Feudalism in Decline: The Influence of Technology on Society

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## CHAPTER

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Chapter 1

Feudalism

The decline of feudalism in medieval Europe can be best attributed to a set of changes that developed in technology, the population in Europe, and relations between laity and the Institution of the Church. Technology played an incredibly important role in this decline, as it provided a means to allow people to overcome their traditional role in a society in which growing food was the basis of life. When the plague upset the balance of serfs to lords in the mid-fourteenth century, they had to rely on the advanced technology to provide a similar amount of food output as they had with more farming peasants. A secondary effect of the plague was that it was a major turning point in the trust that people attributed to the Church of Rome, as the pope and his officials were unable to halt it or adequately describe its causes. The delicate relation among serfs, lords, and the Church was one that could be easily upset by technological advancements. In order to describe the decline of feudalism, it is imperative to define it in relation to its decline.¹

The study of vassalage feudalism, for the purpose of observing its decline, begins with the coronation of Hugh Capet of France in 987AD.² Hugh Capet’s

¹ In 1974, historian Elizabeth A. R. Brown wrote an article in which she claimed that the term *feudalism* imparts a false sense of uniformity to medieval society. For the purpose of this study, the term *feudalism* is carefully defined so as to avoid such a mistake by the common reader. For her article, see: "The Tyranny of a Construct: Feudalism and Historians of Medieval Europe," *The American Historical Review*, Vol. 79, No. 4 (Oct., 1974), 1063-1088.

² Charles Petit-Dutaillis, Eric Digby Hunt, and Henri Berr, *The Feudal Monarchy in France and England*, New York: Harper Torch, 1964, 7. Many historians debate the exact meaning of the term “feudalism” as well as when to begin a discussion about it. Some historians begin with the Kingdom of the Franks in the Carolingian dynasty, while others look to the Kingdom of France under the Capetians for the origin of feudalism. Those that begin with the Franks consider the Capetian feudalism model to be “classic feudalism” and the precursor to be “Carolingian feudalism”. François Ganshof begins his book *Qu’est-ce que la féodalité* with a focus on the Carolings, while others, such as Charles Petite-Dutaillis, begin with the Capetians. Capetian, also called classic feudalism, is an adequate beginning.
ascension to the throne marked the end of elected monarchs in France (as the previous model of feudalism, the Carolingian model, dictated), and the beginning of the inheritance structure of a feudal monarchy. This structure stemmed from the hierarchy that developed after the use of mounted cavalry units gained popularity in battle. The concept is simple enough in theory and originated from the need to provide a fortification with food and protection. A warrior class of knights on horseback began to emerge after Charles Martel began to use stirrups on his horse-riding units in battle (ca. 732). These men were raised and trained to be fighters and this exempted them from the need to perform farm work or other labors. Their status as horseback fighters meant that they were an expensive yet valuable part of any battle. As such, they were often given payment in land, which caused them to double as rulers as well as fighters. When a ruling knight died, his eldest son was expected to take control of his estates and to inherit his position in society as a warrior. The need (or potential need) to fight for protection was the propagator of this system. Lordship was the most important aspect of feudalism, as it was the very core of the system in a political sense.

For the purposes of examining the decline of feudalism, it can be further defined as a system of organization in which there are many groups, which owe...

for the examination of the decline of feudalism, since this form was used through the end of the Middle Ages, and was an evolution of sorts of Carolingian feudalism.

\(^{3}\) Petit-Dutaillis, 7.

\(^{4}\) Lynn Townsend White, *Medieval Technology and Social Change*, Oxford: Clarendon, 1962, 28. White is often accused of believing that technology drives human history, rather than vice versa. There is little evidence for that, which often results from not reading his work closely. His validity is also a point of debate among historians. Most critiques of his work do not give close enough attention to the detail that he used, although historian Bernard Bachrach claimed that White’s attributed importance of the stirrup in Frankish society is overstated due to a lack of extant evidence of their use in early medieval battles. White addressed the issue of his historiography and sources in his book, pages 9-28.
least one sort of service to another person. These groups may be considered “classes,” in the sense that they are social divisions upon which people are separated, although the terms “divisions” or “orders” may be used as well. At the top of the typical, ideal feudal pyramid, of the Capetian model was the king or ruler. Under this person was the group of nobles or clergy, although the clergy were likely to be seen as just outside of the system, as they also owe some obligations to the pope. At the bottom of the pyramid were the serfs and those who owed their manual labor to the nobles or king. In theory, this structure organized medieval society into a solid structure in which people would know their place and understand their expectations. In reality, the feudal system that was practiced in Europe was far more complex. Because many knights were paid in land, they often subleased their land out to peasants, who owed them farm work in return for living on the land. This extension of the feudal system, often called subinfeudation, and better defined as the nobles’ practice of subleasing their land to the tenants of a higher noble, was also termed granting a fief. This created an environment in which people would be required to provide a service or product, sometimes referred to as fealty, to multiple lords. Further complications include marriages between landowners, who could gain or lose inheritance depending on whom they married. The system of fealty and homage was

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5 Feudalism of this nature it often referred to as vassalage feudalism. A vassal is a person who owes another person their services or products.

6 The word “class” in terms of social grouping has connotations in the mind of the modern reader that do not necessarily fit with the social structure of medieval Europe, which focused more on birthrights than finances or careers.

7 This is ideal only, as one person could owe multiple people his services, which often complicated matters beyond what the term “feudal” implies.

8 Fiefs were the land payments given to lords and nobles by the king, and were central to the idea of feudalism.
not cleanly defined or organized, because of the various ways in which individuals could exploit the system.

In order to support a feudal system in Europe, it was important for the farmers, serfs and peasants, to stay within their social boundaries. Feudalism, as a system of organization, required there to be a need for the services or goods that one part of society could offer another. It could not, therefore, continue to be a valid system if the top of the feudal pyramid did not need the services of the bottom, or vice versa. Peasants and serfs were the lowest class as well as the bottom of the pyramidal structure of ideal vassalage feudalism. All serfs were bound to the land upon which they worked, since they were either not allowed to or could not afford to leave. This situation grew out of their lord’s requirement for a sizeable portion of the farmers’ crop output in order to pay for the land that they lived on. This was a self-propelling cycle, since the farmers grew, on average, just enough food to survive and were unable to sell enough of their excess, as the landlord required much of it as payment for the use of his land. In this system of feudalism, the peasants were essentially bound to the land, and unable to move beyond the limitations of farming.

One method that peasants had of allowing their children a chance of bettering themselves was by having them trained in a craft and moving into a city. Cities, as they grew with craftsmen and merchants, began to have enough financial capability to buy their freedom from the king. Free cities were not a cause of the decline of feudalism, however, but were one aspect that was caused by advances in technology. In order for peasants to be able to make a living in cities, they had to have an ample food supply to allow the craftsmen to focus solely on their craft, and not on farming. Technologies were responsible for this increased supply of food. Peasants and craftsmen may have both been manual laborers, but craftsmen had an opportunity to
become rich in cities, while peasants were typically unable to leave their landlord’s land, making it impossible to gain any real riches.

Most peasants were not trained fighters. They relied on their lord for defense, which was typically given in the form of knights, who were professional warriors with long and rigorous training. Knights owed their lord their service as vassals, much as the peasants owed their manorial lord food. The obligations of the lord included providing the knights and serfs with land on which they could live and work. Although this obligation was much easier to meet, the lord also owed fealty to the king, from whom the land was given as a fief. This delicate structure required peasants to fulfill their duty as farmers, although they did not take feudal oaths, because otherwise there would not be a food supply for those of noble blood who did not farm. Feudalism needed peasants to farm as much as it needed knights to act as the local defense force, and lords to keep control of the land and act as organizers for their knights and peasants.

Feudalism was different in practice between France and England. France is generally accepted as the European standard of feudalism, because France was the country that first used an organized system of vassalage and homage resembling feudalism. Prior to the Norman Conquest, however, England did not have any kind of real feudalism. England used an older and simpler system that could be considered tribal when compared to the ideal organization of feudal society. Under the Normans, England had the best of both the French feudal system and the English customary laws. Conflict could arise when the French and English ideals and systems

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9 France was only the standard of feudal society in ideal, and not necessarily in practice. Most European kingdoms did not follow feudalism as a rule, often preferring to use subinfeudation to provide the most pecuniary gains for the individual lord.

collide, although, as they did from the time of the Norman Conquest until the end of
the Hundred Years’ War. This was especially notable in regard to the laws that
affected inheritance, as this became an issue when Duke William of Normandy
became King William of England.

Dukes of Normandy were vassals to the king of France, since the French king
gave Normandy to the first duke as a fief. Conflict arose, however, when the Normans
expanded their dominion to include the Kingdom of England, which was ruled
differently from other Norman territories. England became a separate country with the
same ruler as Normandy, rather than becoming a part of Normandy. This meant that
the duke of Normandy, a vassal to the French king, was also the king of England. The
extent of feudal obligations was a topic of concern for hundreds of years after the
Norman Conquest. The French assumed that their control of their vassals extended to
their vassals’ acquisitions. This was the case when the Duke of Normandy Conquered
England, since England would have been a sizeable profit for the king of France to
control as a fief given to the Normans, who already owed the French king homage and
fealty for the lands of Normandy.

Marriages between French and English nobility further complicated the
interconnections between the two countries. Even after Normandy was lost under
King John of England, the English and French still had the potential for conflict. This
was due to the many marriages between the two royal families, such as that between
Edward I of England and Margaret of France in the late thirteenth century, which
gave Edward III a claim to the throne of France. Marriages led to heirs who could
eventually claim inheritance to both kingdoms. This phenomenon was, arguably, the
biggest contributing factor to the beginning of the Hundred Years’ War (1337-1453)
from a political standpoint. Edward III of England initiated the war due to his claims
to the French throne that the French did not recognize because of Salic Law, which prohibited inheritance through the female line. This meant that Edward III was prohibited from inheriting the French throne through his mother, Isabella, daughter of Philip IV of France. The cousin of Philip IV, Philip VI, took the French throne instead of Edward.

War began in 1337, when Edward tried to enforce his claim to the throne by an invasion into France. This was not the first choice for King Edward, as he did attempt to reconcile with diplomacy. The French had refused his claims as illegitimate, and had even denied him audience to discuss the issue diplomatically. This war was a conflict of inheritance, which became the first major western European war to change from a traditional knight-dominated battle to a ranged-footman battle. During the course of the Hundred Years’ War, the ways in which the war was fought as well as the technological advancements that fuelled these changes contributed to the acceleration of the decline of feudalism.

Military technology used in the Hundred Years’ War was constantly evolving, as arms and armor were made to exploit weaknesses in one another. Armor styles changed to adapt to better military technology, which were possible to manufacture because of advances in the technologies used to create better iron and steel. Technology played an important role in the decline of feudalism, as it provided the means by which people could combat the system of Capetian vassalage feudalism that prevailed in Europe since the tenth century. The advances in technology that eventually led to the decline of feudalism have humble beginnings, starting with the simplest of agricultural inventions of European design and ending with the ultimate

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11 For further reading, see: Henderson, E. F., *Select Historical Documents of the Middle Ages*) London: George Bell, 1892), 176-189. (Gengler, “Germanische Rechtsdenkmaeler,” 267.).
culmination of technologies, an example of which was the cannon. Cannons required advanced mining and metalworking technologies, as well as agricultural ones to create the conditions appropriate for specialized craftsmen who could produce such works of specialized craftsmanship. Technology created the conditions in medieval Europe to encourage the system of feudalism to decline and eventually be replaced with a less rigid money-based structure in which social organization was less rigid than the system of vassalage feudalism allowed. The decline of this system of feudalism meant that people no longer owed their services to someone who was higher up on the organizational social scale in the same way as before, allowing individuals more freedom to provide goods or services to whoever they desire.
Chapter 2
Technology

The history of technology in Western Europe after the fall of the Roman Empire may have its roots in the East, but by the mid-twelfth century, European technologies came to rival or surpass anything that the East had to offer. Until the eleventh century, European technological advancements were generally the result of Eastern ingenuity that traveled westward on the backs of merchants and warriors.12 After the eleventh century, the rate of technological development in Western Europe began to match and eventually exceed that of the Far East. European technological advancement was crucial in the decline of European feudalism. The agricultural, industrial, and military advancements that Europeans made from the eleventh until the fourteenth century came to have profound affects on the basis of feudal society in medieval Europe.

One of the most influential additions to early medieval European life was the stirrup. Coming from the East in the early sixth and seventh centuries, the stirrup was so significant in the West that it changed the foundation of early medieval society.13 The fall of the Roman Empire had left Europe in control of various Germanic tribes, who organized their structures of law according to customs and religion.14 Of these tribes, the Franks were the ones who best took advantage of the opportunities that the stirrup presented, leading to a change in the way their society was set up. They used stirrups to give their warriors greater control over their mounts while also freeing their

12 White, 79.
13 Ibid., 15-18.
14 “Barbarian” here is borrowed from the Latin term for the people of Europe who were not Roman and who generally wore beards instead of being shaven like the Romans. An equally useful term is “uncivilized”, which literally meant that these non-Romans did not live in cities. Both of these were considered primitive and inferior to the Romans.
hands. Having two hands available for fighting on horseback could mean the difference between troops that traveled on horseback and dismounted to fight, and a professional cavalry unit, which fought from horseback. A change that accompanied the use of stirrups in battle was the custom of tucking a lance under the user’s arm so as to deliver a stronger blow to the target opponent. Mounted combat was the change that led to the creation of classic feudalism. Eastern technology, mostly that of the stirrup, was responsible for creating the feudal social structure in Europe, while Western technologies, such as steel crossbows, were responsible for its ultimate decline.

Other Eastern inventions that influenced early European society were generally agricultural, such as the horseshoe and collar. Most early inventions seem to have originated in the Far East or the Middle East, and diffused into Europe through trade. Many events, such as the Crusades, sped up the diffusion of tradable goods through Europe. There appears to be a trend: it took around 200 years for a Chinese invention to make its way into Europe via trade with Arabs. It took even longer for it to become popular in use. It was not until the windmill, popular during the twelfth century, that Europeans began to utilize their own ingenuity to great effect. Using wind and water to reduce the manual labor required to produce products from raw materials was the biggest step in changing Europe into a collection of powerful kingdoms capable of feats that were previously impossible.

15 This tradition of “couching the lance” transferred the momentum of the knight and his horse into the tip of his lance. It also led to the addition of a vamplate on a lance, which was a simple plate affixed to the base of the lance to stop it from slipping under the knight’s arm.

16 François L. Ganshof, Qu’est-ce que la féodalité?, Belgium: Bruxelles, 1947, 88-125.

17 The structure of feudalism requires strong and expensive cavalry fighters in order to give one group of fighters an advantage over another. In this case, footmen become secondary to cavalry, since heavy cavalry could outperform footmen. They were often paid in fiefs of land, which they subleased to serfs in order to continue to afford their expensive mounts and armor.
Manpower had always been the traditional source of energy for production, although the Romans used waterpower as a means of doing more work with less effort. This technology was adopted by the successors of the Roman Empire after its decline. It required the user to be near a source of flowing water, such as a waterfall, which greatly limited placement of mills that relied on waterpower. Animal power was the next best thing for people who lived too far away from an appropriate water source. The best utilization of animal power came with the horseshoe and collar: both Eastern innovations. Waterpower eliminated much of the need for manual labor. Building off of the design of waterpower, wind power was the first major European-based invention.

In the late twelfth century, Europeans began to make windmills: one of the biggest European contributions to the world since the time of the Romans. These mills were built with practical use in mind, as they were made on a turntable to allow them to be turned to face the direction the wind was blowing. An account of Ambroise chronicling the Third Crusade (1189-1192) claims, “German soldiers used their skill to build the very first windmill that Syria had ever known.” Since Ambroise took great measures to record accurately what he saw and experienced during this time, it is fair to assume the windmill was in fact an original European invention. The invention of the windmill did not have any direct results on feudal society, but it did give way to the beginnings of the decline. With peasants able to construct mills that did not require a water source, they were able to bypass the landlord’s control of the water sources. Lords, who were often given land in return for their services as knights, controlled many of the natural resources of the land and

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18 White, 86-7.
19 Ibid., 87.
limited peasant access with fees. Windmills allowed people to grind their grain into flour without need for these lords’ water sources. It also allowed people to move into areas without access to flowing water sources, as well as bypass the manorial monopoly that lords had on water sources. Of course, windmills were not a perfect solution. Nobles still owned the land upon which they were built and the trade routes that moved much of the grain. Furthermore, the effectiveness of windmills died as the winds did, so running water was still a more guaranteed form of power for a mill in the summer. In the winter, however, freezing water meant that windmills were the superior source for grinding grains.\(^{20}\) As wind power spread, the sovereignty of landlords decreased. Many people began to think that work could be made easier by harnessing nature rather than by manual labor.

Most technological advancements did not have immediate effects on the typical organization and structure of medieval feudal society. Instead, the changes that followed the innovations were not seen for many years. One set of technological advancements that affected the bottom rung of medieval society was mining, which, during the Early Middle Ages, especially in France and England, was primarily surface mining.\(^{21}\) If it could be seen on the surface, and dug by hand, it could be mined. In the thirteenth and fourteenth centuries, as surface veins of precious metals became exhausted, new methods for deep mining were implemented to continue to provide Europeans with much sought-after metals such as silver, gold, tin, and iron. These mines utilized wind and waterpower to work pumps and cranes, making the mines deeper and more productive.

\(^{20}\) Ibid., 88.

The increased production of mined resources led to the creation of guilds, which served many purposes. They not only ensured the quality of products through regulation and oversight, but they also provided training and a social system for the workers involved. Master craftsmen learned their craft as children apprenticed to other masters. The knowledge of how to work the raw materials into masterpieces, however, was not so simple. For some, it was trial and error, while others, much as the masons in Florence, it was derived from eastern countries, specifically from the Byzantine Empire. Guilds set up a miniature social structure within the larger feudal structure that further organized people and encouraged competition and training of a craft.

Guilds arose as more people began to practice their craft in the city. Standards in quality arose with the guilds, since they organized the teaching and learning of a craft. This allowed many cities to produce works of unprecedented qualities, such as intricate ironwork or great stonework on cathedrals. With the additional raw resources that improved mining technology allowed for, and the advanced working techniques provided by wind and water mill technology, cities were able to become rich. Some cities even became so rich as to buy their political freedom from the king. Charters, granted by kings in return for monetary fees, allowed such cities the independence they desired. These “free cities” exercised the ability to govern themselves, to an extent, and were typically self-governed by rich merchants or guild members. Free cities negated the influence of local lords, since power was split between multiple people, making it more of an oligarchic system than the single-lord style of country

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feudal life. Money allowed cities to buy protection from mercenaries, which negated the requirement for a local protection force. Guilds and merchants made a difference in society and were not possible with the technological advances that predated them. Their use of organization, in regard to their possible product output and the standards of production that accompanied this organization, led to greater output ability as well as more revenue for the kingdom, which fuelled war efforts and funded further advancements in technology.

The effects of increasing the organized output of products through guilds and technological advancements were great on medieval society. Most farmers in medieval Europe bartered their produce and livestock for other goods and services, but guilds emphasized the use of coin in the marketplace. Guilds expanded the idea of coinage from the worth of the metal to the worth of the coin as a separate unit of trading, much as livestock was in a barter system. The evolution from trading resources for goods and services to trading coin, helped solidify the place of craftsmen and workers in the medieval city. Strong guild influence was possible because of the technology that accompanied their founding, since without better agricultural technology, there would not have been enough people available to work a craft that requires the level of skill and devotion of a guild. Since extra workers were not needed on the manor, after the invention of the horse collar and the heavy plow, many people could pursue crafts instead of farming. These craftsmen were relied upon for improving their quality of work and the technologies involved in their craft. The changes that quality standards created led to fewer non-guild members being able to produce equal or better quality products to those of many before them. These craftsmen still had to eat, of course, but since they were unable to grow their own food, they had to buy food from the marketplace. This was done by either trading
their craft-made goods or by trading coin in return for food. The trend began to emphasize coin more than products in the fourteenth century, as coin was ultimately more versatile than goods for purchasing products and services. Guilds expanded their influence with their financial stability, and helped to spread the advancement of technology throughout cities, which would eventually challenge feudal authority. Some of the richer guilds were the ones involved in the mining of precious metals, which increased their ability to exercise autonomy by paying off fees and feudal obligations that would have otherwise befallen its members.

Cities sought after mining and stone workers. They were so important for the revenue of the local lord that in 1180, the Count of Provence made an agreement with the miners of Toulon that he should receive a third of their output of silver and lead in exchange for offering them military protection. The offered protection extended past territorial boundaries and into trade routes on the sea. The Count especially sought silver and lead miners. Lead was a versatile metal, useful in the fabrication of cookware, tools, cups, and many other things that could have been made from iron or wood. It was also significantly easier to work and mould than iron, and became malleable at a much lower temperature. Since the negative health affects of lead were unknown in the medieval era, people did not hesitate to use lead in everyday commodities. As technology advanced to allow a greater quantity of mined goods, mining gained even more importance. By the middle of the thirteenth century, mining became so important that it was often documented when a lord purchased stones from

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a quarry.\textsuperscript{24} Advances in mining technology directly related to the value of a lord’s land, so if the landlord realized the value of mining his land, he typically provided ample funding to mining operations.

Manual mining was difficult and presented a great risk to the workers, since even simple surface mining could result in death or injury with the slightest mistake. In the twelfth and thirteenth centuries, people began to implement waterpower in mining operations. Waterpower became increasingly important as time progressed, as people began to implement it at every stage of the mining and purification processes.\textsuperscript{25} Waterwheels were used to drive cranes to lift ores out of the mine, as well as power hammers that crushed the ore. Furthermore, waterwheels could be used in the smelting process, where iron ore was formed into workable iron.\textsuperscript{26} This iron was sent to smithies to be shaped into usable implements. Some smith shops used waterwheels to run the bellows, to heat the iron, and to power the automatic hammers, which pounded the iron into shape with more force than a single worker could provide. Waterpower took much of the burden off of the men mining and working the materials. Machines, as a result, gained an importance that they had not seen in the past.\textsuperscript{27} These technological advancements made mining and working metals easier and safer as well as more efficient.\textsuperscript{28} Mining became easier as people began to think about deep mining, rather than surface mining, and about the use of waterpower

\begin{footnotes}
\footnotetext[25]{Whitney, 118.}
\footnotetext[26]{This is generally referred to as pig iron by modern smelters.}
\footnotetext[27]{Georgius Agricola (1494-1555) illustrated the importance of machinery in the mining and working processes in his book, \textit{De Re Metallica}.}
\footnotetext[28]{“Metals” often referred to anything that was mined throughout the medieval period and into the renaissance.}
\end{footnotes}
within the system. Efficiency drove lords to invest in adopting these improved mechanical means of completing these previously time-consuming tasks.

Lords and peasants alike reaped the benefits of increased production in mining and metalworking. Typically, lords controlled operations for mining and working metal, much as they controlled watermills and ovens. Wind power and mechanical energy generated by labor allowed peasants to bypass the lord’s control of certain commodities, such as flour. In the countryside, where lords retained dominance throughout most of the Middle Ages, peasants were thankful for means of bypassing the lord’s monopoly on their land. Wind power was a godsend to them, as they could utilize a windmill in almost any location, without paying a fee to use it or a tax on the products they made with it. In mining, this potential meant that peasants could make some revenue for themselves without their lord taking it from them. This upset the balance of feudal society, even though lords constantly sought ways to keep their control over the land and its resources. In the city, however, wind power and waterpower allowed people to become significantly wealthy, with little interference from the lords. Guilds used some of their common funds to keep the city’s government in their favor, providing them with tax exemptions and staving off greedy nobles. Feudal society saw multiple imbalances because of mining and metalworking technological advancements, which would ultimately culminate near the latter part of the fifteenth century, with the end of the Hundred Years’ War.

The metalworking operations of the Late Middle Ages in Europe ushered in a change in fuels, as mining became more popular and the focus of ironwork shifted to steel working. Steel was easier to produce with coal, which was much less commonly mined in Europe than gold and silver, but was still mined in small quantities in

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29 Such as that of the Count of Provence, mentioned previously.
England. There, it was called sea-coal to differentiate it from charcoal, which they called coal. Although coal was available to certain European kingdoms, specifically England, by the mid thirteenth century, it was still uncommon in use to others. Venice must not have had much exposure to coal, for Marco Polo was imprisoned for claiming these rocks of coal were “such a capital fuel that no other is used throughout [China]” during [his] voyage.\textsuperscript{30} European coal mining and charcoal production had larger reaching effects than just making a kingdom rich.

Charcoal production was responsible for the deforestation of much of Europe during the Middle Ages. Increasing populations in the High Middle Ages meant that more charcoal would be required than before.\textsuperscript{31} In order to meet the demand for this fuel, many trees were cut and burned in pits to be sold. Charcoaling the wood was a long and dirty process, which required many trees to produce relatively small amounts of charcoal. The coaling process burns away the impurities in the wood, making it almost purely carbon. In the process, however, some wood is consumed and the wood loses size and density. Colliers, whose profession it was to cut trees and produce charcoal, may have been able to perfect the craft, but producing charcoal still required an abundance of wood that Europe was not able to sustain for the entirety of the Middle Ages. The business of charcoaling wood led to an increased demand for other fuels for industry. As European trees became scarcer, coal became more popular. It began to replace wood and charcoal for house heating, cooking, and industrial

\textsuperscript{30} Marco Polo, John Masefield, and Thomas Wright, \textit{The Travels of Marco Polo the Venetian}, London: Dent, 1926, Book 2: Chapter 30.

\textsuperscript{31} Charcoal is produced by burning wood in the absence of oxygen. This process, known as “coaling” or “charcoaling” made the fuel burn cleaner and hotter, which made it ideal for cooking, heating, and working materials such as iron. Coal can be charcoaled into coke by this same process, although this does not appear to be used in Europe until the Industrial Revolution.
application. This change was significant, for coal was a plentiful resource that became gradually cheaper as more people mined it.

Coal produced more heat per volume burned than charcoal, although they are both equal in terms of weight. A pound of coal, however, takes up significantly less space than a pound of charcoal, as it is denser. In addition to the size of coal, the extreme temperatures sustainable with coal allowed for metal to be worked at higher temperatures. This led to the eventual production of more steel, and steels of higher quality. The money that coal saved a kingdom was great, as were its effects on the land. More trees being cut down meant that there was more land to use for farming and animal rearing. The deforestation that accompanied the medieval charcoal business also led to a decrease in the populations of local woodland animals, many of which provided food for the surrounding cities. This meant that, while there was more land for pasturing, there was less land for hunting, which led to many lords creating land restrictions, forcing peasants not to farm or hunt on sanctioned or “royal” forests. Coal provided European forests a slight chance to heal after centuries of damage. Furthermore, coal burns at higher temperatures than charcoal, so it allowed for more efficient iron and steel production.32

Most importantly, to set the stage for the much later industries was the application of waterpower in blast furnaces, which were created in the mid-fourteenth century.33 These furnaces required significantly less manpower than their predecessors, and turned the production of iron and steel into a true industry by the

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32 Coal lasts longer when burnt and requires less volume in each bloomery. This meant that it took less coal to produce the same amount of iron as charcoal. Coal, then, became the cheaper and more economic fuel source.

33 Whitney, 118.
mid-fifteenth century. Waterpower was more reliable than wind power, but cost significantly more to the peasants who had to work these crafts, as lords kept close supervision on the usage and taxation of their lands. Since it could be used to pump bellows of immense size, without any potential stoppage from the wind dying, it was the chosen source of power for metalworking. Wind power, while great for farming peasants and their grains, was not steady enough of a power source in most cases to allow constant work to be done, as is required with metalworking. The strong and constant force of waterpower allowed for larger furnaces and greater iron production with minimal manpower, but limited the location of metalworking operations. This mechanical revolution tied in directly with the Hundred Years’ War, as it fuelled the industry by placing a large demand on iron for wartime application. During the war, iron was used to create almost everything the armies of both sides needed. This included armor, weapons, cookware, utensils, tent posts, stirrups, and other items required for a traveling army. Ironwork shifted by the mid-fifteenth century from small-scale production to a large-scale mechanized industry. Instead of the traditional small yields of iron when bloomery-smelted, a water-powered blast furnace could produce up to 300 pound single pieces of iron. Cast iron was also a by-product of the blast furnace, which allowed exact replicas of items to be made out of iron with use of a single mould, much as with lead, but it was significantly stronger and had no negative health effects.

The use of charcoal to power blast furnaces had greater effects than merely supplying Europe with increased iron production. Charcoal required a plentiful supply of wood in order to produce any industrial quantity and was detrimental to the

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34 Ibid., 118-19.
35 Ibid., 119.
preservation of European forests. Deforestation meant that there was less wood for building and burning, but also more bare land for farming. As forests were cut down, people began to pay more attention to their fuel sources and their origins. Wood limitations that were imposed by monarchs to protect “royal forests” were not enough to prevent deforestation when it could be turned to military use. The first response to reducing the amount of wood was to import wood, which typically came from the densely-wooded areas of Scandinavia. This was significantly more expensive than cutting local wood, and may have been one of the more important factors in the Europeans’ switch from charcoal to coal. Coal mining was initially simple, as it was surface mining and not deep mining, as with European gold and silver mines. Coal and water powered blast furnace use had numerous applications, including agricultural and military uses.

Changes in the ways in which people worked with available resources available to them directly affected society. Since business thrived in cities, more people started moving away from the countryside to seek work. Feudal society thrived on a system in which some people farmed, some fought, and some ruled. Peasants, by moving out of their positions on the bottom rung of society, upset this previous balance. This balance was established during a small, yet important, agricultural revolution that occurred in the eleventh century, which was caused by the invention of the heavy plow. People began to move, over time, to cities because of the abundance of food that the heavy plow and other agricultural improvements provided. Cities often provided the alternative to farm work, although not for the peasants themselves. It was, rather, more possible for the children of farmers to be trained as craftsmen or merchants than the parents, allowing them to be eligible to fit in with those who did not necessarily belong to either the lower or upper classes, leaving their parents
behind on the manor. This grew in commonality from the High to Late Middle Ages, especially after the plague limited the number of workers available inside and outside of cities. When peasants moved away from the jurisdiction of a rural lord and into a city, they were able to, likely unknowingly, reduce the overall authority of a local rural lord. This switch from manor to city was not an instantaneous occurrence, but, rather, took many centuries to obtain and was still occurring during the Industrial Revolution of the late eighteenth and nineteenth centuries. Although it was slow, the transition to city life from farm life began with the changes of technology that created new jobs in the cities. Many rulers saw the financial and military potential of poor city workers, and some even went as far as to proclaim that any serf who dwells in a city for a year and a day was free of feudal obligations. Technological advancements led to the decline of feudalism by moving peasants away from rural settings. These advancements were not limited to mining and wind power alone but also came to include the methods by which the naturally available resources were worked and how they were used.

There were many military advantages to having an increased supply of natural resources such as iron, as a result of water-powered blast furnaces and deep mining. Blast furnaces, powered by flowing water, made significantly more iron than manual and traditional methods of iron production. When more iron was available, more soldiers could exploit the advantages in the forms of plate armor and weapons. Chain and scale armors required much less iron than plate armor. Once more iron was available, armor became more complex and protective. The styles of armor, therefore,

changed from a mail shirt and perhaps mail leggings, if the weight was not an issue, to a full plated harness.\textsuperscript{37} Armor improved proportionately to iron working techniques and abilities. The stronger that iron and steel could be made, the more defenses the soldiers could have. Styles of armor changed throughout the course of the Hundred Years’ War, with chainmail being more common in the beginning (and throughout for the English peasantry) and full plate mail (more common for the French during the war) and partial plate mail being more common later on. This change was due not only to the quality of the metals being used, but also the knowledge of what body parts need more protection, and of what could be discarded to decrease armor weight. Speed and protection became equally important as weapons became more and more powerful. Eventually, the trend changed from heavy strong armor to light mobility, which is due to adjustments with the military application of gunpowder. The improvements of arms and armor directly affected one another.

As armor began to cover more and more parts of the body, weapons were adapted to hit the vulnerable parts. Early medieval swords were made for slashing and cutting, but because plate armor was made to deflect blows rather than block them, these types of swords were practically useless against this kind of armor. To adapt to this change, swords were made which emphasized thrusting.\textsuperscript{38} Another example of a correlation between armor and weapons was the development of armor near the end of the Middle Ages that deflected a ball shot from a small proofing gun.\textsuperscript{39} The ability of an armorer to prove that his armor was superior to any weapon became more important as gunpowder weapons became more popular on the battlefield. A quality


\textsuperscript{38} Ibid., 184-5.

\textsuperscript{39} A proofing gun was a small cannon that was used to shoot a ball into armor, to test its ability to withstand impact attacks.
armor harness, it was thought, should be a case in which the wearer is safe from all harm. Early armors, like chainmail, could block a cutting edge, but late medieval armors were made to deflect a blow. A skilled armorer tried to make his armor both strong and able to glance any hit. Iron and steel made both armors and weapons stronger, thus complicating warfare.

Early medieval armors were generally chain-linked. The sleeves of chainmail shirts, which were originally short, were lengthened by the twelfth century to protect the whole arm and eventually the hand. This type of protection did not require much iron to make, and it blocked most cutting weapons well enough, while still allowing for mobility. It provided adequate protection until the prevalence of archers and ranged troops in battle, whose arrows and bolts could easily cut through the holes in the chain links of chainmail. The composite crossbow, which merged the crossbow of the west with the composite bow of the east, made the crossbow an important weapon against chainmail-armored knights. To adjust for this stronger weapon, a single plate of iron was worn over the chest. This breastplate, as it came to be known, provided better protection against stronger weapons, like the composite crossbow. It did not take long, however, for people to realize that a simple breastplate had many weak points that could be exploited by a well-aimed thrusting weapon.

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40 DeVries, Smith, 72-6.

41 Wigglesworth, 88; DeVries, Smith, 127.

42 Ibid., 88-9.

43 The First Crusade brought many technologies of the east into the west. Composite bows used horn and sinew to increase the strength of the crossbow while reducing its overall size. This combination is stronger than all-wooden crossbows. For further readings, consult: Madden, Thomas. The New Concise History of the Crusades. New York: Rowman & Littlefield Publishers INC., 2006.
Armorers resolved this issue by adding extra protective plates around the side of the body.\textsuperscript{44}

The change from chain to plate mail in the High and Late Middle Ages was a direct result of iron production and the desire for increased protection on the battlefield. As weapons evolved, so did plate mail armor. In its earliest form, plate mail was generally seen in the form of a breastplate harness (covering the front of the chest and nothing more). This piece of armor allowed men to protect themselves from sword stabs that would otherwise penetrate the holes between the rings in a coat of chainmail. However, as armor was made more useful, weapons were made to adapt to the change (or vice versa). Swords in the late thirteenth century were made longer and thinner so as to exploit the open gaps in the breastplate harness as well as the chainmail of less-equipped enemies.\textsuperscript{45} Longswords, which developed in Europe after the First Crusade, were met with armor that was made of stronger metal and covered more than just the chest. Breastplate harnesses, or cuirasses, were central to the design, but the appendages received more and more plate coverage as time went on.

Plate armor was not limited to the chest. Jean Froissart (1337-1405) illustrated many examples of full plate suits of armor in his \textit{Chroniques}.\textsuperscript{46} By the middle of the fourteenth century, it is fair to assume, many people were using plate armor in battle.\textsuperscript{47} The plate that is illustrated generally covers the arms and the legs, as well as

\textsuperscript{44} This is called a “cuirass” or a “harness” as it encased the user’s front, sides, and eventually back.
\textsuperscript{45} DeVries, Smith, 185.
\textsuperscript{46} Most of the illustrations, supposedly borrowed from Froissart’s original work, appear in the version of his \textit{Chroniques} that were commissioned by Louis of Gruuthuse, and finished by about 1470. See: Jean Froissart, \textit{Froissart of Louis of Gruuthuse}, 1470, MS Français 2643-6, Bibliothèque Nationale De France, Paris.
\textsuperscript{47} In the early and high middle ages, armor was so expensive that a coat of mail could cost as much as sixty sheep. See also: Wigelsworth, 88-90.
the chest, back, and neck. This style is the ultimate conclusion of the changes that were occurring with older armor types. Fully encased, the wearer of a plate mail suit was almost invulnerable to a cutting edge weapon. To combat users of such suits of armor, people had to rely more on thrusting weapons or stronger weapons than before. Longbows and crossbows could sometimes pierce a suit of plate mail, at the right distance, but the most important weapon to combat the importance of quality suits of armor was gunpowder weaponry, although the form of gunpowder weapon that would most threaten the plate-armored knight, the handgun, would not be used in battle until the early fifteenth century.\textsuperscript{48}

Another significant development in the beginning of the fourteenth century was the introduction of the English billhook. It was based on an agricultural tool that was meant for cutting crops. Much like the halberd, which was a similar pole-arm weapon, the billhook had many military applications. Unlike the halberd, however, it was adapted from a farm implement to have a curved blade and a protruding spike on the back. This made it ideal for cutting, hacking, and pulling men off of horseback, making it a versatile weapon. When a man fully encased in a suit of armor fell off of his horse, it was not always easy to get back up, making the billhook a more effective weapon than it was originally thought to be. It was a common peasant weapon, as it could be made out of farm equipment that most men already had, and was effective in battle. There is an English sense of pride in their original weapon, the billhook, which was used through the end of the Middle Ages and into the Early Modern Period.\textsuperscript{49}

\textsuperscript{48} Whitney, 126.

\textsuperscript{49} The English contested that the billhook was superior to any pike regiment in a ball-and-pike army. It played a role during the Battle of Flodden, in 1513, in the hands of the English against the Scots. For the use of the billhook during an Irish rebellion in 1798, see; A. T. Q. Stewart, \textit{The Summer Soldiers: The 1798 Rebellion in Antrim and Down}, Belfast: Blackstaff, 1995, 215.
Billhook was simple in construction and design, but effective as an infantry weapon. Late medieval armies focused more on foot soldiers than on mounted ones because of weapons like this, as well as those like the longbow. The longbow proved that effective military technology was not limited to ironwork.

Most likely out of necessity rather than military genius, Edward III of England brought to France a group of as many as 15,000 fighting men, most of who were infantry and archers. Heavy cavalry was traditionally considered superior in battle than footmen, and was thought to be significantly more able to achieve victory in battle. The fighting men that Edward III brought eventually fought in the Battle of Crécy (1346), which was a result of the English fleeing from the French and, when confronted, were forced to defend themselves. With archers manning the flanks and infantry in the middle, the English were prepared to take the assault of the impatient French. Luckily for the English, the rain from the previous night loosened the crossbow strings of the Genoese crossbowmen, whom the French had hired to bolster their ranks. This rendered the bulk of the French army’s missile troops useless, since they did not protect their strings from the rain under their helmets as the English did. As Froissart notes, when the Genoese fled, the French cavalry chased them down as if they were the enemy. This battle ultimately ended with the French cavalry charging into the mass of English soldiers only to be faced with a deadly onslaught of arrows.

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51 Ibid., 165.
52 Ibid., 167.
54 Ibid., 128-130.
Jean le Bel (1290-1370) accounts that the “archers fired so skillfully,” which directed the main French cavalry force right into the English men-at-arms: an accidental success for Edward III that would be felt throughout England and France.  

Edward’s victory at Crécy was the mark of a revolution in military thinking. Although the longbow was not a new technology, the triumph of peasants over trained knights led to the preference of powerful long-ranged weaponry over heavily armored knights. Knights, after this, no longer were the supreme force on the battlefield. Why should a king pay a knight in land when he could pay a peasant almost nothing (in comparison) to do the same, if not more, in battle? There was, by the time of the Hundred Years’ War, already a practice in England in which a knight could pay the king an amount of money equal to his worth in battle, called scutage, to avoid giving his military service. With the new effectiveness of cheap soldiers, namely archers, in battle, there seemed little reason to rely on knights for any service at all. Scutage and cheap peasant-based armies were significant factors in the decline of the feudal system. They removed the need for knights, who were the driving factor in feudal society. Edward did not know it but his victory at Crécy marked the biggest milestone in the beginning of the end of the feudal system of society.

The effects of such a drastic military change would be slow to take hold and are not the only reason that the feudal system began to disintegrate. There is debate that the longbow was not, in fact, solely responsible for the victory at Crécy, as many others assume. Such claims attribute the victory to other factors of the battle (such as the rain, rough terrain, and disorder among the French knights) than the use of

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55 Jean le Bel wrote his Vrayes Chroniques in 1327. DeVries, 169-70.
56 Ganshof, 16-28; White, 28-38.
longbows. Although this may be true to an extent, the almost-repetition of this battle in the form of the Battle of Agincourt, sixty-nine years later, may suggest otherwise. A peasant that could wield a weapon that was capable of easily killing a trained knight was a foreboding force in feudal Europe. It began to show that a knight was a poor investment, as each cost up to seven times as much per fighter than a peasant cost per man. In order for feudalism as a system to work, the knights had to be relied on for their protection, but once peasants proved that they were fighters as capable as archers, the balance of feudalism was upset. After all, knights were often paid in land, while peasants were paid with a few small coins. The peasant, typically an archer or foot soldier, of the late fourteenth century was the first step in military equality between the rich and the poor, and marked the beginning of an important shift of feudal power and emphasis.

Gunpowder was the most influential medieval invention, as far as warfare was concerned. It was a work of chemical and physical genius that was initially overlooked as an addition to medieval life, which had three uses for fire: cooking, warmth, and light. Gunpowder burnt too quickly to provide any of those adequately, and was therefore useless in everyday life. Children apparently found a use for it, as Roger Bacon recorded in his writing that they used a mixture of gunpowder wrapped in paper to frighten neighbors. As a weapon, gunpowder did not appear in manuscripts for almost a century after Bacon mentioned his recipe for the gunpowder that the children would use as noisemakers. His recipe was much more explosive than later recipes, as it used more sulfur, but would still have worked in a cannon and a
firecracker alike. Although the first illustration of a European cannon appeared in 1326, the cannon was used more frequently in the fifteenth century.\footnote{For the first European illustration and description of a cannon, see: Walter de Milemete, \textit{De Nobilitatibus Sapientii Et Prudentiis Regum}, 1326. MS PR1105.R7 1913b, Cornell University Library, London.}

In order for a cannon to work properly, it had to have not only the right mixture of powder, the appropriate metal used so that it would not explode and harm the user, but also a crew of many men to operate, since cannons were cumbersome and heavy. This combined many of the technological advancements in order to be utilized properly. Cannons were potent weapons and sometimes prone to explode and kill the user. Criminals often manned the cannons as punishment, since their lives were worth relatively little. Even at the Battle of Crécy, some historians such as David Nicolle, believe that at least one cannon was accounted for by the English Privy Wardrobe in the preparations for the campaign in France.\footnote{See: David Nicolle, \textit{Crécy 1346: Triumph of the Longbow}, Osprey Publishing: 2000, 21.} As Giovanni Villani (1280-1348) claimed in his contribution to the \textit{Grandes Chroniques de Froissart} (in 1346), at the beginning of this battle, as the Genoese and French were shouting and playing trumpets and drums to frighten the English, the English shouted back and answered their trumpet calls with cannon fire.\footnote{DeVries, 167.} This is a plausible supposition since the first European cannon was illustrated in 1326.\footnote{DeVries Smith, 196.} The pot-de-fer, as this early European vase-shaped cannon was called, was mentioned in a manuscript twenty years before the Battle of Crécy, so it might have been possible for Edward III to bring one with him into battle. One would imagine, however, that if the English had had such a loud and potentially damaging weapon with them, then more chroniclers
would have mentioned it. This does not appear to be the case, there are few extant accounts of cannons and their use in this battle.

Although the idea of the cannon originated in China, and the gunpowder that made it a weapon was invented most probably in the Far East, the cannon was to have more profound repercussions throughout the West. Cannons were the final equalizing force between the knight and the peasant. To become a knight took generally seven years of training and practice. An archer (longbowman, specifically) would likely spend seven years practicing, but could be ready to shoot with moderate skill within a year. Sir Ralph Payne-Gallwey, a historian and ballistics expert, claimed that a crossbowman could shoot accurately enough for war after a few weeks of training. This training time was even shorter than that required of the longbowman, but longer still than that required for the use of gunpowder weapons. Cannons and handcannons (a small cannon mounted to a pole) could be shot with minor accuracy after seven days of practice.63 Since they were inaccurate at almost any distance, early cannons were better used as a weapon of fear rather than as effective destructive weapons.64 As time progressed and metalworking (as well as milling) techniques advanced, cannons became more useful.

The tendency of a cannon to explode and kill its user was always a concern for those who wished to use them on the battlefield. Gunpowder weaponry was made, by the fifteenth century, out of bronze more than any other material.65 A single cannon was incredibly heavy but made loud morale-damaging noises and could cause enough

63 A “handcannon” is also referred to as a “handgonne” or “gonne”. This is doubtlessly a precursor to the modern English word, “gun”.

64 Devries, Smith, 200.

65 Wigelsworth, 96.
damage to be worth bringing into battle. When mining techniques allowed for increased supplies of the metals that made bronze, namely copper and tin, cannons were made thicker and safer for the user. The demand for tin in cannon building was significant for trade, since natural tin deposits did not exist in every kingdom. Some handcannons, like the one excavated from the ruins of Tannenberg Castle in 1849, were made with powder chambers to make the weapon safer and shoot stronger.  

Bronze became more reliable as metalworking techniques advanced, making this better-tempered bronze able to be used to make cannons stronger and much more reliable. Of course, more reliable still was not perfect, and some cannons were known to explode regardless of construction. A notable example is the Mons Meg cannon, which did not explode in 1449 when it was made, but rather in 1680 when it was fired again for celebration.  

Many medieval cannons were made with welded iron bands, while handcannons were made out of bronze. Some gunpowder weapons exploded soon after they were made, while others either exploded later or did not explode. Many people started, by the late fourteenth century, to research into the science of making cannonry strong enough to withstand repeated use. This science, which began with the increased supply of metals from mining, developed into the science of making gunpowder more efficient.

Perfecting gunpowder was always a concern for those who relied on cannons as their primary artillery. Alchemists tested different compositions for gunpowder, and arrived at multiple recipes, each with different intended uses. They found that an

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66 Ulrich Bretscher, "Handgonnes." Handgonnes. N.p., Sept. 2009. Web, 5-8; A powder chamber is a smaller bore near the base of the cannon that had thicker walls than the rest of the cannon. It also focused the expulsion force outward and required less gunpowder to achieve the same results as a cannon with a larger bore.

ideal mixture for use in cannonry was close to 75 parts saltpeter, 15 parts charcoal, and 10 parts sulfur. This mixture was stronger the longer it was ground and mixed, up to a specific fineness. If the powder was mixed and ground by a ball mill, water powered or otherwise, for two days, it became a fine powder called serpentine powder or meal powder. During the milling process, vinegar or alcohol would be added after a specific amount of milling, but the exact moment is still debated. This increased the reliability of the powder. Some time around the middle of the fifteenth century, the tradition of making uniform granules of gunpowder (called corned powder) came into practice. Corned gunpowder burned more evenly and quickly and, consequently, more powerfully.

The development of gunpowder, cannons, and, eventually, guns was the final step towards militarily equalizing peasants (footmen) and knights (cavalry). Infantry dominated the Late Middle Ages as mounted knights began to fade into the background and gunpowder came to the foreground. The trend in armor went from heavy full body armor to lighter armor that only blocked vital points. Speed gained favor over defense. In general, armor was discarded piece by piece (except in tournaments) until the much more modern rifle-wielding soldier replaced the knight, the archer, and the fighting peasant. These military changes were mirrored by the agricultural changes that often preceded them. Much as the need for horses in battle led to the use of the feudal system in medieval Europe, the lack thereof led to its discontinuation. Agricultural technologies led the way by trying and testing new methods and technologies, which were later put to military use. Since feudal society

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68 This is similar in composition to modern day Swiss black powder. Devries, Smith, 197.
69 Ibid., 198.
70 Ibid., 174-82.
was predicated on the use of knights on the battlefield, once there was no longer any need for them, the entire feudal system began to decline, to be replaced by a system in which monetary worth dominated.
Chapter 3
The Plague

With feudal society already threatened by the changes that occurred with agricultural and military technologies, medieval Europe saw an even greater threat to society and even to life as a whole not too long after the Battle of Crécy. This threat was the Plague, also called the Black Death, which struck Europe in the mid-fourteenth century. It affected feudalism by changing the value of the labor of individuals and upsetting the social balance that was required to maintain the feudal organizational structure. The plague had fairly immediate effects on the population of Europe, reducing the overall numbers of people from every part of society, but most notably of peasants, who made up the bulk of medieval populations. It could not have come at a worse time for Europeans, who had already been suffering from a succession of great famines beginning in 1272 and striking every few years until 1319. 71 The famines were caused by a slight reduction in overall temperatures in Europe, which is often referred to as the mini ice age. This shortage of food certainly helped to make Europeans more susceptible to the plague that decimated a sizeable percentage of the population of Europe. 72

Before the plague, there was a common trend throughout Europe. Populations rose steadily from the Early Middle Ages to the High Middle Ages. This was due to the slightly warmer climate that Europe experienced during this time, and the abundance of food that this allowed them to grow. To further add to the growth of the population, better technologies for farming (including the heavy plow and the horse


72 Scholars disagree on the exact percent of people that died because of the plague. Colin Platt, a social historian of medieval history, claims that the actual losses throughout England were closer to forty percent. See: Colin Platt, *King Death: The Black Death and Its Aftermath in Late-Medieval England*, Toronto: University of Toronto, 1996, 19.
collars that made this a viable replacement for the scratch plow, as well as the windmill) allowed for more people to live without farming. Fewer farmers could then support more non-farming city residents, so population had begun to rise. This, along with the growing demand for craftsmen as population rose, led to many people moving to the cities. This presented both benefits and problems, as city life was not always the cleanest or healthiest life, but it also began to threaten the feudal structure of society.

The growth of cities played a key role in the decline of feudal society. In cities, people were more susceptible to the plague, since they lived in close proximity to one another. Furthermore, the plague was spread by trade, which was an important focus of any city. The growth of cities was directly affected by the plague, which reduced the number of people living inside and outside of the cities significantly, although those further from the central trading cities had less of a chance to come into contact with the plague. When the plague was spread, it hurt the lowest social group in medieval Europe: the peasants and craftsmen. Feudalism relied on country-dwellers to work properly, who were more susceptible to attack by other nations or by brigands, since they usually lived outside of walls and in small villages on open land. They required the protection of the local lord, who would provide it in return for either farm work or military service (or a combination of both). The manorial requirements were simple, in theory. Peasants would farm to provide for the lord and his knights, who gave them a keep to retreat to in times of emergency and a basis for their own food supply. In practice this system became complicated as subinfeudation became used more frequently. In the city, life was somewhat less complicated. The

73 Although the plague decimated equal percents of noble and ignoble people, in terms of absolute numbers, it affected the lower social orders much more.
food supply of the city was generally brought in from peasants who lived either just outside the city or came to the city to sell their goods. People within the city walls were then able to focus on the arts, crafts, and other non-farming tasks.

Food was essential to life, and craftsmanship was not. Therefore, in order to be able to have craftsmen who did not farm, the farmers had to be able to provide for themselves and to have surplus crops to give to the craftsmen. Though this simple practice was in use for a long time, the extremity that allowed for cities to exist without farmers living within city walls was not truly possible in Europe until the adaptation of the heavy plow and the horse technologies of the latter Early Middle Ages. This is because the great plow and the improved system of using two fields without any lying fallow allowed for greater food production and a minor abundance. Horses and their use in agriculture allowed people the luxury of subsisting on food that they did not grow, which in turn allowed them to practice crafts instead of farming. This cycle would eventually become so great as to let a few small communities of farmers support major growing cities, such as London and Paris. People in large cities, by the Late Middle Ages, practically did not farm at all, and were almost exclusively devoted to other careers and practices.

This ideal style of city life was cut short when the plague struck France and then England in the mid-fourteenth century. The plague spread through Europe with great speed, coming from the port of Genoa and traveling along trade routes. It devastated a noticeable percentage of the population, upsetting the feudal balance. For more information on the spread of the plague in Europe, see: John Kelly, The Great Mortality, an Intimate History of the Black Death, the Most Devastating Plague of All Time, 1st ed. 1, New York: Perennial, 2008, 2-27. Historians still argue as to whether or not the plague killed as much as seventy-five percent or as little as twenty-five percent of the population. For one historian who supports the more extreme figures, see: Philip Daileader, The Late Middle Ages, Chantilly: Teaching Comp, 2007.
Many people died from the plague, as their immune systems were weakened from the famines leading up to it. The deaths of so many peasants caused the few who survived to have a greater value applied to their labor. Since there were fewer people to work the land after the plague had struck, each remaining farmer was incredibly valuable. This is highlighted by the fact that cities were increasingly relying on farmers to bring in their food, rather than growing it themselves. The cost of food increased and farming peasants began to see an imbalance in the feudal order of life. Rather than relying on the local lord for protection, the post-plague peasant was relied on for food. Peasants could also provide for their own defense, since the longbow proved its place in war at the Battle of Crécy, and since crossbows were becoming stronger as steel-working technology improved. This meant that peasants did not need the support of local knights as much as they did before, and the landowners relied on the peasants more for their food and often for their military services. The balance of feudal power was upset by both the plague and the changes in military technology. Knights on horseback could be killed at range with a bolt or arrow, making them an expensive and increasingly useless fighting force.

As peasants replaced knights with long-ranged weapons, it seemed strange to keep knights in the service of a landowning lord. Medieval Europe did not have standing armies before the Hundred Years’ War; replacing knights with peasants when they were needed in battle was a simple affair. Many knights were without work for this reason, and many of them became soldiers-for-hire or bandits, profiting off ransoms of cities and mayors or selling their services to the highest bidder. There were an abundance of mercenary soldiers following the plague, as well as those that

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resorted to pillaging and ransoming in order to make their living. These dormant knights had the frightening potential to create civil unrest and, given the fact that they were also becoming obsolete on the battlefield, they were less favored than they were in the beginnings of feudal Europe. Knights, paid in land and estates, were an incredibly costly fighting force as the standard of armor changed from cheaper chainmail to more expensive plate mail, made of iron or steel. Peasants provided the alternative for the lords who did not want to give up large tracts of their land for the service of a knight.

To further complicate the situation, not all knights fought in wars, and militarily capable peasants, highlighted with the plague, as the value of every man rose to previously unprecedented levels, began to replace knights as footmen. A tradition arose, as knights gained land through their service, by which a knight paid a scutage, or shield tax, to avoid fighting in person. This allowed him and his retinue to continue to be considered knights without actually being present on the battlefield. Such a tradition made lazy knights and could easily cost a king a battle, and was a sign of the continually changing structure of medieval society. Knights of the tenth century easily could have become the landowners of the eleventh and twelfth centuries. Scutage helped kings to purchase mercenaries, who were increasingly common during the Hundred Years’ War. When King Edward III of England invaded France with an overwhelmingly large company of archers at the beginning of the war, he had not considered the effect that this would have on later feudal society. It represented the tremendous change from horseback warriors to footmen with ranged weapons, as well as a societal change from structured country life to more fluid city life, where one may apply a trade or craft to make his fortune. When the archers of Edward III won the Battle of Crécy, as most historians attribute the victory, they set in
motion a focus on ranged weaponry that would have its ramifications through the modern day.

The plague that struck Europe quickened the pace at which the old feudal system of Europe declined. Advancements in agricultural and industrial technologies were creating an environment in which feudal obligations gave way to monetary ones. Rather than serving a lord because someone must, these technologies allowed peasants and rulers alike to pay off their obligations. Money took precedence over service, and the economy grew with the population. Craftsmen, the city version of the peasant, and knights were able to pay off debts with natural resources or physical money instead of with service, as a feudal system required. This slow change would make cities rich, and rulers richer, since they could gain more taxes from rich cities than from poor farmlands. The plague that struck Europe in the mid-fourteenth century accelerated these changes, because people, as a work force, were suddenly in high demand. Craftsmen and farmers, more rare after the plague, rose in value. This simple change upset the balance of many farmers to a few knights to a single lord. With as few peasants as knights or lords, the value of each one’s labor increased immensely. The plague destroyed more than a percentage of the population: it destroyed any remaining hope that the survival of the feudal system may have had by the fourteenth century.
Chapter 4

Relations with the Church

The plague was not the only obstacle that the feudal system of Western Europe faced. Religious turmoil played a role in the eventual abandonment of the feudal system. This issue included the anti-clerical feelings of much of the general populace, which grew after the plague struck, since the Institution of the Church of Rome was unable to do anything to prevent it. Mistrust of church officials was strengthened by the inability for the Church to perform certain functions that the people demanded of it. The reactions of laity to the plague, both during and after, as well as their outlook on the technological advancements preceding it, stunted the trust of the people of the Church. Since it had always played a prominent role in feudal society, the Church was unwilling to see feudal order destroyed by capable peasants and the growth of cities.

In order to examine relations between laity and the Church of Rome, it is imperative to explain how an institution such as the Church could affect the daily life of people in the Middle Ages. As an institution, the Church could exist without necessarily impacting feudal life in Europe. This, however, was not always the case, since the leaders of the Church, both local and total, as with the pope in Rome, typically had interests in the land and conflicts of the rulers of European kingdoms, which may not have necessarily been for spiritual reasons. The secular involvement of the pope in the politics of Europe is evident in the fact that he had his own country as well as a religious constituency. Contradictory actions of popes often affected the perception of the laity to the Church officials, who were looked to for guidance. Regardless, they often enacted religious jurisdictions that affected secular laws,
including those that they passed against the use of particular weaponry used in war against Christians.

The Church, by 1139, proposed limitations on the uses of certain weapons and technology, including the crossbow, claiming that it was too powerful for use against Christians. Some of the oldest limitations were those that limited the number of days of the year people could fight, although these were not always followed. More importantly in relation to feudal society were those limitations on use of certain weapons in battle. It seems that the Church was attempting to preserve the balance of power between trained and untrained warriors, as well as their own influence, which was dependent on their ability to influence the rich and poor alike. A weapon as powerful as a crossbow or an arquebus made the customary seven years of training to become a knight an unnecessarily large investment, since a peasant could be trained to use such a weapon in a fraction of the time. The balance of power was always a concern for the upper class in feudal society, as the smallest imbalance could cause significant changes over time. Crossbow and cannon use did, in fact, exactly what the Church was trying to stop. As the power of ranged weapons increased, the significant force in battle and society began to change. Ranged weapons were slow to take precedence over the hand-to-hand combat of previous centuries, but by the end of the Hundred Years’ War, it was obvious that the old methods for fighting were obsolete and being replaced by other methods.

Pope Innocent II was the first to issue this sort of ban, in 1139, but multiple bans were made by Papal authorities throughout the whole of the Medieval Era. See also: Lynn Townsend White, *Medieval Technology and Social Change*, Oxford: Clarendon, 1962, 110-111.
The Church was often trying to gain and maintain power and manage affairs in its own favor and, after those were achieved, in the favor of the upper class.\textsuperscript{78} This was, however, not without blunder. Unfortunately for the Church, there were multiple instances throughout the Middle Ages where they could not meet the demands or expectations of the people. The first occurrences were during the Crusades. Although they were supposed to be Holy Wars, waged in God’s name, their ultimate failure may have caused people to question the Church’s power or purpose.\textsuperscript{79} The Church managed to find reasons as to why the Crusades failed as a whole, which varied, but it most commonly blamed the failure on the sins of the Crusade leaders. Even so, the ultimate failure of these Crusading movements and the onslaught of the plague left many people questioning whether or not the Church was capable of doing anything that it claimed.\textsuperscript{80} To further complicate matters, there were instances in which multiple popes were elected at the same time. This was possible because from 1309 until approximately 1378, the pope stationed himself in Avignon rather than in Rome.\textsuperscript{81} The pope that was elected after this period of the Avignon Papacy was stationed in Rome.\textsuperscript{82} Soon after, because of the new tradition of electing popes in Avignon and the old tradition of Rome, confusion arose when another person was named pope, this one being stationed in Avignon. A prominent cardinal proclaimed himself pope in front of a council of supporting cardinals after realizing the other two

\textsuperscript{78} In this case, power refers to their institutional ability to influence others to act in their favor.
\textsuperscript{79} For further reading of documents relevant to this subject, see: \textit{Chronica Regiae Coloniensis Continuatio prima}, s.a.1213, MGH SS XXIV 17-18, translated by James Brundage, \textit{The Crusades: A Documentary History}, Milwaukee, WI, Marquette University Press, 1962.
\textsuperscript{80} This ties in directly with the anti-clericalism in the background for the Reformation, especially in England. See: A. G. Dickens, \textit{The English Reformation}, New York: Schocken, 1964.
\textsuperscript{82} This was Pope Gregory IX, in 1337.
popes did not fit his ideal of a leader of the Church, leaving Europe with three popes. The Church later referred to the false popes as antipopes, most likely in an attempt to serve its own interests and prove that it was not responsible for this incident. Having three popes allowed many Christian kingdoms to choose whom to support, forcing their politics onto the pope of their choice. For example, France supported the popes of Avignon, while England looked to the pope of Rome for guidance, which placed those two popes on opposite political sides of the ongoing conflict between France and England. Since the Church had what appeared to be three popes at the same time, many people began to distrust its ability to guide the laity spiritually. Groups of people who did not trust the Church of Rome’s teachings, such as the Lollards of England and the Hussites of Bohemia, took advantage of the growing distrust of the clergy to spread their anticlerical beliefs among the Christians of Western Europe. This shift away from the centralized power of the Church would eventually culminate, along with other region-specific factors, in the formation of reformation movements.

Distrust of the Church hurt feudal society, even though the position of the Church was technically outside of feudal jurisdiction, as it dealt with matters of spirit rather than state. Even though churchmen were outside of the feudal system, as they had their own hierarchy within the Church, they still often acted in favor of the higher social order. For a feudal society to work well, those higher on the social scale must be able to offer those below them something that they could do or have on their own. In Capetian feudalism, this was the protection that the upper division of society offered the lower. Lower classes then bought this service with their labor and crops. The Church typically acted in ways that preserved its own power first, but preserved

the power of nobles and lords second. Peasants had a place in the Church as typical congregates and cheap labor, and did not struggle with the Church for power as nobles may have. Although the Church sometimes had this struggle for power with secular lords, they did, on occasion, work to preserve each other’s interests, as they were both ruling institutions whose interests would be hurt if the balance of feudal power were upset by peasants. The Church passed rulings, such as the ban on crossbows, and later on gunpowder weapons, which were supposed to balance the power against the lower social groups, who were required to stay complacent in order to preserve the organization of feudal society.

The clashing interests of the upper class and the Church were significant in the decline of feudalism. Nobles were typically the first to overlook bans that the Church proposed on deadly weapons. This was often because they were the first to read or hear them, and they desired to win their battles more than they desired to obey Church law. Such actions sometimes meant that peasants were not even exposed to the rule, and even if they were, they were told to ignore it in order to become a more effective fighting force. Bishops and priests were responsible for spreading the laws of the Church to the peasants, but this did not always occur. Some local priests were given their position by the king, in both England and France, and they retained their loyalty to the ruler who appointed them to that position. This meant that oftentimes the desires of the Church were overlooked in favor of the interests of the king or local lord. Lay investiture, or the assigning of church officials by a king, caused contention between kings and the Church. Although the Concordat of Wörms, in 1122, proposed an ideal solution to the issue of lay investiture, some kings were still practicing this
well into the Reformation. The interests of the Church in Rome may have benefited Christian peasants, but they usually clashed with the Christian rulers. Furthermore, cities did always have the full favor of the Church, which is explainable by the requirement for friars, both Franciscan and Dominican, to renew the faith of people in cities. This struggle set two factions that could have otherwise worked together against each other, allowing those lower on the social scale to pick and choose to follow whomever seemed to have more power at the time in order to serve their own interests.

Contests between Church and secular authorities were only highlighted as the Hundred Years’ War came to an end. By 1453, it was clear that the power of the lower class was steadily rising. The Hundred Years’ War caused Western Europeans to reduce the use of armor and mounted fighters and to increase that of footmen and ranged troops, often in the form of mercenaries or peasants that were forced to fight. This may have been against the personal wishes of the Church, but it seemed as if developments in technology were triumphing in Europe over the traditional means of guidance by the Church, at least among people who were militarily active. Furthermore, the multiple popes that followed the Avignon Papacy damaged the image of the Church. A major shift of attention started with the war, causing the focus of self-identity to go from being a Christian to being a resident of a particular country. The ideology behind national consciousness was truly born with the Hundred Years’ War, as it was less about Christians fighting and more about two separate nations fighting. Although this type of conflict was certainly not new in 1337, the war was not

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consistently in favor of either side or timely enough to allow people to redefine their self-identity. This was made even simpler with the plague, as it hurt a significant portion of the European population, forcing the survivors to redefine their own purpose in life. Craftsmen and artisans may have, for example, had to return to farming, since the plague created vacancies in positions that were otherwise filled in the typical feudal system of the High Middle Ages. The Church, unable to enforce its will on some of the survivors of the plague and the war, had to undergo a similar self-identifying change.

Feudalism required the Church to act both as a balance and a propagator.\textsuperscript{85} When tensions arose between laypeople and the Church, the Church’s role in balancing power declined in significance. To make the matter more complicated, the upper class had been in contest with the Church for power for a long time.\textsuperscript{86} Power struggles existed because of the position of the Church in feudal society. Since the Church was both a part of it and a separate entity, their position was often contested. The reception of the Church by the general populace, following the plague, was key in reducing its overall influence in the fifteenth century, leading up to the start of the Protestant Reformation. The Church greatly impacted the lives of peasants, who were important in keeping feudal European society balanced, since there were significantly more of them than anyone else. An uprising of peasants could mean fewer crops collected for the upper class or fewer people available to fight a battle on foreign soil.

\textsuperscript{85} As a balance, the Church acted more frequently in favor of the upper class, and kept the peasants content in their position as the lowest class, offering them spiritual answers to everyday problems and promising them a reward in the next life for their sufferings in this life.

\textsuperscript{86} Examples of this can be seen throughout the Middle Ages, with kings such as John I of England contesting land rights with the Church. Rulers often made financial deals with the Church to stave off disaster, then never repaid their debt.
The Church had a direct link with the secular world, which was the great deal of land that they owned. Priests and local churches often had land donated to them after someone died, in order to do penance or to reduce their required time spent in Purgatory. Over time, these donations began to form into a significant amount of land being owned by the Church through one local church or another. In many cases, a church’s lands had peasants to work its lands and knights to protect it, much in the same way as secular feudal lords operated their land. Since this was ruled in much the same way that many lords managed their lands, it can be assumed that they faced similar problems that their secular counterparts faced with the operation of their land and the balance between exploiting their labor source and providing security. This would be further reason for the Church to desire to keep the balance of power in favor of the ruling group of society, as it was a part of this group. The Church was both inside and outside the system of feudalism, which acted as motivation to some of the actions of Popes, who owned the most land of any one church official. Popes, such as Innocent II, proposed bans on certain types of weapons to keep balance and order in society as a whole as well as in their own lands. The motivation of churchmen were often not as righteous as they perhaps would have liked people to think, as there was too much chance for bias when there was a personal stake in the subjects that papal laws often addressed.

Of all the contributions of the Church to European feudal society, its ability to quell peasant unrest was likely the most important. Distrust in the Church had contributed to the decline of feudalism by removing or lessening the impact that it had on the peasants of a region. When this is taken into account, coupled with stronger and easier to use weaponry, the peasants became a serious potential threat to the upper class. Military technologies were the most significant in regard to peasants and the
Church, which is apparent in the multiple bans that the Church imposed on powerful weaponry such as the crossbow.\textsuperscript{87} These attempts to control peasants contributed to the preservation of the feudal way of life, and delayed the decline of feudalism, only to be ultimately upset after the plague. Order was the primary goal of the Church, although its means of achieving order did not always benefit everyone, since it favored nobles in some things and the peasants in others. As a generally self-serving entity, the Church was both within and without the feudal organization of European society, serving its own needs before those of others, yet affecting the balance of power of the others as long as it fit its own desires as well. The Church was instrumental in the decline of feudalism after it began to lose power, as that ended its role of a slowing agent to the decline of the feudal system of society. When this influence ended, and technology improved to the point that the Capetian system of feudalism did not apply to the same extent to the people of Europe, feudalism as a system fell out of use in Europe. It was ultimately replaced by a money-driven system in which cities were more important than farms, and the class of someone was judged by their financial capability and their social interaction with affairs both private and public.

\textsuperscript{87} Pope Innocent II’s ban on crossbows in the twelfth century was the first attempt of the Church to limit the military capability of peasants against better-trained troops with short-range weapons.
Chapter 5

Conclusion

The practice of vassalage feudalism, beginning with the practice of Capetian feudalism in the tenth century, depended on the delicate balance between the roles played by groups in society that were upset by advances in technology. The adverse effects of technological advancements, reinforced by those of the plague, along with damaged relations between the laity with the Church, provided the necessary conditions for the decline of the feudal system throughout Europe. Ironically, advancements in technology predating vassalage feudalism aided its creation, but further advancements in the following centuries provided a means for its decline. The use of technology in agricultural, industrial, and military applications played a significant role in the decline of feudalism as a system of hierarchical organization for society. 88

The technologies that played an important role in the decline of feudalism were those that affected agriculture, industry, and military aspects in medieval European society. Agriculture was the basis of life, and a primary role of the lowest group in the ideal feudal pyramid. The simple technologies that were available to peasants prior to the introduction of the heavy plow limited their ability to escape their position in society. Once the great plow was created in Europe, along with the thinking behind growing different crops in separate fields so as to leave none fallow, which made farm work more efficient with fewer people involved, peasants were able to grow more food with less effort. Agricultural technologies removed the need for some people to work on farms, and made enough surplus food to provide for an

88 It is important to note that this was only theoretical, since feudalism was not as structured in practice as it is in theory.
increased number of craftsmen and warriors. Technologies that related to food production were the foundation upon which further technological advancements were based.

A surplus of food, as well as a need to supply the economy with additional resources, led to advancements in industrial technology. Industry, in the case of medieval Europe, was significantly less organized than that of Europe during the Industrial Revolution. Even so, the changes that occurred in the Middle Ages, sometimes termed the industrial revolution of the Middle Ages, had a profound impact on society.\textsuperscript{89} Mining and iron working technology were important for further advancements in technology. Increased supplies of metals aided the creation of agricultural technologies, which required more steel as the technology became more improved, such as the scratch plow and the heavy plow, the latter of which requiring more steel than the previous. In order to improve the quality of craftsmanship, such as metal work, better iron and steel technologies were required, as well as more of an abundance of metals mined. Mining technologies, such as deep mining with the aid of water driven machines and pumps, allowed an abundance of materials that aided all forms of technological advancements, as metals were key to these improvements. Perhaps the most notable changes that accompanied mining advancements were military ones.

The military advancements of medieval Europe directly led to the decline of feudalism, and resulted from both the previous technological advancements as well as the need to create stronger weapons and armor. Armor and weapon technology was crucial in wartime, and an important subject in Europe. In medieval Europe, war was

an incredibly important concern. It fit into the idea of ideal feudal society, since the burden of warfare was given to an entire level of the pyramidal representation of feudal society. The need for a specific group of people to fulfill the warfare requirement of society is further evidence that it was an important part of life. Warfare technologies made some fighters more valuable than others. Weapons were made stronger and better as mining and metal working technologies were improved. The imbalance that these improvements created within feudal society affected feudalism by altering the needs within the entirety of the structure of feudalism. There was a relation between the importance of peasants and knights, further defined as being between the roles of footmen and cavalry in battle. Feudalism, as a system, relied on expensive mounted fighters to provide protection to those who farmed. Cheaper foot soldiers, once able to provide the same or better defense than cavalry, due to advanced technologies, overrode the requirement for expensive mounted fighters. Knights were not necessarily needed after gunpowder weaponry became common throughout Europe. This upset in the balance of needs in feudalism was one of the most significant changes that resulted from advances in military technology.

Feudalism, and the social balance that it required, was upset by technology, whose impact was reinforced by two other significant changes in the Late Middle Ages. These were the plague and the strained relations that followed it between the laity and the Church. The plague emphasized the differences between the social groups of feudal society, and increased the importance of each individual person. Because of the large reduction of European population, the value of each person rose. This change in individual values unbalanced the feudal organized structure by making the manual labor value of each person more equal. The bottom rung of society, the peasant or serf farmer, in order to keep the system balanced, had to both outnumber
the upper rung as well as require them for at least one service. When the plague
decimated a significant portion of the population, peasants ceased to outnumber
knights. The plague and advancements in military technology reduced the need for
mounted knights in society.

The plague, as well as prior tensions with the Church of Rome, brought on
changes between the Church and the laity that further accelerated the decline of
feudalism. Relations between the common people and the Church were hurt by the
plague, as they could not adequately explain or stop it. Issues that followed the
plague, such as the mistrust that arose with some after the Avignon Pope challenged
the authority of the Roman Pope, further hurt the relations of the laity and the Church.

Relations with the Church were important in maintaining the status quo, as well as the
organization of feudal society. The Church, being a significant owner of land
throughout Europe, as well as being able to influence the leaders of European
kingdoms, played an important role in feudal Europe. Although they attempted to
keep the order, through limits and rules, such as that of Pope Innocent II over the use
of crossbows, they were ultimately unsuccessful. Technology provided more
appealing of an alternative to the limitations of the Church- especially after many
people began to question its authority. Distrust of the Church, as many people had
after the plague and after Europe had three popes, further reduced their ability to limit
the use of technology throughout Europe.

Although it was accentuated by the plague, and there were Church attempts to
limit its use, at least against Christians, technological advancements were ultimately
responsible for the decline of feudalism. It may not have been so evident at the time,
but advanced technologies had long lasting effects on many aspects of life. Feudal
society, which was born from the use of mounted knights in combat and the need to
pay them in land, was ultimately upset by the use of advanced technologies that made cavalry obsolete. The need for cavalry was as central to feudalism as the need for an abundance of farming peasants to grow food. Those who gave the land fiefs, typically a king, required the military service of knights and the farm work of peasants to keep the land safe and supplied with food. This delicate relationship was simplified when technologies allowed farming peasants to provide greater quantities of food as well as some of their own protection. Furthermore, the continuing trend of people moving into cities for work that is not agricultural decreased the need for the same style of organization. Technology removed most of the need to pay knights in land, essentially destroying that level of feudal society. To complicate this, laziness of knights, demonstrated by scutage and subinfeudation, made rulers question their traditional roles in society and on the battlefield. Although all soldiers were paid, the difference in payments between mounted and dismounted warriors was significant enough to disrupt the traditional views on the role that knights played in society.

Beginning with the simplest of European inventions, technological advancements in Europe had profound effects on society. Most technological advancements were slow to cause any changes on society, but caused significant changes in the long term. The effects of agricultural, industrial, and military technologies challenged the feudal social structure. When coupled with the changes in thinking that accompanied the plague in relation to the value of the individual, as well as with the declining relation between laymen and the Church, the technological advancements of the latter Middle Ages undid the social organization that was feudalism. A merchant class arose near the end of the medieval era in Europe, which

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90 Laziness, in this case, refers to a knight’s desire to play an active role in the court, but not in battle or on his land. Subinfeudation gave the responsibility of the land work to other people.
did not fit into feudal organized society, as money provided a means to overstep the boundaries of this system. As the emphasis moved from the countryside to the city, and from cavalry to foot soldier, the social balance of feudal society, too delicate to resist, gave way to a society in which money dominated in importance and classes had fewer restrictions. The changes that developed in technology, the decreased population of Europe as a result of the plague, and the declining relation between laity and the Church of Rome were responsible for the decline of feudalism. In the end, it was the technological advancements of the latter Middle Ages that created the situation in which vassalage feudalism was simply no longer a viable organizational structure for medieval European society.
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