

Hexkit Strategy Game System

The Battles of Crécy and Poitiers

Christoph Nahr
christoph.nahr@kynosarges.de

Abstract

This document describes two scenarios (with variants) based on the battles of Crécy and Poitiers during the Hundred Years War. The scenarios themselves ship with Hexkit, a construction kit for turn-based strategy games.

The current versions of the Hexkit software packages and related documents are available at the Hexkit home page, <http://www.kynosarges.de/Hexkit.html>. Please consult the ReadMe file included with the binary package for system requirements and other information.

Online Reading. When viewing this document in Adobe Reader, you should see a document navigation tree to the left. Click on the “Bookmarks” tab if the navigation tree is hidden. Click on any tree node to jump to the corresponding section.

Moreover, all entries in the following table of contents, and all phrases shown in blue color, are clickable hyperlinks that will take you to the section or address they describe.

Revision History

Revision 2.0, published on 27 September 2009

Enhanced to cover the initial release of the Poitiers scenario with Hexkit 4.2.0.

Revision 1.0.4, published on 27 June 2009

Changed visual appearance of open terrain (again) in Hexkit 4.1.5.

Revision 1.0.3, published on 24 December 2008

Changed visual appearance of sloping terrain in Hexkit 4.0.0.

Revision 1.0.2, published on 10 June 2008

Added spontaneous rallying of routed units, introduced with Hexkit 3.7.2.

Revision 1.0.1, published on 02 June 2008

Slight stylistic revision, coinciding with the release of Hexkit 3.7.1.

Revision 1.0, published on 28 April 2008

Based on the initial release of the Crécy scenario with Hexkit 3.7.0.

Table of Contents

Chapter 1: Introduction.....	1
1.1 The Hundred Years War	1
1.2 The Crécy Campaign	1
1.2.1 Military Evaluation	2
1.3 The Poitiers Campaign.....	3
1.3.1 Military Evaluation	4
Chapter 2: Battle of Crécy.....	5
2.1 The Armies	5
2.1.1 English Army	5
2.1.2 French Army	6
2.1.3 Discipline	7
2.1.4 Morale.....	8
2.2 The Battlefield.....	9
2.2.1 Map Scale	9
2.2.2 Time Scale	11
2.2.3 Unit Size	11
2.3 Controversies	11
2.3.1 The Steep Bank on the Eastern Side	12
2.3.2 The Formation of the Longbowmen	12
2.3.3 The Range of the Longbow	13
2.3.4 The Failure of the Crossbowmen	14
Chapter 3: Battle of Poitiers.....	15
3.1 The Armies	15
3.1.1 English Army	15
3.1.2 French Army	16
3.1.3 Discipline and Morale	17
3.2 The Battlefield.....	17
3.2.1 Map Scale	19

3.3 Controversies	19
3.3.1 The Famous Hedge	19
3.3.2 The Belated Crossbowmen	20
Chapter 4: Scenario Reference.....	21
4.1 Units and Terrains.....	21
4.1.1 Unit Types.....	21
4.1.2 Unit Variables.....	21
4.1.3 Terrain Types	22
4.1.4 Terrain Variables.....	24
4.2 Combat System	24
4.2.1 Combat Phases.....	25
4.2.2 Damage Calculation	26
4.3 Scripted Behavior	27
4.3.1 English Player.....	28
4.3.2 French Player (Crécy).....	28
4.3.3 French Player (Poitiers)	29
Bibliography	30

Chapter 1: Introduction

The battle of Crécy on 26 August 1346 was the first pivotal battle during the Hundred Years War, and remains one of the most famous battles of the entire Middle Ages. The battle of Poitiers on 19 September 1356 brought a very similar situation to an even more decisive outcome.

While admittedly not very interesting from a tactical viewpoint, the historical significance of these battles has attracted much attention from academics, and occasionally from novelists and even game designers. The following chapters describe the two battlefields and how the scenarios attempt to capture the historical situation. But first let's see what the fight was all about.

1.1 The Hundred Years War

The so-called “Hundred Years War”, commonly fixed between the years 1337 and 1453, was in fact a succession of separate campaigns to determine who should rule France, or at least own much of her land. The parties in this dispute were two branches of French nobility, one of whom also happened to have conquered part of a nearby island some while ago.

That side was originally represented by King Edward III of England, also Duke of Normandy, Duke of Guyenne, Count of Ponthieu, and nephew of the late King Charles IV of France. On the other side we have Count Philip of Valois, later known as King Philip VI of France, cousin of Charles IV with whom he shared the same grandfather, King Philip III. Charles IV had died without sons in 1328, leaving these remoter relations to contend for the throne. Thus ensued a long struggle far too long and complicated to describe here; see Christopher Allmand's book [\[Allmand1988\]](#) for an excellent overview of the war and its causes and consequences.

The conclusion of the war seems pyrrhic – England was defeated and France was devastated. Yet the social, political and military changes triggered by the long conflict greatly accelerated the development of both societies and ultimately created the first modern nation-states.

England was kicked off the continent which turned out to be a blessing, as she concentrated on the subjugation of the British isles and on the development of her economic and naval power. France's nobility was humbled if not eradicated by the war, paving the way for a centralized state and an efficient administration that could utilize her resources far better than any feudal regime. In both countries, the Hundred Years War fostered early nationalism and considerable military expertise. Thus one might say the war started France and England on the path that would eventually make them, for a time, the most advanced and powerful nations on the planet.

1.2 The Crécy Campaign

After the failure of a peace conference in 1344, Edward embarked on another campaign through northern France in July 1346. His force landed in Brittany which was disputed between two would-be dukes who had aligned themselves with Edward and Philip, respectively.

The campaign led through French-controlled Normandy on a so-called *chevauchée*, an expedition that comprised a deliberate devastation of the country, intended to weaken France and to undermine Philip's authority as the protector of his people. After going south as far as Paris, the campaign ended at the Channel port of Calais in Flanders, opposite of Dover, which fell after a year-long siege on 4 August 1347. Whether this had been Edward's original goal is unclear.

Livingstone and Witzel [LivWit2005] describe the entire campaign in great detail. We'll focus instead on what happened just south of Calais, near the town of Crécy-en-Ponthieu, when the French army finally caught up with the English expedition force.

Whether Edward intended this meeting is once again unclear. His force was sufficient for the chevauchée and a few sieges but not really large enough for an open battle against the full power of France and her allies. On the other hand, Edward must have known that his expedition would provoke Philip into action. Conceivably he gambled on forcing the cautious French king into a disadvantageous tactical position, which exactly describes the battlefield at Crécy.

There was another Anglo-Flemish army under Count Henry of Flanders simultaneously marching from Ghent towards Normandy. Burne [Burne1955] speculates that Edward wished to join the two armies before engaging the French, but this goal seems rather too ambitious for two medieval armies separated by such distances. In any case, the second army was delayed at the river Lys, unsuccessfully besieged the Flemish town of Béthune during August 1346, and then returned home without having accomplished much of anything.

Philip had been following Edward for a while, but so far the two armies had not found a battleground that suited them both. The gentle hills near Crécy offered a defensive position that was acceptable to the English but not so obviously impregnable that the French would have declined battle. Moreover, the county of Ponthieu was the personal possession of Edward's mother, and several English knights were familiar with the terrain from previous visits.

What followed was, in short, the complete rout and slaughter of the assembled French and European knights that had answered Philip's call. We'll leave the details to the following chapter and instead discuss briefly the military significance of this surprising result.

1.2.1 Military Evaluation

Regardless of whose numbers you believe, the French had at least three times as many men-at-arms as the English, all mounted and of no worse quality, and they matched the English longbowmen with a corps of professional Genoese crossbowmen. Their enemy was aided only by field fortifications and a few primitive cannons. It sounds impossible that the French should lose, and it certainly seemed impossible to Philip and his allies on 26 August 1346.

So how could it happen anyway? Conventional wisdom calls the battle of Crécy the "triumph of the longbow", as if that unique English weapon was alone responsible for the victory. But as Hans Delbrück [Delbrück1923] points out, such praise is somewhat exaggerated. While undoubtedly effective, the longbow was not a miracle weapon.

Edward found three key components that enabled the victory of his archers at Crécy: a strong defensive position; a time of day and orientation relative to the French advance that goaded the French into a premature attack; and having his knights dismount and mingle with the archers, thus providing them with the physical protection and moral support necessary to fully exploit the first two advantages.

Taking for granted the weaker side's need for a defensible position, we can thus identify the following relatively new aspects of medieval warfare that appeared at Crécy:

1. Exploit the chivalrous instincts of your enemies. When the French became aware of Edward's deployment, they knew their entire army could not execute a coordinated attack on the same day, but the leading knights decided to attack anyway.

Nor did they bother to coordinate the efforts of those who were present. They sent their unprotected crossbowmen ahead to perish uselessly, and they apparently never attempted to envelop the English flanks. Wave after wave of hapless men-at-arms obligingly hurled themselves straight at the English line.

What England had and France lacked was a prudent commander who decided the best time and strategy for the battle, rather than letting his knights charge at will.

2. Suppress the chivalrous instincts of your friends. The English knights did not charge the enemy on horseback, leaving their archers to fend for themselves as the French did. Instead, they let the common soldiers do the bulk of the killing, and merely acted as their bodyguards to ensure their safety and effectiveness.

Thus Edward employed his troops to the best effect of the available weapons, even though that strategy disagreed with the chivalric code of honor.

3. Strong ranged weapons rule the battlefield. The crossbow was fearsome enough but severely hampered by its low rate of fire, and thus limited to the traditional skirmisher role. Edward's newer weapons brought a taste of things to come: the longbow with its much higher rate of fire, approaching non-automatic rifles; and the cannon with its much greater power and devastating effect on enemy morale.

Cannons soon became ubiquitous, and so did handguns based on gunpowder. The hard-to-use longbow vanished again, but hand cannons evolved into muskets and rifles, eventually making hand-to-hand combat obsolete.

Ultimately, these changes contributed to the end of medieval chivalry. There are many other causes for this slow development, including the replacement of feudal levies and hierarchies with professional armies; the long pike that could effectively deter a charge by armored horsemen; and heavy cannons that could easily shatter the castles of minor lords. But nothing highlights the superiority of disciplined soldiers with ranged weapons over a larger force of valorous but poorly led knights like the battle of Crécy.

1.3 The Poitiers Campaign

The Hundred Years War languished for several years following the victory of Crécy, also due to an epidemic of the bubonic plague. King Philip VI of France died on 22 August 1350 and was succeeded by his eldest son, John II the Good. However, a permanent settlement could not be achieved and the skirmishing continued. Finally, after the failure of yet another peace conference in early 1355, Edward III once again planned to invade France in force.

His own campaign started in Calais but ended abruptly due to a Scottish attack on northern England that forced his early return home. Henry Duke of Lancaster was supposed to attack Normandy but that plan fell apart when England's ally, Charles King of Navarre, pulled out. That left Edward Prince of Wales, the "Black Prince", who had already fought valiantly at Crécy. Until the end of the year, he conducted a successful chevauchée from Gascony into Languedoc.

Fortunately for the English, King John had Charles of Navarre arrested for treason in April 1356. His brother Philip promptly allied with King Edward, allowing the Duke of Lancaster to resume his abortive campaign into Normandy in June 1356. The Black Prince had been raiding the land surrounding the Aquitaine in southwestern France. He was now ordered to strike north and attempt to join with the Duke of Lancaster's forces moving southward.

This did not come about. Instead, the northern expedition force was eventually reached by a superior French army under King John, and barely managed to escape by stealing a night march. The southern expedition force continued northward until stopped by the river Loire and the fortified city of Tours. Having heard nothing of the Duke of Lancaster, Prince Edward now decided to end his own (otherwise successful) chevauchée and return to Bordeaux.

Meanwhile, news of the Black Prince's advance had reached the French king, and after losing sight of the northern raiders he now marched south to meet this new threat. His exact progress is unclear but he managed to overtake the retreating English army and install himself at Poitiers by 18 September 1356, blocking the road to Bordeaux. Negotiations conducted by the Cardinal of Périgord predictably failed, and on the following day battle ensued.

1.3.1 Military Evaluation

The battle resulted in an even worse disaster than Crécy for the French. Not only was their army once again destroyed, but the English also managed to capture King John II and proceeded to extort a vast ransom in gold and various territorial concessions for his release. A series of treaties ended the first phase of the Hundred Years War in England's favor.

From a military perspective, however, Poitiers showed the French slowly coming to grips with the modern English tactics. John had realized that a traditional cavalry charge amounted to suicide against entrenched longbowmen. He consequently attempted to minimize casualties by having his army attack on foot, thus presenting smaller and "harder" targets.

That was a sound idea which did put the English line in considerable danger for a while, but Edward was able to save the day with a flanking cavalry charge. Once again the English possessed the discipline and unity of command that the French lacked, as shown by the outright desertion of the Duke of Orléans. In addition to the conclusions drawn from the battle of Crécy, Poitiers highlights several flaws of the French army's traditional medieval tactics:

1. Feudal rank and family matters must yield to military considerations. John put his younger brother and two youngest sons in charge of the crucial second division – and they promptly deserted when it was their turn to charge the English lines. We must assume that their soldiers also left the battlefield, although some returned later.

If John felt that the entire royal family should be present at the battle, he should have placed its untested and unreliable younger members in the rear where they could watch in safety and engage only in case of impending victory.

2. Cavalry can only play a supporting role in the face of strong ranged weapons. While John realized that new tactics were needed to deal with the English longbows, his changes did not go far enough.

John reduced his cavalry to about the same number as Edward, but whereas the latter prudently withheld his mounted corps for a final and decisive flanking attack, the French cavalry was wasted in a traditional shock attack against the entrenched English longbows. Instead, they should have stayed behind to guard the flanks of the French army against the eventual English counterattack.

3. Suppression fire is required to charge entrenched positions. Amazingly, the French yet again mismanaged their crossbowmen, their only weapon that could counter the longbow. Apparently concluding from the defeat at Crécy that crossbowmen were useless, John kept them with his own rearguard, perhaps to cover a retreat.

But the crossbowmen at Poitiers had their pavises at hand which actually rendered them very capable of holding their own against the English archers. Alas, this was not discovered until they were finally allowed to engage – when most of the French army had already been routed.

Chapter 2: Battle of Crécy

This chapter describes the historical situation at the battle of Crécy, as far as modern research could reconstruct it from the few surviving contemporary sources. With each section, we also note the corresponding representations and abstractions used by the scenario.

2.1 The Armies

Contemporary sources for medieval and earlier battles tend to be few and unreliable. Army sizes in particular are often greatly exaggerated. We are unusually lucky with regards to Crécy since we can use partial copies of the English payroll as a starting point for our estimates.

2.1.1 English Army

Andrew Ayton provides a detailed breakdown of the English contingents based on the payroll maintained by Walter Wetwang, keeper of the King’s Wardrobe [AytPre2005-5]. Unfortunately the actual payroll is lost, so Ayton had to attempt a reconstruction from incomplete copies. He notes that the list of contingents should be reliable; the number of men in each less so, though they are “probably in the right order of magnitude.”

David Nicolle [Nicolle2000] and Christopher Rothero [Rothero1981] roughly match Ayton’s reconstructed count of men-at-arms (i.e. dismounted knights and their squires) but assume much larger numbers of longbowmen and Welsh spearmen. Table 1 shows the various estimates, as well as the numbers ultimately chosen for the scenario.

Source	Longbowmen	Men-at-arms	Spearmen	Total
Ayton	2,271	2,483	528	5,282
Nicolle	5,500	2,250	1,250	9,000
Rothero	8,000	2,700	2,000	12,700
Scenario	2,200	2,400	800	5,400

Table 1: English Army Estimates (Crécy)

The scenario closely follows Ayton’s research, although with a few more spearmen. Some writers assume a larger archer corps on the basis that there should be at least as many English longbowmen as Genoese crossbowmen; but *their* number is greatly exaggerated by the contemporary sources, as we’ll see in the next section.

Scenario Model. The English player commands 39 units all told. There are 22 longbow units à 100 men, and 16 infantry units à 200 men for the men-at-arms and spearmen. Section “Unit Size” on page 11 explains the rationale behind these unit sizes.

Additionally, one cannon unit with three shots represents the three immobile single-shot cannons which reputedly terrified the French quite a bit.

The twelve units representing the 2,400 men-at-arms carry the names of the most notable commanders present on the battlefield.

Right Wing (Vanguard) — Edward Prince of Wales, the “Black Prince”, son of Edward III; William Bohun, Earl of Northampton, constable of the army; Thomas Beauchamp, Earl of Warwick, marshal of the army; Bartholomew Burgerssh, senior.

Center Wing — King Edward III of England; John de Vere, Earl of Oxford; Godfrey de Harcourt; Hugh Despenser.

Left Wing (Rearguard) — Thomas Hatfield, Bishop of Durham; Richard Fitzalan, Earl of Arundel; Robert Ufford, Earl of Suffolk; William Clinton, Earl of Huntingdon.

Our center wing deviates from the historical documents. Edward did not lead a unit in the field, and Despenser was assigned to the rearguard.

The king observed the battle from the famous windmill on the western ridge of the Vallée des Clercs. The windmill is present on the map but we put Edward in charge of his own field unit, just for fun and flavor. Losing him is not a defeat condition, however.

2.1.2 French Army

If the English numbers are questionable, the French numbers are simply unknown. No payrolls of the battle survive, allowing chroniclers to indulge in romantic fantasies of Thermopylae-en-Ponthieu: gigantic French hosts shattering on the indomitable English defense!

We do know that the French army was composed of Genoese mercenaries armed with crossbows; a fairly large body of mounted men-at-arms from all over Europe, led by King Philip VI of France; and an amorphous rearguard of poorly equipped commoners who were either drafted or tagging along for an opportunity to loot the dead. [Table 2](#) shows the contemporary estimates for these contingents by Jean Froissart and Richard Wynkeley, as reported by Bertrand Schnerb [[AytPre2005-7](#)] and many other authors.

Source	Crossbowmen	Men-at-arms	Commoners	Total
Froissart	15,000	20,000	60,000	95,000
Wynkeley	6,000	12,000	60,000	78,000
Nicolle	6,000	7,000	14,000	27,000
Scenario	2,000	6,400	0	8,400

Table 2: French Army Estimates (Crécy)

Needless to say, these figures are wildly implausible. Even the less fantastic estimate by David Nicolle [[Nicolle2000](#)] contains an improbably high number of crossbowmen. As Schnerb notes, the *entire* kingdom of France had only 2,000 crossbowmen on its payroll in September 1340, and it is unclear whether all of northern Italy could have provided 6,000 mercenaries.

The scenario uses Schnerb’s payroll data for the number of French crossbowmen. This figure roughly matches the strength of English longbowmen, and should be a fairly realistic upper limit for the mercenary force the French could have brought into battle.

On the other hand, the number of men-at-arms probably did exceed those on the English side by a fair margin. Philip enjoyed the support of numerous wealthy vassals, friends & relatives who might well have provided five to ten thousand knights and squires between them.

The number of commoners is impossible to estimate, but fortunately also irrelevant. By all accounts they never even participated in the battle. Some unfortunate souls camped in the near-

by woods, expecting to meet a victorious French army in the morning – only to be butchered by English scouting parties. Most simply dispersed when the battle was lost.

Scenario Model. The French player commands a total of 52 units. There are 20 crossbowmen units à 100 men, and 32 cavalry units à 200 men (and horses).

Two of the twenty Genoese units carry the names of their mercenary commanders, Carlo Grimaldi “il Grande” and Otto Doria. Only these commanders can rally Genoese units.

The French and allied men-at-arms are arrayed into three wings and a rearguard, although historically they probably just went into battle as they arrived from the march column. Nineteen of the French cavalry units are named after commanders and other present nobles.

Left Wing — King John the Blind of Bohemia, Count of Luxembourg; *Count John of Aumale; *Count Guy of Saint-Pol; *John de Hainault.

Center Wing — Count Charles of Alençon, Philip’s brother; Duke Rudolf of Lorraine; Count Louis of Blois, Philip’s nephew; Count John of Harcourt; Louis de Nevers, Count of Flanders, Philip’s cousin.

Right Wing — Prince Charles of Bohemia, John’s son; *Count John of Auxerre; the *Lord of Aubigny; the *Lord of Montsault.

Rearguard — King Philip VI of France; Edward de Beaujeu, marshal in 1347; Charles de Montmorency, marshal; Guy de Nesle, Lord of Mello, marshal; Robert Bertrand de Bricquebec, marshal; Robert de Wavrin, Lord of Saint-Venant, marshal.

According to Bertrand Schnerb [[AytPre2005-7](#)], chroniclers of the battle of Crécy name thirteen of these nobles as leaders of “batailles”, although it is not clear whether all marshals were present. The other six nobles, marked with an asterisk, are also mentioned by Froissart but their status and position within the army is unknown. We put them in the outer wings.

2.1.3 Discipline

Medieval warriors in general, and the French knights at Crécy in particular, have a reputation for severely lacking military discipline. The assumption is that they were hotheaded and willful, caring only about their status, honor, and personal gratification, and frequently acting against caution, reason, and even the orders of their designated field commanders.

Whether by Philip’s own decision or at the request of his nobles, the French army attacked the English position on the afternoon of 26 August. They did not wait for the next morning, even though the army was not yet fully assembled and the crossbowmen were tired and unprepared. That was certainly a fatal strategic blunder that fits our preconception of these knights, but we must ask how much their impetuous attitude would realistically affect the battle itself.

I believe there is only one way how better tactics could have saved the French army, namely by circumventing the English defenses and attacking the flanks of the English line near the towns of Crécy and Wadicourt [[Burne1955](#)]. But assuming the local terrain and the English defenses would have allowed such a two-pronged attack, the French knights would likely have resisted the dishonor of an indirect approach. The scenario allows this option anyway since it is the only path to victory for the French army, and thus makes the game more interesting.

But once an approach was decided and the battle was joined, would discipline matter at all? I think not. Crécy was a relatively simple battle in a confined space. There was no particular weak point in the English line, no pivotal unit whose defeat would cause the English army to collapse. In a valley that was crammed with soldiers on both sides, charging the nearest enemy seems as good a choice as any. The soldiers’ response to any specific commands, or lack thereof, would seem to make no big difference to the outcome.

Speaking of discipline, Froissart mentions that Charles of Bohemia had arrived late to the battle – and promptly left when he realized which way it was going. He clearly did not feel obliged to stake his life on a losing cause. The scenario ignores such events and simply assumes that the available units represent those knights who actually did fight. Once engaged, none of the French men-at-arms appear to have deserted before the battle was definitely lost.

The situation is much clearer on the English side. Defending a fortified position is the only viable choice for a smaller army with an advantage in ranged weapons. Edward reputedly had a good grip on his soldiers, but in any case his strategy was so obviously without alternative that only a fool would have left his position for an unauthorized sortie. Accordingly, no breaches of discipline are documented on the English side.

Scenario Model. The scenario does not simulate variable discipline. All units always obey all orders, unless they are demoralized and retreating (see next section). Prince Charles of Bohemia is present on the French side, despite his historical desertion, since we have too few individual names for French units anyway.

When scripted behavior is enabled in the game options, computer-controlled factions will reproduce historical tactics as follows: all English units will remain behind their line of obstacles until the English archers run out of ammunition, and the French knights will advance only after the French crossbowmen have been routed.

The scenario also uses a fairly restrictive “zone of control” (ZoC) system that prevents units from hopping around the battlefield in their quest for optimal targets. Every unit projects a ZoC on the six hexagons around its own hexagon. Moving units can *leave* an enemy ZoC, or they can *enter* an enemy ZoC, but they cannot move within or between enemy ZoCs. Demoralized units cease to project a ZoC until they have been rallied.

2.1.4 Morale

Regardless of their basic willingness to obey commands, most soldiers will retreat in the face of disastrous casualties to their unit and stay out of combat until they have recovered. Accordingly, one important task of leaders is to rally their units and restore their shattered morale.

With this in mind, we make the following simplified assumptions about the soldiers fighting at Crécy with regards to their combat morale:

English Knights — The English nobles are loyal to their king and his cause, and they fight for their very lives, facing a stronger enemy and cut off from supplies or reinforcements. Their morale is hard to shatter and quickly restored.

French Knights — The French nobles broadly falls into two groups. On one hand we have the king and his marshals, nearly as highly motivated as the English by the challenge to their status and authority. On the other hand we have a larger number of knights who fight only to discharge their duty to their relative or liege lord, and to earn some fame in the chronicles. These are much more susceptible to morale failure.

Hired Soldiers — The English archers, the Welsh spearmen, and the Genoese crossbowmen are paid for their participation and have no personal stake in the battle. They rout quickly as casualties mount, and will flee the battle entirely if not rallied. Moreover, the Genoese will only listen to their own commanders, not to the French lords.

Historically, the French knights appear to have retreated and regrouped several times in the face of heavy losses, and the Genoese mercenaries never rejoined the battle after their early rout. King Philip VI himself fought on until his force was virtually annihilated and John of Hainault led him away, according to Froissart.

English morale appears to have remained high throughout the battle. The archers and spearmen, backed up by the nearby men-at-arms, did not waver under enemy attack. However, we can reasonably assume that they, too, would have routed in the face of devastating casualties.

Scenario Model. All units start out with a morale value of ten that drops in proportion to the casualties suffered by the unit. All English knights, the six French leaders, and the two Genoese commanders also have a morale modifier that increases their own morale, and that of all units in the same hexagon or in any surrounding hexagon, by two points per turn. English knights can only rally English units, French leaders can only rally French knights, and Genoese commanders can only rally Genoese crossbowmen.

When a unit's morale has dropped to zero, it retreats towards its faction's wagon park. Routed units stop responding to commands, they no longer project a zone of control, and they lose the ability to rally other units. The morale of English and French knights is fully restored once they have reached their wagon park. French knights also receive fresh horses on the occasion.

Longbowmen, spearmen, and crossbowmen are removed from the game if they reach their wagon park without being rallied: they have had enough and flee the battle entirely.

All routed units have a chance to spontaneously recover their morale if their side has at least twice the total manpower of their remaining opponents. The chance is proportional to the actual difference in total strength, simulating the soldiers' sudden realization that there is no reason to run away since they are on the winning side.

There are no penalties for morale values between zero and ten. We assume that there is no such thing as reduced combat effectiveness in a medieval *mêlée*, at least not for long. Soldiers would either fight as ferociously as they could, or they would break and run (or get killed).

2.2 The Battlefield

There are many maps of the historical battlefield of Crécy, both in printed form and as image files on the Internet. The one on which I based the scenario was created by the USMA Department of History [USMA-History] and is shown in Figure 1. This map is fairly detailed, includes a measure and three levels of elevation, and shows much of the terrain surrounding the actual battlefield. A few missing details were added from other maps, namely Edward's windmill and the monastery and wood of Crécy-Grange, near the English wagon park.

Sir Philip Preston reproduces a recent French survey map that shows the area around Crécy in extreme detail [AytPre2005-3]. Alas, its resolution is far too fine for our coarse hexagon-based scenario – some of the elevation lines mark differences of a single meter! Besides, it is unclear how closely this map reflects the terrain conditions in 1346. Regardless, I consulted this map to smooth out the three-level slopes denoted by the USMA map.

2.2.1 Map Scale

To turn the USMA map into a hexagon map, I first printed the image file and then superimposed a transparent hexagon grid. This grid was created by the "Save & Print Grid" utility of my Tektosyne library, available for free download at <http://www.kynosarges.de/Tektosyne.html>.

When the USMA map is scaled to a printed DIN A4 page, the measure's 1,000 yards or 914.40 meters equal about 5.35 cm. Conversely, 1 mm on the printed map equals 17.0916 meters. Note that Figure 1 is scaled to a smaller size, to accommodate the margins of this page layout.

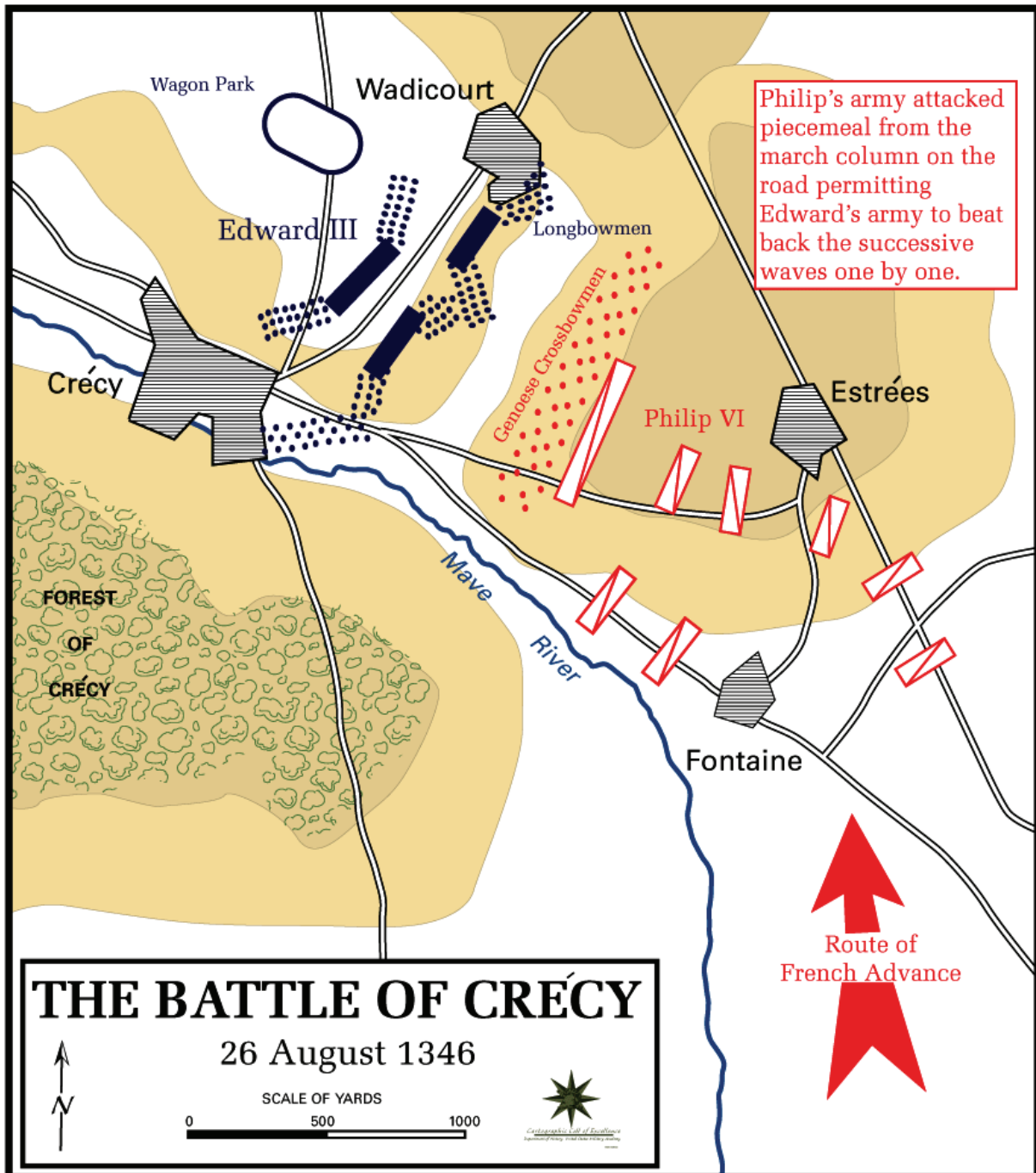


Figure 1: The Battlefield of Crécy

The map grid contains 80 columns by 65 rows of hexagons lying on a side, with the second column shifted downward compared to the first column. The grid does not quite cover the entire USMA map – some empty space around the corners was trimmed.

One hexagon of the map grid has a side length of $\frac{6}{100}$ inches or 1.524 mm. In world coordinates this translates to a side length of 26.05 meters. The distance between two vertices is 52.10 meters (2×26.05 m), and that between two edges is 45.12 meters ($\sqrt{3} \times 26.05$ m). The area covered by a single map hexagon evaluates to $3,525 \text{ m}^2$. Finally, the entire map grid covers an area of $7.23'' \times 6.81''$ or $3.14 \times 2.96 \text{ km}^2$.

2.2.2 Time Scale

Establishing an accurate time scale for the scenario is basically impossible since actions are not only chopped into discrete hexagons but also into alternating turns. However, we can say that one turn corresponds roughly to one minute of real time. This minute is divided into one combat action and/or one movement action. Combat actions are either *mêlée* attacks, three longbow shots, or one crossbow or cannon shot.

All foot soldiers have a movement range of three hexagons per turn, or about 150 meters. Assuming an actual maximum speed of 10 km/h, this distance would take 54 seconds to traverse. This evaluates to a total turn time of maybe 20–90 seconds, depending on the actions taken.

For mounted troops, we simply double the movement speed of foot soldiers. While far from the top speed of a galloping racehorse, 20 km/h seems a reasonable estimate for the charge of a heavily armored and burdened warhorse.

Obviously, this time scale clashes with historical reality when extended over the whole game. The fighting at Crécy went on for many hours, well into the night – but a full game shouldn't take more than 30 turns, or one simulated hour at most.

We make the realistic assumption that most of the time during the actual battle was spent waiting – for new reports and commands, for units to regroup, or simply to catch one's breath. The scenario does not simulate fatigue or command delays, and units recover their full morale within five turns near a commander. Morale is recovered instantly at the wagon park, along with fresh horses for French knights. These abstractions should account for the time difference, as well as make the game more playable.

2.2.3 Unit Size

Assuming that a horse occupies at least $2 \times 4 \text{ m}^2$ and a fighting man at least $2 \times 2 \text{ m}^2$, one hexagon may contain up to 440 horses or 880 men. For the scenario we round down these limits to 400 cavalry or 800 infantry per hexagon. Multiple units may occupy the same hexagon, up to the size limit of 800 infantry. One cavalry soldier counts as two infantry soldiers for the purpose of size calculations.

The starting size for all *mêlée* units is 200 men. This number is sufficient for a battle line that is several ranks deep across the entire diameter of a hexagon (about 50 meters), and enables the English player to stack different troop types in the same hexagon in anticipation of the French cavalry charge. Note that the initial English deployment puts the English men-at-arms one step behind the English archers because the crossbowmen precede the cavalry charge, and it makes no sense to needlessly expose *mêlée* units to a ranged attack.

Speaking of archers, their practical deployment size per hexagon is much lower than that of other units since they need a clear shot on their targets. Archers in the fourth rank cannot fire very effectively, if at all. Therefore, the starting size for longbow and crossbow units is only 100 men, and this is also the limit for the total number of archers per hexagon, regardless of any other units that may be present. Archer units that are demoralized or that have run out of ammunition are considered regular infantry and do not count against this limit.

2.3 Controversies

On a subject as poorly documented and as much debated as the battle of Crécy, historians are bound to disagree on the interpretation of the few surviving records. This section discusses a few controversies that caught my eye while designing the scenario.

2.3.1 The Steep Bank on the Eastern Side

Sir Philip Preston shows that the Vallée des Clercs is today limited by a very steep bank on its eastern side, ranging from 2.5 to 5.5 meters in height [AytPre2005-3]. This bank is not easily visible from the east, the direction from which the French approached, and must have caused many of the charging knights to trip and fall – if indeed this bank was present in 1346.

That last point is contentious, however. As Preston himself admits, earlier authors not only neglect to mention such a bank but sometimes even specifically state that the valley was bounded by gentle slopes on both sides. In my opinion, Preston fails to show conclusively that the bank could not have been created by erosion and/or deliberate landscaping by local farmers in the six and a half centuries following the battle.

There is also the question if the French would not have reconsidered their line of approach after seeing the first rank of knights tumble down this bank. That is in fact the conclusion drawn by Michael Prestwich who argues that the French must have approached in a narrow file from the southern mouth of the Vallée des Clercs [AytPre2005-4]. Assuming the French were careful to stay out of the range of the English archers, this approach is certainly possible but does not change the tactical situation compared to a straight charge down the eastern bank. Thus, there is no need to decide on one option or another for our scenario.

Scenario Model. There are no penalties for entering the valley floor from the east, although players are free to choose the southern route if they wish.

2.3.2 The Formation of the Longbowmen

Based on obscure historical comments about the positioning of the English archers, several modern authors claim that most or all longbowmen were arrayed into big “wedges” flanking the English line of battle and pointing towards the French side. The English men-at-arms and spearmen would compose the main line of battle, between and behind these wedges.

I don't subscribe to this idea, for the following reasons:

1. Burne claims that horses would naturally shy from a wedge-shaped defensive position [Burne1955], but I cannot see why longbows would be as frightening as long pikes or bayonets. Besides, armored knights could fight very effectively against lightly armed archers even if their horses forced them to slow down or dismount.
2. Edward had his men-at-arms dismount to protect the archers from *mêlée* attacks, but in order to do so the soldiers would have to stay close to their protégés. The apex of a big archer wedge would be so far away from the line of spearmen and swordsmen as to be effectively unprotected.
3. Approaching enemies would be subject to crossfire only if they obligingly kept their distance from the wedges on both sides. Anyone engaging one wedge would be automatically protected from distant archers who could not risk shooting into a *mêlée*.
4. For all their stubborn and hotheaded nature, the French knights could not all have failed to observe the first three points. Some lances would have made for the front ranks of the wedges and massacred the archers in short order, confident that there would be no support either from men-at-arms or from other archers.

So if anything in the English archer formation resembled a wedge at all, it would have been at most a small embellishment to protect the flanks of the two forward divisions, just like Nicolle [Nicolle2000] and, interestingly enough, Burne himself suggest.

Certainly the spearmen and swordsmen of each division would stay very close to the archers at all times, intermingled as much as possible without interfering with their shooting. Ayton and Preston report that archers were recruited into mixed companies and were likely to stay with their *mêlée* comrades on the field [AytPre2005-10]. Delbrück notes that the close presence of *mêlée* “protectors” would encourage the archers to keep shooting until the last minute in the face of an enemy assault [Delbrück1923].

So the most plausible formation for each English division is a single solid rectangular block. The two front ranks were taken up by archers for unhindered shooting, and behind them were mixed companies of other archers and men-at-arms ready to defend them. When the French knights drew close the archers would retreat behind the defensive line, or their protectors would advance to meet the attack, as recommended by the situation.

Scenario Model. For the sake of easier modelling and more intuitive gameplay, we take a step back from our above conclusion and represent each type of infantry as a separate unit. However, these units are deployed in such a fashion that each archer unit is close to *mêlée* units, and may be stacked with them as the player desires.

The fortifications in front of the archer line appear as hexagons with a greatly increased movement difficulty. These may be seen to represent any combination of potholes, sharpened stakes, and other plausible defenses that may have existed. Their purpose is to delay the French cavalry long enough to expose them to English arrows for at least one turn.

2.3.3 The Range of the Longbow

Popular wisdom has imbued the English longbow with nearly magical properties, among them the ability to outrange the crossbow while equalling its penetration power.

The maximum ranges quoted for the longbow are certainly impressive. David Nicolle cites a practice range of 225 meters [Nicolle2000]. Michael Prestwich names an effective range of 200 yards, possibly as much as 300 yards “in experienced hands” [AytPre2005-4].

A few sources, including Prestwich, claim an astounding 400 yards as the maximum effective range of the crossbow, but the basis for this number is unclear. I suspect it refers either to ideal practice conditions or to very heavy, possibly stationary weapons. The generally accepted range for the field crossbows used at Crécy is a mere 100 meters, or about half the longbow’s range.

Even so, some historians dispute the longbow’s advantage. Nicolle clarifies that the effective combat range of *both* weapons was about 100 meters. Ayton and Preston likewise state 100 yards as the distance where “the longbow’s destructive potential could be most effectively realised” [AytPre2005-10].

This agrees with the actions of the English archers at the opening of the battle. The Genoese crossbowmen advanced – with several pauses, even – until they were close enough to shoot at the longbowmen, and only *then* did the latter return fire!

Why would they wait so long if they could have conveniently destroyed the advancing crossbowmen without fear of retaliation? Apparently the effective range of the longbow is indeed much the same as that of the crossbow, at least in this specific situation.

1. The extreme ranges achieved at practice shots were aimed at stationary targets under optimal conditions. The English archers were shooting at moving targets during quickly changing weather and in failing light. Modern surveys of police and armed forces show that the accuracy of gunfire during actual missions or battles tends to be abysmal, despite excellent training performance.
2. The range of the longbow can be increased by firing upward, in an arching trajectory. However, such shots cannot be aimed precisely. They will be fairly effective against

cavalry whose horses provide big and mostly unprotected targets, but they will merely waste arrows against a single line of helmeted crossbowmen.

So the archers had to use direct fire in a shallow trajectory, and they had little hope of hitting their targets at the theoretical maximum range of their weapons. Therefore, limiting their engagement range to half the maximum range seems a reasonable decision, and this would indeed put the longbow and crossbow on an equal footing.

Scenario Model. Longbow and crossbow possess equal accuracy and power at a range of up to three hexagons. Since a combat range of one hexagon implies immediate contact, three hexagons imply a distance of about 100 meters which is also the limit of the crossbow. Longbows may fire at targets up to five hexagons or 200 meters away, but with greatly reduced accuracy.

The most significant difference between the two weapons is their respective rate of fire. Longbows fire three arrows per attack as opposed to a single bolt for crossbows. The English player might wish to avoid firing at every opportunity, however, since both unit types only have a single sheaf of ammunition on hand, i. e. 24 arrows or bolts.

2.3.4 The Failure of the Crossbowmen

So if the Genoese crossbowmen could advance without interference by the English archers until they began firing their own weapons, why did these professional soldiers have so little effect on the English line, and why were they routed so quickly?

That was an easy question for the French nobility who regarded them as “scoundrels who fall off when there is any need of them.” Yet without further corroboration this claim seems more indicative of feudal arrogance than of any actual cowardice on the part of the mercenaries.

Froissart also says that the Genoese were tired from their long march, but this argument is unconvincing since the whole purpose of a crossbow is to project a great deal of force without requiring much physical strength. The Genoese were evidently not too exhausted to march a few hundred meters, lift their crossbows, and pull the trigger.

Then there was the heavy rain that fell shortly before the battle and might have ruined the strings of the crossbows. The English archers supposedly unstrung their bows and hid the strings under their helmets or caps until the rain ceased – something that the crossbowmen clearly could not have done in a few minutes. That sounds plausible enough, except that the mercenaries would hardly have carried their valuable weapons in the open field without some similar protection, say a waterproof sack that covered the string and mechanism.

Ultimately, the most likely explanation is that the impatience of the French knights forced the Genoese to advance without their pavises [AytPre2005-4]. Those were huge shields that covered a crossbowman’s entire body while he reloaded his weapon. Froissart makes no mention of any pavises and indeed says that the English arrows “pierced through their armour”, implying that there was no shield in-between. The pavises were too heavy to carry on a march, and thus probably still loaded on some wagons when the Genoese received the order to advance. Without them they did not stand a chance against the archers.

This version does leave the question of how the French commanders could so foolishly send their expensive mercenaries to a useless death, but we may imagine that the nobles considered such hired soldiers entirely expendable, and that they did not seriously expect the English army to withstand their main force anyway.

Scenario Model. Longbowmen and crossbowmen are equipped with the same light armor that does not offer much protection against bolts or arrows. This leaves the advantage clearly with the longbows and their much higher rate of fire. A scenario variant greatly increases the crossbowmen’s defense value, simulating a hypothetical battle in which they did carry their pavises.

Chapter 3: Battle of Poitiers

This chapter describes the historical situation at the battle of Poitiers and its representation in our scenario. As with Crécy, our reconstruction contains a good deal of guesswork since it is based on few and unreliable contemporary sources.

3.1 The Armies

We have exactly one source for the sizes of both the English and the French army, namely a letter by Bartholomew Burgersh who participated in the campaign on the English side. His estimate regarding the French army is based on reports by prisoners of war.

Alfred H. Burne cites the relevant numbers for both sides [Burne1955]. They seem plausible enough to use in our scenario without further adjustment.

3.1.1 English Army

Table 3 shows the army composition reported by Burgersh and used in the scenario. The total English force is about the same size as at Crécy which seems reasonable since both armies were intended for the same purpose, namely a chevauchée. No spearmen or cannons were present.

Source	Longbowmen	Men-at-arms	Cavalry	Total
Burgersh	2,000	4,000	?	6,000
Scenario	2,000	3,600	400	6,000

Table 3: English Army Estimates (Poitiers)

Most of the men-at-arms fought on foot but a mounted contingent of 160 Gascons under the Captal de Buch was held in reserve, and another mounted force under the leadership of James Audley was established near the end of the battle. Burgersh does not mention these details; they are based on a report by Geoffrey le Baker.

Scenario Model. The English player commands 40 units all told. There are 20 longbow units à 100 men, and 18 infantry units à 200 men for the dismounted men-at-arms. Section “Unit Size” on page 11 explains the rationale behind these unit sizes.

The two mounted forces are modelled by two cavalry units à 200 men, i.e. we treat them both as permanent reserves and do not establish James Audley’s unit dynamically. The Gascon force included 100 mounted crossbowmen but we do not distinguish them from the rest.

The twenty units representing the 4,000 men-at-arms (mounted or dismounted) carry the names of the most notable commanders present on the battlefield.

Right Wing — William Montague, Earl of Salisbury; Robert Ufford, Earl of Suffolk; Henry Eam of Flanders; Ralph Basset, Baron of Drayton; Frank van Hale; John Sully.

Center Wing — Edward Prince of Wales, the “Black Prince”, son of Edward III; Bartholomew Burgersh, junior; John Chandos; Roger Mortimer, Earl of March; Ralph Stafford, Earl of Stafford; Nigel Loring (immortalized as Arthur Conan Doyle’s *Sir Nigel*).

Left Wing — Thomas Beauchamp, Earl of Warwick, marshal of the army; John de Vere, Earl of Oxford; Reginald Cobham, Baron of Starborough, marshal of the army; Eustace d'Aubrecicourt; John Mohun, Lord of Dunster; Edward Despenser.

Cavalry — Jean de Grailly, Captal de Buch; James Audley.

Only the positions of the two or three leaders of each wing are confirmed. We fill the roster with the names of other notable knights that are known to have been present at Poitiers, although their exact functions and positions were not recorded.

3.1.2 French Army

Burgersh reports 8,000 men-at-arms and 3,000 “foot soldiers” in the French army. The resulting strength of 11,000 men, or nearly twice the numbers of the English raiders, seems adequate for for the main army of a medieval French king with some foreign allies.

Burne wishes to double their numbers, based on the assumption that King John II had levied larger forces in the north of France. However, John had to move very swiftly to overtake the Black Prince on his road to Poitiers, and so must have left the majority of any such levies behind. Accordingly, we ignore them and use Burgersh’s total strength, as shown in [Table 4](#).

Source	Crossbowmen	Men-at-arms	Cavalry	Total
Burgersh	?	11,000	?	11,000
Burne	?	20,000	?	20,000
Scenario	1,000	9,600	400	11,000

Table 4: French Army Estimates (Poitiers)

The presence of crossbowmen on the French side is noted by Geoffrey le Baker, but not their exact number or nationality. We can only assume that these crossbowmen count among Burgersh’s “foot soldiers”, and that they were once again Genoese mercenaries since drafted French militiamen were notoriously useless in the field. At a guess we designate 1,000 “foot soldiers” as Genoese crossbowmen, and add the remaining 2,000 to the regular men-at-arms.

John had most of his soldiers attack on foot, so as to present smaller and “harder” targets to the English longbows. However, the two French marshals led small mounted forces on both flanks. It is unclear whether they were supposed to strike at the rear of the English position; if so they appear to have failed.

Scenario Model. The French player commands a total of 60 units. There are ten crossbowman units à 100 men, 48 infantry units à 200 men for the dismounted men-at-arms, and two cavalry units à 200 men for the French marshals. One of the crossbowmen units represents a Genoese mercenary commander which can rally Genoese units.

The French and allied men-at-arms are arrayed into three wings, with the center wing split into three consecutive divisions. Twenty-six infantry units are named after commanders and other present nobles. The two cavalry units carry the names of the two marshals.

Left Wing — Jean de Clermont, marshal of the army (mounted); Gautier de Brienne, Duke of Athens, constable of the army; Counts of Saarbrücken, Nidau, and Nassau.

Right Wing — Arnaud d'Audrehem, marshal of the army (mounted); William Douglas, Earl of Douglas & Mar; Guiscard d'Angle; Eustache de Ribbemont; Edward de Roucy.

Center Wing (Front Division) — Prince Charles the Dauphin, Duke of Normandy, John's first son; Duke Pierre of Bourbon; Lord of Saint-Venant; Jean de Landas; Thibaud de Vaudenay; Count of Dammartin.

Center Wing (Second Division) — Philip of Valois, Duke of Orléans, John's brother; Louis of Valois, Count of Anjou, John's second son; John of Valois, Count of Poitiers, John's third son; Jean de Saintré; Lord of Pons; Lord of Parthenay.

Center Wing (Rear Division) — King John II "the Good" of France; Jacques of Bourbon, Count of Ponthieu, constable of the army; Earl of Vantadour; Earl of Montpensier; Jean d'Artois, Count of Eu; Charles d'Artois, Count of Longueville.

As with the English forces, only the leaders of each division are historically confirmed, and we do not know the exact role and position of the other nobles whose names were used. Besides the listed units, the remaining twenty-two unnamed infantry units are distributed as follows: six to each of the three divisions, and two to each of the two wings.

3.1.3 Discipline and Morale

The general observations regarding the battle of Crécy also apply to Poitiers. Accordingly, this scenario uses the same "zone of control" system and morale modelling, as described in sections "[Discipline](#)" on page 7 and "[Morale](#)" on page 8. The French knights must rely on a handful of leaders to rally them, and the crossbowmen are assumed to be Genoese mercenaries who can be rallied only by their own commander.

King John arranged his dismounted knights in three successive divisions which are mirrored by the placement of the French units at the start of the scenario. Historically, the second and third divisions waited to engage until the first division was retreating, but that appears to have been the limit of French battle tactics – and the second division actually fled instead of engaging the enemy, although some of its knights later returned to the battle.

Discipline on the English side appears to have been excellent, as usual. Prince Edward had kept his mounted troops in reserve for a final flanking attack, but this is not reproduced by the computer player. One could prevent the English cavalry from engaging until the infantry leaves its defensive position. However, such a rigid rule is problematic since the English line is breached quite often, and one would expect the mounted troops to attack any intruders.

Scenario Model. When scripted behavior is enabled in the game options, computer-controlled factions will reproduce historical tactics as follows: all English units will remain behind their line of obstacles until the English archers run out of ammunition, and all French units in the second and third division will advance only after most of the vanguard has been routed.

Moreover, each unit in the French second division uses a special "Valois morale" that is likely to drop whenever a French unit is demoralized, causing the entire division to flee before it has a chance to engage. Three named knights revert to the regular French morale upon reaching their wagon camp, and will subsequently rejoin the battle. A scenario variant provides all units in the second division with the regular French morale from the outset of the battle, allowing them to advance and engage normally.

3.2 The Battlefield

Maps of the historical battlefield near Poitiers are nearly as numerous as for Crécy. The scenario is once again based on a convenient map created by the USMA Department of History [[USMA-](#)

History], shown in Figure 2. Two names are misspelled and were corrected for the scenario: the river is called Miosson, and the central village Maupertuis.

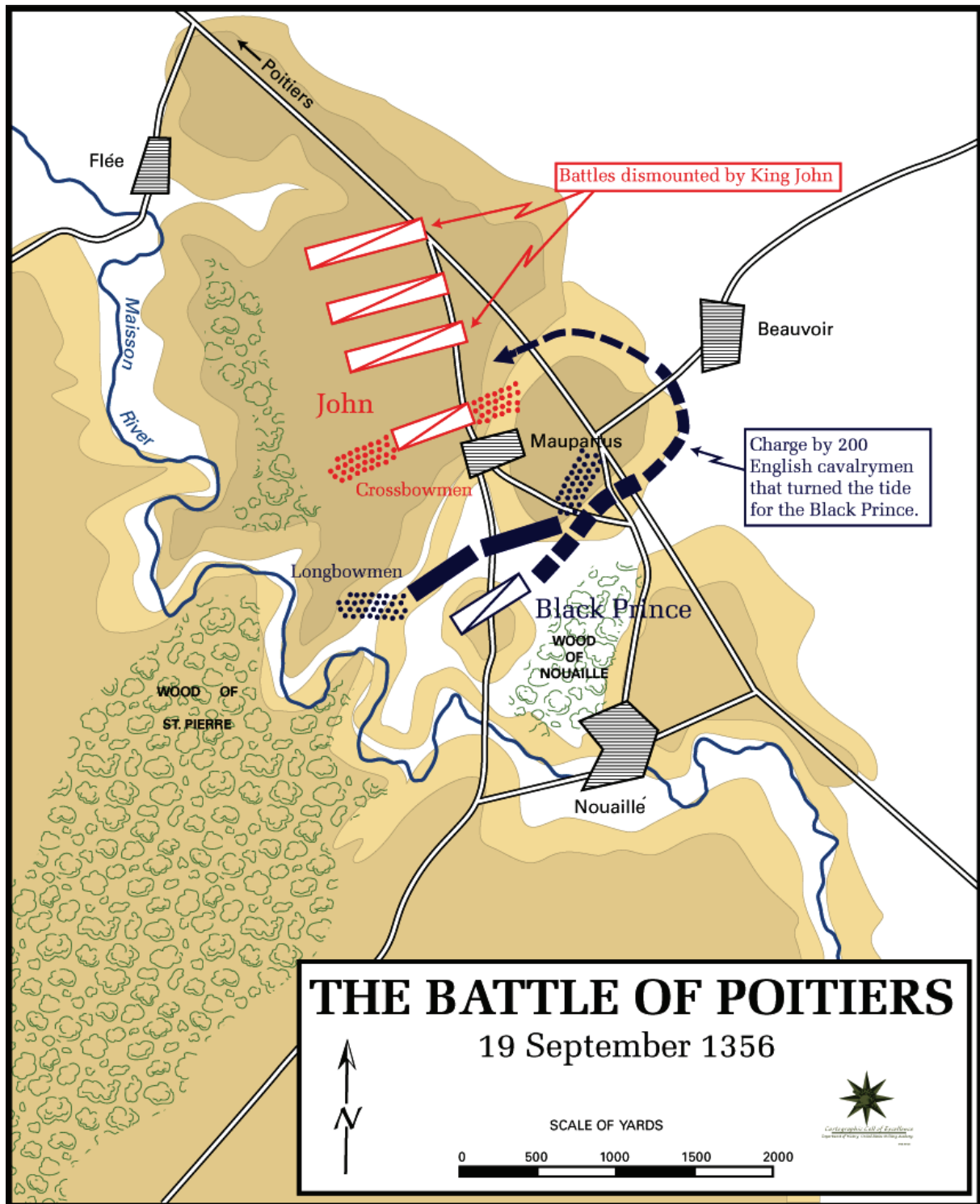


Figure 2: The Battlefield of Poitiers

The levels of elevation indicated by the coloring are somewhat confusing, as a darker color may indicate either higher or lower terrain. I referred to other maps for clarification, mainly the one given by Burne [Burne1955]. I generally followed the indicated troop placement, although the western flank of the English line was pulled back behind the long narrow depression which appears to have formed the swampy area that slowed the French approach.

3.2.1 Map Scale

To turn the USMA map into a hexagon map, I superimposed the image file on a hexagon grid in Hexkit Editor. This feature had been added since the creation of the Crécy map, and made the whole process substantially faster than the old method of overlaying printed pages.

I adjusted the scale of the USMA map to match the scale of the Crécy scenario. After trimming some empty space around the corners, the final map grid comprised 115 columns by 110 rows of hexagons lying on a side, with the second column shifted downward.

As in the Crécy scenario, one hexagon of the map grid has a side length of 26.05 meters in world coordinates. The area covered by each map hexagon is 3,525 m², and that covered by the entire map grid evaluates to 4.51 × 4.98 km².

Time and unit scale are likewise unchanged from Crécy: foot soldiers move three hexagons per turn on level terrain, mounted units twice as much. Up to 800 infantry, 400 cavalry, or 100 archers (with ammunition left) may be deployed in one hexagon.

Please refer to section “[The Battlefield](#)” on page 9 in the previous chapter for details on how and why these numbers were chosen.

3.3 Controversies

Naturally, the previous chapter’s observations concerning the relative strength of longbow and crossbow apply here as well. In this section, we’ll address a few questions specific to the battle of Poitiers that require clarification.

3.3.1 The Famous Hedge

The English forces were supposedly protected by some kind of hedge, but the exact details are unclear. David Nicolle [Nicolle2004] cites the relevant statements by Jean Froissart and Geoffrey le Baker, and also provides several photographs of the presumed site of the battle.

What everyone agrees on is that the terrain was unusually difficult, and therefore well-suited as a defensive position: there was a marshy valley near the river Miosson, a hill “encircled” by hedges and ditches, and a bramble thicket covering the ground. Aside from the marshy valley, the scenario represents these difficulties by a line of obstacles in front of the English army. We assume that the English, who had plenty of time to prepare their position, would augment the natural obstacles with artificial ones, such as additional ditches, stakes, or potholes.

While this takes care of any low-growing hedges on the battlefield, there appears to have been some taller hedge, with one or two gaps so that carts could pass through. What kind of “hedge” could possibly aid the English archers? They must have been able to either shoot across it, or quickly withdraw behind it. Standing either in front or behind a dense tall hedge, such as the ones typically surrounding gardens or graveyards, is obviously pointless.

Therefore, any “hedge” that played any part in the battle must have been either a low-growing obstacle, which we already took care of, or else some kind of taller sparser growth that would probably resemble a line of trees with some undergrowth more than a conventional hedge. This is also the impression conveyed by Nicolle’s contemporary photographs, by the way.

Nevertheless, Nicolle himself speculates that the English archers did in fact stand behind a very dense hedge, firing at the French soldiers only as they attempted to break through. I find that explanation rather implausible since it eliminates the longbow’s advantage of range, and also seems to make the eventual exchange of shots with the French crossbowmen impossible.

I must also reject Nicolle's assumption that the tall hedge was lining the road to Nouaillé, with the English positioned on its eastern side. This arrangement would have the English army face southwest – while the French were attacking from the northwest! Inevitably, the English northern flank would be crushed by the assault, while the majority of the English forces would sit around twiddling their thumbs. Clearly, the English front must have been perpendicular to the French vector of attack – that is, facing northwest.

Scenario Model. Following Burne's reasoning [Burne1955], the scenario's "hedge" consists of a row of trees reaching from the marshy ground in the west to the hill in the east, with two gaps where the roads to the south pass through. The English archers are dispersed among these trees, thus receiving some extra defense while still able to shoot at the approaching enemy.

3.3.2 The Belated Crossbowmen

Geoffrey le Baker clearly describes an attack by French crossbowmen, apparently protected by pavises [Nicolle2004]. Curiously, this attack took place just before the final charge of King John's rear division – after the majority of the French army had already been routed!

Why were the crossbowmen not sent in first, to weaken the English archers and protect the advance of the men-at-arms? Surely, at this point even the French knights could not have been so contemptuous of the English invaders to refuse the aid of their own archers – after all, they fought on foot specifically to reduce their vulnerability to the notorious longbows. No plausible explanation is apparent, unless the crossbowmen did in fact fight earlier, and our sources simply neglected to mention them.

Moreover, their exact number is completely unknown. As mentioned above, Burgerssh states that the French army comprised 8,000 men-at-arms and 3,000 "foot soldiers". We take the latter to include mercenaries and specifically crossbowmen, providing us with an upper limit.

Scenario Model. Since I was reluctant to change the generally accepted flow of the battle, the scenario puts the crossbowmen just in front of the French rear division. Following Nicolle, they are placed on the right flank. Any crossbowmen employed by a French field army were most likely mercenaries, and for want of a better guess we assume they were once again Genoese.

The scenario provides the French with only 1,000 crossbowmen, rather than the maximum possible number of 3,000. For one thing, professional crossbowmen did not exactly grow on trees, as discussed in the previous chapter. But more importantly, the greater their number, the more incomprehensible the French decision not to have them attack first, or else the complete silence on such an action by the chroniclers.

Chapter 4: Scenario Reference

This chapter gives an overview of the various unit and terrains, the variables that comprise their statistics, and the game mechanics you'll encounter in the various scenarios. We don't usually list exact numerical values for the statistics – please refer to the scenario help text for this data.

4.1 Units and Terrains

4.1.1 Unit Types

Table 5 shows the unit types available to either faction. The single cannon unit represents the three English single-shot cannons at Crécy, and can therefore fire a total of three shots.

Unit Type	Faction	Description
Cannon	England	Primitive cannon that is immobile on the battlefield and can fire only three shots.
Longbowman	England	Foot soldier with light armor and crossbow or longbow, the latter possessing a greater range and a faster rate of fire.
Crossbowman	France	
Crossbowman (Leader)	France	Genoese commander that can increase the morale of other Genoese crossbowmen.
Knight	Both	Knight, squire, or other man-at-arms with heavy armor. Mounted knights whose horses are killed in battle become infantry units.
Knight (Mounted)	France	
Knight (Leader)	France	French commander that can increase the morale of other French knights, except for the special “Valois” units at Poitiers.
Knight (Leader, Mounted)		
Spearman	England	Foot soldier with light armor and spear. Most effective against mounted knights.

Table 5: Unit Types

The Genoese crossbowmen in the Crécy scenario are usually wearing only light armor, just like longbowmen. A scenario variant provides them with their customary pavises, nearly tripling their defense against ranged attacks. The crossbowmen at Poitiers always carry pavises.

4.1.2 Unit Variables

Table 6 shows the numerical variables that apply to the various unit types.

The product of strength and size determines the physical space taken up by a unit. A single hexagon may contain up to 800 size points, equivalent to 400 infantry or 800 cavalry. A hexagon cannot be part of a unit's movement path if its presence would exceed this limit.

Variable	Description
Attack	Effectiveness when attacking in close combat.
Attack (Ranged)	Effectiveness when attacking in ranged combat.
Ammunition	Amount of ranged attacks still available to the unit.
Defense	Effectiveness when defending in close combat.
Defense (Ranged)	Effectiveness when defending in ranged combat.
Morale	Drops when suffering casualties, until the unit panics and retreats.
Movement	Number of unobstructed hexagons the unit can move per turn.
Range	Maximum number of hexagons covered by a ranged attack.
Size	Physical size of each unit member: 1 for infantry, 2 for cavalry.
Strength	Number of men in the unit that are still capable of fighting.

Table 6: Unit Variables

Movement is tied into the movement system which is explained in the following subsections. The remaining variables are combat-related and discussed in “[Combat System](#)” on page 24.

4.1.3 Terrain Types

Table 7 and Table 8 show the various terrain types that occur in the Crécy and Poitiers scenarios, respectively. The available terrains and their gameplay effects are nearly identical for both maps, so the following descriptions of game mechanics apply to both scenarios equally.

Realistically, the open terrain on the battlefields would have looked pretty much the same at any level, but we vary the colorization for better visual distinction. High ground appears as green grassland, low ground is tinted a watery blue, and the intermediate sloping terrain shows various degrees of earthy brown.

Terrain Type	Effects	Description
Forest	Aim & Move, Close & Ranged	The forests of Crécy and Crécy-Grange.
Low Ground	—	Open terrain at 30 meters above sea level.
High Ground	—	Open terrain at 70 meters above sea level.
Marsh	Move	The bottom of the Vallée des Clercs was flooded by a downpour just before the battle started.
Monastery	Aim & Move	The monastery of Crécy-Grange (Crécy).
Obstacle	Move	Stakes and potholes in front of the English line to stop the French cavalry within range of the longbows.
River	Move	The river Maye to the south of the battlefield.

Table 7: Terrain Types at Crécy

Terrain Type	Effects	Description
Road	—	Roads allow units to pass unhindered through towns and forests, but do not otherwise provide any benefits.
Slope	—	Open terrain connecting low and high ground. Steep slopes increase or decrease a unit's movement speed.
Town	Aim & Move, Ranged	The towns of Crécy, Estrées, Wadicourt, and Fontaine.
Wagon	Aim & Move, Close & Ranged	The supply wagons of the English and French camps, near the monastery and Estrées, respectively.
Windmill	Aim & Move, Ranged	The famous windmill to the north of Crécy from where Richard III observed the battle.

Table 7: Terrain Types at Crécy

Terrain Type	Effects	Description
Forest	Aim & Move, Close & Ranged	The forests of Nouaillé and St. Pierre.
Low Ground	—	Open terrain at 120 meters above sea level.
High Ground	—	Open terrain at 136–140 meters above sea level.
Hedge	Aim & Move, Close & Ranged	The “hedge” along the English line, which is actually a row of trees with substantial undergrowth.
Marsh	Move	The marshy depression to the west of Maupertuis slowed the attack of the French right wing.
Obstacle	Move	Ditches, brambles, and low hedges in front of the English line, augmented by artificial obstacles.
River	Move	The river Miosson to the southwest of the battlefield.
Road	—	Roads allow units to pass unhindered through towns and forests, but do not otherwise provide any benefits.
Slope	—	Open terrain connecting low and high ground. Steep slopes increase or decrease a unit's movement speed.
Town	Aim & Move, Ranged	The towns of Maupertuis, Nouaillé, Beauvoir, and Flée.
Wagon	Aim & Move, Close & Ranged	The supply wagons of the English and French camps, near Nouaillé and Flée, respectively.

Table 8: Terrain Types at Poitiers

Column “Effects” shows the each terrain type's effect on the movement speed of all units, on ranged attacks by archers, and on local units' defense against close or ranged attacks.

None (—) — The terrain does not impede movement or combat in any way.

Move — The terrain results in a total hexagon difficulty rating greater than one (see below), and thus slows units attempting to enter the hexagon.

Aim & Move — The terrain slows units trying to enter the hexagon, and also blocks the line of sight of archers attempting to shoot across the hexagon.

Ranged — The terrain provides some defensive cover against ranged attacks.

Close & Ranged — The terrain increases defense in both close and ranged combat.

Cavalry is slowed even more than infantry when entering forests, hedges, obstacles, towns, or wagons. Steep slopes may increase or decrease a unit's movement speed, even though the open terrain itself does not obstruct movement.

Note. The slowing effect of English obstacles is probably exaggerated. However, given a movement system with alternating turns, this exaggeration was necessary to reliably stop the French advance within range of the English archers.

4.1.4 Terrain Variables

Table 9 shows the numerical variables that apply to the various terrain types. They affect only the movement speed of units, and have no effect on combat performance.

Variable	Description
Difficulty	The difficulty of moving through the terrain. Multiple terrains in the same hexagon may specify cumulative difficulty values.
Difficulty (Mounted)	The difficulty of moving through the terrain. Applies only to cavalry.
Elevation	The local elevation above sea level, in meters. This value is specified by each hexagon's background terrain.

Table 9: Terrain Variables

A unit's movement allowance indicates the maximum amount of terrain *Difficulty* points the unit may cover in one turn. Open ground is the easiest terrain, with a difficulty rating of one. The total difficulty rating of a hexagon is the sum of the difficulty ratings of all its terrains.

When mounted units attempt to enter a hexagon, they use the *Difficulty (Mounted)* rating of each terrain if present, otherwise the regular difficulty rating.

Lastly, the *Elevation* difference between adjacent terrains slightly increases or decreases the difficulty of that movement step, depending on the direction and steepness of the slope.

4.2 Combat System

As usual with Hexkit, multiple units may participate in a single combat, both on the attacking side and on the defending side. Generally, each side's combat performance is determined by its total remaining strength and the average combat rating of all units.

That is *Attack* for *mêlée* attackers, *Defense* for defenders against *mêlée* attacks, *Attack (Ranged)* for ranged attackers, and *Defense (Ranged)* for defenders against ranged attacks. The terrain on which the defenders are placed may provide bonuses to their defense ratings.

That's the combat system in a nutshell, now let's see how it works out in detail.

4.2.1 Combat Phases

An attack is executed in up to four separate phases, depending on the mix of unit types present on the attacking side. Of course, you can also attack with just a single unit; in that case, only the phase that corresponds to that unit type is executed.

1. Cannon Fire

When participating, the cannon gets the first shot at the enemy. Cannon fire does not require a clear line of sight to the target. The impact damages all defending units, and the damage does not weaken with increasing range.

Moreover, the terrifying noise and smoke of this hellish new weapon lower the morale of all defending units *and* of any units in adjacent hexagons, regardless of their allegiance.

2. Archer Volley

Next, all other ranged units (crossbowmen or longbowmen) that are not yet out of ammunition fire one shot each, or three shots in the case of longbowmen. Archers always use ranged attacks as long as they have ammunition, even against adjacent targets.

Archers require a clear line of sight to their target, and their attack rating is halved if they shoot after having moved during the same turn. Moreover, a range penalty applies to shots aimed at targets more than one hexagon away. [Table 10](#) shows the penalties for all ranges.

Range in Hexagons	Penalty to Archery Rating
1 (adjacent target)	None
2	10%
3	20%
4 (longbow only)	60% (difficult arched shot)
5 (longbow only)	80% (difficult arched shot)

Table 10: Range Penalties

As with cannon fire, the total damage of an archer volley is distributed among all defenders. Longbowmen triple their final attack rating since they fire three arrows per attack, assuming they have as many left.

3. Cavalry Charge

Next, all mounted units attack. *Mélée* attacks might affect all or only some of the units on the defending side. To determine which units are affected, we make a list of all defenders in the following order: spearmen, cavalry, infantry, archers.

From this list we add one unit at a time until their total strength matches or exceeds the total strength of the attacking cavalry, or until we have exhausted the list. Those defending units which were not selected remain unaffected by this combat phase.

This procedure simulates optimal tactical positioning on the defending side. Spearmen are the first line of defense against a cavalry charge because their defense is tripled against mounted units. The valuable and vulnerable archers are protected by all other present forces.

4. Infantry Assault

Finally, all remaining units attack. This includes not only men-at-arms but also archers who have run out of ammunition. As in the second phase, we select only so many defending units as to match or exceed the total strength of the attackers. However, the selection process uses a different order in this phase: infantry, spearmen, cavalry, archers.

As before, the archers are protected by everyone else, but the regular men-at-arms now form the front line. There are no attack or defense modifiers except for those provided by terrain.

4.2.2 Damage Calculation

Once the pairing of attacking and defending units has been decided for a combat phase, we can calculate the damage inflicted on the defenders, and also on the attackers during the two *mêlée* phases. Combat damage equates casualties, i. e. losses to a unit's current strength.

Defender Losses

In all four phases, the losses suffered by a particular defending unit di are calculated as follows:

$$\text{Losses}_{di} = \text{Strength}_{di} \times \frac{\sum_{\text{Attackers}} \text{Attack} \times \text{Strength}}{\text{Defense}_{di} \times \sum_{\text{Defenders}} \text{Strength}} \times [10\%, 50\%]$$

“Attack” represents an attacker's attack or ranged attack rating, depending on the combat phase. In phase 2, this value may be reduced for long-range attacks, halved for archers firing after moving, and tripled for longbowmen firing three shots per attack.

“Defense” represents a defender's defense or ranged defense rating, depending on the combat phase. In phase 3, this value may be tripled for spearmen vs. cavalry.

The interval to the right represents a random factor between 10 and 50 percent. This factor is replaced by the constant value 30% when estimating the losses of a planned attack.

Attacker Losses

Mêlée combat (phases 3 & 4) may inflict casualties on the attackers as well as on the defenders. The losses suffered by a particular attacking unit ai are calculated as follows:

$$\text{Losses}_{ai} = \text{Strength}_{ai} \times \frac{\sum_{\text{Defenders}} \text{Defense} \times \text{Strength}}{\text{Attack}_{ai} \times \sum_{\text{Attackers}} \text{Strength}} \times [10\%, 50\%]$$

This equation is nearly identical to the previous one, with the attackers and defenders changing places. The one important difference is that defending units inflict damage based on the ratio of their *defense* rating to the attacker's *attack* rating, not the other way round.

Attacker losses are calculated based on the total defender strength at the start of the current combat phase. Only defender losses in *previous* phases will reduce defender strength, and thus

attacker losses, in the current phase. Defenders that enter phase 3 with 400 men will fight with the full strength of those 400 men, even though they may be cut down to 40 men by the end of phase 3. They will enter the *next* phase with only 40 men, though.

Other Effects

All units that suffer casualties also experience a morale drop equal to the number of casualties, squared and divided by 200. When morale reaches zero the unit routs and attempts to retreat to its faction's wagon park. Commanders can restore their units' morale (and their own).

Mounted units also have a percentage chance equal to the number of casualties suffered that they will become unhorsed. The dice are rolled anew for each combat, i.e. the chance does not accumulate across battles. In the Crécy scenario, fresh horses are available at the wagon park.

Tactical Tips

Since *mêlée* combat nearly always results in casualties for the attackers, you should perform as many ranged attacks as possible before engaging in close combat. The English cannon at Crécy should always fire into dense groups of opponents to exploit its demoralizing area effect. Wait for the French cavalry to maximize the cannon's physical damage as well.

Longbowmen are much more effective within three hexagons and against cavalry than at longer ranges or against infantry. All archers are much more effective when shooting before moving – obviously this is going to be a huge problem for the Genoese crossbowmen!

From the French perspective, remember that archers always come last when deciding which defenders participate in *mêlée* combat, so make sure to assault a combined force of knights and archers with enough strength to get through to the latter.

Cavalry should use its superior mobility to stay out of enemy engagement ranges, especially the deadly three-hexagon range of longbowmen. Spearmen are tough defenders against cavalry, so you should prefer other targets and wait for the spearmen to make the first move – they don't get their anti-cavalry bonus on the attack, only on the defense.

Usually you won't be able to kill enemy units outright, except for unprotected archers. Check the morale of your potential targets and pick one that is likely to rout – if there is no commander nearby to rally the unit, it will be out of action for a few turns, or even permanently.

The English player might want to establish a rearguard of knights whose job is to intercept and rally routed units, particularly archers and spearmen who would otherwise flee the battle. The French player could use the Genoese commanders and French leaders in the same fashion, although unhorsed knights at Crécy should visit the wagon park anyway to receive fresh horses.

4.3 Scripted Behavior

The default computer players use some custom scripting to emulate the historical behavior of the two armies. There is no scripted behavior when a faction is controlled by a human player, with the exception of automatically retreating demoralized units.

You can disable the scripted historical behavior for either or both factions in the Player Setup dialog. This reverts all units to the default behavior for the selected computer player algorithm. Currently, only the simple "Seeker" algorithm is available which will immediately send all units towards the enemy army.

4.3.1 English Player

When scripted behavior is enabled, the movement of all English units is initially restricted to the area between the line of obstacles and the English wagon camp. More precisely, the movement range ends one hexagon short of the line of obstacles, ensuring that English archers are within bowshot but out of *mêlée* range of French knights stopped by the obstacles.

The scripted historical behavior is the optimal strategy for both scenarios. The English forces have nothing to gain by leaving their fortified positions, and did not historically do so until the battle had been clearly won. Turning off scripting basically causes the English computer player to commit suicide by engaging the French army in the open field.

Strategic Tips

Just hold your position and shoot anything that comes near –there's little else the English player could conceivably do. You may want to advance once the French are already greatly weakened to speed up their demise, though.

It's much harder to win against a human opponent using the two-pronged approach recommended below. You'll need to quickly shift the English line of battle into a formation that can repel such an attack. Make sure to guard the bottlenecks of Crécy and Wadicourt!

4.3.2 French Player (Crécy)

When scripted behavior is enabled, all French knights (including leaders) are restricted to their initial deployment positions. They won't move at all until the English are leaving their high ground, or until most of the Genoese crossbowmen have been routed.

The scripted historical behavior is the standard procedure for pre-gunpowder battles: first send in skirmishers to disrupt the enemy and knock out enemy skirmishers, then advance with the main body of the army. Unfortunately, it's also the worst possible strategy for this particular situation. Without the protection of their pavises, the crossbowmen stand no chance against the longbow's much higher rate of fire. Separating the crossbow attack from the cavalry charge merely ensures that the English longbowmen achieve their highest possible kill rate.

Turning off scripting improves things a bit. Since the knights move out at the same time as the crossbowmen, both forces will reach the English line in close succession and thus have a chance of overwhelming the archer defense. This won't be enough to win the battle, though.

Strategic Tips

There is no way to succeed with a direct attack. Even a simultaneous attack with knights and crossbowmen will flounder as the units reach the line of obstacles, and subsequently get shot to pieces by concentrated English archer fire.

But there is another possibility. Split your knights into two groups and send them around the southern and northern flank of the English line, near Crécy and Wadicourt. The crossbowmen should cluster in the southern and northern part of the Vallée des Clercs but stay out of English bowshot until the knights are ready to attack, then advance to support their charge.

This strategy reliably knocks out the computer player. However, there is one weakness that another human player could exploit: the French attack groups must pass through fairly narrow passages between the English obstacles and the two towns. If the English player guards these passages well the battle could swing to either side.

Scenario Variant

An alternate scenario variant for the battle of Crécy provides all Genoese crossbowmen with the pavises they were usually carrying, dramatically lowering their mortality rate as they approach the English lines. In this variant, a frontal assault actually has a chance of success, highlighting the foolishness of sending crossbowmen against longbowmen without such protection.

4.3.3 French Player (Poitiers)

When scripted behavior is enabled, all French units (including the Genoese crossbowmen) are restricted to their initial deployment positions, except for the first division with its two wings. The rest of the French army may move when the English are leaving their defensive position, or when most of the forward division has been routed.

Attacking in successive waves is another common tactic: one division inflicts damage on the defenders, then retreats in safety while a fresh division advances to take up the fight. Alas, the defenders at Poitiers have ranged weapons and the attackers do not, allowing the longbowmen to dispose of the entire first division without being weakened to any substantial degree.

Even worse, the second (“Valois”) division did not attack at all, but simply fled the field when the first division was routed. This behavior is implemented not by scripted behavior but by an additional morale variable, and thus also affects human players.

Turning off scripting has no great effect in this scenario since the second division flees in any case, and King John’s third division with the Genoese crossbowmen is too far behind to arrive in time for a combined attack.

Strategic Tips

Attacking in successive waves of infantry is pointless against entrenched archers. You must lead with your crossbowmen, whose pavises allow them to withstand English archer fire for a while, and then attack the English position with all your knights simultaneously.

Since the entire Valois division will flee as losses mount, you should have them advance with the crossbowmen. If nothing else they should make nice pin cushions and deplete the English ammunition stores...

Your two mounted units are highly susceptible to ranged attacks. They should either stay in reserve until the English archers have run out of arrows, or else go for the English wagon camp in a wide flanking movement so that they can pick off retreating English knights.

You might wish to attempt a flanking attack with the entire army, but the effect will be less pronounced than at Crécy. There is no wide swamp in the direct line of advance, no convenient town to block the archers’ line of fire during your approach, and since you have mostly infantry it’s both harder and less important to avoid exposure to arrow fire.

Scenario Variant

An alternate scenario variant for the battle of Poitiers provides the second French division with the standard morale variable for French knights, meaning they will not automatically flee after the defeat of the first division, and can be rallied normally when they do rout.

This variant substantially increases the attack strength of the French army, and gives them a shot at victory even when using the ill-advised historical wave attack.

Bibliography

- [Allmand1988] Christopher Allmand: *The Hundred Years War*. Cambridge University Press 2001 (revised edition, first published in 1988). ISBN 0-521-31923-4
- [AytPre2005] Andrew Ayton and Philip Preston: *The Battle of Crécy, 1346*. The Boydell Press, Woodbridge 2005. ISBN 1-84383-115-5
This is a collection of essays by several authors. The referenced essays are listed below, with the number after the dash indicating the chapter number.
- [AytPre2005-3] Philip Preston: *The Traditional Battlefield of Crécy*, pp. 109–138.
- [AytPre2005-4] Michael Prestwich: *The Battle of Crécy*, pp. 139–158.
- [AytPre2005-5] Andrew Ayton: *The English Army at Crécy*, pp. 159–252.
- [AytPre2005-7] Bertrand Schnerb: *Vassals, Allies and Mercenaries: the French Army before and after 1346*, pp. 265–272.
- [AytPre2005-10] Andrew Ayton and Philip Preston: *Topography and Archery: Further Reflections on the Battle of Crécy*, pp. 351–378.
- [Burne1955] Alfred H. Burne: *The Crécy War* (incl. battles of Crécy and Poitiers). Wordsworth Editions, Ware 1999 (first published in 1955). ISBN 1-84022-210-7
- [Delbrück1923] Hans Delbrück: *Geschichte der Kriegskunst III: Das Mittelalter* (incl. battles of Crécy, Poitiers/Maupertuis, and Agincourt, pp. 470–492). Verlag Georg Stilke, Berlin 1923 (photomechanical reprint by Walter de Gruyter, Berlin 1964).
- [Keegan1999] John Keegan: *The Book of War* (partial accounts by Jean Froissart on Crécy and Jehan de Wavrin on Agincourt, pp. 46–60). Penguin Books, Harmondsworth 2000 (first published in 1999).
- [LivWit2005] Marilyn Livingstone and Morgen Witzel: *The Road to Crécy*. Pearson Education, Harlow 2005. ISBN 0-582-78420-4
- [Nicolle2000] David Nicolle with Graham Turner: *Crécy 1346 – Triumph of the Longbow*. Osprey Publishing, Botley 2000. ISBN 1-85532-966-2
- [Nicolle2004] David Nicolle with Graham Turner: *Poitiers 1356 – The Capture of a King*. Osprey Publishing, Botley 2004. ISBN 1-84176-516-3
- [Rothero1981] Christopher Rothero: *The Armies of Crécy and Poitiers*. Osprey Publishing, Botley 1981. ISBN 0-85045-393-3
- [USMA-History] The History Department at the United States Military Academy (USMA) offers a public collection of atlases, including maps of Crécy and Poitiers.
History Department: <http://www.dean.usma.edu/history/>
Atlases: <http://www.dean.usma.edu/history/web03/atlasses/index.htm>
Battlefield of Crécy: http://www.dean.usma.edu/history/web03/atlasses/dawn_modern_warfare/dawn%20modern%20warfare%20maps/battle_crecy.gif
Battlefield of Poitiers: http://www.dean.usma.edu/history/web03/atlasses/dawn_modern_warfare/DawnGIF/PoitiersBattle.gif