

= Castle =

A castle (from Latin : castellum) is a type of fortified structure built in Europe and the Middle East during the Middle Ages by nobility . Scholars debate the scope of the word castle , but usually consider it to be the private fortified residence of a lord or noble . This is distinct from a palace , which is not fortified ; from a fortress , which was not always a residence for nobility ; and from a fortified settlement , which was a public defence ? though there are many similarities among these types of construction . Usage of the term has varied over time and has been applied to structures as diverse as hill forts and country houses . Over the approximately 900 years that castles were built , they took on a great many forms with many different features , although some , such as curtain walls and arrowslits , were commonplace .

A European innovation , castles originated in the 9th and 10th centuries , after the fall of the Carolingian Empire resulted in its territory being divided among individual lords and princes . These nobles built castles to control the area immediately surrounding them , and were both offensive and defensive structures ; they provided a base from which raids could be launched as well as protection from enemies . Although their military origins are often emphasised in castle studies , the structures also served as centres of administration and symbols of power . Urban castles were used to control the local populace and important travel routes , and rural castles were often situated near features that were integral to life in the community , such as mills and fertile land .

Many castles were originally built from earth and timber , but had their defences replaced later by stone . Early castles often exploited natural defences , lacking features such as towers and arrowslits and relying on a central keep . In the late 12th and early 13th centuries , a scientific approach to castle defence emerged . This led to the proliferation of towers , with an emphasis on flanking fire . Many new castles were polygonal or relied on concentric defence ? several stages of defence within each other that could all function at the same time to maximise the castle 's firepower . These changes in defence have been attributed to a mixture of castle technology from the Crusades , such as concentric fortification , and inspiration from earlier defences , such as Roman forts . Not all the elements of castle architecture were military in nature , so that devices such as moats evolved from their original purpose of defence into symbols of power . Some grand castles had long winding approaches intended to impress and dominate their landscape .

Although gunpowder was introduced to Europe in the 14th century , it did not significantly affect castle building until the 15th century , when artillery became powerful enough to break through stone walls . While castles continued to be built well into the 16th century , new techniques to deal with improved cannon fire made them uncomfortable and undesirable places to live . As a result , true castles went into decline and were replaced by artillery forts with no role in civil administration , and country houses that were indefensible . From the 18th century onwards , there was a renewed interest in castles with the construction of mock castles , part of a romantic revival of Gothic architecture , but they had no military purpose .

= = Definition = =

= = = Etymology = = =

The word castle is derived from the Latin word castellum , which is a diminutive of the word castrum , meaning " fortified place " . The Old English castel , Old French castel or chastel , French château , Spanish castillo , Italian castello , and a number of words in other languages also derive from castellum . The word castle was introduced into English shortly before the Norman Conquest to denote this type of building , which was then new to England .

= = = Defining characteristics = = =

In its simplest terms , the definition of a castle accepted amongst academics is " a private fortified

residence ". This contrasts with earlier fortifications , such as Anglo Saxon burhs and walled cities such as Constantinople and Antioch in the Middle East ; castles were not communal defences but were built and owned by the local feudal lords , either for themselves or for their monarch . Feudalism was the link between a lord and his vassal where , in return for military service and the expectation of loyalty , the lord would grant the vassal land . In the late 20th century , there was a trend to refine the definition of a castle by including the criterion of feudal ownership , thus tying castles to the medieval period ; however , this does not necessarily reflect the terminology used in the medieval period . During the First Crusade (1096 ? 1099) , the Frankish armies encountered walled settlements and forts that they indiscriminately referred to as castles , but which would not be considered as such under the modern definition .

Castles served a range of purposes , the most important of which were military , administrative , and domestic . As well as defensive structures , castles were also offensive tools which could be used as a base of operations in enemy territory . Castles were established by Norman invaders of England for both defensive purposes and to pacify the country 's inhabitants . As William the Conqueror advanced through England , he fortified key positions to secure the land he had taken . Between 1066 and 1087 , he established 36 castles such as Warwick Castle , which he used to guard against rebellion in the English Midlands .

Towards the end of the Middle Ages , castles tended to lose their military significance due to the advent of powerful cannons and permanent artillery fortifications ; as a result , castles became more important as residences and statements of power . A castle could act as a stronghold and prison but was also a place where a knight or lord could entertain his peers . Over time the aesthetics of the design became more important , as the castle 's appearance and size began to reflect the prestige and power of its occupant . Comfortable homes were often fashioned within their fortified walls . Although castles still provided protection from low levels of violence in later periods , eventually they were succeeded by country houses as high status residences .

= = = Terminology = = =

Castle is sometimes used as a catch @-@ all term for all kinds of fortifications and , as a result , has been misapplied in the technical sense . An example of this is Maiden Castle which , despite the name , is an Iron Age hill fort which had a very different origin and purpose .

Although " castle " has not become a generic term for a manor house (like *château* in French and *Schloss* in German) , many manor houses contain " castle " in their name while having few if any of the architectural characteristics , usually as their owners liked to maintain a link to the past and felt the term " castle " was a masculine expression of their power . In scholarship the castle , as defined above , is generally accepted as a coherent concept , originating in Europe and later spreading to parts of the Middle East , where they were introduced by European Crusaders . This coherent group shared a common origin , dealt with a particular mode of warfare , and exchanged influences .

In different areas of the world , analogous structures shared features of fortification and other defining characteristics associated with the concept of a castle , though they originated in different periods and circumstances and experienced differing evolutions and influences . For example , *shiro* in Japan , described as castles by historian Stephen Turnbull , underwent " a completely different developmental history , were built in a completely different way and were designed to withstand attacks of a completely different nature " . While European castles built from the late 12th and early 13th century onwards were generally stone , *shiro* were predominantly timber buildings into the 16th century .

By the time Japanese and European cultures met in the late 16th century , fortification in Europe had moved beyond castles and relied on innovations such as the Italian *trace italienne* and star forts . Forts in India present a similar case ; when they were encountered by the British in the 17th century , castles in Europe had generally fallen out of use militarily . Like *shiro* , the Indian forts , *durga* or *durg* in Sanskrit , shared features with castles in Europe such as acting as a domicile for a lord as well as being fortifications . They too developed differently from the structures known as castles that had their origins in Europe .

= = Common features = =

= = = Motte = = =

A motte was an earthen mound with a flat top . It was often artificial , although sometimes it incorporated a pre @-@ existing feature of the landscape . The excavation of earth to make the mound left a ditch around the motte , called a moat (which could be either wet or dry) . " Motte " and " moat " derive from the same Old French word , indicating that the features were originally associated and depended on each other for their construction . Although the motte is commonly associated with the bailey to form a motte @-@ and @-@ bailey castle , this was not always the case and there are instances where a motte existed on its own .

" Motte " refers to the mound alone , but it was often surmounted by a fortified structure , such as a keep , and the flat top would be surrounded by a palisade . It was common for the motte to be reached over a flying bridge (a bridge over the ditch from the counterscarp of the ditch to the edge of the top of the mound) , as shown in the Bayeux Tapestry 's depiction of Château de Dinan . Sometimes a motte covered an older castle or hall , whose rooms became underground storage areas and prisons beneath a new keep .

= = = Bailey and enceinte = = =

A bailey , also called a ward , was a fortified enclosure . It was a common feature of castles , and most had at least one . The keep on top of the motte was the domicile of the lord in charge of the castle and a bastion of last defence , while the bailey was the home of the rest of the lord 's household and gave them protection . The barracks for the garrison , stables , workshops , and storage facilities were often found in the bailey . Water was supplied by a well or cistern . Over time the focus of high status accommodation shifted from the keep to the bailey ; this resulted in the creation of another bailey that separated the high status buildings ? such as the lord 's chambers and the chapel ? from the everyday structures such as the workshops and barracks .

From the late 12th century there was a trend for knights to move out of the small houses they had previously occupied within the bailey to live in fortified houses in the countryside . Although often associated with the motte @-@ and @-@ bailey type of castle , baileys could also be found as independent defensive structures . These simple fortifications were called ringworks . The enceinte was the castle 's main defensive enclosure , and the terms " bailey " and " enceinte " are linked . A castle could have several baileys but only one enceinte . Castles with no keep , which relied on their outer defences for protection , are sometimes called enceinte castles ; these were the earliest form of castles , before the keep was introduced in the 10th century .

= = = Keep = = =

A keep was a great tower and usually the most strongly defended point of a castle before the introduction of concentric defence . " Keep " was not a term used in the medieval period ? the term was applied from the 16th century onwards ? instead " donjon " was used to refer to great towers , or turris in Latin . In motte @-@ and @-@ bailey castles , the keep was on top of the motte . " Dungeon " is a corrupted form of " donjon " and means a dark , unwelcoming prison . Although often the strongest part of a castle and a last place of refuge if the outer defences fell , the keep was not left empty in case of attack but was used as a residence by the lord who owned the castle , or his guests or representatives .

At first this was usual only in England , when after the Norman Conquest of 1066 the " conquerors lived for a long time in a constant state of alert " ; elsewhere the lord 's wife presided over a separate residence (domus , aula or mansio in Latin) close to the keep , and the donjon was a barracks and headquarters . Gradually , the two functions merged into the same building , and the highest

residential storeys had large windows ; as a result for many structures , it is difficult to find an appropriate term . The massive internal spaces seen in many surviving donjons can be misleading ; they would have been divided into several rooms by light partitions , as in a modern office building . Even in some large castles the great hall was separated only by a partition from the lord 's " chamber " , his bedroom and to some extent his office .

== = Curtain wall == =

Curtain walls were defensive walls enclosing a bailey . They had to be high enough to make scaling the walls with ladders difficult and thick enough to withstand bombardment from siege engines which , from the 15th century onwards , included gunpowder artillery . A typical wall could be 3 m (10 ft) thick and 12 m (39 ft) tall , although sizes varied greatly between castles . To protect them from undermining , curtain walls were sometimes given a stone skirt around their bases . Walkways along the tops of the curtain walls allowed defenders to rain missiles on enemies below , and battlements gave them further protection . Curtain walls were studded with towers to allow enfilading fire along the wall . Arrowslits in the walls did not become common in Europe until the 13th century , for fear that they might compromise the wall 's strength .

== = Gatehouse == =

The entrance was often the weakest part in a circuit of defences . To overcome this , the gatehouse was developed , allowing those inside the castle to control the flow of traffic . In earth and timber castles , the gateway was usually the first feature to be rebuilt in stone . The front of the gateway was a blind spot and to overcome this , projecting towers were added on each side of the gate in a style similar to that developed by the Romans . The gatehouse contained a series of defences to make a direct assault more difficult than battering down a simple gate . Typically , there were one or more portcullises ? a wooden grille reinforced with metal to block a passage ? and arrowslits to allow defenders to harry the enemy . The passage through the gatehouse was lengthened to increase the amount of time an assailant had to spend under fire in a confined space and unable to retaliate .

It is a popular myth that so @-@ called murder @-@ holes ? openings in the ceiling of the gateway passage ? were used to pour boiling oil or molten lead on attackers ; the price of oil and lead and the distance of the gatehouse from fires meant that this was impractical . They were most likely used to drop objects on attackers , or to allow water to be poured on fires to extinguish them . Provision was made in the upper storey of the gatehouse for accommodation so the gate was never left undefended , although this arrangement later evolved to become more comfortable at the expense of defence .

During the 13th and 14th centuries the barbican was developed . This consisted of a rampart , ditch , and possibly a tower , in front of the gatehouse which could be used to further protect the entrance . The purpose of a barbican was not just to provide another line of defence but also to dictate the only approach to the gate .

== = Moat == =

A moat was a defensive ditch with steep sides , and could be either dry or filled with water . Its purpose was twofold ; to stop devices such as siege towers from reaching the curtain wall and to prevent the walls from being undermined . Water moats were found in low @-@ lying areas and were usually crossed by a drawbridge , although these were often replaced by stone bridges . Fortified islands could be added to the moat , adding another layer of defence . Water defences , such as moats or natural lakes , had the benefit of dictating the enemy 's approach to the castle . The site of the 13th @-@ century Caerphilly Castle in Wales covers over 30 acres (12 ha) and the water defences , created by flooding the valley to the south of the castle , are some of the largest in Western Europe .

= = = Other features = = =

Battlements were most often found surmounting curtain walls and the tops of gatehouses , and comprised several elements : crenellations , hoardings , machicolations , and loopholes . Crenellation is the collective name for alternating crenels and merlons : gaps and solid blocks on top of a wall . Hoardings were wooden constructs that projected beyond the wall , allowing defenders to shoot at , or drop objects on , attackers at the base of the wall without having to lean perilously over the crenellations , thereby exposing themselves to retaliatory fire . Machicolations were stone projections on top of a wall with openings that allowed objects to be dropped on an enemy at the base of the wall in a similar fashion to hoardings .

Arrowslits , also commonly called loopholes , were narrow vertical openings in defensive walls which allowed arrows or crossbow bolts to be fired on attackers . The narrow slits were intended to protect the defender by providing a very small target , but the size of the opening could also impede the defender if it was too small . A smaller horizontal opening could be added to give an archer a better view for aiming . Sometimes a sally port was included ; this could allow the garrison to leave the castle and engage besieging forces . It was usual for the latrines to empty down the external walls of a castle and into the surrounding ditch .

= = History = =

= = = Antecedents = = =

According to historian Charles Coulson the accumulation of wealth and resources , such as food , led to the need for defensive structures . The earliest fortifications originated in the Fertile Crescent , the Indus Valley , Egypt , and China where settlements were protected by large walls . Northern Europe was slower than the East to develop defensive structures and it was not until the Bronze Age that hill forts developed and began to spread across Europe . In the medieval period castles were influenced by earlier forms of elite architecture , contributing to regional variations . Importantly , while castles had military aspects , they contained a recognisable household structure within their walls , reflecting the multi @-@ functional use of these buildings .

= = = Origins (9th and 10th centuries) = = =

The subject of the emergence of castles is a complex matter which has led to considerable debate . Discussions have typically attributed the rise of the castle to a reaction to attacks by Magyars , Muslims , and Vikings and a need for private defence . The breakdown of the Carolingian Empire led to the privatisation of government , and local lords assumed responsibility for the economy and justice . However , while castles proliferated in the 9th and 10th centuries the link between periods of insecurity and building fortifications is not always straightforward . Some high concentrations of castles occur in secure places , while some border regions had relatively few castles .

It is likely that the castle evolved from the practice of fortifying a lordly home . The greatest threat to a lord 's home or hall was fire as it was usually a wooden structure . To protect against this , and keep other threats at bay , there were several courses of action available : create encircling earthworks to keep an enemy at a distance ; build the hall in stone ; or raise it up on an artificial mound , known as a motte , to present an obstacle to attackers . While the concept of ditches , ramparts , and stone walls as defensive measures is ancient , raising a motte is a medieval innovation .

A bank and ditch enclosure was a simple form of defence , and when found without an associated motte is called a ringwork ; when the site was in use for a prolonged period , it was sometimes replaced by a more complex structure or enhanced by the addition of a stone curtain wall . Building the hall in stone did not necessarily make it immune to fire as it still had windows and a wooden door

. This led to the elevation of windows to the first floor ? to make it harder to throw objects in ? and to change the entrance from ground floor to first floor . These features are seen in many surviving castle keeps , which were the more sophisticated version of halls . Castles were not just defensive sites but also enhanced a lord 's control over his lands . They allowed the garrison to control the surrounding area , and formed a centre of administration , providing the lord with a place to hold court .

Building a castle sometimes required the permission of the king or other high authority . In 864 the King of West Francia , Charles the Bald , prohibited the construction of castella without his permission and ordered them all to be destroyed . This is perhaps the earliest reference to castles , though military historian R. Allen Brown points out that the word castella may have applied to any fortification at the time .

In some countries the monarch had little control over lords , or required the construction of new castles to aid in securing the land so was unconcerned about granting permission ? as was the case in England in the aftermath of the Norman Conquest and the Holy Land during the Crusades . Switzerland is an extreme case of there being no state control over who built castles , and as a result there were 4 @, @ 000 in the country . There are very few castles dated with certainty from the mid @-@ 9th century . Converted into a donjon around 950 , Château de Doué @-@ la @-@ Fontaine in France is the oldest standing castle in Europe .

= = = 11th century = = =

From 1000 onwards , references to castles in texts such as charters increased greatly . Historians have interpreted this as evidence of a sudden increase in the number of castles in Europe around this time ; this has been supported by archaeological investigation which has dated the construction of castle sites through the examination of ceramics . The increase in Italy began in the 950s , with numbers of castles increasing by a factor of three to five every 50 years , whereas in other parts of Europe such as France and Spain the growth was slower . In 950 Provence was home to 12 castles , by 1000 this figure had risen to 30 , and by 1030 it was over 100 . Although the increase was slower in Spain , the 1020s saw a particular growth in the number of castles in the region , particularly in contested border areas between Christian and Muslim .

Despite the common period in which castles rose to prominence in Europe , their form and design varied from region to region . In the early 11th century , the motte and keep ? an artificial mound surmounted by a palisade and tower ? was the most common form of castle in Europe , everywhere except Scandinavia . While Britain , France , and Italy shared a tradition of timber construction that was continued in castle architecture , Spain more commonly used stone or mud @-@ brick as the main building material .

The Muslim invasion of the Iberian Peninsula in the 8th century introduced a style of building developed in North Africa reliant on tapial , pebbles in cement , where timber was in short supply . Although stone construction would later become common elsewhere , from the 11th century onwards it was the primary building material for Christian castles in Spain , while at the same time timber was still the dominant building material in north @-@ west Europe .

Historians have interpreted the widespread presence of castles across Europe in the 11th and 12th centuries as evidence that warfare was common , and usually between local lords . Castles were introduced into England shortly before the Norman Conquest in 1066 . Before the 12th century , castles were as uncommon in Denmark as they had been in England before the Norman Conquest . The introduction of castles to Denmark was a reaction to attacks from Wendish pirates , and they were usually intended as coastal defences . The motte and bailey remained the dominant form of castle in England , Wales , and Ireland well into the 12th century . At the same time , castle architecture in mainland Europe became more sophisticated .

The donjon was at the centre of this change in castle architecture in the 12th century . Central towers proliferated , and typically had a square plan , with walls 3 to 4 m (9 @. @ 8 to 13 @. @ 1 ft) thick . Their decoration emulated Romanesque architecture , and sometimes incorporated double windows similar to those found in church bell towers . Donjons , which were the residence of the lord

of the castle , evolved to become more spacious . The design emphasis of donjons changed to reflect a shift from functional to decorative requirements , imposing a symbol of lordly power upon the landscape . This sometimes led to compromising defence for the sake of display .

= = = Innovation and scientific design (12th century) = = =

Until the 12th century , stone @-@ built and earth and timber castles were contemporary , but by the late 12th century the number of castles being built went into decline . This has been partly attributed to the higher cost of stone @-@ built fortifications , and the obsolescence of timber and earthwork sites , which meant it was preferable to build in more durable stone . Although superseded by their stone successors , timber and earthwork castles were by no means useless . This is evidenced by the continual maintenance of timber castles over long periods , sometimes several centuries ; Owain Glyndŵr 's 11th @-@ century timber castle at Sycharth was still in use by the start of the 15th century , its structure having been maintained for four centuries .

At the same time there was a change in castle architecture . Until the late 12th century castles generally had few towers ; a gateway with few defensive features such as arrowslits or a portcullis ; a great keep or donjon , usually square and without arrowslits ; and the shape would have been dictated by the lay of the land (the result was often irregular or curvilinear structures) . The design of castles was not uniform , but these were features that could be found in a typical castle in the mid @-@ 12th century . By the end of the 12th century or the early 13th century , a newly constructed castle could be expected to be polygonal in shape , with towers at the corners to provide enfilading fire for the walls . The towers would have protruded from the walls and featured arrowslits on each level to allow archers to target anyone nearing or at the curtain wall .

These later castles did not always have a keep , but this may have been because the more complex design of the castle as a whole drove up costs and the keep was sacrificed to save money . The larger towers provided space for habitation to make up for the loss of the donjon . Where keeps did exist , they were no longer square but polygonal or cylindrical . Gateways were more strongly defended , with the entrance to the castle usually between two half @-@ round towers which were connected by a passage above the gateway ? although there was great variety in the styles of gateway and entrances ? and one or more portcullis .

A peculiar feature of Muslim castles in the Iberian Peninsula was the use of detached towers , called Albarrana towers , around the perimeter as can be seen at the Alcazaba of Badajoz . Probably developed in the 12th century , the towers provided flanking fire . They were connected to the castle by removable wooden bridges , so if the towers were captured the rest of the castle was not accessible .

When seeking to explain this change in the complexity and style of castles , antiquarians found their answer in the Crusades . It seemed that the Crusaders had learned much about fortification from their conflicts with the Saracens and exposure to Byzantine architecture . There were legends such as that of Lalys ? an architect from Palestine who reputedly went to Wales after the Crusades and greatly enhanced the castles in the south of the country ? and it was assumed that great architects such as James of Saint George originated in the East . In the mid @-@ 20th century this view was cast into doubt . Legends were discredited , and in the case of James of Saint George it was proven that he came from Saint @-@ Georges @-@ d 'Espéranche , in France . If the innovations in fortification had derived from the East , it would have been expected for their influence to be seen from 1100 onwards , immediately after the Christians were victorious in the First Crusade (1096 ? 1099) , rather than nearly 100 years later . Remains of Roman structures in Western Europe were still standing in many places , some of which had flanking round @-@ towers and entrances between two flanking towers .

The castle builders of Western Europe were aware of and influenced by Roman design ; late Roman coastal forts on the English " Saxon Shore " were reused and in Spain the wall around the city of Ávila imitated Roman architecture when it was built in 1091 . Historian Smail in *Crusading warfare* argued that the case for the influence of Eastern fortification on the West has been overstated , and that Crusaders of the 12th century in fact learned very little about scientific design

from Byzantine and Saracen defences . A well @-@ sited castle that made use of natural defences and had strong ditches and walls had no need for a scientific design . An example of this approach is Kerak . Although there were no scientific elements to its design , it was almost impregnable , and in 1187 Saladin chose to lay siege to the castle and starve out its garrison rather than risk an assault .

After the First Crusade , Crusaders who did not return to their homes in Europe helped found the Crusader states of the Principality of Antioch , the County of Edessa , the Kingdom of Jerusalem , and the County of Tripoli . The castles they founded to secure their acquisitions were designed mostly by Syrian master @-@ masons . Their design was very similar to that of a Roman fort or Byzantine tetrapyrigia which were square in plan and had square towers at each corner that did not project much beyond the curtain wall . The keep of these Crusader castles would have had a square plan and generally be undecorated .

While castles were used to hold a site and control movement of armies , in the Holy Land some key strategic positions were left unfortified . Castle architecture in the East became more complex around the late 12th and early 13th centuries after the stalemate of the Third Crusade (1189 ? 1192) . Both Christians and Muslims created fortifications , and the character of each was different . Saphadin , the 13th @-@ century ruler of the Saracens , created structures with large rectangular towers that influenced Muslim architecture and were copied again and again , however they had little influence on Crusader castles .

= = = 13th to 15th centuries = = =

In the early 13th century , Crusader castles were mostly built by Military Orders including the Knights Hospitaller , Knights Templar , and Teutonic Knights . The orders were responsible for the foundation of sites such as Krak des Chevaliers , Margat , and Belvoir . Design varied not just between orders , but between individual castles , though it was common for those founded in this period to have concentric defences .

The concept , which originated in castles such as Krak des Chevaliers , was to remove the reliance on a central strongpoint and to emphasise the defence of the curtain walls . There would be multiple rings of defensive walls , one inside the other , with the inner ring rising above the outer so that its field of fire was not completely obscured . If assailants made it past the first line of defence they would be caught in the killing ground between the inner and outer walls and have to assault the second wall .

Concentric castles were widely copied across Europe , for instance when Edward I of England ? who had himself been on Crusade ? built castles in Wales in the late 13th century , four of the eight he founded had a concentric design . Not all the features of the Crusader castles from the 13th century were emulated in Europe . For instance , it was common in Crusader castles to have the main gate in the side of a tower and for there to be two turns in the passageway , lengthening the time it took for someone to reach the outer enclosure . It is rare for this bent entrance to be found in Europe .

One of the effects of the Livonian Crusade in the Baltic was the introduction of stone and brick fortifications . Although there were hundreds of wooden castles in Prussia and Livonia , the use of bricks and mortar was unknown in the region before the Crusaders . Until the 13th century and start of the 14th centuries , their design was heterogeneous , however this period saw the emergence of a standard plan in the region : a square plan , with four wings around a central courtyard . It was common for castles in the East to have arrowslits in the curtain wall at multiple levels ; contemporary builders in Europe were wary of this as they believed it weakened the wall . Arrowslits did not compromise the wall 's strength , but it was not until Edward I 's programme of castle building that they were widely adopted in Europe .

The Crusades also led to the introduction of machicolations into Western architecture . Until the 13th century , the tops of towers had been surrounded by wooden galleries , allowing defenders to drop objects on assailants below . Although machicolations performed the same purpose as the wooden galleries , they were probably an Eastern invention rather than an evolution of the wooden

form . Machicolations were used in the East long before the arrival of the Crusaders , and perhaps as early as the first half of the 8th century in Syria .

The greatest period of castle building in Spain was in the 11th to 13th centuries , and they were most commonly found in the disputed borders between Christian and Muslim lands . Conflict and interaction between the two groups led to an exchange of architectural ideas , and Spanish Christians adopted the use of detached towers . The Spanish Reconquista , driving the Muslims out of the Iberian Peninsula , was complete in 1492 .

Although France has been described as " the heartland of medieval architecture " , the English were at the forefront of castle architecture in the 12th century . French historian François Gebelin wrote : " The great revival in military architecture was led , as one would naturally expect , by the powerful kings and princes of the time ; by the sons of William the Conqueror and their descendants , the Plantagenets , when they became dukes of Normandy . These were the men who built all the most typical twelfth @-@ century fortified castles remaining to @-@ day " . Despite this , by the beginning of the 15th century , the rate of castle construction in England and Wales went into decline . The new castles were generally of a lighter build than earlier structures and presented few innovations , although strong sites were still created such as that of Raglan in Wales . At the same time , French castle architecture came to the fore and led the way in the field of medieval fortifications . Across Europe ? particularly the Baltic , Germany , and Scotland ? castles were built well into the 16th century .

= = = Advent of gunpowder = = =

Artillery powered by gunpowder was introduced to Europe in the 1320s and spread quickly . Handguns , which were initially unpredictable and inaccurate weapons , were not recorded until the 1380s . Castles were adapted to allow small artillery pieces ? averaging between 19 @. @ 6 and 22 kg (43 and 49 lb) ? to fire from towers . These guns were too heavy for a man to carry and fire , but if he supported the butt end and rested the muzzle on the edge of the gun port he could fire the weapon . The gun ports developed in this period show a unique feature , that of a horizontal timber across the opening . A hook on the end of the gun could be latched over the timber so the gunner did not have to take the full recoil of the weapon . This adaptation is found across Europe , and although the timber rarely survives , there is an intact example at Castle Doornenburg in the Netherlands . Gunports were keyhole shaped , with a circular hole at the bottom for the weapon and a narrow slit on top to allow the gunner to aim .

This form is very common in castles adapted for guns , found in Egypt , Italy , Scotland , and Spain , and elsewhere in between . Other types of port , though less common , were horizontal slits ? allowing only lateral movement ? and large square openings , which allowed greater movement . The use of guns for defence gave rise to artillery castles , such as that of Château de Ham in France . Defences against guns were not developed until a later stage . Ham is an example of the trend for new castles to dispense with earlier features such as machicolations , tall towers , and crenellations .

Bigger guns were developed , and in the 15th century became an alternative to siege engines such as the trebuchet . The benefits of large guns over trebuchets ? the most effective siege engine of the Middle Ages before the advent of gunpowder ? were those of a greater range and power . In an effort to make them more effective , guns were made ever bigger , although this hampered their ability to reach remote castles . By the 1450s guns were the preferred siege weapon , and their effectiveness was demonstrated by Mehmed II at the Fall of Constantinople .

The response towards more effective cannons was to build thicker walls and to prefer round towers , as the curving sides were more likely to deflect a shot than a flat surface . While this sufficed for new castles , pre @-@ existing structures had to find a way to cope with being battered by cannon . An earthen bank could be piled behind a castle 's curtain wall to absorb some of the shock of impact .

Often , castles constructed before the age of gunpowder were incapable of using guns as their wall @-@ walks were too narrow . A solution to this was to pull down the top of a tower and to fill the

lower part with the rubble to provide a surface for the guns to fire from . Lowering the defences in this way had the effect of making them easier to scale with ladders . A more popular alternative defence , which avoided damaging the castle , was to establish bulwarks beyond the castle 's defences . These could be built from earth or stone and were used to mount weapons .

= = = Bastions and star forts (16th century) = = =

Around 1500 , the innovation of the angled bastion was developed in Italy . With developments such as these , Italy pioneered permanent artillery fortifications , which took over from the defensive role of castles . From this evolved star forts , also known as *trace italienne* . The elite responsible for castle construction had to choose between the new type that could withstand cannon fire and the earlier , more elaborate style . The first was ugly and uncomfortable and the latter was less secure , although it did offer greater aesthetic appeal and value as a status symbol . The second choice proved to be more popular as it became apparent that there was little point in trying to make the site genuinely defensible in the face of cannon . For a variety of reasons , not least of which is that many castles have no recorded history , there is no firm number of castles built in the medieval period . However , it has been estimated that between 75 @, @ 000 and 100 @, @ 000 were built in western Europe ; of these around 1 @, @ 700 were in England and Wales and around 14 @, @ 000 in German @-@ speaking areas .

Some true castles were built in the Americas by the Spanish and French colonies . The first stage of Spanish fort construction has been termed the " castle period " , which lasted from 1492 until the end of the 16th century . Starting with Fortaleza Ozama , " these castles were essentially European medieval castles transposed to America " . Among other defensive structures (including forts and citadels) , castles were also built in New France towards the end of the 17th century . In Montreal the artillery was not as developed as on the battle @-@ fields of Europe , some of the region 's outlying forts were built like the fortified manor houses of France . Fort Longueuil , built from 1695 ? 1698 by a baronial family , has been described as " the most medieval @-@ looking fort built in Canada " . The manor house and stables were within a fortified bailey , with a tall round turret in each corner . The " most substantial castle @-@ like fort " near Montréal was Fort Senneville , built in 1692 with square towers connected by thick stone walls , as well as a fortified windmill . Stone forts such as these served as defensive residences , as well as imposing structures to prevent Iroquois incursions .

Although castle construction faded towards the end of the 16th century , castles did not necessarily all fall out of use . Some retained a role in local administration and became law courts , while others are still handed down in aristocratic families as hereditary seats . A particularly famous example of this is Windsor Castle in England which was founded in the 11th century and is home to the monarch of the United Kingdom . In other cases they still had a role in defence . Tower houses , which are closely related to castles and include pele towers , were defended towers that were permanent residences built in the 14th to 17th centuries . Especially common in Ireland and Scotland , they could be up to five storeys high and succeeded common enclosure castles and were built by a greater social range of people . While unlikely to provide as much protection as a more complex castle , they offered security against raiders and other small threats .

= = = Later use and revival castles = = =

According to archaeologists Oliver Creighton and Robert Higham , " the great country houses of the seventeenth to twentieth centuries were , in a social sense , the castles of their day " . Though there was a trend for the elite to move from castles into country houses in the 17th century , castles were not completely useless . In later conflicts , such as the English Civil War (1641 ? 1651) , many castles were refortified , although subsequently slighted to prevent them from being used again .

Revival or mock castles became popular as a manifestation of a Romantic interest in the Middle Ages and chivalry , and as part of the broader Gothic Revival in architecture . Examples of these castles include Chapultepec in Mexico , Neuschwanstein in Germany , and Edwin Lutyens ' Castle

Drogo (1911 ? 1930) ? the last flicker of this movement in the British Isles . While churches and cathedrals in a Gothic style could faithfully imitate medieval examples , new country houses built in a " castle style " differed internally from their medieval predecessors . This was because to be faithful to medieval design would have left the houses cold and dark by contemporary standards .

Artificial ruins , built to resemble remnants of historic edifices , were also a hallmark of the period . They were usually built as centre pieces in aristocratic planned landscapes . Follies were similar , although they differed from artificial ruins in that they were not part of a planned landscape , but rather seemed to have no reason for being built . Both drew on elements of castle architecture such as castellation and towers , but served no military purpose and were solely for display .

= = Construction = =

Once the site of a castle had been selected ? whether a strategic position or one intended to dominate the landscape as a mark of power ? the building material had to be selected . An earth and timber castle was cheaper and easier to erect than one built from stone . The costs involved in construction are not well @-@ recorded , and most surviving records relate to royal castles . A castle with earthen ramparts , a motte , and timber defences and buildings could have been constructed by an unskilled workforce . The source of man @-@ power was probably from the local lordship , and the tenants would already have the necessary skills of felling trees , digging , and working timber necessary for an earth and timber castle . Possibly coerced into working for their lord , the construction of an earth and timber castle would not have been a drain on a client 's funds . In terms of time , it has been estimated that an average sized motte ? 5 m (16 ft) high and 15 m (49 ft) wide at the summit ? would have taken 50 people about 40 working days . An exceptionally expensive motte and bailey was that of Clones in Ireland , built in 1211 for £ 20 . The high cost , relative to other castles of its type , was because labourers had to be imported .

The cost of building a castle varied according to factors such as their complexity and transport costs for material . It is certain that stone castles cost a great deal more than those built from earth and timber . Even a very small tower , such as Peveril Castle , would have cost around £ 200 . In the middle were castles such as Orford , which was built in the late 12th century for £ 1 @, @ 400 , and at the upper end were those such as Dover , which cost about £ 7 @, @ 000 between 1181 and 1191 . Spending on the scale of the vast castles such as Château Gaillard (an estimated £ 15 @, @ 000 to £ 20 @, @ 000 between 1196 and 1198) was easily supported by The Crown , but for lords of smaller areas , castle building was a very serious and costly undertaking . It was usual for a stone castle to take the best part of a decade to finish . The cost of a large castle built over this time (anywhere from £ 1 @, @ 000 to £ 10 @, @ 000) would take the income from several manors , severely impacting a lord 's finances . Costs in the late 13th century were of a similar order , with castles such as Beaumaris and Rhuddlan costing £ 14 @, @ 500 and £ 9 @, @ 000 respectively . Edward I 's campaign of castle @-@ building in Wales cost £ 80 @, @ 000 between 1277 and 1304 , and £ 95 @, @ 000 between 1277 and 1329 . Renowned designer Master James of Saint George , responsible for the construction of Beaumaris , explained the cost :

In case you should wonder where so much money could go in a week , we would have you know that we have needed ? and shall continue to need 400 masons , both cutters and layers , together with 2 @, @ 000 less skilled workmen , 100 carts , 60 wagons and 30 boats bringing stone and sea coal ; 200 quarrymen ; 30 smiths ; and carpenters for putting in the joists and floor boards and other necessary jobs . All this takes no account of the garrison ... nor of purchases of material . Of which there will have to be a great quantity ... The men 's pay has been and still is very much in arrears , and we are having the greatest difficulty in keeping them because they have simply nothing to live on .

Not only were stone castles expensive to build in the first place , but their maintenance was a constant drain . They contained a lot of timber , which was often unseasoned and as a result needed careful upkeep . For example , it is documented that in the late 12th century repairs at castles such as Exeter and Gloucester cost between £ 20 and £ 50 annually .

Medieval machines and inventions , such as the treadwheel crane , became indispensable during

construction , and techniques of building wooden scaffolding were improved upon from Antiquity . When building in stone a prominent concern of medieval builders was to have quarries close at hand . There are examples of some castles where stone was quarried on site , such as Chinon , Château de Coucy and Château Gaillard . When it was built in 992 in France the stone tower at Château de Langeais was 16 metres (52 ft) high , 17 @. @ 5 metres (57 ft) wide , and 10 metres (33 ft) long with walls averaging 1 @. @ 5 metres (4 ft 11 in) . The walls contain 1 @, @ 200 cubic metres (42 @, @ 000 cu ft) of stone and have a total surface (both inside and out) of 1 @, @ 600 square metres (17 @, @ 000 sq ft) . The tower is estimated to have taken 83 @, @ 000 average working days to complete , most of which was unskilled labour .

Many countries had both timber and stone castles , however Denmark had few quarries , and as a result , most of its castles are earth and timber affairs , or later on built from brick . Brick @- @ built structures were not necessarily weaker than their stone @- @ built counterparts . Brick castles are less common in England than stone or earth and timber constructions , and often it was chosen for its aesthetic appeal or because it was fashionable , encouraged by the brick architecture of the Low Countries . For example , when Tattershall Castle was built between 1430 and 1450 , there was plenty of stone available nearby , but the owner , Lord Cromwell , chose to use brick . About 700 @, @ 000 bricks were used to build the castle , which has been described as " the finest piece of medieval brick @- @ work in England " . Most Spanish castles were built from stone , whereas castles in Eastern Europe were usually of timber construction .

= = Social centre = =

Due to the lord 's presence in a castle , it was a centre of administration from where he controlled his lands . He relied on the support of those below him , as without the support of his more powerful tenants a lord could expect his power to be undermined . Successful lords regularly held court with those immediately below them on the social scale , but absentees could expect to find their influence weakened . Larger lordships could be vast , and it would be impractical for a lord to visit all his properties regularly so deputies were appointed . This especially applied to royalty , who sometimes owned land in different countries .

To allow the lord to concentrate on his duties regarding administration , he had a household of servants to take care of chores such as providing food . The household was run by a chamberlain , while a treasurer took care of the estate 's written records . Royal households took essentially the same form as baronial households , although on a much larger scale and the positions were more prestigious . An important role of the household servants was the preparation of food ; the castle kitchens would have been a busy place when the castle was occupied , called on to provide large meals . Without the presence of a lord 's household , usually because he was staying elsewhere , a castle would have been a quiet place with few residents , focused on maintaining the castle .

As social centres castles were important places for display . Builders took the opportunity to draw on symbolism , through the use of motifs , to evoke a sense of chivalry that was aspired to in the Middle Ages amongst the elite . Later structures of the Romantic Revival would draw on elements of castle architecture such as battlements for the same purpose . Castles have been compared with cathedrals as objects of architectural pride , and some castles incorporated gardens as ornamental features . The right to crenellate , when granted by a monarch ? though it was not always necessary ? was important not just as it allowed a lord to defend his property but because crenellations and other accoutrements associated with castles were prestigious through their use by the elite . Licences to crenellate were also proof of a relationship with or favour from the monarch , who was the one responsible for granting permission .

Courtly love was the eroticisation of love between the nobility . Emphasis was placed on restraint between lovers . Though sometimes expressed through chivalric events such as tournaments , where knights would fight wearing a token from their lady , it could also be private and conducted in secret . The legend of Tristan and Iseult is one example of stories of courtly love told in the Middle Ages . It was an ideal of love between two people not married to each other , although the man might be married to someone else . It was not uncommon or ignoble for a lord to be adulterous ?

Henry I of England had over 20 bastards for instance ? but for a lady to be promiscuous was seen as dishonourable .

The purpose of marriage between the medieval elites was to secure land . Girls were married in their teens , but boys did not marry until they came of age . There is a popular conception that women played a peripheral role in the medieval castle household , and that it was dominated by the lord himself . This derives from the image of the castle as a martial institution , but most castles in England , France , Ireland , and Scotland were never involved in conflicts or sieges , so the domestic life is a neglected facet . The lady was given a " marriage portion " of her husband 's estates ? usually about a third ? which was hers for life , and her husband would inherit on her death . It was her duty to administer them directly , as the lord administered his own land . Despite generally being excluded from military service , a woman could be in charge of a castle , either on behalf of her husband or if she was widowed . Because of their influence within the medieval household , women influenced construction and design , sometimes through direct patronage ; historian Charles Coulson emphasises the role of women in applying " a refined aristocratic taste " to castles due to their long term residence .

= = Location and landscape = =

The positioning of castles was influenced by the available terrain . Whereas hill castles such as Marksburg were common in Germany , where 66 per cent of all known medieval were highland area while 34 per cent were on low @-@ lying land , they formed a minority of sites in England . Because of the range of functions they had to fulfil , castles were built in a variety of locations . Multiple factors were considered when choosing a site , balancing between the need for a defensible position with other considerations such as proximity to resources . For instance many castles are located near Roman roads , which remained important transport routes in the Middle Ages , or could lead to the alteration or creation of new road systems in the area . Where available it was common to exploit pre @-@ existing defences such as building with a Roman fort or the ramparts of an Iron Age hillfort . A prominent site that overlooked the surrounding area and offered some natural defences may also have been chosen because its visibility made it a symbol of power . Urban castles were particularly important in controlling centres of population and production , especially with an invading force , for instance in the aftermath of the Norman Conquest of England in the 11th century the majority of royal castles were built in or near towns .

As castles were not simply military buildings but centres of administration and symbols of power , they had a significant impact on the surrounding landscape . Placed by a frequently @-@ used road or river , the toll castle ensured that a lord would get his due toll money from merchants . Rural castles were often associated with mills and field systems due to their role in managing the lord 's estate , which gave them greater influence over resources . Others were adjacent to or in royal forests or deer parks and were important in their upkeep . Fish ponds were a luxury of the lordly elite , and many were found next to castles . Not only were they practical in that they ensured a water supply and fresh fish , but they were a status symbol as they were expensive to build and maintain .

Although sometimes the construction of a castle led to the destruction of a village , such as at Eaton Socon in England , it was more common for the villages nearby to have grown as a result of the presence of a castle . Sometimes planned towns or villages were created around a castle . The benefits of castle building on settlements was not confined to Europe . When the 13th @-@ century Safad Castle was founded in Galilee in the Holy Land , the 260 villages benefitted from the inhabitants ' newfound ability to move freely . When built , a castle could result in the restructuring of the local landscape , with roads moved for the convenience of the lord . Settlements could also grow naturally around a castle , rather than being planned , due to the benefits of proximity to an economic centre in a rural landscape and the safety given by the defences . Not all such settlements survived , as once the castle lost its importance ? perhaps succeeded by a manor house as the centre of administration ? the benefits of living next to a castle vanished and the settlement depopulated .

During and shortly after the Norman Conquest of England , castles were inserted into important pre

@-@ existing towns to control and subdue the populace . They were usually located near any existing town defences , such as Roman walls , although this sometimes resulted in the demolition of structures occupying the desired site . In Lincoln , 166 houses were destroyed to clear space for the castle , and in York agricultural land was flooded to create a moat for the castle . As the military importance of urban castles waned from their early origins , they became more important as centres of administration , and their financial and judicial roles . When the Normans invaded Ireland , Scotland , and Wales in the 11th and 12th centuries , settlement in those countries was predominantly non @-@ urban , and the foundation of towns was often linked with the creation of a castle .

The location of castles in relation to high status features , such as fish ponds , was a statement of power and control of resources . Also often found near a castle , sometimes within its defences , was the parish church . This signified a close relationship between feudal lords and the Church , one of the most important institutions of medieval society . Even elements of castle architecture that have usually been interpreted as military could be used for display . The water features of Kenilworth Castle in England ? comprising a moat and several satellite ponds ? forced anyone approaching a water castle entrance to take a very indirect route , walking around the defences before the final approach towards the gateway . Another example is that of the 14th @-@ century Bodiam Castle , also in England ; although it appears to be a state of the art , advanced castle it is in a site of little strategic importance , and the moat was shallow and more likely intended to make the site appear impressive than as a defence against mining . The approach was long and took the viewer around the castle , ensuring they got a good look before entering . Moreover , the gunports were impractical and unlikely to have been effective .

= = Warfare = =

As a static structure , castles could often be avoided . Their immediate area of influence was about 400 metres (1 @, @ 300 ft) and their weapons had a short range even early in the age of artillery . However , leaving an enemy behind would allow them to interfere with communications and make raids . Garrisons were expensive and as a result often small unless the castle was important . Cost also meant that in peace time garrisons were smaller , and small castles were manned by perhaps a couple of watchmen and gate @-@ guards . Even in war , garrisons were not necessarily large as too many people in a defending force would strain supplies and impair the castle 's ability to withstand a long siege . In 1403 , a force of 37 archers successfully defended Caernarfon Castle against two assaults by Owain Glyndŵr 's allies during a long siege , demonstrating that a small force could be effective .

Early on , manning a castle was a feudal duty of vassals to their magnates , and magnates to their kings , however this was later replaced with paid forces . A garrison was usually commanded by a constable whose peace @-@ time role would have been looking after the castle in the owner 's absence . Under him would have been knights who by benefit of their military training would have acted as a type of officer class . Below them were archers and bowmen , whose role was to prevent the enemy reaching the walls as can be seen by the positioning of arrowslits .

If it was necessary to seize control of a castle an army could either launch an assault or lay siege . It was more efficient to starve the garrison out than to assault it , particularly for the most heavily defended sites . Without relief from an external source , the defenders would eventually submit . Sieges could last weeks , months , and in rare cases years if the supplies of food and water were plentiful . A long siege could slow down the army , allowing help to come or for the enemy to prepare a larger force for later . Such an approach was not confined to castles , but was also applied to the fortified towns of the day . On occasion , siege castles would be built to defend the besiegers from a sudden sally and would have been abandoned after the siege ended one way or another .

If forced to assault a castle , there were many options available to the attackers . For wooden structures , such as early motte @-@ and @-@ baileys , fire was a real threat and attempts would be made to set them alight as can be seen in the Bayeux Tapestry . Projectile weapons had been used since antiquity and the mangonel and petraria ? from Roman and Eastern origins respectively

? were the main two that were used into the Middle Ages . The trebuchet , which probably evolved from the petraria in the 13th century , was the most effective siege weapon before the development of cannons . These weapons were vulnerable to fire from the castle as they had a short range and were large machines . Conversely , weapons such as trebuchets could be fired from within the castle due to the high trajectory of its projectile , and would be protected from direct fire by the curtain walls .

Ballistas or springalds were siege engines that worked on the same principles as crossbows . With their origins in Ancient Greece , tension was used to project a bolt or javelin . Missiles fired from these engines had a lower trajectory than trebuchets or mangonels and were more accurate . They were more commonly used against the garrison rather than the buildings of a castle . Eventually cannons developed to the point where they were more powerful and had a greater range than the trebuchet , and became the main weapon in siege warfare .

Walls could be undermined by a sap . A mine leading to the wall would be dug and once the target had been reached , the wooden supports preventing the tunnel from collapsing would be burned . It would cave in and bring down the structure above . Building a castle on a rock outcrop or surrounding it with a wide , deep moat helped prevent this . A counter @-@ mine could be dug towards the besiegers ' tunnel ; assuming the two converged , this would result in underground hand @-@ to @-@ hand combat . Mining was so effective that during the siege of Margat in 1285 when the garrison were informed a sap was being dug they surrendered . Battering rams were also used , usually in the form of a tree trunk given an iron cap . They were used to force open the castle gates , although they were sometimes used against walls with less effect .

As an alternative to the time @-@ consuming task of creating a breach , an escalade could be attempted to capture the walls with fighting along the walkways behind the battlements . In this instance , attackers would be vulnerable to arrowfire . A safer option for those assaulting a castle was to use a siege tower , sometimes called a belfry . Once ditches around a castle were partially filled in , these wooden , movable towers could be pushed against the curtain wall . As well as offering some protection for those inside , a siege tower could overlook the interior of a castle , giving bowmen an advantageous position from which to unleash missiles .