

THE IMPACT OF CRUSADER CASTLES UPON EUROPEAN WESTERN CASTLES
IN THE MIDDLE AGES

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Abstract:

During the Middle Ages, the period from roughly AD 1000-1450, the structure of castles changed greatly from wooden motte and bailey to stone keeps and defenses within stone city walls. The reason for the change was largely influenced by the crusades as Europeans went to the Holy Lands to conquer. In addition to conquering, these kings brought back a new way of designing and fortifying their castles in England, Wales and France. Without the influence of the crusades, what we think of as true middle age castles would not exist. For my paper I will analyze the impact the crusades had on forming the middle age castles by evidence surviving in the archaeological record from before and after the crusades as well as modifications done on castles to accommodate crusader changes to show the drastic influence of crusader castle fortifications upon English, Welsh and French castles.

Introduction

Construction of what is believed to be true middle age castles from A.D. 1000 to 1450 began as kings arrived back from the crusades to the Holy Lands, bringing with them ideas of how to make their castles grander and more easily defensible. Before the crusades William I of England was beginning to develop a new concentric style of castle beginning with the Tower of London. After the crusades many English, Welsh and French kings took the concentric concept and combined it with what they saw on the crusades and developed it to become majestic castles and fortresses like Chateau Gaillard in France, Dover Castle in England, and Caernarvon Castle in Wales.

With this paper there are two questions I wish to answer. The first is what was the order in which certain types of castle defense came to be during the middle ages and how do we first see them in the archaeological record from the time? The last question is whether the crusades made an impact on castle development and design at all in the west by referring to the archaeological timeline.

Background

The middle ages were a time of great conquests and warfare. With this came a need for fortifications that would hold up against these attacks from all over Europe and the Middle East. Medieval fortifications began with a simple motte and bailey design, meaning they were constructed on a mound of earth with a donjon (keep) built on top of it (motte) with an outer wall (bailey) as the fortifications with a courtyard surrounding the keep. Due to problems with the fortifications, the late eleventh century brought about advancements with a stone keep and bailey castle in both England and France (Alchin

2005). The design though more effective was still lacking in defense and a concrete design.

Luckily for the architects and builders, many knights had traveled to the Holy Land on crusades. They saw the huge solid fortresses of the Byzantine Empire and this led to them bringing back the knowledge they needed to create fortresses of their own in England, Wales and France. It was during the crusades that the idea of building a concentric castle came to be (Alchin 2005). A concentric castle is simply a castle within a castle.

These great castles were surrounded by a motte, later moat (large ditch in circumference of castle) and included features of the barbican, portcullis, gatehouse, drawbridge, and crenellations. A barbican is simply an outer defense to the main entrance of a castle, with its own gateway and often standing within its own ditch. Portcullises are gating dropped vertically from grooves in the castle to block passages or gates. Gatehouses guarded the gate entrances while drawbridges were raised and lowered to create walkways into and out of the castle. Crenellations are forms of multiple, regular, rectangular spaces cut out of the top of the wall to allow defenders spaces to shoot arrows from and other spaces to hide behind full cover. Curtain walls were important as well since they were connecting walls between towers to a castle (Alchin 2005). Following the knights influence and the kings from the crusades, some of the kings who fought in the Holy Land built castles based on the crusader designs they saw there as Dover and Caernarvon Castles.

This information of castle elements is due to medieval authors such as Ambrose, Richard the Lionheart (Richard I) and William the Conqueror writing events down as

they happened in Latin to be discovered and translated many years later. This description of fortifications as they were introduced must have helped to keep a written order of castle fortification changes and improvements in design. All of the terms used are either Latin or French in origin with a few having different names in English such as the word keep donjon (keep) in French and not actually coined until after the period (Alchin 2005).

King Richard the Lionheart, after leading the third crusade built Chateau Gaillard. Dover Castle was built previously with new additions to its design introducing features not yet built on the Chateau. The king who truly embraced the concentric design of castles of the crusader castles was Edward I of England. He took an already built upon piece of land that had held an old motte and bailey castle with a good location near the sea and built his great stone castle, Caernarvon Castle, in Wales. This castle would not be like any yet built in Wales for it truly embodied the ideas and concepts of the crusader castles (Alchin 2005). Without the influence of the crusader castles upon Western Europe, there is a chance that the middle age castles as we know them would have taken longer to evolve to if at all.

Methods

The first good evidence for early stone castles which evolved from motte and bailey was Hen Domen in Wales. From there the keep and bailey style castle was created, the best example of, which is William the Conqueror building the Tower of London.

All of these types will just be touched on. They should not take more than one third of the paper. I will then spend around one third or less of the paper discussing both western and eastern built crusader castles. With the crusades I will discuss what the

crusaders saw for castles as they besieged them, then how they created their own castles in the Holy Land based on their designs to keep safe from Muslim attacks. The main focus will be on Crac des Chevaliers since it is the best preserved crusader castle and was used by both the crusaders and the Muslims, depending on who had control of at the time (Kennedy 1994:111). The last one third of the paper will be on Europe's borrowing of the Holy Land castle design and modifying them for their own use. The focus will be on Dover Castle in England, Chateau Gillard in France and, during the most extensive period of building, Edward I's Caernarvon Castle in Wales.

The very last section will include my results. For this section I will focus heavily on Saracen/Muslim and Byzantine Empire castle characteristics compared with those found in the west to see if there is a connection. This section will be my comparison between west and east. With this, the impact of the crusades will be discussed to see whether crusading castles made an impact on later English and French castles.

History and Archaeological Evidence of Sites

Motte and Bailey

The architecture of the castles of the middle ages started out during the Norman invasion of England with William the Conqueror as wooden motte and bailey castles before their fortifications changed to stone keeps. William used the existing timber castles when he conquered. These structures were known to be built on the highest ground in the area, often adjoining rivers, overlooking towns and often harbors. Before William died, he managed to have around 1000 of these castles built in England (Alchin

2005). Many of these had timber buildings on stone walls before moving to stone keeps or donjons as they were called then.

An early bank and ditch was probably the most common defense for early fortification of this type of castle. Many of the eleventh century earthwork fortifications were simply enclosures of timber buildings within, with others enclosed on a raised mound (Alchin 2005). A motte and bailey castle can be defined as a medieval Norman castle which consisted of two connecting ditched fortifications mounds with the higher mound surrounded by a keep, a tower and the other containing a courtyard, barracks, other buildings and livestock. These structures were often under constant attack by such projectiles as arrows and stones. One would need to negotiate the outer ditch and embankment before storming the gates. Once that was done the bailey had to be negotiated, then somehow one needed to climb the embankment of the moat before taking the gate of the motte and capturing the tower (Alchin 2005)

The most fully excavated of these motte and bailey castles is near Montgomery, Wales (Figure 1) on the Welsh English border and is known as Hen Domen (Old Mound). The very first excavation took place in 1960 and archaeologists paid attention to the internal buildings for the castle was first built of timber and earth before being converted to stone. Archaeology helps to understand the way in which the conquerors were building to determine if



Figure 1 Location of Hen Domen in Wales (worldatlas.com)

the castle would be a temporary or permanent encampment. The main feature of the excavation was

the evidence for there being a great variety of buildings and construction techniques used (Kenyon 1990:35). Hen Domen was built in a key area on the English/Welsh border overlooking the strategic ford of the Rhydwiman River. The surrounding land had evidence of once being a plowed field (Kenyon 1990:35). The most interesting thing about this field was that plough land was discovered beneath the bailey bank of Sandal Castle in York suggesting these castles may have been related.

The motte itself stands on the west side of the bailey having the bailey, with the bailey surrounded by a double ditch and rampart (protective barrier). The original bailey bank had timber defenses with a timber framed palisade (wall) and wall walks which were used as links to various parts (Bradbury 1992:50). There was no evidence for timber mural towers, but the north west corner rampart has a platform that may have formed the base of a tower. Excavators commented on massive timbers found at the castle compared to later phases which suggest a changing of ownership and of building techniques. In later seasons new defenses that date to a few decades later were found in the north west corner of the bailey with less sophisticated defenses that were built without a framework of interlocking timbers, but with fighting platform, wall walk and a tower overlooking the bailey and motte (Kenyon 1990:35).

During the middle twelfth century reconstruction the palisade in the north tower was moved back to allow the tower to flank the defenses as murals of each other. The entrance to the bailey was now overlooked by towers of timbers. There was an area of packed stone that may have marked a stone gatehouse. Evidence of this reconstruction, but what has been excavated and studied reveals that the postholes were no longer timber, but sill beam. There is also evidence from a fire in the northwest tower also suggests the

tower was an important defense since it was destroyed (Kenyon 1990:37). At the time in author John Kenyon's book the wooden palisade of the outer defense in the later period still needed more excavation to reveal an earlier date.

Later additions to Hen Domen show that there was a series of post and stake holes with slots suggesting defenses consisted of rampart fence with fighting platforms behind. Even with all of its defenses, Hen Domen was vulnerable as it was made of wood. Because the motte and bailey castles were susceptible to fire, the great Norman Medieval stone castles were built, ending the era of motte and bailey (Alchin 2005).

Stone Castles

The first thing the Normans did when shifting from wood to stone was to raise the timber buildings on stone walls and totally rebuild the keep in stone. William was so good at this that eighty six stone castles were built before his death. With this new stone castle, ditches and banks continued to be a main feature as well as introducing moats, deep outer ditches sometimes filled with water, for additional defense around the outer walls. The Normans focused their defense on the castle's keep making it the most protected part of the castle. For the first time barbicans, a tower or fortification on the approach to a castle, were created at the gate. Portcullises, arrow loops and machicolations (openings in the floor through which missiles could be aimed at the enemy) were also used for the first time (Alchin 2005).

Some of the older defenses were modified for this new stone castle. The wooden palisades used in the baileys were replaced with stone walls. Crenellations topped the palisades so soldiers could fire arrows with minimal danger to themselves. Ramparts were extended as an embankment around a space for defensible purposes (Alchin 2005).

Defense was now concentrated in a single tower donjon known later as the keep. The principal was the same as the motte, a strong point of refuge, but the great towers were of stone and usually square, and they dominated castles through the twelfth century, from the Tower of London built by William the conqueror in the 1000s to the great tower of Dover built by Henry II in the 1180s.

With this new design, William created one of the most famous stone castles that would be collectively known later as The Tower of London (the White Tower to be



Figure 2 The White Tower (Brown:1989)

precise). The tower was originally

a wooden motte and bailey castle built in 1078 before it was fortified to a stone White Tower in 1097

(Forde-Johnston 1997:84). The white tower lay in the SE angle of the roman defenses and the initial Norman work comprised a ditched enclosure corresponding to the inmost ward (Hiller 1994:147).

The White Tower (Figure 2) would

become the central keep of a concentric

castle fortress known as the Tower of

London over the next hundred years. The Tower of London has building episodes every period from the late eleventh century great tower to the completion of the double line of curtain walls in the late thirteenth century (McNeil 1992:91).

The White Tower itself was shaped in a way that its barbicans were a major obstacle to an enemy trying to reach the main part of the castle. Not only was the entrance from the bailey over a drawbridge, but the passage may have been further protected by a door with a portcullis. Once reached, a right angle bend in the passage would have been needed to be negotiated which led to another door, perhaps with portcullis before the bridge linking the tower was reached. Archaeologists and historians believe this to be a way for the defenders to separate the enemy into smaller lines that could be taken out easier (Kenyon 1990:81). The barbican at the tower represented the outermost defenses of the castle.

Recording work during an insertion of a stair in the White Tower revealed evidence of earlier timber floors. Further recording took place in 1995 and 1996. Medieval inner curtain walls were found. None of the walls had consistently coursed

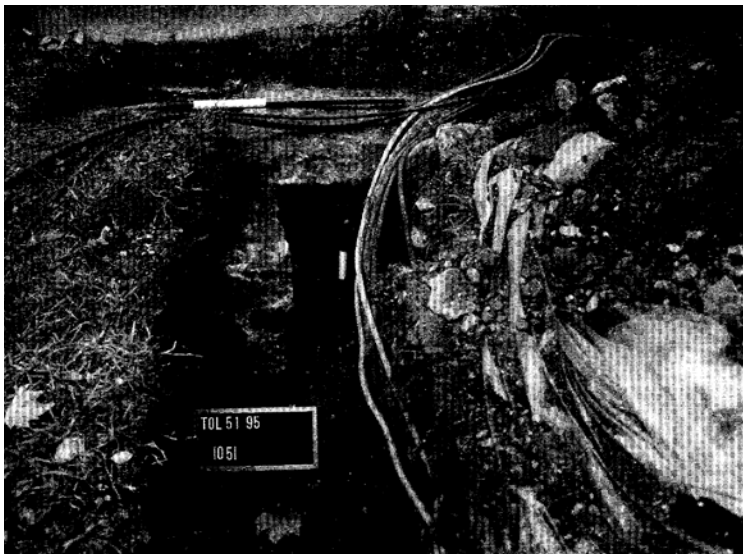


Figure 3 Structure Under the Staircase in the Tower (Hiller 1994)

masonry, but they did have carefully dressed, flat faces where these survived. A large concrete structure (Figure 3) from 1064 was found under the staircase in the White Tower, 3-5 meters NNE. The concrete was aligned E-W and its S and

upper surfaces had been covered with hard cement. The .66 meter tall structure filled the width of the cable trench that was being excavated (Hiller 1994:168).

None of these additions to the White Tower and the Tower of London have anything to do with the crusades that are known of, but are rather extensions of building in ways that were already known and integrated with new ways of unknown origin that may be of the French.

Crac des Chevaliers

From the Norman era, A.D 1000, onward there were crusades to the Holy Land. The kings and knights who traveled to the crusades and participated in the siege warfare



Figure 4 Location of Crac des Chevaliers (www.vjv.co.uk)

were influenced by the design and architecture of the fortresses in the Middle East. The most famous of all of the crusader castles was Crac des Chevaliers, meaning Castle of the Knights in Syria (Figure 4). The castle is described by T.E. Lawrence as being the best preserved and most wholly admirable castle in the world. In 1142 the castle was given to the Knights Hospitallers

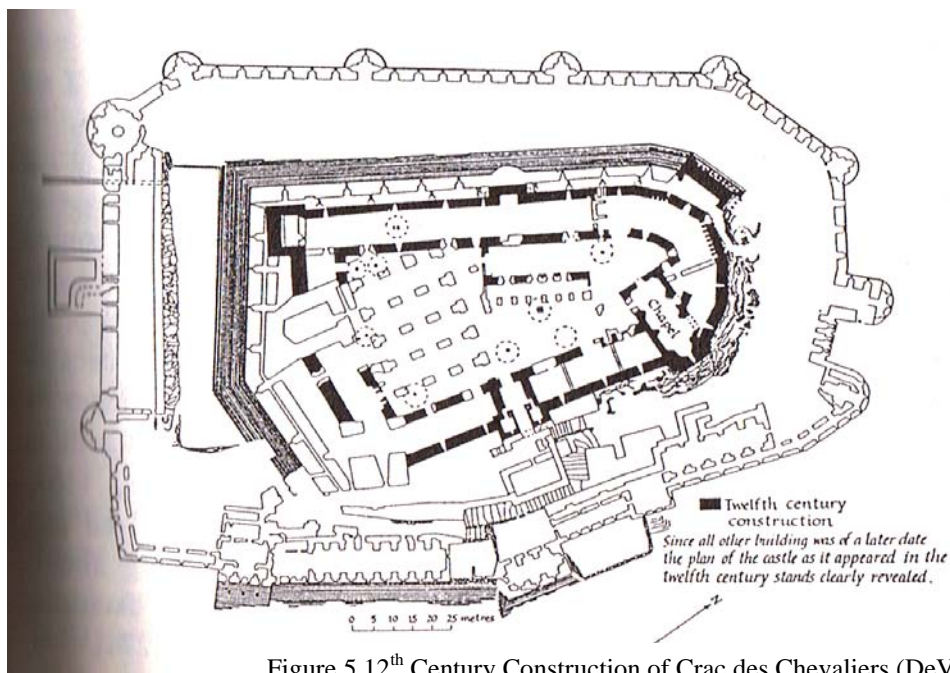


Figure 5 12th Century Construction of Crac des Chevaliers (DeVries 1992)

who during the next fifty years remodeled and developed it into the most distinguished work of military architecture of all time.

With its location of 2300 feet above sea level and in between the valleys of Homs and Tripoli, and being the perfect design of middle age fortification, the castle was never besieged or taken by storm. Crac des Chevaliers itself has two concentric lines of defense with the inner rampart lying close to the outer and the outer curtain furnished on the north and west sides with eight round towers, some of which are from a later date than the crusades (Figure 5). The only time it fell was to Mameluke Sultan Baibars who used a forged letter to gain control. When Baibars had control of the castle he added a strong bastion to the weak south side (Syria Gate 2002). The rest of the castle is quite ordinary in its time with curtain walls on the western side strengthened by five towers and the north side having a postern between two square towers. Two separate lines of defense, an outer curtained wall with several cylindrical towers and what is known as the inner ring made up the defensive plan with an entrance that has a wide ramp and a vaulted passage leading a platform that links to the inner castle (Syria Gate 2002).

The Hospitallers' (knights and kings personal physicians) rebuilding made quite an impact on the castle. The inner curtain wall extended up to 100 feet thick at the base on the south side, with seven guard towers thirty feet in diameter. They added an outer wall three meters thick with seven guard towers eight to ten meters thick to create a concentric castle. They had many of buildings, walls, towers and gatehouses in one massive castle complex built within lines of defense. Round or polygonal shaped keeps or towers were introduced eliminating the weak corners of the square keeps, such as the White Tower in the Tower of London.

In the twelfth century the fortress had a moat which was covered by a drawbridge leading to postern gates. By 1170 the Hospitallers' modifications were complete. In the late twelfth and early thirteenth centuries numerous earthquakes caused some damage and required further rebuilding. Earthquakes struck the castle in 1142 and 1157 when it was damaged to such an extent that according to one source not a single wall remained standing. The inner part of the castle post-dates the latter earthquake. A third earthquake damaged the castle in 1202 and in the thirteenth century the three great towers to the west and the outer fortifications were constructed. The thirteenth century brought the present



form of the castle. By this time the outer wall with semicircular towers was built to contain the entire castle and a lower gate was constructed to the east making Crac des Chevaliers an enormous concentric castle (Boas

Figure 6 Crac des Chevaliers (DeVries 1992) 1999:113). The provision of postern gates continued to be an important consideration at Crac des Chevaliers where one of the last Hospitaller constructions was a postern gate in the second half of the thirteenth century that opened in the re-entrant angle of one of the towers between 1254-1269. This gate was small, low and in the re-entrant angle between the tower and curtain wall where it could be concealed from enemy view and completely covered by the defenders' fire. As well as having towers on each side (Figure 6), the gate was defended by a portcullis

although the present ones are Muslim, rebuilt after the originals had been damaged in the assault of 1271 (Kennedy 1994:111).

More than fifty years ago Clermont-Ganneau showed the buildings of the Syrian Franks (Europeans of French descendant in Syria) could be identified by certain characteristic methods used when dressing masonry. The marks revealed both the kind of tool with which the masonry was squared and smoothed and the manner of its use. Leading Syrian archaeologist Deschamps was able to establish the main periods of construction of the castle. One of the oldest periods of building is distinguished by drafted masonry; the face of each block is smoothed at the edge, but the central portion is left raised and in a rougher state (Smail 1956:224). In other parts of the castle, the Muslims used drafted masonry at a later date; but masonry on the northern and eastern inner curtain was Frankish (European) because it included, as part of the original construction, the semi polygonal apse of the chapel, which is dated to the romantic twelfth century making this part of the castle at least French in construction. Evidence of the masonry is shown on Kerak Castle built at the same period as Crac des Chevaliers and has the same masonry marks making one wonder if these castles were Muslim or French in design (Smail 1956:225).

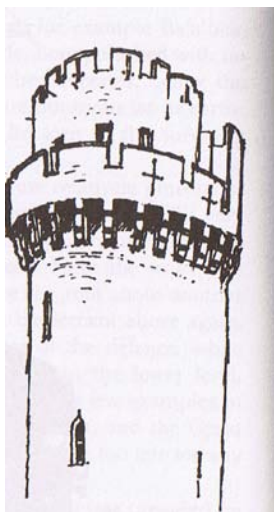
The curtain wall which includes the chapel and which links that feature with the tower on either side was built during the twelfth century, either soon after 1110 in early Latin occupation or after 1142 when the castle given to Knights of the Hospitallers. Deschamps made the remarkable discovery that the greater part of this early curtain, together with its towers, was still in existence, although obscured from view. In clearing the debris from the village which used to stand on and within the walls, he found a

narrow passage within the whole length of the glacis (a gentle slope that runs downwards from a fortification) which defends the inner ward on the south and west. It is lit by archères which look over the outer ward, and on that side the passage, like the glacis, is built of smooth blocks of stone. The other side is drafted masonry. Moreover, half way along its western length the passage is cut short by a wall of the same drafted blocks. The inner wall of the passage is, in fact, the outer face of the earlier curtain wall as it existed before it was covered by the glacis and wall of smooth blocks, and is of a later period of construction showing that the mentioned masonry is from the original building period (Smail 1956:225).

At Crac des Chevaliers, the outer line of defenses date from the early thirteenth century rebuilding but they may have replaced an earlier structure. The walls themselves at Crac des Chevaliers had to be protected and miners and builders alike kept the walls away from the bases by building towers to provide flanking fire alongside the walls from the archers within the towers, elaborating the wall-head defenses, creating shooting galleries inside the curtain walls with arrow slots and by making artillery platforms on which the defenders could mount their own siege engines (Kennedy 1994:113). The twelfth century walls of the inner court are now largely invisible behind the later work, but in the northeast section of the defenses two stretches of twelfth century curtain walling can be seen with the outside of the chapel apse projecting between them. Further twelfth century work survives in the north west tower on the inner enclosure, a complex building which shelters a postern gate in one flank (Kennedy 1994:152). This likely predates the machicolations on Richard I's Chateau Gaillard.

The towers of the castle could be a major threat in their design. Flat faces of towers would make easy targets for siege engines in the Holy Land. The towers' main function was to provide flanking fire for the walls as a vital part of defense and yet they were among the most vulnerable points (Kennedy 1994:114). The response by builders was to build round towers that had the advantage of defense for they lacked vulnerable square corners and they were more easily covered by archers on the walls and sides of the tower. At Crac des Chevaliers the round towers in the center of the south wall had a large rectangle accommodation block on its inner side where the face was round and the back towards the inner castle was rectangle to provide residential quarters. The castle had been built in the twelfth century with square towers, but was systematically changed in the rebuilding so that almost all the towers present round fronts to the enemy (Kennedy 1994:115). There are no further examples of crusader round towers before the great Hospitaller building projects at Crac des Chevaliers at the beginning of the thirteenth century.

Deschamps was able to reconstruct a plan of the castle as it stood until the end of the twelfth century. It had then only a single line of curtain wall which followed the edge



of an outcrop of rock, and which was strengthened by square or rectangular towers. The feature common to most crusader castles is their foundation on naturally strong sites reinforced by construction of the kind already described above (Smail 1956:226).

It is only at Crac des Chevaliers that the true development of the machicolation (Figure 7) can be traced. Twelfth century

Figure 7 Machicolation (King 1998)

large slot machicolations were constructed along the front of one of the surviving square towers of the inner bailey and may have been constructed to protect the base of the wall before the outer enceinte was built in the late twelfth or early thirteenth century. Later, the three large slot machicolations were replaced by a gallery of machicolations along the running head of wall. Further developments were seen in late twelfth/early thirteenth century west and south walls of the outer enclosure. Along the south wall and above the postern gate in the north wall were regularly spaced box machicolations, each having two slots in the floor over the base of the wall and an arrow slit in the face. Each is reached independently from a covered wall walk; no other parallel exists in other surviving crusader work (Kennedy 1994:116).

It is suggested by archaeological evidence that the Muslim Baibar invasion force came from the south front where the Baibars had set up siege engines on the outer defensive work which the knights had built to guard against precisely this action of bombardment. This is seen because that stretch of wall was brought down (March 29 1271) and subsequently rebuilt by the Muslims (Kennedy 1994:150). It can be traced in the masonry and the Baibars subsequently constructed a massive new square tower to guard this weak point.

Chateau Gaillard

Prominent kings of England and France would go to the crusades and pick up the architecture and defense designs, that later influenced them in creating their own castles at home differently from the Norman stone castle design. One of the first kings to do this would be Richard the Lionheart of England. Chateau Gaillard in France (Figure 8) is one



Figure 8 Location of Chateau Gaillard in France
(www.vacationstogo.com/images/ports/maps/1145.gif)

of the castles that mark the end of the stone castle age and the beginning of the concentric age of castle building. Chateau Gaillard was the most advanced castle of its time, very nearly concentric in design, and rose

in two years, 1197-98 which is

quite a feat (Bradbury 1992:69). The Chateau was a magnificent architectural achievement, using contours of the rock on which it stood, and integrating a series of barriers into a coherent defense system, such as concentric castles would later possess, introducing triangular outer defenses, an inner bailey, and an original style of keep (Bradbury 1992:131).

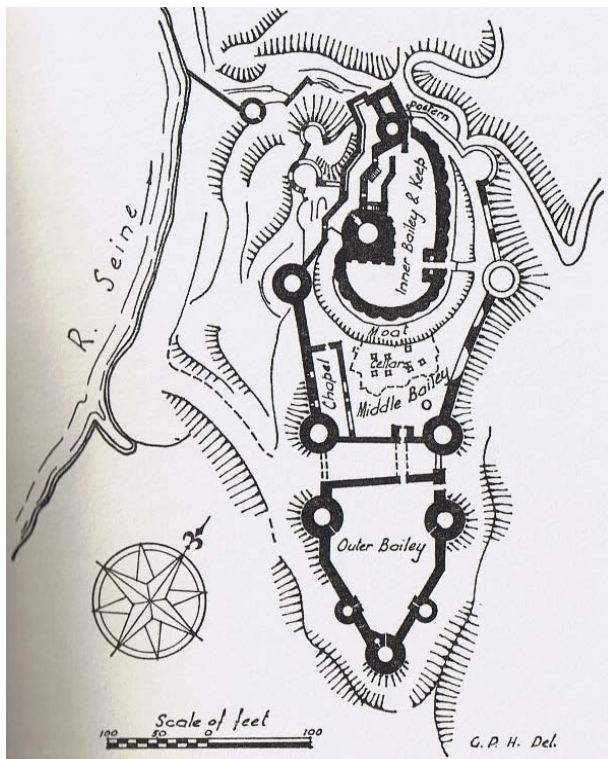


Figure 9 Chateau Gallard Layout (Brown 1954)

Chateau Gaillard had an advantage of being an entirely new work on a new site, raised in a single building period in the pressure of war with no thought of cost. The speed in which it was raised and completed, with the castle being only a piece of a new town built between 1196-1198 at a cost exceeding his father's (Henry II's) Dover Castle is amazing. The advanced techniques of the chateau make it

one of the finest castles in Europe built a

century before its rivals thought to attribute any of its particular features to the king's crusading experiences (Brown 1970:92). The castle has the primary characteristics of concentric fortification including a drawbridge, barbican, portcullis, gatehouse, moat, crenellations, death traps and various styles of arrow slits to accommodate the different middle age weapons. Most importantly is the keep of the advanced design within the inner bailey (Figure 9) because of the way it is surrounded by the middle bailey and the moat.

The defenses were set up like those at Crac des Chevaliers in the east. All of the defenses are interlocked in the only direction from which the enemy can attack. The tailoring of the masonry to fit the rock and the scraping of the rock to fit the masonry is a feature to be found a century later at Caernarvon Castle. The mural towers set about the outer curtains at Chateau Gaillard are mostly cylindrical in the latest fashion and stronger than those of Henry II's Dover Castle. The amazing construction of the wall on the inner bailey into which the inner gateway is set, according to archaeologists and historians, must have been to give the maximum effect of flanking as well as to strengthen the structure (Brown 1970:92).

It appears that England had no use for a tower built in the same shape as Richard I's keep at Chateau Gaillard, though it had some popularity in France at the turn of the twelfth century and is found in some of the early mural towers at Dover Castle. Richard I's round towers were unique in that they were round to the field, but on the other side from which the enemy is to attack, they are built out to a point in a prow or beak. There is also no evidence in England for flanking fire and multiple fire power from the top of a keep like in France at Chateau Gaillard (Brown 1970:81).

There is not much archaeology that has been done on this castle due to its state of ruin. Through history it is known that in the late 1500s the defenses were dismantled for the stone by Henry IV of France as Chateau Gaillard had lost its strategic value.

Dover Castle

Dover Castle in south west England (Figure 10) is of very high quality and most of the work survives still today. After the battle of Hastings William I built a castle at Dover 1066. An English castle built



Figure 10 Location of Dover Castle in England (worldatlas.com)

from the 1150s onward could be expected to have an enclosure of irregular or curvilinear plans, following strong natural or artificial obstacles like a few square towers of little defensive significance; probably a gatehouse which might be an important structure; Perhaps a keep either shell on a motte or a Norman tower. Henry II's building at Dover Castle, mainly concentrated in the 1180s, represent the beginning of the rebuilding and expansion of the castle to take in the whole of the former old English borough and Iron Age fortress which was not to be complete until the middle of the next century (Clark 1875:447). The curtain wall of the inner bailey with its square towers and entrance barbican was also built at this period as was part of the curtain wall on the eastern side of the inner bailey. The keep at Dover Castle (Figure 11), now the central feature of a whole complex of fortifications, belong to the period of Henry II (1154-1189).

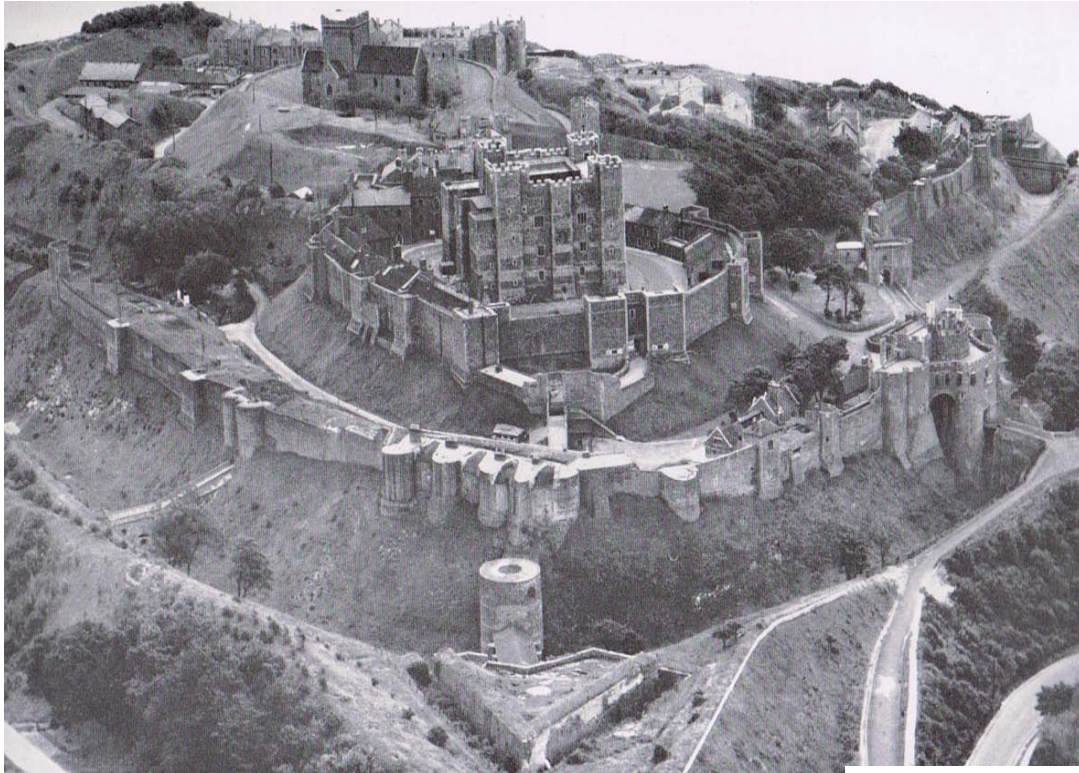


Figure 11 Dover Castle (Colvin1963)

A twelfth century barbican survives at Dover Castle, enclosing an area north of the King's Gate which opens to an inner bailey and a similar enclosure, but with a powerful mural tower added at the west end in the first half of the following century. There was also a southern barbican to the inner ward surrounding Henry II's great keep, but this was almost totally destroyed in the eighteenth and nineteenth centuries. Excavations in the 1960s revealed it was different from the northern barbican as this one had a gate tower, Arthur's Gate, instead of a gateway. It may be assumed that this southern gate was the main entrance to the castle in the time of Henry II. Excavations also discovered that Arthur's Gate was not the first gate tower on the site, for it clearly partially overlay another and stronger tower. This suggested that this earlier tower formed part of the original work at Dover Castle built by the king in the period 1168-74 and later swept away by work in the 1180s. The keep stands where the bailey is but its

walls are not parallel with any part of the enceinte except the wall which separates the north barbican; when seen from the old outer gate, blocked after 1217, it forms a visual unity with King's Gate. The direct passage between the King's Gate and the Palace Gate runs south west of the keep (Cook 1969:56).

Figure 12 Layout of Dover Castle (Cook:1969)

In a block plan (Figure 12) the projection Ex would appear as part of D, but plans nos. 1 and 2, which represent the ruined shell, show both lateral walls flanking D and no partition between Ex and E. The southeast lateral wall is clearly medieval , with apparently more than one period in it, containing two blocked openings towards D, one of them reconstructed, with high steps under Edward IV, the arched heads of which rise just above the present ground level.

The present partition wall between D and E is now demonstrated to follow, or incorporate, its medieval predecessor. The short lateral wall of Ex is unquestionably medieval, with early modifications; on the ground floor it contains a large thirteenth century splayed window embrasure, with internal bead rill (W) blocked and replaced by a small grilled light. Externally a buttress has been added, over what appears to be the thirteenth century upper string course. Block F is narrow and of one storey with doors and windows all painted, as through partitioning the memory of a hall. It was considered that this might have been the true site of Arthur's gate, but its aspect could hardly have survived so unaltered and it is too small for a great hall. It could possibly be a narrow antechamber.

A key section in tying the footings of the keep to the residential range was obtained in 1968 when a service trench joining the two at their closest points was enlarged to archaeological requirements. It is here described that the layers numbered from natural upwards as far as a surface of rammed chalk on which all subsequent ground level structures are based and evidentially represent the finishing stage of Henry II's building program. The profile of the keep is preserved through caen stone ashlar.

Outside walls VIII and X are thicker but largely late medieval walls. Walls VIII and X stand in neatly squared footings of compacted chalk set into, but not part of, the finishing layer, but they are not well centered upon the footings which are clearly intended to carry other, and narrower, walls than the present solid featureless walls of rubble. Within the walls, bonded closely with the chalk, footings are more tightly bonded to the primary build up than the less solid walls of CT begun by King John, brother of King Richard I of England.

During the next three quarters of a century (1199-1272) under Kings John and Henry III, additional work was done on the outer defenses of the castle and by around 1256 Dover Castle had reached present appearance. The completion of the middle bailey during this time had produced a concentric castle (keep standing in inner bailey, instead of middle). By the early thirteenth century on, use of mural towers associated with the increasing sophistication of gatehouses were built. It was all part of the greater emphasis on the defense of the castle at the curtain rather than at the keep within.

By the 1200s the picture of a typical castle was quite different. The general plan of the castle may have been imposed by an irregular site or existing earthwork, but it would have been created into a polygon or quadrilateral with straight sides protected by towers on the angles. The gates of the new period were very enormous and while some were just openings in the curtain, some passed through the basement of rectangular towers like a half round tower. Curtain walls were higher and thicker than before, helping to improve defense capabilities.

The excavations and the inner bailey with its two barbicans forms a single enclosure though its lines run roughly parallel with those of the presumed Iron Age outer enceinte (popular style of building). It follows no natural contour but has a noticeable slope from south east to north west. The keep stands where the bailey is but its walls are not parallel with any part of the enceinte except the wall which separates the north barbican; when seen from the old outer gate, blocked after 1217, it forms a visual unity with King's Gate. The direct passage between the King's Gate and the Palace Gate runs south west of the keep. The keep and inner enceinte, including the barbicans, were conceived as a unity, although it is not clear whether the keep which Henry II enclosed

with new walls means the keep itself the whole bailey area, within the new walls (Cook 1969:56).

A key section in tying the footings of the keep to the residential range was obtained in 1968 when a service trench joining the two at their closest points was enlarged to archaeological requirements. It is here described that the layers numbered from natural upwards as far as a surface of rammed chalk on which all subsequent ground level structures are based and evidentially represent the finishing stage of Henry II's building program. Off the footing base was a layer of silt clay lying over the natural reddish clay except where it covered pit like features dug into the clay. This was certainly formed after the laying of the keep footings and appear to be in pits P and Q, but was not noticed near the curtain wall in area CT (Cook 1969:63).

The builders were thought to have had second thoughts at the eastern corner and the awkward junction with Arthur's Gate and the treatment of the north east curtain running from this point is different from that of the more exposed south wall curtain. In the latter bastions (projection from the line of artillery to provide flanking) the bastions are much larger, provided, like the gate towers, with multiple loops, but lacking in structural upper stories and garderobes (privies) (Cook 1969:56). In the north east section the bastions have single loops and upper stories are provided with garderobes from the beginning. The northeastern bastions are joined by straighter stretches of curtain originally provided with similar, single-looped embrasures intermediately between the bastions. This either implies the bastions were planned as a separate soldier lodging, with timber inner walls or moat probably that they were visualized from the beginning as adjuncts to a projected range (Cook 1969:56).

Outside walls are VIII and X thicker but largely late medieval walls. Walls VIII and X stand in neatly squared footings of compacted chalk set into, but not part of, the finishing layer, but they are not well centered upon the footings which are clearly intended to carry other, and narrower, walls than the present solid featureless walls of rubble. Within the walls, bonded closely with the chalk footings are more tightly bonded to the primary build up than the less solid walls of CT begun by King John (Cook 1969:72).

During the thirteenth century Dover Castle finally expanded to take in the whole of the site of the former Iron Age fortress and Anglo-Saxon borough within which the conqueror placed his castle two centuries before. One of the most important features of Dover Castle is the fact that Henry II at least began the outer curtain at Dover Castle in the 1180s. This means that we already have the principle of concentric fortification, one line within another, a century before Edward I who is popularly supposed to have invented it.

Caernarvon Castle

Even though Crac des Chevaliers and Chateau Gaillard are early concentric castles, they are not of the true design. The castle which truly embraces the concentric design was built by Edward I and given the name of Caernarvon Castle from 'Caer Myrddin' meaning Merlin's town or fortress in Welsh. Caernarvon Castle was a true concentric castle in that the castle was dominated by a strong defense system, the keep was built in a round or polygonal shape, it contained precision cut shaped stone, and had solid walls built at different height with the introduction of pillars. There were also added several gatehouses along the outer curtain wall and a moat surrounding the whole

concentric castle. Welsh castles in particular had a high wall, complete with towers surrounding the keep and the inner bailey. The concentric castle's strong defense system included at least one drawbridge and barbican, portcullis, a few gatehouses, moat, crenellation and death traps as well as arrow slots (<http://www.middle-ages.org.uk>). These castles were much bigger than the Norman castles of before.

Due to this castle being remarkably preserved, there is not a lot of need to do archaeology on it for a majority of the castle is still standing. It is been included in this paper because it is important for comparison as it was one of the greatest castles ever to be built.

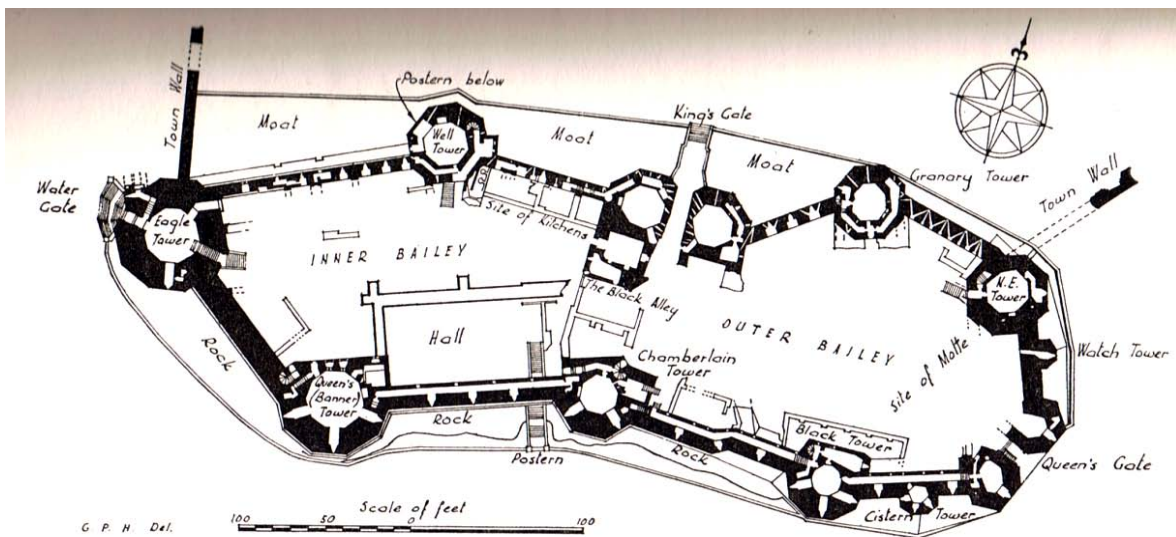


Figure 13 Layout of Caernarvon Castle (Brown:1954)

The design of Caernarvon Castle (Figure 13) was of a narrow waisted enclosure whose shape is determined partly by the rock upon which it was sited and less by the motte of an earlier Norman castle of the eleventh century which was retained in the inner bailey to the east (Brown 1970:100). When Edward I began building the project had clear logic; it provided a network of powerful fortifications which both provided for permanent garrisons and were sufficiently large enough to be used by future English

armies invading Wales. Twin gatehouses were designed to impress and provide a feature of strength, not weakness. Care was taken to ensure that supplies could be easily be brought by sea (Prestwick 1996:209).

The castle had only two gates (King's Gate and Queen's Gate) and eight towers at intervals of around 150-200 feet to ensure the safety of those inside the wall and keep the walls strong by having only two entrances. The King's Gate gave access to the castle from within the town walls but the outer bailey had an entrance known as the Queen's Gate. Beyond the walls there was a smaller entrance, the Great Eagle Tower, to the inner bailey by means of the water gate beyond the walls (Forde-Johnston 1997:135).

The whole of the castle is enclosed by a great and splendid series of polygonal mural towers around the circumference to lay flanking fire upon all sides and reinforced along the south front by two firing galleries, one atop another, in the thickness of the wall, which combined with the crenellated walls and towers. Archaeology has show that there were triple tiers of arrow loops built into the southern curtain wall, and massive mural towers along the wall that each provided the strength that formerly had been confined to a single keep (Prestwick 1996:294). With these firing galleries and mural flanking towers, the construction of this design in the castle provided one of the most formidable concentrations of fire power in the

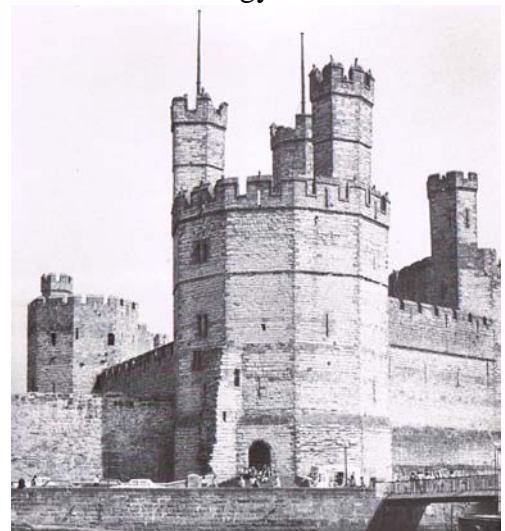


Figure 14 Eagle Tower (Forde-Johnston 1977)

Middle Ages. The most magnificent of the mural towers is the Eagle Tower (Figure 14) at the west end, singled out by the architectural distinction of its three turrets, each of

which had an eagle. It was considered the keep of the castle even though the castle did not have one. Castle comparison shows Caernarvon Castle looks different from other castles of the period for its polygonal towers and masonry were a deliberate aura of the Theodosia Wall at Constantinople, Constantine's own city, and hence the Eagle Tower with the eagles (Brown 1970:102). The reason for this being is Edward I traveled to the crusader lands on his own pilgrimage. The Queen's Gate at east end is still unfinished. It leads to a royal inner bailey and is approached by a ramp and drawbridge. The King's Gate on the north front is the main and state entrance from the fortified town built at the same time as the castle (Brown 1970:101). It has been said that no building in Britain demonstrates the remarkableness of the strength of medieval fortifications better than Caernarvon Castle.

For an enemy to reach the inside of the inner bailey there were many obstacles they needed to face, each more dangerous to their lives than the last. First they had to cross a drawbridge across the northern moat, then five great doors and six portcullises together with an intended right angle turn and a further drawbridge beyond which one would be covered all the way by firing loops and spy holes at various levels, with no less than nine murder holes to fall into (Brown 1970:101). It is for reasons like this that it can be said the true concentric castle design was created and used for defense successfully, unlike the motte and bailey and even the stone castles.

Due to this castle being remarkably preserved, there is not a lot of need to do archaeology on it for a majority of the castle is still standing. It is been included in this paper because it is important for comparison as it was one of the greatest castles ever to be built.

Results Section

Some of the research questions I intended to answer gave surprising results. I did find the order in which certain types of castles and castle defenses came to be. I found that the knights and kings learned much about the architecture of castle building and the crusades did make an impact on the way castles were built from then on due to the knowledge gained in the Holy Land. I had believed it was the Muslim/Byzantine Empire castle design that the English, Welsh and French would adapt, but I was wrong for it was the French design.

It would be natural to assume changes and developments in the architecture of castles in the crusader east would be reflected in Western Europe, where most of the crusaders had come from and some of them returned to. For the change to scientific fortifications in the west to have come about by a direct invasion of advanced military science from the east, the timing is wrong. It should have come around 1100 when Robert of Normandy and other victors of the first crusade returned to Europe. Dr. Smail in his book *Crusader Warfare*, has pointed out there was no need for building in the eastern style as there were a good many examples of a developed military art in the Roman remains still surviving in the west. Those of the late empire were commonly based on a complete system of flanking by generally solid round towers. He argues that the twelfth century crusaders had learned little or nothing from Byzantine and Saracen fortifications.

This influence of western castles poses some problems, though, since not all countries were represented in the crusades. The Holy Roman Empire, for instance, built castles very different from those in France. The most comparable castles of the crusader

castles in the east are found in England and France, perhaps because the majority of crusaders came from there and because of the 1180-1220 conflict between Angevin Empire and Capetian France. The conflict was a feudal localization of power between the royal house of Plantagenet's Angevin lands and the French royal house of Capetian. This was a war in which the control of fortresses played a major part and was well recorded and castles with records still stand today (Kennedy 1994:185). The Byzantines had much to teach; a short stroll along the land wall of Constantinople would have shown to any crusader, who was not simply dumbfounded by what he saw, a system of defense by multiple lines of regularly flanked walls, with towers square, round and polygonal. As for the returned crusaders of the twelfth century, they brought no master masons with them and no serious memory of eastern methods. Neither in France nor England were there any fortification changes to castles taken from the crusades.

Crusader castles in the twelfth and thirteenth centuries built by the French had great keeps. In the 1180s Henry II made the great keep at Dover Castle the centerpiece of the castle, though there were earthworks to protect it, and Chateau Gaillard had a keep as a place of last resort protected by the outer walls. Even Crac des Chevaliers has a keep in a way because it has towers that are significantly larger than the rest and may be considered keeps. Abandonment of keeps as the main form of defense was accompanied by the emergence of the concentric castle, with several layers of fortification so that the outer walls kept the siege engines away from the main fortifications. Muslim castles of this period had no keeps or pattern of spaced towers around a perimeter (curtain) wall (Kennedy 1994:187).

A major change in the west was the adoption of round rather than square towers by the end of the twelfth century. Richard I exclusively used round towers at Chateau Gaillard. In France and Britain round towers became the norm by 1200 and King John even added round towers to Dover Castle while his brother Richard I was crusading. The success of the round tower was much more evident in Britain and France than in the Middle East. The shapes of towers between west and east may show similarities, but scales were different as in the west the towers remained smaller than the massive artillery platforms needed in the east (Kennedy 1994:188). Deschamps suggests that the semi-circular rock projections on which these towers stand date from Byzantine times and that the crusaders simply imitated the plans laid down by their predecessors (Kennedy 1994:115). The round mural towers in the west were always wooden floored as opposed to stone vaults as were used in the Middle East because siege weapons were less frequently in Western Europe.

Stone machicolations were rare in the west before the end of the thirteenth century, as Chateau Gaillard seems to be provided with slot machicolations similar to those in the late twelfth century tower northwest of the inner enceinte at Crac des Chevaliers. Wooden hoarding, rather than stone machicolations, were the norm in the west but almost unknown in the east because of the lack of timber or because of the Muslim use of Greek fire. The crusaders brought back from the east new methods of attacking castles, not new theories of military architecture. Both the west and east tried and adapted new solutions to their problems through experiment and experience rather than architectural influences from the east or west (Kennedy 1994:189).

When building Chateau Gaillard there is no evidence that Richard borrowed anything, great or small, from the fortresses he saw in the Holy Land. It is not likely that he would do so, since he would find better examples of everything in the south of France which he knew so well. Chateau Gaillard is a majestic castle even in ruin. It is a crusader castle, but it is not a castle of the crusades; it represents, no doubt, advancement on earlier fortifications in England and France. There is not a trace of anything Byzantine in the ordinary French castle, or in any English one from during or after the crusading period. There are evident signs that all that was good in crusading architecture hailed from France or Italy due to the architectural designs of Crac des Chevaliers and Chateau Gaillard (Lawrence 1986:118).

Most importantly, there are many similarities and differences that illustrate the crusader castles were not from the Byzantine Empire or Muslim in origin, but were from the west itself. Similarities between Muslim and crusader architecture of the early thirteenth century are remarkable. There is an increased size of the towers, oblong or rounded. The use of the box machicolation is of a virtually identical design. Both used finely cut stone in construction and constructed pointed arches and vaults that are hard to tell apart except by date. The differences were just as remarkable. Muslim designers never used round towers except when they had control of Crac des Chevaliers. They made little use of multiple lines of defense. Nowhere in their building do we find the careful interrelation of the outer and inner walls found at Crac des Chevaliers that is such a western design. Most importantly, nothing in the Muslim architecture of the thirteenth century can possibly even be considered a concentric castle. They also have nothing compared to the crusader castles that have accommodations for rulers, great halls, chapels

or castle complexes like the French and English crusader castles have in them (Kennedy 1994:185).

Conclusion

One may say that it was not the Muslim or Byzantine Empires that brought the golden age of castle building to England and France, but the French seeing which of their designs worked in extreme cases and the English just seeing what worked the best. The crusades did influence the two countries' castle design, but it was not a Muslim or Byzantine influence they picked up, but rather a French one instead that they modified to fit their terrain in England, Wales and France. So in the end it could be said that the crusading architects themselves in the east for many years were copying and modifying their own ideas of building in the west instead of being influenced by the ideas of the Muslim or Byzantine Empire castles.

Acknowledgments

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Appendix 1

Characteristics of Selected Middle Age Castles

Characteristics	Hen Domen	Tower of London	Crac des Chevaliers	Chateau Gaillard	Dover Castle	Caernarvon Castle
Arrow Loops			X	X		X
Inner Bailey		X	X	X	X	X
Middle Bailey				X	X	
Outer Bailey	X	X	X	X	X	X
Bastion					X	X
Barbican		X	X	X	X	X
Crenellation			X	X		X
Inner Curtain Wall		X	X			X
Outer Curtain Wall		X	X	X	X	X
Ditch	X					
Drawbridge		X	X	X		X
Gatehouse	X		X	X	X	X
Keep		X		X	X	X
Machicolation		X		X		
Moat		X	X	X		X
Motte	X				X	
Palisade	X	Early then Vanish				
Pillars						X
Portcullis		X	X	X		X
Postern Gate			X			X
Number of Towers	2	21	15		16+	8
Tower Type	Mural	Round & Square	Round & Square	Round	Mural, Round & Square	Mural & Round
Rampart	X	X	Inner & Outer			
Wall Walk			X		X	
Fortification Type	Wood	Timber to Stone Keep later Concentric	Stone Concentric	Stone Nearly Concentric	Stone	Stone True Concentric

Appendix 2

A Glossary of Castle Terms

Ashlar- a stone worked square before its use in building

Bailey- the defended outer court of a castle

Barbican- an outer work, usually an enclosure but quite commonly also a gated bridge or ramp, before the main gate of a castle. Also a barbican is an outer defense to the main entrance of a castle, with its own gateway and often standing within its own ditch

Bastion- an earthwork or walled projection from the line of an artillery fortification, intended to provide flanking fire

Burgh- an Anglo-Saxon fortified town or other major defended place not necessarily urban

Crenellation- is the name for the distinctive pattern that framed the tops of the walls of many medieval castles, often called battlements. Crenellation most commonly took the form of multiple, regular, rectangular spaces cut out of the top of the wall to allow defenders spaces to shoot arrows from and other spaces to hide behind full cover

Curtain (wall) - the wall, usually free standing and with interval or angular towers, which encloses a castle courtyard

Donjon- the keep, or great tower, of a castle

Drawbridge- a hinged or pivoted bridge which might be raised on the approach of an enemy

Drum tower- a circular tower, usually a mural tower of some kind

Embrasure- a splayed opening in a wall or a parapet to take a window or a gun

Enceintes- a style of building which was widely copied over Europe in general and particularly associated with English crusader king Edward I

Garderobe- a privy or lavatory, though the word is sometimes also used to denote a private bedchamber or a store

Glacis- a gentle slope that runs downwards from a fortification

Great tower- the most important tower in the castle and often its strongest point, from the sixteenth century often called the keep

Interval tower- a mural tower or one of a number of towers set along the height of a curtain wall

Keep- a sixteenth century term for what is referred to in medieval documents as the great tower of the donjon

Loop- the actual slit in a wall for firing an arrow through

Machicolation- an opening in the floor of a projecting parapet or fighting gallery, through which missiles could be directed at an enemy; frequently applied also to the entire projecting structure

Moat- a large deep ditch surrounding a castle for defense. May be left as a deep ditch or filled with water

Motte- a large, normally round, flat topped, mound of earth which supported a tower or other building and acted as the strongest point in a castle

Murder Hole- a hole, often called a meurtrière, contrived in the vault of an entrance passage, through which missiles could be rained on an assailant

Palisade- a strong wooden fence

Parapet- is a low wall projecting from the edge of a platform, terrace, or roof. Parapets may form the upper portion of a defensive wall on a castle.

Portcullis- a heavy grating designed to close off an entrance passage, sliding vertically in grooves cut on either side to receive it or a wooden grille (often covered in metal) which could be raised or lowered in grooves on either side of a gate passage to act as a gate, but less easily forced open

Postern gate- a small gate, usually only wide enough for people on foot, which acted as a back door to a castle

Rampart- a protective barrier, a wall like ridge, or a broad embankment raised as a fortification

Shell keep- a tower contrived by circling the top of a castle mound with a stone curtain wall

Wall walk- the passage or fighting platform behind the parapet of a curtain wall

References Cited

- Alchin, L.K.
2005. Castles. Electronic Document <http://www.castles.me.uk>, accessed March 7, 2009.
- Boas, Adrian J
1999 Crusader Archaeology. London: Routledge.
- Bradbury, Jim
1992 The Medieval Siege. Woodbridge: The Boydell Press.
- Brown, Allen
1989 Royal Castle Building in England, 1154-1216 In: *Castles, Conquests and Charters: Collected Papers*. Woodbridge: the Boydell Press
- Brown, Allen, R
1970 English Castles. London: Chancellor Press
- Clark, G.T.
1875 Dover Castle. *The Archaeological Journal*. Vol 32
- Colvin, H.M.
1963 The History of the King's Work. Vol. The Middle Ages. London: Her Majesties Stationary Office
- Cook, A.M., Mynard, D.C. and Rigold, S.E.
1969 Excavations at Dover Castle, principally in the inner bailey. *Journal of the British Archaeological Institution*. Volume 129. 54-104.
- DeVries. Kelly
1992 Medieval Military Technology. Peterborough: Broadview Press
- Forde-Johnston, J.
1977 Castles and Fortifications of Britain and Ireland. London: J.M. Dent & Sons Ltd.
- Hiller, J. and Keevill, G.
1994 Recent Archaeological work at the Tower of London. *London and Middlesex Archaeological Society*. Volume 45.147-81
- Kennedy, Hugh
1994 Crusader Castles. Cambridge: Cambridge University Press
- Kenyon, John.
1990 Medieval Fortifications. New York: St. Martin's Press

King, D.J. Cathcart

1988 *The Castle in England and Wales: An interpretative history*. London: Croom Helm

Lawrence, T.E.

1988 *Crusader Castles*. Oxford: Clarendon Press

McNeill, Tom

1992 *English Heritage Book of Castles*. London: B.T. Batsford Ltd.

Middle Ages

Electronic Document <http://www.middle-ages.org.uk/middle-ages-castles.htm>, accessed March 7, 2009.

Nicholson, Helen

2004 *Medieval Warfare*. New York: Palgrave Macmillan

Prestwich, Michael

1996. *Armies and Warfare in the Medieval Period- the English Experience*. New Haven: Yale University Press

Smail, R.C.

1956 *Crusading Warfare*. Cambridge: Cambridge University Press

Syria Gate

1999-2002 Electronic Document

www.syriagate.com/Syria/about/cities/Homs/krakdeschevalier, accessed March 12, 2009.