread availability of the arquebus and the musket, the first effective and reliable infantry firearms used in large numbers. In the fifteenth century, the matchlock ignition device was invented to make ignition more reliable and aiming more accurate. With a matchlock, the handgunner
pulled the trigger, raising the lower end of the serpentine or cock while the upper end holding the match in its clamp was lowered into the pan. This feature allowed the handgunner to look where he was pointing while firing. Stocks were shortened and fired from the shoulder rather than the breast, giving the gunner a better line of sight to his target. But because of the
open pan exposed to the elements, matchlocks functioned only in calm and dry weather, and the necessity of having the match smouldering before and during combat created unusual battlefield hazards, compromising night operations and threatening friendly powder supplies.

In the early sixteenth century a new mechanical
ignition device was invented, called a wheel lock. This was a vast improvement over the matchlock because it replaced the smouldering match with an ignition system that struck pyrite or flint against steel to produce a spark that ignited the priming powder in the pan. This unprecedented reliability also allowed for one-handed firing, making the wheel lock pistol the
preferred weapon of cavalry and special units after the 1520s. But the expense and delicate construction of the wheel lock made it impractical for general issue, and the matchlock arquebus continued to be the primary infantry weapon in the sixteenth century.

The matchlock arquebus was a muzzle-loading, smooth-bore gun that was 4
feet in length, weighed between 9 and 15 pounds, and fired a lead ball weighing less than an ounce at a muzzle velocity of about 800 feet per second. The arquebus now delivered a much heavier punch at close range than the longbow, though the bow remained superior in rate of fire for another 350 years, until the invention of the repeating rifle in the
nineteenth century. But the arquebus was limited by its relatively low power of penetration at longer ranges, forcing gunsmiths to develop the musket, a heavier weapon with improved ballistic properties.

The Spanish musket, first used in the Italian Wars in the 1530s as a defensive position weapon, was also a matchlock and smooth-bore,
but was 6 feet in length and weighed about 20 pounds. It was a crew-served weapon that fired a 2 ounce lead ball, and had a barrel so heavy that it required a barrel rest for firing. Though the musket’s increased powder improved the lead ball’s velocity, its effective range still remained well under 200 yards. Both the arquebus and the musket required a few minutes to
reload (two shots in three minutes was considered exceptionally good by the 1570s), and accuracy was so poor that the typical marksman could not reliably hit a man-sized target at ranges above 75 yards. Still, the arquebus and musket could penetrate any practical thickness of armour on the battlefield, making light infantry firepower an
increasingly important factor in early modern warfare.

The Italian Wars and the Rise of the Spanish Tercio

By the last decades of the fifteenth century, European tactical systems were becoming very specialized. The English demonstrated the value of light infantry archers on the battlefields of western
Europe, and though they alone had effective longbowmen, all armies integrated crossbowmen and handgunners into their tactical mix. Heavy infantry was also experiencing a renaissance with the rise of the well-articulated Swiss battle square, while its imitators were beginning to diffuse to other European armies. In the Mediterranean
basin, Spanish and Italian commanders reintroduced infantry who used swords and shields in a manner reminiscent of the Roman legionary at war. Still, despite regional tactical specialization, all European armies had one thing in common – the plate-armoured heavy cavalryman remained the fundamental weapon system of late medieval
warfare, whether mounted or dismounted for battle.

But the increased use of foreign mercenaries within national armies also accelerated tactical synthesis, as regional weapon systems and tactical perspectives rubbed shoulders with one another on the battlefields of Europe as either friend or foe. Though this so-called ‘military revolution’ was
actually an evolution taking the duration of the early modern period to complete, by the beginning of the sixteenth century new technologies and tactics were becoming more common. Over the course of the sixteenth century a new combined-arms tactical synthesis emerged, marrying the new trends in gunpowder technologies with increased
co-operation between infantry and cavalry.

The mixing of these regional weapon systems and tactical perspectives was a feature of the long international conflict between France and regional powers in Italy known as the Italian Wars (1494–1559) – see Map 7.1. The origin of these wars lay in the hereditary claim of the French king Charles VIII
(r. 1483–1498) to the kingdom of Naples. In the autumn of 1494 Charles crossed the Alps with an army of 25,000 men and invaded the Italian peninsula. Allied with Lodovico Sforza of Milan, the French king met little opposition as he marched south, routing the Medici from Florence, advancing on Rome, and finally marching into Naples
and expelling the Spanish administration there.

Charles used his modern professional army and state-of-the-art field and siege artillery, mounted on carriages for greater tactical and strategic mobility, to smash all opposition. Unaccustomed to this aggressive style of warfare, the Italian condottieri left the field of battle and withdrew
behind the traditional safety of city and castle walls, only to have Charles’s modern artillery reduce the medieval walls in a few hours. But French dominance in Italy eventually failed because of its excessive reliance on Swiss pikemen, heavy cavalry and siege guns. Though possessing a limited combined-arms tactical system, the French army did
not adapt fast enough to the changing technologies and tactics of the period. In early modern warfare, the army willing to experiment with handguns as a supplement to heavy infantry pikemen would win the day.

The emergence of France in the beginning of the Italian Wars as the dominant political and military power in western Europe forced its
neighbours to take action. In 1495 a Spanish army entered southern Italy to expel the French, only to suffer a decisive defeat at the battle of Seminara at the hands of the duke of Nemours. Following this defeat, the Spanish army was modernized by strengthening its heavy cavalry, by hiring German heavy infantry Landsknechts and, most importantly, by
adding companies of light infantry equipped with arquebus and musket. The Spanish improved on the shock and defensive capabilities of the battle square by combining swordsmen with the pikemen and halberdiers, so that when their infantry met enemy pikemen, the swordsmen won the battle by getting under the enemy pikes, often by raising
them on their shields and then engaging with edged weapons.
Map 7.1 The Italian Wars.
The Spanish commander Gonsalvo de Cordova, known as ‘El Gran Capitan’ to his followers, avenged his defeat at Seminara by taking the measure of the duke of Nemours again, this time at the battle of Cerignola in April 1503. The Spanish army continued to evolve with the introduction around 1505 of the *colunela*, the forerunner to the modern
battalion. This consisted of 1,000 to 1,250 men (mixed pikemen, halberdiers, arquebusiers and sword-and-buckler men) organized into five companies. It was a combined-arms tactical system integrated into one battle square under the command of a *cabo de colunela* (chief of column), or colonel.

In the *coluneladas*, the
pikemen and halberdiers formed a square with arquebusiers massed on its flanks in formations as many as sixteen ranks deep. The arquebusier at the head of each file practised an early form of the countermarch, firing his weapon and then retiring to the rear of the file and reloading as he worked his way up the file to fire again. Unfortunately, lack of
co-ordination between gunners and the constant moving within the ranks made concentration of volley fire impossible, while the early firearm’s short range, its slow rate of fire, and the vulnerability of early handgunners to enemy shock cavalry and heavy infantry exacerbated the light infantry gunner’s problem.

The battle of Cerignola was
a hallmark battle in a century where tacticians searched for a combined-arms synthesis that could win victories on the battlefield. The two major powers of the era, France and Spain, experimented with new martial technologies, tactical formations and field fortifications designed to mitigate the effects of artillery. This penchant for experimentation can be seen
in the various outcomes of major battles during the first three decades of the Italian Wars. In 1512 the Spanish suffered a defeat at the battle of Ravenna, a defeat that may have caused them to abandon the sword and buckler in favour of an infantry force equipped entirely with pikemen and handgunners. A Spanish victory in 1513 at Motta was the result of this
increased light infantry firepower, though old shock tactics, specifically a ‘push of the pike’, won the day for the Spanish at Novara later that year. French artillery dominated the battlefield at Marignano in 1515, opening up the Spanish squares for French cavalry to exploit. To counter the superior French artillery, the Spanish increasingly took up position
behind field fortifications and relied on greater missile fire to carry the day. This tactic ensured victory at Bicocca in 1522, when some 3,000 enemy Swiss were shot down in front of the Spanish lines.

After Bicocca, the French also began to rely on defensive earthworks, but this tactic backfired at the battle of Pavia in 1525. The Italian Wars had entered a new
phase known to history as the Franco-Habsburg Wars (1521–1559), and the election of Charles V, duke of Burgundy, king of Spain and archduke of Austria as holy Roman emperor in 1519 made the Habsburg ruler the strongest monarch in Europe. His territories surrounded France, whose own king, Francis I (r. 1515–1547), declared war on the new holy
Roman emperor, choosing, like his predecessors, northern Italy as his battleground.

Following the French defeat at Bicocca in 1522, the French position in Italy collapsed. Francis retook Milan in late 1524, then went on to besiege Pavia and its 5,000-man garrison in October with a Franco-Swiss army of 28,000 infantry,
6,000 cavalry and 53 cannon (Map 7.2(a)). But the French siege was weakened by the detachment of a column to attack Naples and the desertion of some 6,000 Swiss infantry. An imperialist relief force of 23,000 German, Spanish and Italian troops and 17 guns arrived and immediately set up camp across from their enemy’s fortified position, further
compounding Francis’s problems. But the relief army, under the command of Ferdinando Francesco d’Avalos, was also under some stress, threatening mutiny because of lack of pay. Ferdinando realized he needed to attack before his army evaporated. Not wanting to have his men and horses shot to pieces in a futile assault against the
French entrenchment, Ferdinando decided to pull his adversary from behind the safety of his own defences and attempt an audacious turning movement.

During the stormy night of 24 February, Ferdinando marched his army north along the eastern side of the Vernacula Brook, crossed the waterway and had his sappers make three breaches through
the walls of the enclosed Mirabello Park (Map 7.2(b)). The imperialists filed through the holes and drew up in a line of battle as dawn broke on 25 February. Ferdinando placed his infantry arquebusiers on the flanks, his pikemen and cavalry in the centre, and awaited the inevitable counter-attack. French scouts alerted the king, who ordered his army
into the park. First to arrive were some 2,000 cavalry accompanied by small field artillery, setting up across from the imperialist left. Behind them advanced 5,000 mercenary Landsknechts in a large battle square, supported by additional Swiss heavy infantry, both of whom deployed in the centre.
Map 7.2 The Battle of Pavia, 1525.
(a) Phase I: Francis I’s French army is situated in its trenches and camps (1) surrounding the city of Pavia and its imperial garrison, as well as in the park of Mirabello (2). An imperial army, commanded by Ferdinando d’Avalos, arrives to confront the French and entrenches on the eastern
side of the Vernacula Brook (3). (b) Phase II: Ferdinando decides his best chance for victory is to draw Francis’s army out of their trenches. The imperial army sets out during a night-time storm, heading north along the wall enclosing the Mirabello park (1). Engineers create breaches in the wall (2), and the imperial army deploys inside the park grounds (3). French scouts soon report the move to Francis, and the French army deploys into the park to confront the foe (4).

c) Phase III: The French open the battle, engaging the imperial formations with artillery fire (1). A cavalry charge is launched (2) against
one of the breaches in the wall through which the imperialists are trying to move their artillery (3). (d) Phase IV: While the French horsemen contend for possession of the imperialists’ cannon (1), Francis personally leads his gendarmes in a charge (2) against pistol-armed imperial cuirassiers (3). The attack bogs down and French losses mount as the gendarmes find themselves fixed by the enemy’s pikemen (4) and subjected to murderous fire by the imperial arquebusiers (5). (e) Phase V: Francis’s Swiss infantry advance against the imperialists’ lines (1), but are also thrown back by the
fire of the arquebusiers (2). Landsknechts in the pay of the French king in defiance of the emperor try their hand next (3), but fare no better at the hands of Spanish pikemen and their supporting arquebusiers (4). The combined-arms tactics of the imperial army inflict horrific casualties on Francis’s troops. (f) Phase VI: The desperate situation in the Mirabello grows bleaker for the French as the Pavia garrison sallies out against the now undermanned French lines (1). The French troops and their allies break in the face of overwhelming odds (2) and the king himself is captured (3) as his surviving
The battle of Pavia began when French field artillery opened fire on the attacking imperialist squares, followed by a cavalry charge against one of the breaches where imperialist artillery was being...
hauled onto the battlefield (Map 7.2(c)). At the same time Francis personally led a detachment of heavy cavalry *gendarmerie* (a French term for heavy horse) against imperial light horse *cuirassiers* (pistol-wielding cavalrymen), repulsing them with some casualties. Ultimately, the French assault faltered when many of the king’s horsemen were held in
by the imperialist pikemen and then shot to pieces by arquebus fire. The failed cavalry assault was followed by an attack by allied Swiss mercenaries, who were also thrown back by the arquebusiers (Map 7.2(d) and (e)). A final offensive by the Landsknechts was defeated by a combined-arms force of Spanish pikemen and handgunners. At this moment,
Pavia’s garrison sallied out of its gates and attacked the French siege lines (Map 7.2(f)).

Imperialist casualties were very modest in this two-hour engagement, with only 550 killed. The French lost 13,000 men with another 6,000 taken prisoner. King Francis was captured during the mêlée, his well-armoured gendarmerie shot down all around him.
Tactically, the battle of Pavia showed the prowess of heavy infantry pikemen and light infantry arquebusiers working together in the open field against enemy cavalry and battle squares. In this engagement, artillery played little part. The imperialist victory once again delayed French aspirations in northern Italy and inaugurated a long period of Habsburg and
Spanish control in the region. So one-sided was the battle of Pavia that the decisive engagement all but disappeared from European warfare for more than 100 years. It would not return until the battle of Breitenfeld in 1631. Historians have cited many reasons for this change: the defensive superiority of combining firearms with field entrenchments; a new
generation of fortifications called *trace italienne* characterized by low, thick walls to defeat siege guns; ‘and the spread of military entrepreneurship from northern Italy beyond the Alps’.

After Pavia, the Spanish took the next logical step in the evolution of battlefield formations by mixing heavy and light infantry in the same
arrangement, creating by 1534 a new tactical system called the *tercio*. The Spanish *tercio* eventually became standardized at about 3,000 men divided into three *colunelias* of 1,000 men (twelve companies of 250 men apiece), integrating pikemen and arquebusiers into one battle square and creating the most formidable tactical system in Europe.
Like the well-articulated Swiss battle square, the \textit{tercio} was capable of both withstanding cavalry attacks in the open field and charging an enemy from any direction with lowered pikes, but unlike the Swiss square, the \textit{tercio} had an organic complement of light infantry gunners. On the battlefield the pikes were massed in a square formation of three
lines, probably each with a front of fifty or sixty men, twenty files deep. The mass of heavy infantry pikemen was supported by square clumps of arquebusiers at the four corners. This dense but manoeuvrable battle square had a frontage of about 150 yards and was about 100 yards deep.

As firearms became more reliable, the Spanish also
increased the proportion of light infantry arquebusiers and musketeers to pikemen within the tercio, giving the formation greater missile capabilities. But the early gun’s extremely slow rate of fire meant that the light infantry gunners required extra protection while reloading. The pikemen would provide this aid in return for protection against
enemy gunfire and cavalry attacks. As the English authority on tactics Robert Barret put it in his work *The Theorike and Practike of Moderne Warres* in 1598: ‘any troupe of shot, though never so brave and expert, being in open field, having no stand of pikes, or other such weapons, nor hedge, ditch, trench, or rampier, to relieve or [secure] them, could not
long endure the force of horse, especially Launciers’. Quite simply, without the advantage of terrain or the protection of a stand of pikes, handgunners would be swept from the battlefield by enemy cavalry.

At first the ratio of pikemen to handgunners was three to one, but as the sixteenth century wore on and the effectiveness and reliability
of firearms improved, the ratio of gunners increased and the Spanish abandoned the offensive capabilities of the sword and shield entirely in favour of the defensive capability of the pike. As the century progressed and the Spanish tercio was adopted by other armies in western Europe, commanders experimented with the ratio of shot and pike. By the end
of the sixteenth century, the number of light infantry gunners in the tercio nearly equalled the number of heavy infantry pikemen. Once again, the Englishman Robert Barret writes:

As the armed pike is the strength of the battell, so without question is the shot the furie of the field: but the one without the other is weakened the better halfe
of their strength. Therefore of necessitie (according to the course of warres in these dayes) the one is to be coupled and matched with the other in such convenient proportion, that the advantage of the one may helpe the disadvantage of the other.

By the 1650s most units were composed of shot and pike in a ratio of three or four to one.
And although archers and crossbowmen gave way to handgunners early in the period, pikemen persisted as a tactical entity until the invention of the ring bayonet in the eighteenth century fused heavy and light infantry into one weapons system, finally eliminating the need for the pike.

But the dominance of the densely packed infantry battle
square, especially against heavy cavalry, did not go unchallenged, offering as it did an easy target to enemy field artillery and handguns. At the battles of Ravenna in 1512, Marignano in 1515 and Bicocca in 1522, gunfire inflicted serious casualties on the battle squares. The impact of a single cannonball often killed one or two dozen men in a densely packed
formation, while injuring dozens more. At Ravenna, one shot allegedly killed thirty infantrymen.

Figure 7.1 Early Modern Weapon Systems Using Reiters. An illustration of general rules of dominance in
conflicts between different early modern weapon systems with cavalry organized with Reiters: (1) cavalry organized as Reiters is generally dominant in the attack against both heavy and light infantry; (2) light infantry is generally dominant in the attack against heavy infantry. Cavalry organized in the traditional manner (without Reiters) results in the same relationships generally governing medieval warfare. Based on Archer Jones, The Art of War in the Western World (Urbana and Chicago: University of Illinois Press, 1987), schematic 3.2.
The true effects of firearms and artillery were not felt by in the men they injured, maimed and killed – they were also psychological. An eyewitness at the battle of Marignano struggled to find the words to express the emotional shock when the French fired on the advancing Swiss with artillery and hand-held guns: ‘thus the enemy engaged and let off all their
guns of all calibres and all their hand-held firearms. That was such a thing that one might have thought that the skies had opened with every fury and the heaven and earth were breaking apart under the enemy fire.’ The psychological effects of artillery and arquebus fire helped break up the battle square even faster than casualties alone. By the
sixteenth century it was such a common problem that the Swiss prescribed the death penalty for any infantryman who left the battle square under fire.

Although heavy cavalry lancers continued to have a place in early modern military doctrine, the gunpowder revolution also had an impact on European cavalry. The Spanish brought
to Italy light cavalry *genitors*, horsemen who traded in their javelins for bulky crossbows and arquebuses. Ultimately unsuccessful on the battlefield, *genitors* were used for strategic reconnaissance, screening and disrupting enemy communications. During this period of tactical experimentation, the Germans developed a new kind of
cavalry armoured in a breastplate and high, heavy leather boots, and armed with three wheel-lock pistols. This new mercenary light cavalry, called *Schwarzreiters* or ‘black riders’ because of their black armour and accoutrements, attacked enemy formations using the revolving tactics of the *caracole*.

To execute the *caracole*,
these *reiters*, as they were soon called, trotted toward their enemy in a line of small, dense columns, each several ranks deep and with intervals of about two horses’ width between files. In a tactic reminiscent of the Parthian shot, the *reiters* fired their three muzzle-loading pistols, then swung 180 degrees and filed to the rear to reload. Usually the caracole tactic
was employed before a general advance as a means of disrupting enemy cavalry and infantry formations (see Figure 7.1). But the time and awkwardness of reloading while mounted meant the caracole was a very difficult manoeuvre to carry out effectively, and, like light cavalry from the classical and medieval period, it was easily disrupted by an enemy heavy
Early Modern Logistics

Logistics was also affected by the ‘military revolution’ of the early modern period as armies grew in size and technological complexity. The procurement, marshalling and deployment of the human, animal and natural resources necessary to wage
war in this new era were daunting. New recruits had to be clothed and trained, and horses bred, broken, fed and transported to the front lines. Saltpetre, charcoal and sulphur needed to be converted into gunpowder; grain ground and baked into bread; raw timber formed into pikestaffs, ship hulls and gun carriages; and hemp woven into rope and canvas.
Moreover, to make cannon, copper and tin needed to be mined and smelted into bronze, while ordnance, edged weapons, armour and ships’ fittings required huge supplies of iron ore, fuel and labour. Finally, legions of workers moved earth, timber, mortar and stone to construct a new generation of fortifications (trace italienne) and port facilities. To meet
these needs, logisticians wrestled with different ways to best serve the army at home and on campaign.

In the sixteenth century, armies were supplied much as they had been in the Middle Ages, through the use of magazines, supplemented by baggage trains and foraging. But as the size of the early modern army increased, so did the burden of supplying it
for war, a burden the rudimentary science of logistics could not keep up with. Unable to provide the ‘umbilical cords’ necessary to supply a large army on campaign in hostile territory, kings and commanders alike sought control of the countryside through the construction or capture of fortresses and fortified outposts. In fact, this inability
to consistently supply large numbers of men and horses probably contributed to the rise in the frequency of sieges and an emphasis on positional over manoeuvre warfare.

The changing technological nature of warfare also complicated logistical supply. Not only did commanders have to meet the basic needs of providing bread for tens of thousands of men and fodder
for thousands of horses, they also had to resupply stores of gunpowder, and repair or replace small arms and artillery. This often caused a contradiction in supply imperatives. Armies needed to stay close to the fortresses that housed their gunpowder and shot and the ovens that baked their daily bread, while also seeking the forage necessary to keep their horses
from starving. And large armies required staggering amounts of food and forage. An army of 30,000 men and 10,000 cavalry horses and 10,000 other horses would consume 45,000 daily rations of bread and 200 tons of dried fodder or 500 tons of green fodder per day.

During the Thirty Years War (1618–1648), supply sank to the level of plunder
and pillage as armies operated for years in hostile regions, living off the land with little or no regard for the welfare of non-combatants. Plague and war-related food shortages added to the misery, often killing more people than the actual battles. After mid-century, the rise of stronger centralized states, embodied in Louis XIV’s France, developed the tools
and resources necessary to supply larger armies on the march. Unfed or unpaid, early modern armies might evaporate, or worse, turn their anger on the countryside. This reliance on ‘umbilical cord’ supply would continue until the late eighteenth century when the French Revolution and Napoleonic Wars reintroduced the concept of an army foraging
for its supplies, thereby, in the words of one recent authority on early modern logistics, ‘liberating it from the tyranny of supply lines’.

Like armies in the medieval period, early modern armies increasingly relied on water transport to supply their needs. Spain, the sixteenth century’s pre-eminent military power, pioneered deep-water maritime
technologies and then projected force across the world’s oceans, carving out colonies in the New World and Asia. In Europe, intermarriage and inheritance intertwined Spanish and Habsburg possessions, forcing the Spanish throne to protect its interests in Italy against French encroachment, in the Netherlands against a Protestant revolt, and in
central Europe and the eastern Mediterranean against Ottoman expansion.

The Dutch Tactical System and the Thirty Years War

The dominance of Spain in western European affairs and the Spanish tactical system in sixteenth-century warfare required its enemies to seek new ways to meet and defeat
the tercio on the battlefield. One of Spain's most capable adversaries was a young nobleman from the Netherlands, Maurice of Nassau (1567–1625), who gained prominence in that country's war of liberation against the Spanish. The second son of William the Silent of Orange, Maurice was granted the title of prince of Orange after his father's
assassination in 1584, and rose to the position of admiral general and captain general of five provinces within the United Provinces. In this capacity Maurice instituted a number of military reforms, including the founding of the first military academy to furnish his army with trained officers, emphasizing drill and discipline. In fact, the reintroduction of drill into the
Dutch army was an essential element of the Orangeist reforms and a basic contribution to the modern military system.

Maurice recognized the successes of the Spanish tercio in recent decades and endeavoured to create a means to defeat the Spanish battle square. Like other commanders of his day, the prince of Orange was inspired
by the classical period, gleaning ideas from authors such as Leo, Aelian and Vegetius. To defeat the tercio, he abandoned the battle square and adopted a linear formation on the Roman model. In doing so, he maximized firepower through the elongation of formations and rapidity of loading. Maurice’s reforms utilized familiar hallmarks from the
classical period, specifically intelligent leadership, unquestioning obedience, loyalty to the unit, and improvements in tactical deployment and mobility. Because of manpower shortages and financial restraints, he was forced to do more with less. To meet muster, foreign mercenaries (mostly French, German, English and Scottish) were
hired and paid well, giving the Dutch army ‘a proficiency, discipline, cohesion, and maneuverability unknown in the West since Roman times’.

Maurice also reduced the size of the standard tactical formation to battalions of 550 men consisting of heavy infantry pikemen and light infantry arquebusiers. Originally using a heavy
infantry formation ten men deep, Maurice finally deployed his pikemen five deep with a frontage of fifty men. This shallow array meant more Dutch pikemen could face the enemy, and none found themselves out of action in the centre of a densely packed battle square. To each side of his heavy infantry, the prince of Orange placed his light infantry
arquebusiers, arranging them four abreast and ten deep. He also included in this tactical array about sixty arquebusiers as light infantry skirmishers. He arrayed the battalion in three lines, allowing commanders to commit reserves of balanced infantry units when and where circumstances warranted.

Like the Romans, Maurice emphasized drill and...
discipline above all other martial virtues. He compelled his arquebusiers to practise motions required to load and fire their matchlocks, while drilling his pikemen in the proper application of their polearms when marching and in battle. Although this kind of instruction was not entirely new, what was new to the early modern period was his emphasis on unit cohesion
and simultaneous drill. Since his handgunners were trained to move in unison and in rhythm, all were ready to fire their weapons at the same time. This made firing volleys easier, creating a greater shock effect on enemy ranks.

Maurice also emphasized marching in cadence to precise commands, giving his soldiers the ability to move in prescribed patterns, forward
or back, left or right, shifting from column to line and back again. But perhaps the most important manoeuvre instituted by the prince was the refinement of the Spanish countermarch. In the Dutch countermarch, the first rank of arquebusiers and musketeers fired their weapons, then wheeled and marched between the files of the men standing behind them
to the rear, reloading their weapons in unison to the precise commands of an officer. Meanwhile, the second rank discharged their weapons and repeated the manoeuvre until all ten ranks had rotated through and the first rank was ready again to fire. With practice, the countermarch allowed the Dutch battalion to continuously fire at enemy
formations, giving an adversary no time to recover from the impact of one volley before another volley hit home. One historian rates the increase in firepower in the new Dutch battalion on the order of 100 per cent.

Dutch battalions were each capable of better independent articulation on the battlefield because of their better manoeuvrability, and a high
proportion of officers and non-commissioned officers to enlisted men. Maurice placed his battalions in a chequerboard formation reminiscent of how the Romans deployed their legions. But linear formations, whether classical or early modern, suffered from an increased vulnerability on their flanks. To solve this problem,
Maurice utilized cavalry on the wings to protect his infantry’s flank in the same way the Macedonians and Romans had done 2,000 years earlier.

The contributions of the Swedish king Gustavus Adolphus (r. 1611–1632) to modern combined-arms warfare are manifold and represent a watershed between the traditional heavy
cavalry and polearm-based tactical systems of the late Middle Ages and the new articulated gunpowder-based linear formations that would dominate the battlefields of the west until the nineteenth century. Gustavus’s significance lies in his successes as a battle captain utilizing this new tactical system in his campaigns against the Poles and
Russians, and in the Swedish phase of the Thirty Years War (Map 7.3). The wholesale adoption of the Dutch tactical system by European armies after the Peace of Westphalia in 1648 is eloquent testimony to the power of the ‘Lion of the North’s’ tactical synthesis.

The cornerstone of Gustavus’s tactical innovations came from
lessons learned by the Dutch in their war of liberation against the Spanish a generation before. When the young Swedish king Gustavus Adolphus adopted the Dutch tactical system, he modified it to maximize shot over shock. He changed the battalion configuration, arranging his pikemen six deep and thirty-six across, with ninety-six arquebusiers
on each side in six ranks. Furthermore, he substituted the heavy arquebus for a lighter matchlock musket and gave each of his soldiers paper cartridges containing measured amounts of powder. He then put these new technological advances to good use by instituting the tactic of volley fire.

Volley fire consisted of all six ranks of musketeers
loading their weapons, then reducing the six ranks to three by filling the intervals between the men ahead. The first rank knelt, the second stooped and the third stood, and all three fired simultaneously. By this means, Gustavus used rotation offensively, with the back three ranks moving forward through stationary reloaders. The Swedes
became so skilled at this manoeuvre that their infantry battalions could discharge two volleys per minute. Though a proponent of light infantry, Gustavus did not dispense with offensive shock tactics, and his pikemen continued to advance even during the countermarch, contributing to the final impact. But at close range, the rolling fire of the
countermarch was replaced by a single devastating volley fired simultaneously by all three ranks of musketeers.

To support his light and heavy infantry, Gustavus changed cavalry doctrine, abolishing the widely used tactic of the caracole in favour of arming his cavalry with sabre and committing them against infantry when shock action seemed likely to
succeed. He also created the world’s first dragoons, arming them with carbines, wheel lock pistols and, later, with sabres, effectively fusing heavy and light cavalry into one weapon system. The young king’s fascination for shot over shock can also be seen in his integration of small, horse-pulled artillery into battalions. Firing cannonball, grape or canister
shot, these four-pounders were light enough to be manoeuvred with the battalion on the battlefield, concentrating firepower where it was needed most.
Map 7.3 The Thirty Years War.
Gustavus Adolphus, a Protestant king, entered the Thirty Years War in the summer of 1630. The war had begun twelve years earlier when a Calvinist rebellion in Bohemia in 1618 led to imperial repression by the Habsburg ruler and holy Roman emperor Ferdinand II, sparking a war between Catholics and Protestants across Germany. Denmark
intervened on the side of German Protestant states in 1626, but by 1629 imperial forces had defeated the Danes and pushed imperial power to the shores of the Baltic Sea. Because the holy Roman emperor did not have a large army himself, imperial forces were drawn from the levies of greater lords within the empire, men such as the elector Albrecht von
Wallenstein, or from Spanish troops provided by his royal cousin King Philip IV.

With the Swedish king’s arrival in Peenemünde on 4 July 1630, the momentum of war began to switch to the anti-imperial forces. Over the next year, Gustavus’s forces overran the Germanic Baltic states of Pomerania and Mecklenberg, then pushed south into Brandenburg in
April 1631. The brutal sacking of Protestant Magdeburg in May of that year by the seasoned commander Jean 't Serclaes, count of Tilly, and his imperial forces pushed the region of Brandenburg into Gustavus’s camp. After securing contributions and the right to recruit soldiers in Brandenburg, the Swedes moved south into Saxony to
forage for supplies and meet reinforcements from Italy. Recognizing the need to defeat the Swedish invasion, Tilly turned north and marched to meet the anti-imperial forces.

The initial meeting took place in late July 1631, but Gustavus’s strongly fortified position at Werben in a bend in the Elbe River discouraged Tilly from fighting. The latter
skirmished, fired his cannon and withdrew 20 miles from the battlefield. In late August he seized the initiative, marching south and laying waste to Saxony in an attempt to discourage the elector of Saxony from joining the Swedes. Gustavus quickly marched to join his army with that of the elector and move against Tilly. In mid-September, the count’s army
of 35,000 men offered battle on level ground between the little villages of Breitenfeld and Stenburg, a few miles north-east of Leipzig. After joining the elector of Saxony on the march, Gustavus arrived the night before the battle, and ordered his newly combined army of 42,000 men to sleep in formation.

The Swedish king arrayed his two armies side by side,
placing the elector’s army of some 17,000 on the left and his own 25,000 troops on the right. Subscribing to the modified Dutch linear tactical system reminiscent of the Romans, Gustavus formed his 500-man infantry battalions in two lines, placing a reserve of infantry and cavalry between the two, and a reserve of cavalry behind the second line. His allied Saxon
army consisted of traditional battle squares protected by cavalry on each flank. Because the Swedish and Saxon hosts deployed as separate armies, the combined forces had cavalry in the centre as well as on the wings.

The battle of Breitenfeld began on the morning of 17 September 1631 when Gustavus ordered an attack
and the Swedish and Saxon armies marched toward the count of Tilly’s already formed position (Map 7.4(a)). The imperialist army was arrayed in a traditional manner in 50 by 30 man tercios arranged in a group of three, with the centre square slightly forward of the other two. Outnumbered by perhaps 7,000 troops, Tilly was forced to spread out his
army in one line to match the Swedish front. He had no reserve beyond some cavalry. As the two sides closed, their artillery fired cannonballs through the opposing ranks. In an audacious move, Tilly took the offensive, ordering the commander of the imperial light cavalry reiters on his left, Count Pappenheim, to charge the Swedish cavalry
on the right wing (Map 7.4(b)). Anticipating this attack, Gustavus placed additional heavy cavalry supported by light infantry musketeers to defend against the *reiters*. The Swedish cavalry held their ground and received the imperials’ pistol attacks, counter-attacking with their own musketeer volley fire and short sabre charges. Advancing seven
times to repeat the caracole manoeuvre, the imperial light cavalry were unable to scatter the Swedish musketeers, instead being forced back by their heavy cavalry protectors. After defeating the seventh attack, Count Pappenheim ordered his imperial cavalry to withdraw from the field.

While Tilly’s cavalry unsuccessfully attacked the
Swedish right wing, he ordered the battle square and cavalry on his right to attack the Saxons, keeping the remainder of his infantry in reserve. The imperial cavalry easily routed the Saxon horse, and the experienced Tilly, seeing an opportunity to push home a victory, ordered his centre square to cross the field obliquely and enter the fray against the Saxons (Map
Demoralized and without cavalry support, the Saxon infantry broke and fled, pausing only to quickly loot their Swedish ally’s camp as they left.

With the rout of the Saxon army, Tilly had defeated 40 per cent of his enemy’s forces, and in doing so exposed Gustavus’s army to an attack against the flank of the remaining Swedish
infantry formations. But as Tilly reordered his infantry in an attempt to roll up the Swedish flank, the Protestant king and his talented subordinate General Gustav Horn quickly formed the flexible and well-drilled infantry of the second line into a battle array to meet the imperial attempt to attack its flank. Completing the redeployment manoeuvre in
only 15 minutes, the Swedish line faced the count’s infantry.

The next phase of the battle began with a cavalry engagement, with the Swedish cavalry on the king’s left driving off the remaining imperial cavalry. As the infantry closed, Gustavus’s new model army, with its six-rank-deep linear array and disciplined volley fire, began
to have an impact on the enemy battle squares (Map 7.4(d)). The imperial arquebusiers and musketeers, fifty files wide and thirty ranks deep, used the countermarch to maintain a steady rate of fire, but these ranks withered under the concentration of volley fire and follow-up cavalry sabre charges and heavy infantry pike attacks.
Map 7.4 The Battle of Breitenfeld, 1631.
(a) Phase I:
Gustavus Adolphus orders his Swedish army (1) and that of his ally, John George of Saxony (2), forward against the count of Tilly’s imperial
army. The first shots of the engagement are fired by the opposing artillery (3) as the two sides close. Tilly opens the action, ordering Count Pappenheim’s light cavalry (4) to charge the Swedish horse on Gustavus’s right flank (5). (b) Phase II: The imperial reiters launch a series of caracoles against the Swedish heavy cavalry (1), which the Swedes answer with their own sabre charges supported by volley fire from the musketeers (2). Pappenheim finally orders the imperial horse to retreat (3). Meanwhile, the imperial cavalry on the right flank charge their Saxon opponents (4) and drive them
from the field (5). The imperial infantry squares on Tilly’s right are on the move as well (6), and John George’s Saxons, left without cavalry support and facing Tilly’s oncoming infantry, break and flee from the field (7). (c) Phase III: Tilly orders his centre group of tercios to move obliquely to the right to reinforce the imperial success (1). The imperialists’ right-flank infantry re-forms and prepares to roll up the Swedish left (2), but Gustavus and General Gustav Horn quickly redeploy the second line to face this new threat (3). The Swedish cavalry charges Fürstenburg’s imperial horse (4),
driving them from the field (5). (d) Phase IV: The imperial squares come under heavy fire from the Swedish light artillery and Gustavus’s linear infantry formations (1). The imperial troops return fire using the countermarch, but the Swedish volleys soon begin to overwhelm Tilly’s soldiers, who now come under attack from Swedish pikemen and charges from the Swedish heavy cavalry (2). (e) Phase V: The imperialist army is shattered by the combined effects of Swedish infantry, cavalry and artillery; Tilly orders what is left of his army to retreat (1).
Tilly’s infantry, exposed to artillery and infantry fire and cavalry attacks, took heavy casualties (Map 7.4(e)). Faced with the devastating fire of the excellent Swedish guns, easily manoeuvred on their lighter carriages, and his own captured imperial guns, Tilly ordered his troops to retreat. Imperial casualties were 7,600 killed, compared to 1,500 Swedes and 3,000
Saxons. Furthermore, the Swedes took an additional 6,000 imperial soldiers prisoner, though many of these men eventually enlisted in the Swedish forces. Tilly then retreated west over the Weser River, leaving Bohemia and the Main valley exposed to Saxon and Swedish advances.

The battle of Breitenfeld illustrated the dominance of
shot over shock in infantry engagements in early modern warfare. The Swedish linear formation, with its broad front and volley tactic, allowed for a concentration of fire against the relatively narrow front of the imperial battle square, which, utilizing the countermarch, could return fire only one rank at a time. The battle also demonstrated the importance
of combined-arms co-operation between linear arrayed infantry and their heavy cavalry comrades. Gustavus’s more innovative linear formation, only six ranks deep, was far more vulnerable to flank and rear attack than Tilly’s more traditional battle square tercios, with their all-round defence capabilities. The linear tactical system’s
vulnerability placed a high premium on winning cavalry engagements. Short sabre charges assisted Gustavus’s infantry against Pappenheim’s caracole tactics at the beginning of the battle, and later vanquished the remainder of Tilly’s horse after the count had turned the Swedish flank. And as the early modern period wore on and the pike gradually
disappeared in favour of linear infantry formations, the importance of cavalry increased on the battlefield.

After the defeat of imperial forces at Breitenfeld, many German Protestant princes rallied to the Swedish side. Gustavus advanced deeper south into Germany, taking Würzburg in October and Frankfurt in December 1631. In 1632 he planned to attack
Bavaria and then conquer Austria. Count Tilly was killed trying unsuccessfully to stop the Protestant invasion of Bavaria, forcing Emperor Ferdinand II to reappoint a former general in the Thirty Years War, the Bohemian military commander Albrecht von Wallenstein, as overall general of the imperial army.

Wallenstein immediately threatened Saxony, forcing
the Swedish king to return northwards and meet the threat to his newly acquired allied territory. What followed over the autumn of 1632 was a chess game of positional warfare, with neither side willing to attack its well-fortified opponent. At Alte Vista near Nuremberg, Gustavus was unable to drive Wallenstein’s forces from their heavily fortified
position. Moving to the city of Naumberg, Gustavus dug in thoroughly and awaited an imperial attack. Wallenstein mistook the entrenchment for the Swedish king’s winter camp, and began to disperse his army for the season. With his own army evaporating from lack of supplies, the Swedish king decided to attack the weakened imperialist army at Lützen on
16 November 1632.

Gustavus reached Wallenstein’s position late in the afternoon the day before the battle with an army of about 19,000 men, of whom approximately one-third were cavalry. Imperial forces were about 16,000 strong, half being cavalry. Gustavus deployed his troops in two lines, ordering his mixed infantry in the centre and his
cavalry, along with light infantry skirmishers, on the wings. He placed his field guns in the centre as a screen for his infantry. His strategy utilized his superiority in cavalry. The king placed his best cavalry on his right, planning to charge the imperial army’s open left flank and then roll up the enemy infantry’s flank and rear.
Recognizing the Swedish king was willing to offer battle, Wallenstein called back his lieutenant-general Count Pappenheim and his 3,000 cavalry from a nearby town, and dug in defensively behind a raised road. Wallenstein placed his right flank on the village of Lützen, arranging his artillery on a nearby rise where it could command the field
below, and covered his left flank with a shallow stream. He ordered his men into a traditional formation, placing his infantry in the centre and cavalry on the wings. But he moved away from tactical orthodoxy by emulating his opponent and adopting smaller formations less than ten ranks deep, and arrayed them in two lines. He also ordered his cavalry to discard
the caracole manoeuvre and copy the Swedish shock attack. Finally, he adopted a combined-arms approach to his defence, placing musketeers with his cavalry and some light guns with his infantry.

Preparing for the Swedish assault, Wallenstein deepened a ditch in front of his position and waited for Pappenheim’s reinforcements. Like the
battle of Breitenfeld a year earlier, Gustavus arrayed his army the night before and planned to attack the imperialist forces first thing in the morning before the arrival of the count and his cavalry, an event that would even the forces.

But on the morning of the engagement, a fog enshrouded the battlefield, delaying the Swedish assault
until midday (Map 7.5(a)). To open the battle Gustavus launched a cavalry assault against the imperial left and centre. But just as the Swedish cavalry had defeated the opposing horsemen, Count Pappenheim arrived and stopped the Swedes from running up the imperial flank (Map 7.5(b)). Moments after appearing on the field, Pappenheim was mortally
wounded by a cannonball. In the centre, Gustavus himself led an infantry attack, pushing back the opposing musketeers. Though wounded by a shot in the arm, he was able to secure a ditch in front of Wallenstein’s position. Still, the imperial line held and Gustavus was shot two more times in the back and in the head, and died in the mêlée (Map 7.5(c)).
Meanwhile, the Swedish cavalry continued to press on the imperial left, forcing Wallenstein to order the Italian commander Ottavio Piccolomini to replace the injured Pappenheim and repulse the Swedish cavalry attack. After having seven horses shot from under him, he was finally able to stabilize the situation there.
Map 7.5 The Battle of Lützen, 1632. (a) Phase I: Dense fog across the battlefield delays Gustavus’s attack against Wallenstein’s positions until midday. The Swedish king orders a cavalry charge (1) against the
enemy’s left flank, scattering the screen of musketeers lining the ditch along the Leipzig–Lützen road (2), and threatening to roll up the imperialists’ line (3). (b) Phase II: Just as the Swedish cavalry gain the upper hand, Count Pappenheim arrives with cavalry reinforcements (1), stabilizing the situation and repulsing Gustavus’s horsemen (2), though the count is mortally wounded by a cannonball shortly after arriving on the field. In the centre, Gustavus personally leads an infantry attack and gains the ditch in front of Wallenstein’s position (3). (c) Phase III: Gustavus is killed during the
fighting in the ditch (1) in front of the imperial lines, and Wallenstein’s centre holds. The imperial general orders Ottavio Piccolomini to the left (2) and the flank is stabilized (3). (d) Phase IV: Seeking to avenge their fallen king, the Swedes launch an infantry attack on their left that captures the town of Lützen (1) and wrests control of the artillery park on Windmill Hill (2) from the imperialists (3). (e) Phase V: As night descends, Wallenstein orders a retreat (1) as the Swedes consolidate their gains (2). Both sides have lost about one-third of their forces in the action.
With the Swedish king dead and the imperial centre holding, it looked as if Wallenstein had won the day. But a strong attack on the left by Swedish soldiers bent on avenging the death of their king captured the town of Lützen and the nearby artillery park on the rise, forcing Wallenstein to retreat by cover of darkness (Map 7.5(d) and (e)). Both sides
lost about one-third of their forces. Wallenstein withdrew his army to Bohemia, leaving Saxony to the Swedes and their Protestant allies. After the death of Gustavus, Swedish influence in the Thirty Years War waned. In 1635 France entered the war against the Habsburgs, ending the emperor’s goal of a centralized and religiously homogeneous empire. Order
was restored to Germany in 1648 with the Peace of Westphalia, ending a generation of religious warfare.

Although the battle of Lützen was strategically inconclusive, its significance lies in Wallenstein’s adoption of many of Gustavus’s tactical innovations. After the conclusion of the Swedish phase of the Thirty Years
War in 1634, European armies increasingly utilized their cavalry in shock action, though missile fire in the form of pistol shot was to remain an important ancillary weapon for European horsemen. But Gustavus’s most important legacy was his revolution of infantry tactics, dispensing with the Swiss-style battle square and making the linear infantry
formation the standard for his new model army. He reintroduced a well-articulated line-based combined-arms tactical system to the art of war in early modern Europe, one not seen for well over a millennium.

Gustavus brought to the defence of Protestant Europe a brilliant syncretism of old and new, making efficient use
of the best technology of the day, including improved matchlocks, carbines, wheel lock pistols, pre-measured paper cartridges and light artillery. Building on the classical reforms of Maurice of Nassau, Gustavus created a new model national army, complete with uniforms, twenty-year enlistment contracts and an efficient tax-collecting apparatus. He was
a tactical visionary, fully recognizing the ‘Age of Gunpowder’ had eclipsed the ‘Age of Polearms’. His light infantry’s adroit use of rolling and volley fire from a linear formation set a precedent that would last as long as muzzle loading, well into the nineteenth century. He changed cavalry doctrine to better support infantry, and he utilized mobile artillery in
direct support of the battalion in a way Napoleon would be proud of. Perhaps even more importantly, Gustavus succeeded in converting the thousands of mercenary officers he used in his campaigns in Germany into like-minded soldiers. After his successes at Breitenfeld and Lützen, these same soldiers and their adversaries would return to their own soil
and build national armies based on the innovations of the young Swedish king and the Dutch tactical system.

Conclusion: The ‘Western Way of War’ and Decisive Battle

The level of violence witnessed during the Thirty Years War is a gruesome
illustration of what historians have labelled the ‘western way of war’. Gustavus Adolphus, like Belisarius, William the Conqueror and Henry V before him, understood that a decisive engagement on the battlefield was the surest way of furthering his political aims. And while Swedish forces did manage to kill one-third of their imperialist enemy, this
understanding cost Gustavus his life and the lives of one-third of his army at Lützen. When western armies made war against one another, such casualty figures were not unusual.

As described in the previous volume, *Warfare in the Ancient World*, Europeans have practised a form of organized violence that placed a premium on decisive
battle since classical Greek times. Greek hoplites specialized in a form of brutal confrontational combat that beat down or carved up their enemies, often against numerically superior armies. The Romans continued and perfected this lethality in arms. Roman legions conquered and protected a Mediterranean empire that lasted half a millennium. But
the Western Roman Empire finally succumbed to internal rot and external invasion and migration, while the Eastern Roman Empire continued as the Byzantine Empire for another thousand years.

The Byzantine martial experience built upon the traditions of the late Roman Empire, though there was a change in emphasis from infantry to cavalry.
Justinian’s commanders, Belisarius and Narses, used Byzantine combined arms to conquer a new Mediterranean empire. Here, this Byzantine brand of western warfare blunted Persian advances at Dara in Armenia and destroyed Vandal and Frankish aspirations at Tricameron in north Africa and Casilinum in Italy. At Casilinum, Byzantine troops
slaughtered their Frankish foes nearly to the man.

In western Europe the Germanic armies, which filled the power vacuum left by the collapse of the Western Roman Empire, represented a decline in martial capabilities. By the time the end came, centuries of ‘barbarization’ had eroded the combat efficiency of the Roman legion, and with the
end of the professional army came the end of well-articulated heavy infantry, replaced by the Germanic militia system and its unarticulated battle squares. These Germanic warriors could fight with great ferocity, as the battles of Adrianople and Châlons illustrate, but they initially lacked the military and social organization and support to
mount the kind of large-scale campaigns witnessed in the classical period.

Over time, old Roman territory and Germanic tribal lands were transformed into Germanic kingdoms, with the Franks in what was Roman Gaul becoming the pre-eminent regional power. The most successful Frankish commanders adhered to the doctrine of decisive battle in
the western tradition. Charles Martel soundly defeated an aggressive Muslim raiding expedition at Tours using a bold fighting strategy and confrontational tactics, killing the Muslim governor of Spain and securing a new Frankish dynasty. His grandson Charlemagne undertook fifty-four military campaigns and expanded Frankish hegemony into northern Spain, Brittany,
Bavaria, and Frisia and Saxony. Charlemagne well understood the value of ‘spear-tip diplomacy’, and used the threat of military engagement and annihilation to enforce his political will.

After Charlemagne’s passing in 814, a ‘Second Age of Invasions’ besieged Christian Europe. Magyars and Vikings attacked from the east and north, plunging
the continent into over two centuries of chaos. The Magyar threat was finally extinguished by the German king Otto I along the banks of the Lech River in a set-piece battle which pitted the flower of Catholic chivalry against skilled central Asian horsemen. Otto’s military victory brought profound political changes. After the destruction of the Magyar
army, the remnants of the raiders converted to Christianity and created the kingdom of Hungary, while the feat ensured Otto’s rise to holy Roman emperor. The Vikings, like the Magyars, were master raiders, preferring ‘smash-and-grab’ tactics over decisive battle. But as the Viking age wore on, some Scandinavian commanders adopted the
latter brand of warfare while campaigning. One of the period’s greatest warriors and kings, Harald Hardrada, used decisive battle effectively to secure political position and military reputation. Trained in the ‘western way of war’ while serving as captain of the Varangian Guard in Constantinople, Hardrada would risk it all and fail seeking a decisive
engagement against Anglo-Saxon king Harold Godwinson at Stamford Bridge. His defeat there ended his life and the Viking age of invasion, and weakened his opponent Godwinson enough that another political opportunist and brilliant commander, William, duke of Normandy, could seize the initiative and take England from the Anglo-
Saxon ruler at the battle of Hastings.

By the eleventh century, the Normans emerged as the pre-eminent military power in medieval Europe. Duke William of Normandy became King William of England because of decisive battle. His one-day victory at Senlac Hill killed the English king and broke the back of the English army, paving the
way for a successful occupation. In Italy the Norman adventurer Robert Guiscard fought his way into title and carved out a dukedom at the expense of papal and Byzantine lands. Guiscard’s mastery of organized violence is illustrated by his overwhelming victory over Byzantine forces at Durazzo, a victory which witnessed the
foolhardy gallantry of the Varangian Guard and their extermination by Norman combined-arms efforts. Norman fortunes continued to grow in southern Italy, while other Normans sought fame and fortune ‘taking up the cross’ in the Holy Land.

Military success and failure during the crusades was also a product of decisive battle. When the Byzantine emperor
Romanus IV Diogenes sought battle against the Seljuk leader Alp Arslan at Manzikert, he was seeking a military solution to the Seljuk threat. His defeat there precipitated the loss of most of Anatolia, a fatal weakening of the Byzantine Empire, and became the casus belli for the crusades. When the Catholic armies answered Pope Urban II’s call to arms in 1095, the
Norman-led armies that crossed Anatolia and shattered the Seljuk Turks at Dorylaeum brought with them western-style confrontational tactics, tactics which relied on the primacy of heavy cavalry shock combat. Most historians would agree that the appearance of the second crusader column saved the entire expedition and that the
victory at Dorylaeum was a near-run thing. Still, the destruction of the Seljuk force allowed Roman Catholic crusaders to carve out numerous principalities and usher in a 200-year occupation of Syria and Palestine.

Not all of the practitioners of the ‘western way of war’ were Christian. The great Muslim general Saladin
showed his mastery of decisive battle at the Horns of Hattin, destroying the main crusader army (complete with its elite Templars and Hospitallers) in the Holy Land and taking Jerusalem back for Islam. This Christian reversal led to the formation of the Third Crusade, where King Richard I of England met and vanquished Saladin’s troops near the Forest of
Arsuf. This battle, though tactically decisive, did not alter the strategic balance of power enough in Palestine for the English king to even attempt a siege of Jerusalem. With Richard’s failure to take back the Holy City for Christendom, the tide had turned against the crusaders in the Levant. Islam would slowly take back the Holy Land in the thirteenth
century, oblivious to a new and more dangerous storm from the east – the Mongol invasions.

Genghis Khan forged a military machine in the thirteenth century that secured the largest contiguous land empire in human history, stretching from Korea to Poland. The success of the Mongol art of war relied on the decisive cavalry
engagement and a keen understanding of the enemy’s tactical predilections. Mongol warriors were masters of both manoeuvre warfare and ruse, and used the reputation of steppe warriors as ‘hit and run’ specialists against civilized armies. When Mongol cavalry engaged Duke Henry’s Christian forces at Liegnitz, they were counting on the knights’
penchant for confrontational battle to work against them. The Mongols were not disappointed. Wheeling and retreating in front of the Christian lines, the Mongol horse archers goaded the Christian heavy cavalry into pursuit, opening a gap and the opportunity to strike hard and finish off the western army. At Sajo River the Mongol commander Batu Khan took
the measure of King Bela of Hungary, and destroyed the Christian army using brilliant combined-arms attacks. Both of these decisive battlefield victories allowed the Mongols to extend hegemony into eastern Europe, with the steppe warriors maintaining a stranglehold on Russia for 100 years before the grand prince of Muscovy Ivan ‘the Great’ defeated them at the
battle of Kulikovo Field in 1380.

The Mongols enjoyed similar success in south-west Asia before the Mamluks blunted their progress at Ain Jalut, south of Lake Tiberias. Mongol penetrations into the Islamic west destroyed both the Ismaili Order of the Assassins in northern Iran and the Abbasid Caliphate in Baghdad in 1258, and,
pushing west past the Euphrates, threatened the Mamluk sultanate in Cairo. The cavalry of the Mamluk sultan Kotuz, versed in both steppe and civilized cavalry tactics, fought fire with fire and sucked the pursuing Mongols into an ambush. Once the two sides were engaged, the battle itself was decided by a series of confrontational cavalry
charges, with the Mamluks finally scattering their Mongol enemy to the wind.

The ‘western way of war’ acquired new weapons and tactics in the late medieval period. In England, King Edward I faced Welsh light infantry longbowmen while pacifying northern Wales, then incorporated this form of withering missile fire in his wars against the Scots (see
the battle of Falkirk, Chapter 5). Edward’s grandson Edward III had similar success against the Scots at Halidon Hill and the French at Crécy, as did Henry V at Agincourt. All of these English monarchs understood the value of showering a ‘killing field’ with arrow shafts to thin out the ranks of opposing heavy cavalry knights before shock combat.
ensued. Light infantry archers, dealing out death from a distance, added a new brutal dimension to western warfare, presaging the rise of light infantry gunners in the ‘age of gunpowder’.

The medieval western way of war also witnessed a return to classical themes. In the Alps, Swiss militia drilled in a new form of phalanx, resurrecting a lethal form of
heavy infantry capable of meeting and beating the finest chivalry in Christendom. Swiss successes at Morgarten, Laupen and Sempach in the fourteenth century illustrate the effectiveness of this new model battle square. Using halberds, pikes and polearms of all sorts, these Swiss heavy infantrymen hacked, bludgeoned and thrust their
way to battlefield victory and their cantons’ self-determination using a form of particularly ferocious shock combat where no quarter was given to knight or common warrior, nor expected in return. Their reputation established, Swiss soldiers found employment as both mercenaries and emulators among other national armies, spreading their brand of
western war to other regions of Europe.

New martial technologies also had an impact on the development of western-style warfare in the late medieval period, chief among them gunpowder. Though it was invented in China, it was the Europeans who ultimately fully recognized gunpowder’s full potential and set out to produce the first generation
of western artillery and handguns. Siege guns helped bring an end to the ‘age of castles’ and centralize the authority of monarchs all over Europe, while light infantry handgunners, armed with matchlocks and arquebuses, challenged medieval crossbowmen and archers for the premier position of distance killer, ushering in a new age of
western warfare where missile, not shock combat, was the preferred means of killing.

By the time the Peace of Westphalia in 1648 ended the Thirty Years War a new age of organized violence had dawned. State-sponsored warfare fought with professional armies was becoming the norm in the seventeenth century.
Standardization of weapons and tactics, brought on by the success of the Spanish and Dutch tactical systems, changed the lethality and scope of European warfare. For the first time since the fall of Rome, battles were consistently fought between armies of tens of thousands of combatants. And once again, victory was determined by a balanced combined-arms
tactical system utilizing cavalry in support of an ascendant infantry, one where the correct application of shock and missile-based technologies by brilliant commanders won the day. In the seventeenth century and beyond, the dual heritage of the ‘western way of war’ and decisive battle would help western civilization reach out and dominate the rest of the
globe.
GLOSSARY OF MILITARY TERMS

angon: (4th–8th centuries) A unique, barb-headed Frankish spear of moderate length that could be used both as a javelin or in close-quarter combat.

arban: (12th–14th centuries) The smallest unit in the
Mongol army, consisting of 10 men. Ten *arbans* made up a *jagun* or squadron of 100 men. Ten *jaguns* made up a *minghan* or regiment of 1,000 men, while ten *minghans* made up a *tuman*, the largest manoeuvre unit in the Mongol army (10,000 men).

**arquebusier:** (15th–16th centuries) A light infantry hangunner who fired an
arquebus, an early smooth-bore firearm ignited by a matchlock, and later, a wheel lock mechanism.

articulation (tactical): A military term describing the offensive capability of troops. Unarticulated troops usually lacked the drill and discipline to march and fight in close order, and therefore usually fought in static, defensive formations. Well-
articulated troops were capable of offensive action in close-order combat. Assassins, Ismaili Order of the: (1094–1256) A radical Shi’ite sect which terrorized orthodox Islam from its mountain fortresses in north-eastern Mesopotamia for nearly 200 years, using political murder and subterfuge in an attempt to overthrow the existing
Sunni order in the Near East. Its various leaders took the title ‘The Old Man of the Mountain’. The Ismaili Order was destroyed by the Mongols in 1256.

*Auszug*: (15th–16th centuries) Elite Swiss heavy infantry composed mostly of unmarried men between the ages of eighteen and thirty.

*bandum* (plural *banda*): (7th–15th centuries) The basic
administrative and tactical unit of the Byzantine army from the seventh century. It consisted of about 400 soldiers commanded by a tribune and, later, by a count. The banda were about equally divided into infantry and cavalry, with the dominant weapon system being heavy cavalry (historians believe that cavalry made up 20 to 40
per cent of a Byzantine army, depending on where it was created and where it was operating).

banner: 1. A standard or battle flag. 2. A subdivision of the medieval bataille formation. Each bataille was broken down into elementary tactical units called banners. These were usually recruited through family, lineage or feudal
relations, and were supposed to stay grouped around a battle flag or a leader (called a banneret), or were united by a common war cry.

‘barbarization’: The infiltration of non-Roman peoples (typically Germanic tribes) into Rome’s territory and political/military institutions, due as much to Roman policy as to the
efforts of the Germanic tribes. Barbarization changed the concept of Roman citizenship, resulting in a weakening of the social, cultural and political foundations of the empire.

barding: A protective covering for mounts. It could be of felt or leather or even form-fitted iron, and was designed to balance protection with mobility.
Although horses were most often barded, camels and even elephants could be covered for war.

bataille: A division in a medieval army. Medieval armies were typically organized into three batailles. On the march they formed a vanguard, main body and rear guard. The order of march was usually dictated by nationality,
battlefield reputation and personal relationship with the commanding lord.

**bombard**: (14th–16th century)
A type of early cannon, firing stone shot weighing as much as 900 pounds.

**bondi**: (8th–11th centuries)
Viking infantry levies that consisted of ordinary men such as farmers and labourers. The *bondi* could be organized into the
smaller ‘pirate bands’ or raiding groups, or into larger infantry blocks when attached to a royal army or large territorial force. These troops ranged in fighting ability, and as the Viking age progressed, many men gave up their farms to become full-time warriors. They were also sometimes known as drengs, thegns or yeomen.
bow (self and composite):

The selfbow was made of a single piece of wood, perhaps the most famous being the English longbow. The composite bow was a recurve bow constructed of wood, horn and tendons from oxen, carefully laminated together to create a bow of superior strength, range and impact power.

breidox: (10th–12th
A long-hafted Viking battleaxe. The ‘broad axe’ was first seen at the end of the 10th century and made famous by the *huscarles* at the battle of Hastings in 1066. It took its name from the blade’s distinctive crescent shape, large size (usually 12 inches along its curved edge), and 5 foot haft. This long-hafted axe also became the
signature weapon of the Varangian Guard.

*buccellarii*: (4th–6th centuries)

These units were armed retainers of Byzantine nobles who took an additional oath of fealty to the Byzantine emperors. They usually consisted of very high quality cavalry.

*burh*: (9th–11th centuries) A walled, fortified site built using earth and timber
construction. Burhs were used by the Anglo-Saxon king Alfred the Great as a way of protecting south-west England from Viking marauding.

cabalerias: Land grants exempt from taxation. During the Reconquista, as lands were liberated by Christian monarchs, cabalerias were given to loyal lords to support the
cavalry necessary for warfare.

cabalgadas: Long-distance Christian raiding against predominately Muslim (Moorish) targets during the Spanish Reconquista.

caballeros villanos: A Spanish term for non-noble knights supported by termed benefices. These ‘commoner-knights’ were used by Christian kings and
nobles in the frontier wars against the Moors during the *Reconquista* (‘reconquest’) of Spain and Portugal.

**caracole**: (16th–17th centuries) A cavalry manoeuvre in early modern warfare. To execute the caracole, *reiters* trotted toward their enemy in a line of small, dense columns, then fired their three muzzle-loading pistols.
After discharging their weapons, they then swung 180 degrees and filed to the rear to reload. Usually the caracole tactic was employed before a general advance as a means of disrupting enemy cavalry and infantry formations.

cataphracts: (7th century BCE – 15th century CE, from the Greek word ‘covered over’) Chain- or scale-mailed
heavy cavalry from the Near East who employed the two-handed *kontos* in shock combat. This kind of close-order heavy cavalry originated in Persia and became the signature tactical system for later civilizations from that region (Persians, Parthians, Romans and Byzantines).

cavaller: A Spanish term for a non-noble horseman.
chevauchée: A French term first encountered in the 12th century for a mounted raid intended to destroy an enemy’s resources and enrich the raiding army. This tactic was used with great success by the English in French territory during the Hundred Years War.

chivalry: (11th–16th centuries) 1. (after chevallerie, meaning ‘skill
on horseback’ in French) A fusion of Germanic and Christian cultural elements into a new code of honour. From the 11th century onward, chivalry was reinforced by the religious ceremony of dubbing to knighthood, the adoption of distinguishing emblems and blazons (and the science of heraldry to develop and interpret these symbols of
station), and the emergence in the 12th century of court poets known as troubadours to sing the praises of knights living, past and legendary.

2. A generic term for noble heavy cavalry from any period.

clibanarii: Heavily armoured cavalry in the Roman and Byzantine armies. These lancers and mounts were protected by composite
chain- and scale-mail armour. As the Roman Empire wore on, these units formed an increasingly higher proportion of Roman cavalry and became the dominant tactical system of the later Byzantine Empire comitatenses: (4th–6th centuries) Units of the late Roman and early Byzantine field army composed of mixed regular and barbarian
regiments not specifically tied to frontier provinces. They often supported *limitanei* and *bucellarii* on campaign.

*comitatus*: A practice in Germanic societies where a war leader or chief attracts freed warriors to himself on the condition the leader would bring glory and war treasure. This practice was between social equals. The
*comitatus* influenced the evolution of vassalage in the early medieval period.

*Compagnies d’ordonnance*: (15th century) The first French standing army, raised in the fifteenth century by the duke of Burgundy, Charles VII. By 1473 these companies numbered 900 men based on a nine-man lance of heavy cavalry made up into four
squadrons, each of 25 men-at-arms, 25 light horse, 25 valets and 75 mounted light infantry longbowmen. These units were further supported by contingents of 25 crossbowmen, 25 pikemen and 25 handgunners, all on foot. As each man was well paid and provided with rations, these companies had no need to forage, and owed their
loyalty solely to the crown. *condottieri*: (14th–15th centuries) Mercenaries employed by Italian city states such as Florence, Pisa and Milan, who served under a contract called a *condotta*. These units were recruited from all over Europe.

*conical helm*: An open-faced helmet favoured by many armies in western
civilization and characterized by the way it tapered off to a point. This helmet provided excellent protection because it offered a glancing surface for blows. The Assyrians, Germanic tribes, Vikings and Normans used variations of this design.

countermarch: (16th–17th centuries) An early modern infantry manoeuvre used to
create volley fire. The first rank of arquebusiers and musketeers fired their weapons, then wheeled and marched between the files of the men standing behind them to the rear, reloading their weapons together in unison to the precise commands of an officer. Meanwhile, the second rank discharged their weapons and repeated the manoeuvre
until all ten ranks had rotated through and the first rank was ready again to fire. With practice, the countermarch allowed the Dutch battalion to continuously fire at enemy formations, giving an adversary no time to recover from the impact of one volley before another volley hit home.

cuirass: A type of metal
armour which usually includes a breastplate and back-plate held in position by either pins or leather straps. It gave excellent protection of the torso while freeing the arms for combat. It was very popular in Greece and Rome, and continued in popularity until the early modern period.

cuirassiers: (16th–17th century) A type of early
modern light cavalry, named after their breastplates, who specialized in pistol fire. These horsemen used wheel lock pistols in the caracole manoeuvre. See *reiters*.

**Dar al-Harb:** (Arabic for ‘House of War’) According to traditional Islam, the realm of the world where the infidel lives.

**Dar al-Islam:** (Arabic for ‘House of Islam’)
According to traditional Islam, the realm of the world where Muslims and protected peoples live.

destrier: (11th–16th centuries) A heavy war horse used by Christian knights during the high and late medieval periods. The finest destriers include Arabian blood acquired via Andalusian or other Spanish breeds. The destrier was
usually a stallion, reaching its largest proportions in the 14 century. The *magnus equus* or ‘great horse’ of the late Middle Ages was a sturdy steed of 17 hands and 1,200 to 1,300 pounds, capable of supporting its own barding and a knight in full plate armour.

*drekkar*: (8th–11th centuries) The largest type of Viking longship, known to history
as a ‘dragon ship’. These larger, taller vessels had a crew of perhaps 80 warriors and were particularly suited for long-range raiding and invasion. *Drekkars* had high, planked decks fore and aft, from which arrows and spears could be rained down on their opponents’ decks. Difficult to manoeuvre in battle, *drekkars* were sometimes
lashed together ‘stem to stem and stern to stern’ to create large, floating battlefields of oak, canvas and rope.

fahnlein: (13th–14th centuries) A subunit (‘little flag’) of the Swiss phalanx, consisting of between 50 and 150 men. The early Swiss phalanx was composed of two or more cantonal contingents called
a banner. Each banner was commanded by its own officers and was subdivided into subunits called fahnleins. Fahnleins were further subdivided in ten-man squads called rotten or sections.

flail: An early agricultural implement used to thresh grain which was modified for war. Essentially a spiked ball (sometimes multiple
balls) and chain attached to a haft, the flail became a contusion weapon of choice for both infantry and cavalry during the medieval period.

*foederati*: (4th–6th centuries) Barbarian allies of Rome who retained their Germanic commanders and were allowed to roam within the boundaries of the empire. Eventually, these barbarian units became
indistinguishable from regular Roman and Byzantine units, who adopted Germanic arms, armour and tactics.

*fossato*: A Spanish term for a major military expedition. During the *Reconquista*, Christian monarchs would pull together a temporary army or host for a military campaign.

*francisca*: (4th–8th centuries)
A finely balanced Frankish axe used both on foot and from horseback as a close-quarter weapon or thrown as a missile.

Garde des Cent Suisses: (15th century) Elite Swiss heavy infantry who served as the French monarch’s personal bodyguard. This hiring signified the dominance of the Swiss heavy infantry tactical system in late
medieval/early modern warfare.

gendarmerie: A French term for lance-wielding heavy cavalry.

General Fyrd (Great Fyrd): (9th–11th centuries) Anglo-Saxon militia. These levies usually fought locally to protect their hearth and home, but as soldiers, they were the least dependable element of the Anglo-Saxon
army. When in combat, the General Fyrd usually occupied the rear ranks behind their more able and better-armed comrades. See also Select Fyrd.

genitors: (15th–16th centuries) Spanish light cavalry who traded in their javelins for bulky crossbows and arquebuses. Ultimately unsuccessful on the battlefield, genitors were
used for strategic reconnaissance, screening and disrupting enemy communications.

_Gewalthut:_ (14th–16th centuries) The main body in a Swiss column. It was usually larger than the vanguard (_Vorhut_) and the rearguard (_Nachhut_), which was usually smaller than the main body. The Swiss drilled, marched and even
advanced to the attack to the sound of the drum, with some authorities stating that the troops marched in cadence.

‘Great Army’ (Viking): A Scandinavian army made up of fleets of hundreds of longships carrying thousands of Viking warriors and led by several Scandinavian kings. Between 865 and 879 and
again between 892 and 896, the ‘Great Army’ plundered England, with the Danes occupying an area known as Danelaw in north-eastern England.

gyula: A Magyar (Hungarian) term for general.

halberdiers: (13th–16th centuries) Soldiers carrying polearms with bladed or axe-shaped heads swung in close-quarter combat. The
Swiss became especially adept with this weapon in their wars against the Austrians. As the late medieval period wore on, the halberdier was slowly replaced by the pikeman as the dominant tactical system of the Swiss.

hauberker: Chain-mail armour which covered the body and arms. It was constructed with tens of thousands of
round metal links. It dates back to the classical period where it was used by both barbarian and civilized peoples. It became very popular in the medieval period.

heavy cavalry: Well-armoured horsemen who use shock combat as their primary way of fighting. Heavy cavalry relied on collective effort to be
effective, and collective effort required discipline and training. Famous examples of heavy cavalry from history are the *cataphractarii* from Persia, *clibanarii* from Rome or Byzantium, and medieval knights.

heavy infantry: Well-armoured foot soldiers who use shock combat as their primary way of fighting.
Like heavy cavalry, collective effort was required. Famous examples of light infantry are Greek hoplites, Macedonian phalanxites, Roman legionaries, Swiss **Auszug** or German **Landsknechts**.

host: An army pulled together on a temporary basis.

huscarles: (10th–11th centuries) Members of the household of a
Scandinavian (later Anglo-Saxon) king or lord, often identified as bodyguards and known for their prowess with long-hafted broad axes. ‘Immortals’: A division (myriad) of 10,000 Persian heavy infantry so named because when a member of this elite group fell, he was immediately replaced by a previously selected man. 

*jagun*: (12th–14th centuries)
A term for a cavalry squadron of 100 men in the Mongol army. See *arban*.

**javelineer:** A light infantryman who wields a javelin. Commanders often used these light troops as skirmishers or for screening the deployment of friendly heavier troops.

**jihad:** (Islamic holy war) In the Islamic faith, literally ‘to struggle in the way of God’.
The ‘greater jihad’ is the personal struggle of a Muslim to maintain his or her faith. The ‘lesser jihad’ is holy war, or spreading Islam into new territories. 

Jihad was often invoked by Muslim rulers to rally political or military support in much the same way the Catholic Church used the concept of the crusade.

jinate: (11th–16th centuries)
A light Spanish cavalry mount equipped with low saddles, shorter stirrups, and specially shaped palate bits for increased control and mobility. This new Spanish light cavalry’s short stirrup and low saddle allowed for quick remounting, and the smaller and faster mounts were better suited to counter the lighter and more agile Muslim light cavalry.
junds: (from the 7th century) A term for non-Arab Islamic units recruited locally. The pace of Islamic conquest forced the Arabs to include more of these units in their ranks. They fought for booty more than ideology, swelling the ranks of Islamic armies in times of victory, and evaporating in times of trouble.

karr-wa-farr: (simulated
flight) A tactic used by Islamic cavalry in Spain and Portugal to lure enemy cavalry into pursuit, only to be ambushed in terrain favourable to the Muslims. The Spanish adopted a similar feigned retreat called torna-fuye.

*keil:* (13th–14th centuries) A Swiss battle square organized in deep files. This tactical array was less a
wedge than a column, narrower than it was deep. When attacked by enemy cavalry, the pikemen in the keil would face outwards and lower their pikes, creating a bristling hedgehog that would be difficult to approach on horseback.

kite shield: (10th–11th centuries) A cavalry shield whose unique shape helped
protect a knight’s leg while he attacked from horseback. It is closely associated with the Normans and is seen numerous times on the Bayeux Tapestry.

*kontos*: (1st century BCE – 6th century CE) A long, two-handed thrusting spear used by heavy cavalry (*cataphractarii* or *clibanarii*) from Parthia, Persia, Rome and
Byzantium.

laager: An encampment created by drawing an army’s baggage wagons into a circle or square. This temporary fortification was often used when camping in hostile territory or served as a base of operations or refuge in battle.

lamellar armour: A type of composite armour consisting of a shirt of
laminated layers of leather sown or glued together, then fitted with iron plates. It was popular with both barbarian warriors and the soldiers of civilization.

lance: 1. A spear used from horseback as a shock weapon, usually in conjunction with a built-up saddle and stirrups. 2. A name for a small unit of knights who usually fought
within a banner.
lance garnie: (13th–15th centuries) The retinue of a knight, usually consisting of a mounted squire and two mounted light infantry archers. The squire carried the knight’s armour on a packhorse, and also tended to the knight’s warhorse, which was never ridden unless in battle.
Landsknechts: (15th–16th
centuries) German mercenaries, known for their flamboyant costumes, who fought in a phalanx using pikes. These troops originally emulated Swiss formations and were capable of offensive action against other infantry formations, and could defend themselves from heavy cavalry attacks. Landsturm: (15th–16th
centuries) A Swiss *levée en masse* of all able-bodied men. It was a reserve force called to arms only in an emergency.

Landwehr: (15th–16th centuries) The primary combat force of the Swiss heavy infantry, composed of men willing and able to leave home if the need arose.

*levée en masse*: A mass
conscription of able-bodied men for warfare.

light cavalry: Light armoured horsemen who used missile combat as their primary way of fighting. These lighter units were less armoured than their heavier counterparts, and consequently had greater tactical mobility. Famous examples of light cavalry are the various horse archers
from the Eurasian steppe (Scythians, Parthians, Magyars, Turks and Mongols) and Spanish genitors.

light infantry: Light armoured foot soldiers who use missile combat as their primary way of fighting. Like the light cavalry, they enjoyed greater tactical mobility. Famous examples of light infantry are
Thracian *peltasts*, Rhodian slingers and English longbowmen.

*limitanei*: (4th–6th centuries) These units were a militia, retired legionaries mustered to defend their homeland. In times of emergency, *limitanei* could be promoted into the field army, receiving the title *pseudocomitatenses*. The complement of these new
units was about one-third of a 1st-century legion.

longship: (8th–11th centuries) A Viking warship. Long, narrow-keeled and flat-bottomed vessels with beautifully carved arched prows, the first longships carried around 35 warriors, though later ships known as *drekkars* could carry a complement of 80 men. They were made of oak
using clinker construction (overlapping planks held together with clinch bolts) with a mast amidships and one bank of oars on each side. Controlled with two steering oars, these vessels had shallow draughts making it possible for them to navigate up rivers and along coastlines, giving the Norse, Danes and Swedes unprecedented strategic
mobility.

long sword: A type of sword usually longer than 30 inches in length and wielded as a cut-and-slash weapon. It became popular at the beginning of the Iron Age for both infantry and cavalry.

mace: One of the earliest weapons. Essentially a long-handled implement with a spiked or flanged ball at the
tip. It was a very effective contusion weapon and became a weapon of choice against plate mail and full plate in the high and late medieval periods.

*mangudai*: (12th–14th centuries) Mongol ‘suicide troops’ (an honourable title more than a job description). The function of these elite cavalry troops was to charge the enemy
position alone and then break ranks and flee in the hope that the enemy would give chase. If the enemy pursued, the Mongols would lead them into terrain suitable for ambush.

Military orders: (12th–16th centuries) Orders sanctioned by the medieval papacy to protect pilgrims on the way to the Holy Land. These well-armed and well-trained
warrior-monks or militia Christi (‘knights of Christ’) became the shock troops for Christian commanders during the crusades. Various orders emerged in this period all over Europe and the Levant, including the Knights Templars, Knights Hospitallers, Knights of Calatrava, Knights of Santiago and Teutonic Knights.
milites: A medieval Latin term for knights, soldiers or ‘men-at-arms’.

minghan: (12th–14th centuries) A cavalry regiment in the Mongol army consisting of 1,000 men. See arban.

missile combat: A form of warfare where participants use ranged weapons (slings, bows, javelins, throwing spears) against the enemy.
Such combat is usually performed by light troops (infantry and cavalry).

motte-and-bailey: (10th–13th centuries) Referring to a type of fortification used by the Normans in their subjugation of England, Wales and Ireland. The motte was a mound of earth built up and usually topped off by a wooden (sometimes stone) tower. The bailey
was an enclosure protected by a ditch, an earth bank and wooden palisade. Since timber was plentiful, these castles were easy to construct. It is estimated that hundreds of these fortifications were erected in the first decades of the Norman conquest of England.

musketeer: (15th–17th centuries) A musket-
wielding light infantryman. This type of soldier used the first reliable handgun in history, a muzzle-loaded smooth-bore weapon.

naccara: (12th–14th centuries) A large kettle-like drum carried by a camel and used by Mongol commanders to orchestrate their army’s movements. Mongol lancers usually advanced at a trot and in
silence. It was only at the last possible moment that the charge was ordered by striking the *naccara*.

**Nachhut:** (14th–16th centuries) The rearguard in a Swiss column. It was usually smaller than the main body or *Gewalthut*.

**Normans:** Originally from Scandinavia, this Viking culture settled in Normandy at the beginning of the 10th
century and adopted both Catholic Christianity and feudalism. Over the next 200 years, Norman warriors successfully invaded and carved out states in Italy, England and the Levant. They were masters of heavy cavalry shock tactics and built castles (first motte-and-bailey and later stone) to dominate conquered regions.
**numeri** (sing. *numerus*): (2nd–6th centuries) A Roman term referring to irregular units from a common ethnic background employed to patrol the *limes*, the guarded and often fortified border in frontier regions. It was also applied to some units of cavalry in the late Roman Empire and early Byzantine periods.

**palatini**: (4th–6th centuries)
Military units in the late Roman Empire and early Byzantine period which were of a higher status and prestige than the *comitatenses*. They often formed part of the field armies.

‘Parthian shot’: A standard nomadic light cavalry manoeuvre where horse archers break formation and gallop toward an enemy
formation firing arrows, then wheel right and retreat, firing over their shoulders back at the enemy. The manoeuvre is named after the Parthians, though all steppe archers practised it. The ‘Parthian shot’ was often used in conjunction with the feigned retreat, pulling enemy cavalry into pursuit, then ambushing them far from their camp.
pavise: A tall body-shield usually used to protect light infantry missile troops (archers, slingers and, later, crossbowmen and handgunners) from attack. The shield’s all-body protection made it ideal for sieges.

Peace of God: (first pronounced in 989) Roman Catholic spiritual sanctions designed to mitigate the
violence of the high Middle Ages. This legislation targeted anyone who plundered or violated a church, struck an unarmed member of the clergy or robbed a peasant. The prohibition was later extended to knights attacking merchants or pilgrims, and destroying mills or vineyards.

*peonias*: Infantry land-grants
made during the Spanish Reconquista. Christian kings granted land to subjects (peones) who were willing to provide the assigned obligation. Peones who became rich enough could become caballeros villanos.

phalanx: A close-order heavy infantry formation with spearmen arranged in rank and file. This formation was
capable of devastating offensive power through the collision and push of its soldiers. There is evidence that this formation dates back to Bronze Age Mesopotamia, though it was certainly perfected by the Greeks and Macedonians during the archaic, Hellenic and Hellenistic periods, and resurrected in the late medieval period by the
Swiss.

pikeman: A heavy infantryman armed with a long-hafted thrusting spear (usually over 12 feet in length) who often fought in rank and file in a phalanx.

plate armour: (15th–17th centuries) Late medieval armour consisting entirely of metal plates to encase the knight. This was done in response to the vulnerability
of mounted lancers to the arrows and bolts of light infantry. Contrary to popular belief, this very expensive armour was custom-fit and allowed the wearer very good mobility, though he may have suffered from poor ventilation.

plate-mail armour: (13th–17th centuries) A transitional armour in late
medieval Europe using metal plates to strengthen chain-mail armour at particularly vulnerable points (such as the shin and knee). This was done in response to the vulnerability of mounted lancers to the arrows and bolts of light infantry. This armour was very cumbersome.

polearm: A long-hafted heavy infantry weapon popular
throughout the history of warfare, designed to be used with two hands against infantry and cavalry formations.

poleaxe: (14th–16th centuries) A short-hafted infantry weapon popular in the Late Middle Ages. It was usually 5 feet long with a metal-sheathed shaft mounted with an axe-head to the front and a hammer or
pick to the rear. This weapon’s versatility allowed it to be used for cutting, crushing or piercing attacks. *pseudocomitatenses*: (4th–6th centuries) The title given to units of *limitanei* who were attached to field armies in the late Roman imperial and early Byzantine periods. *Reconquista*: The nearly 800-year process of Christian armies reconquering the
Iberian peninsula from Islamic occupation (711–1492). This counter-crusade intensified in the mid-11th century when Christian armies swept south through central Spain and Portugal seizing territory. The early 13th-century Christian victory over the Almohads at Las Navas de Tolosa (1212) broke the back of Islamic control of much of
southern Spain, with the last Muslim stronghold at Granada holding out until 1492.

*reiters*: (16th–17th centuries) German cavalry wearing breastplate armour and high, heavy leather boots, and armed with three wheel-lock pistols. This new mercenary light cavalry attacked enemy formations using the revolving tactics of the

caracole.  

rotten: (13th–14th centuries) The smallest subunit of the Swiss phalanx. See fahnlein.  

schiltron (schiltrom): (13th century) A Scottish infantry formation. These battle squares and circles placed countryman beside countryman, each holding a long infantry spear or pike before him to discourage enemy heavy cavalry.
charges. It was employed by the Scottish in their wars of independence against the English.

*Schwarzreiter*: (German for ‘black rider’) A specific type of German *reiter* armoured in a black breastplate. See *reiters*.

*scramasax*: A single-edged sidearm favoured by Indo-European (Germanic and Scandinavian) warriors in
the classical and early medieval periods. Often called a *sax*, this utility knife could take on the dimensions of a short sword.

Select Fyrd: (9th–11th centuries) A body of Anglo-Saxon nobles and freeman organized since the Viking invasions of the 9th century to defend England.

**shield wall**: (9th–11th
centuries) A defensive infantry formation used by Anglo-Saxon and Viking warriors standing in close order, shields overlapping to form an unbroken front. This formation could also open up enough to allow warriors room to throw spears and javelins, and wield spears, axes and swords.

shock combat: A form of
warfare where participants use close-quarter weapons (swords, axes, maces, thrusting spears) against the enemy. This combat is usually performed by heavy troops (infantry and cavalry) and most often in well-articulated formations.

short sword: A type of sword usually shorter than 30 inches in length and wielded as a thrusting weapon. It is
the first sword design in history and became popular for infantry at the beginning of the Bronze Age.

skeggox: (8th century) An early type of Scandinavian battleaxe. The *skeggox* (‘bearded axe’) took its name from the asymmetrical shape of the axe blade. Viking axes usually began as dual-purpose implements used as both tools and
weapons. Later, the Vikings would develop axes used exclusively for war (see *breidox*).

*spangenhelm*: An Indo-European open-faced helmet conical in shape and characterized by its composite construction. It gets its name from the *spangens* or metal bands. It consisted of a framework formed by a single
headband on which were attached six or more *spangens*. This framework was then filled with either metal or horn plates, creating a strong and comfortable helmet. It was used by Germanic tribes, Viking warriors and Norman soldiers in the medieval period.

*spatha*: (1st–6th centuries) A long sword originally used
by Roman and auxiliary cavalry and, later, infantry. Though the *spatha* was pointed for thrusting, it was usually utilized for cut-and-slash strikes, emulating the favoured tactics of the Germanic tribes.

spearman: A warrior who uses a spear. A spearman can be heavy infantry if he uses his spear as a shock weapon or light infantry if
he throws his weapon as a missile.

squire: (11th–16th centuries) A knight in training. Indoctrination into knighthood began at puberty with a long residency and training among peers in the household of a great lord. The young squire was taught how to choose and look after a mount, as well as how to ride. He was also
instructed in the use of a wide variety of weapons, such as the spear, sword and shield, axe, mace and flail, as well as unarmed combat such as wrestling. Once he could manage a horse he learned how to hunt, a valuable skill which taught the use of terrain and available cover, and select lines of advance. Mounted combat was emphasized.
strandhogg: (9th–11th centuries) A Viking shore raid where warriors would beach their longship, round up cattle and sheep, then sail off. This form of medieval livestock rustling was even done in Scandinavia itself until it was outlawed by the rise of centralized monarchies in the 9th and 10th centuries, forcing the strandhogg into foreign
waters.

**tagmata**: (7th–15th centuries)
The core of the Byzantine army, consisting of professional soldiers organized in homogenized cavalry or infantry units. The *tagmata* were equal to the size of the *thema* (4,000–9,600 men). These soldiers were the best-trained troops in the empire, serving as Constantinople’s
garrison and as the chief expeditionary force for the emperor. When the emperor went on campaign, the *tagmata* and local *themae* combined to create a field army.

**tercio:** (16th century) A Spanish tactical system containing 3,000 men divided into three *colunelas* of 1,000 men (12 companies of 250 men apiece). It
integrated pikemen and arquebusiers into one battle square, creating the most formidable tactical system in Europe.

thegn: (9th–11th centuries) A military class of Anglo-Saxon nobles. They could be members of the households of kings, or lesser nobles and/or landowners of 100 acres or more who were obligated to
serve in the English army during wartime or a military emergency once per year.

**thema**: (7th–15th centuries) A Byzantine division of between 4,000 and 9,600 men commanded by a *strategos*. The *thema* replaced the legion as the premier strategic unit of manoeuvre in Byzantine warfare. The soldiers of a particular frontier province
(theme) were the legal holders of the land itself, a development that came in the form of imperial land grants within the particular region, similar to the land grants during the early Roman Empire. Although the soldiers did not work the fields or run farms on a full-time basis, their ownership brought about a personal stake in the defence of their
respective theme. 

*torna-fuye*: (11th–16th centuries) A Spanish term for a feigned retreat tactic favoured by *jinetes.*

*trace italienne*: (16th–17th centuries) An early modern European fortress specifically designed to defend against gunpowder technologies. It consisted of a ring of polygonal bastions designed to project from
sloped walls and serve as a screen and gun platform. The bastion system was enhanced by ditches and detached forts.

Truce of God: (pronounced in the early 11th century) A second Catholic Church sponsored movement, which, along with the ‘Peace of God’, was designed to reign in the violent tendencies of the
knightly class. The ‘Truce of God’ asked the mounted aristocracy to forgo the pleasure of war on Thursdays, Fridays, Saturdays, Sundays and holy days, and to refrain from acts of violence at all times in and around churches.

*tuman: (12th–14th centuries)*

The largest unit in the Mongol army, consisting of
10,000 men. Mongol commanders often pulled together numerous tumans as field armies. See arban. Turcopoles: (12th–13th centuries) Indigenous mercenaries of the Levant who served western Christian knights as mounted archers and other types of light cavalry. These troops, often the product of Christian and Muslim
marriages, became a standard feature of crusading warfare, serving as large native contingents in the armies of lay rulers and the military orders, while often retaining their own officers.

(7th–11th centuries) A Byzantine combined-arms force consisting of between five and eight *banda* (2,000–3,200 cavalry and infantry).

Varangian Guard: (10th–11th centuries) Russo-Swedish and Scandinavian mercenaries in the service of the Byzantine emperor. Many of these Vikings returned to Scandinavia to
carve out kingdoms.

Vikings: Scandinavian warriors, from Norway, Denmark and Sweden. Their movements constitute the final wave of Indo-European migration. Warriors, traders, superb shipbuilders and sailors, the Vikings pushed south from their homeland in their trademark longships and attacked the whole of
Europe between the 8th and 11th centuries.

**Vorhut:** (14th–16th centuries) The vanguard in a Swiss column, often including skirmishers armed with crossbows or handguns. The van was followed by a main body or **Gewalthut** much larger than the advance guard, and a rearguard or **Nachhut**.

**Waldstaaten:** (medieval
period) Swiss forest canton militia. According to Germanic tradition, all able-bodied men were required to participate in the self-defence of their cantons.

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