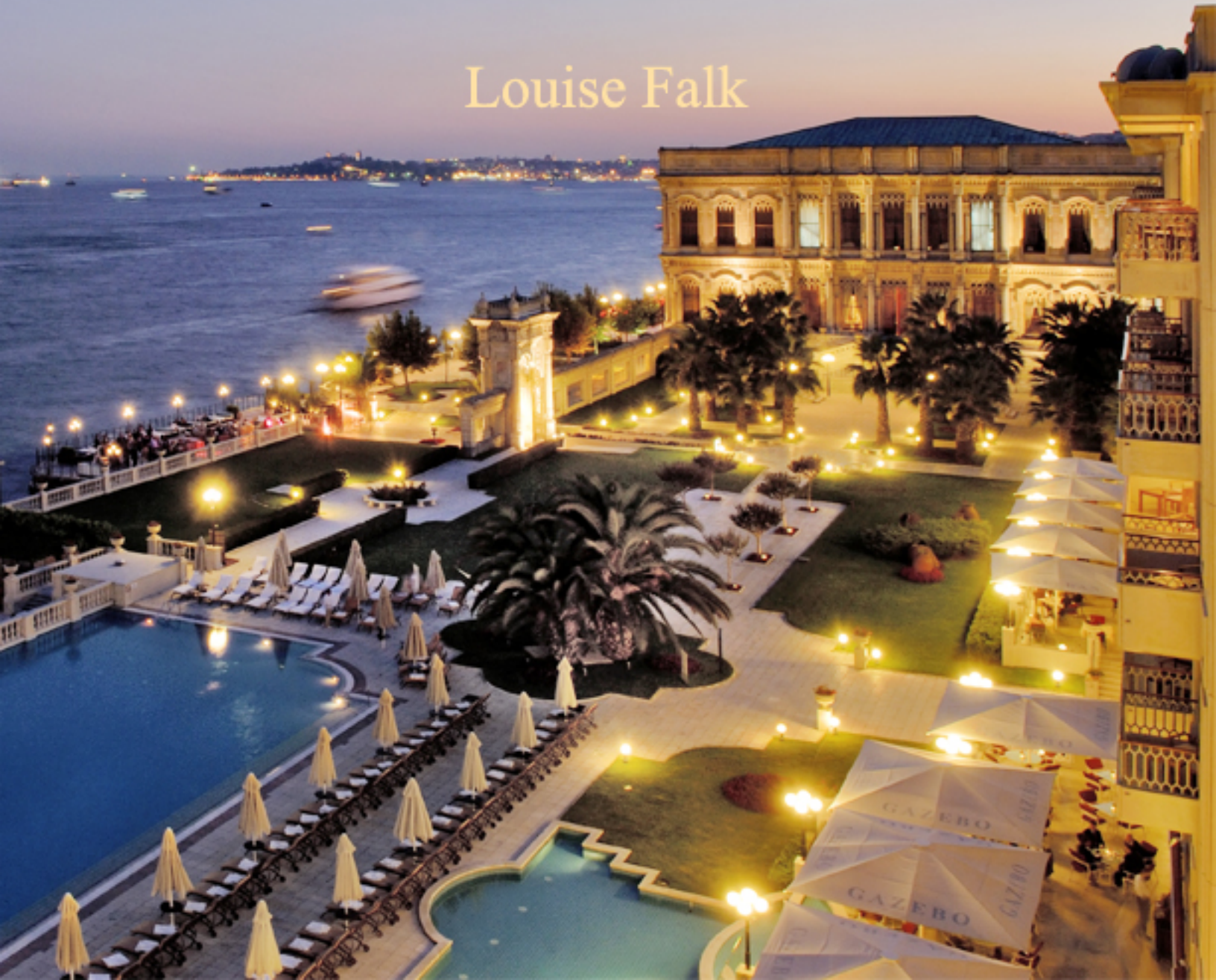
Human Habitats

(Urban & Social Environment)

Louise Falk



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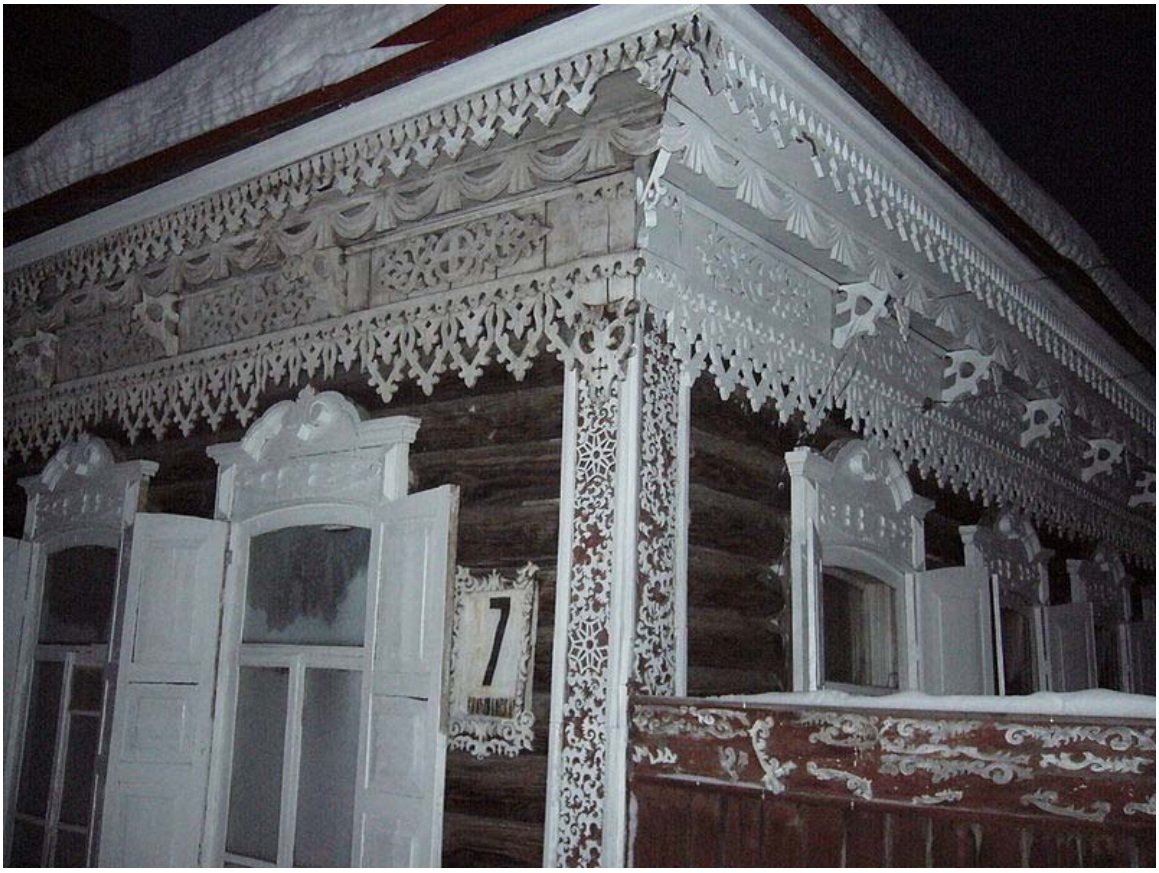
House



A traditional house in Novosibirsk, Siberia, Russia

A ranch style house in Salinas, California, United States

"Terem" – Traditional house in European Russia.

A yurt near the Gurvan Saikhan Mountains (in the background); part of Gobi Gurvansaikhan National Park.

A **house** is a home, building or structure that is a dwelling or place for habitation by human beings. The term house includes many kinds of dwellings ranging from rudimentary huts of nomadic tribes to free standing individual structures. In some contexts, "house" may mean the same as dwelling, residence, home, abode, lodging, accommodation, or housing, among other meanings. The social unit that lives in a house is known as a household. Most commonly, a household is a family unit of some kind, though households can be other social groups, such as single persons, or groups of unrelated individuals. Settled agrarian and industrial societies are composed of household units living permanently in housing of various types, according to a variety of forms of land tenure. English-speaking people generally call any building they routinely occupy "home". Many people leave their houses during the day for work and recreation, and return to them to sleep and for other activities.

Etymology

House derives directly from Old English **Hus** meaning 'Dwelling, shelter, house," which in turn derives from Proto-Germanic Khusan (reconstructed by etymological analysis) which is of unknown origin.

Inside the house

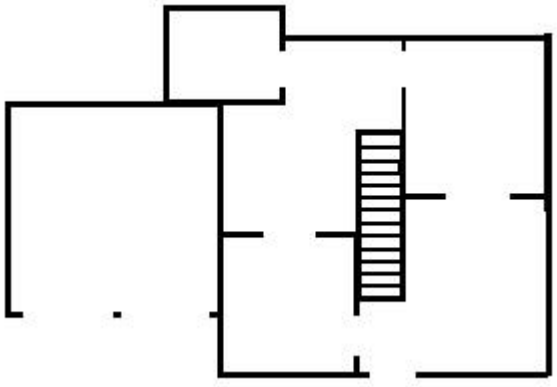
Layout

Example of an early Victorian "Gingerbread House" in Connecticut, United States, built in 1855

Ideally, architects of houses design rooms to meet the needs of the people who will live in the house. Such designing, known as "interior design", has become a popular subject in universities. Feng shui, originally a Chinese method of moving houses according to such factors as rain and micro-climates, has recently expanded its scope to address the design of interior spaces with a view to promoting harmonious effects on the people living inside the house. Feng shui can also mean the "aura" in or around a dwelling. Compare the real-estate sales concept of "indoor-outdoor flow".

The square footage of a house in the United States reports the area of "living space", excluding the garage and other non-living spaces. The "square meters" figure of a house in Europe reports the area of the walls enclosing the home, and thus includes any attached garage and non-living spaces. How many floors, or levels, the home is will play a bug role in determining the square footage of a home.

Parts



Floor plan of a "foursquare" house

Many houses have several large rooms with specialized functions and several very small rooms for other various reasons. These may include a living/eating area, a sleeping area, and (if suitable facilities and services exist) washing and lavatory areas. Additionally, spa room, indoor pool, indoor basketball goal, and so forth. In traditional agriculture-oriented societies, domestic animals such as chickens or larger livestock (like cattle) often share part of the house with human beings. Most conventional modern houses will at least contain a bedroom, bathroom, kitchen (or kitchen area), and a living room. A typical "foursquare house" (as pictured) occurred commonly in the early history of the United States of America where they were mainly built, with a staircase in the center of the house, surrounded by four rooms, and connected to other sections of the house (including in more recent eras a garage).

The names of parts of a house often echo the names of parts of other buildings, but could typically include:

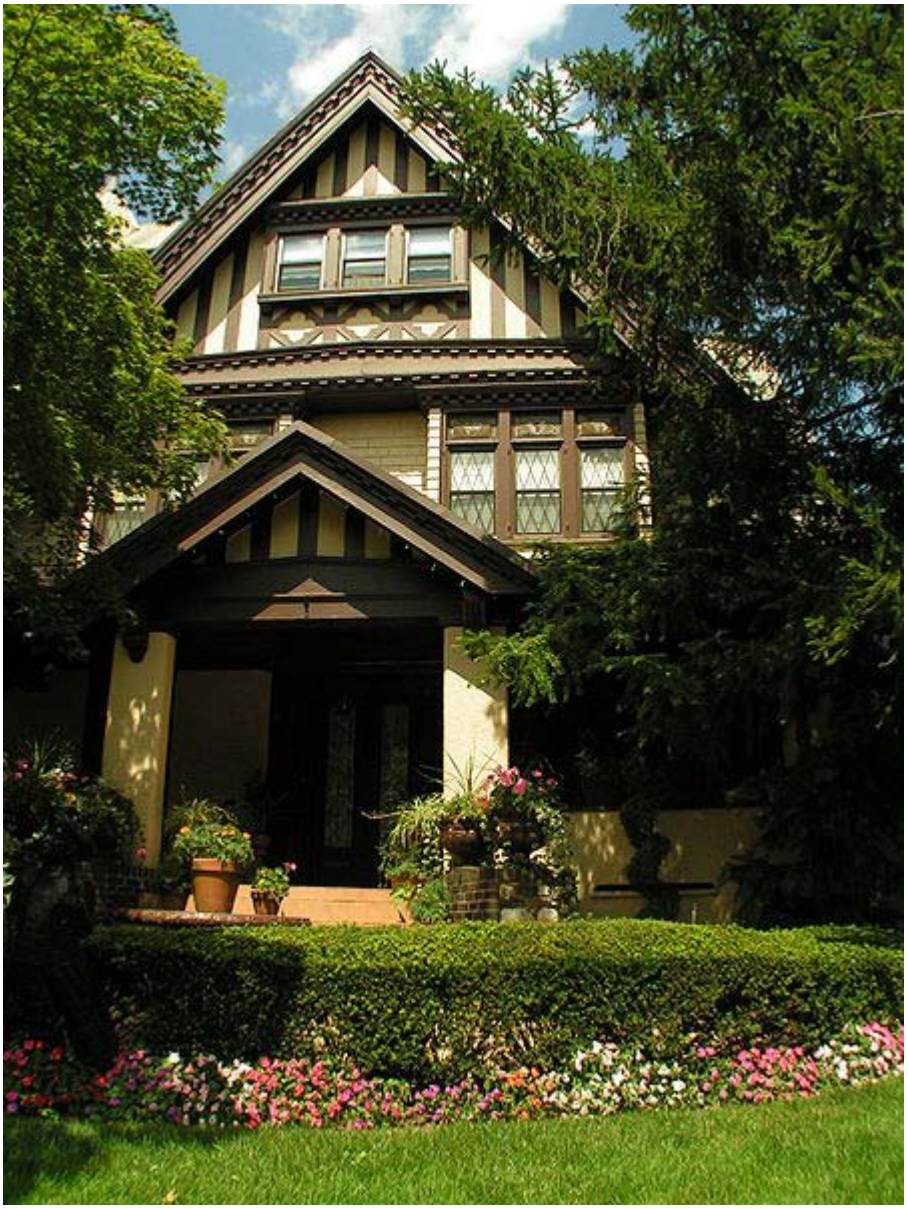
- Atrium
- Attic
- Alcove
- Basement/cellar
- Bathroom (in various senses of the word)
    - Bath/shower
    - Toilet
- Bedroom (or nursery, for infants or small children)
- Box-room / storage room
- Conservatory
- Dining room
- Family room or den
    - Fireplace (for warmth during winter; generally not found in warmer climates)
- Foyer
- Front room (in various senses of the phrase)
- Garage
- Hallway / passage / Vestibule
- Hearth – often an important symbolic focus of family togetherness
- Kitchen
- Larder
- Laundry room
- Library
- Living room
- Loft
- Nook
- Window
- Office or study
- Pantry
- Parlour
- Pew/porch
- Recreation room / rumpus room / television room
- Shrines to serve the religious functions associated with a family
- Stairwell
- Sunroom
- Workshop

Some houses have a pool in the background, or a trampoline, or a playground.

Construction

The structure of the house (under demolition). This house is constructed from bricks and wood and was later covered by insulating panels. The roof construction is also seen.

In the United States, modern house-construction techniques include light-frame construction (in areas with access to supplies of wood) and adobe or sometimes rammed-earth construction (in arid regions with scarce wood-resources). Some areas use brick almost exclusively, and quarried stone has long provided walling. To some extent, aluminum and steel have displaced some traditional building materials. Increasingly popular alternative construction materials include insulating concrete forms (foam forms filled with concrete), structural insulated panels (foam panels faced with oriented strand board or fiber cement), and light-gauge steel framing and heavy-gauge steel framing.



The Saitta House, Dyker Heights, Brooklyn, New York, United States built in 1899 is made of and decorated in wood.

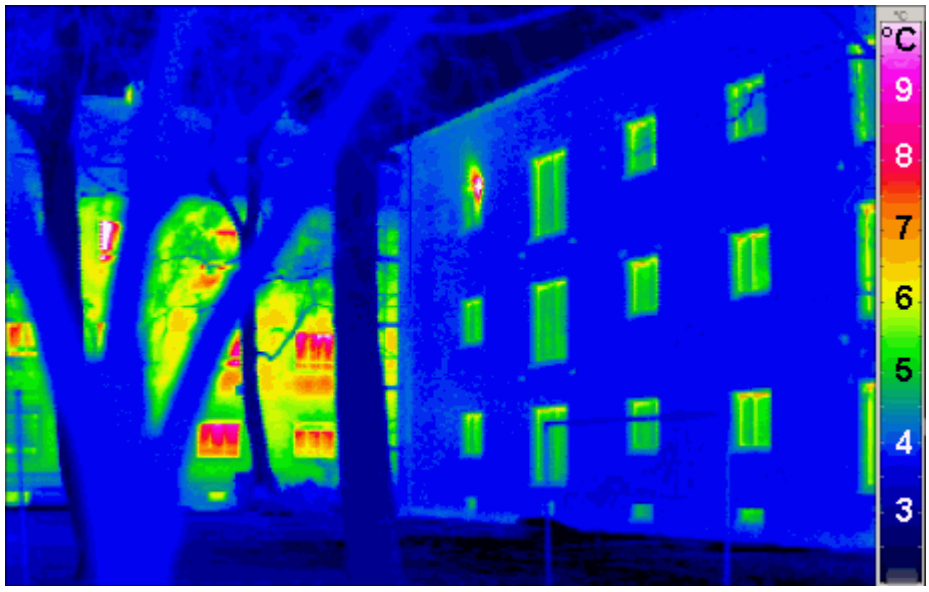
More generally, people often build houses out of the nearest available material, and often tradition and/or culture govern construction-materials, so whole towns, areas, counties or even states/countries may be built out of one main type of material. For example, a large fraction of American houses use wood, while most British and many European houses utilize stone or brick.

In the 1900s, some house designers started using prefabrication. Sears, Roebuck & Co. first marketed their Sears Catalog Homes to the general public in 1908. Prefab techniques became popular after World War II. First small inside rooms framing, then later, whole walls were prefabricated and carried to the construction site. The original impetus was to

use the labor force inside a shelter during inclement weather. More recently builders have begun to collaborate with structural engineers who use computers and finite element analysis to design prefabricated steel-framed homes with known resistance to high wind-loads and seismic forces. These newer products provide labor savings, more consistent quality, and possibly accelerated construction processes.

Lesser-used construction methods have gained (or regained) popularity in recent years. Though not in wide use, these methods frequently appeal to homeowners who may become actively involved in the construction process. They include:

- Cannabrick construction
- Cordwood construction
- Geodesic domes
- Straw-bale construction
- Wattle and daub



Thermographic comparison of traditional (left) and "passivhaus" (right) buildings

Energy-efficiency

In the developed world, energy-conservation has grown in importance in house-design. Housing produces a major proportion of carbon emissions (30% of the total in the UK, for example).

Development of a number of low-energy building types and techniques continues. They include the zero-energy house, the passive solar house, the autonomous buildings, the superinsulated and houses built to the *Passivhaus* standard.

Earthquake protection

One tool of earthquake engineering is base isolation which is increasingly used for earthquake protection. Base isolation is a collection of structural elements of a building that should substantially decouple it from the shaking ground thus protecting the building's integrity and enhancing its seismic performance. This technology, which is a kind of seismic vibration control, can be applied both to a newly designed building and to seismic upgrading of existing structures.

Normally, excavations are made around the building and the building is separated from the foundations. Steel or reinforced concrete beams replace the connections to the foundations, while under these, the isolating pads, or *base isolators*, replace the material removed. While the *base isolation* tends to restrict transmission of the ground motion to the building, it also keeps the building positioned properly over the foundation. Careful attention to detail is required where the building interfaces with the ground, especially at entrances, stairways and ramps, to ensure sufficient relative motion of those structural elements.

Legal issues

Buildings with historical importance have restrictions.

United Kingdom

New houses in the UK are not covered by the Sale of Goods Act. When purchasing a new house the buyer has less legal protection than when buying a new car. New houses in the UK may be covered by a NHBC guarantee but some people feel that it would be more useful to put new houses on the same legal footing as other products.

United States and Canada

In the US and Canada, many new houses are built in housing tracts, which provide homeowners a sense of "belonging" and the feeling they have "made the best use" of their money. However, these houses are sometimes built as cheaply and quickly as possible by large builders seeking to maximize profits. Many environmental health issues may be ignored or minimized in the construction of these structures. In one case in Benicia, California, a housing tract was built over an old landfill. Home buyers were never told, and only found out when some began having reactions to high levels of lead and chromium.

Identifying houses

With the growth of dense settlement, humans designed ways of identifying houses and/or parcels of land. Individual houses sometimes acquire proper names; and those names may

acquire in their turn considerable emotional connotations: see for example the house of *Howards End* or the castle of *Brideshead Revisited*. A more systematic and general approach to identifying houses may use various methods of house numbering.

Chapter 2

Castle

Alcázar of Segovia in Spain

Bodiam Castle in England surrounded by a water-filled moat.

A **castle** is a type of fortified structure built in Europe and the Middle East during the Middle Ages. 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 fortress, which was not a home, and from a fortified town, which was a public defence, though there are many similarities between these types of construction. The term has been popularly 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. Castles controlled 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, and lacked features such as towers and arrowslits and relied 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, and 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 Norman "White Tower", the keep of the Tower of London, exemplifies all uses of a castle: city defence, a residence, and a place of refuge in times of crisis.

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*, French *château*, Spanish *castillo*, Italian *castello*, and a number of other 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. Although these various terms derive from the same root, they are not universally applied to the same types of structures. For example, the French *château* is used to describe a grand country house at the heart of an estate, regardless of the presence of fortifications.

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, the lord would grant the vassal land and expect loyalty. 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.

Windsor Castle in England was first built as a fortification of the Norman Conquest, and today is one of the principal official residences of Queen Elizabeth II of the United Kingdom.

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.

Sometimes misapplied, the term *castle* has also been erroneously used to refer to structures such as Iron Age fortifications, for example Maiden Castle, Dorset. 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. It is generally accepted that castles are confined to Europe, where they originated, and the Middle East, where they were introduced by European Crusaders; however, there were analogous structures in Japan built in the 16th and 17th centuries that evolved independently from European influence and which, according to military historian Stephen Turnbull, had "a completely different developmental history, were built in a completely different way and were designed to withstand attacks of a completely different nature".

Common features

Motte

The wooden palisades surmounting mottes were often later replaced with stone, as in this example at Château de Gisors in France.

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 for the mound left a ditch around the motte, which acted as a further defence. Sometimes a nearby stream was diverted to flood the ditch, creating a moat. "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 usually 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 accessed via a flying bridge (a bridge over the ditch from the counterscarp of the ditch around the motte to the edge of the top of the mound), as represented by 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

Carcassonne, France, showing the classic features of the curtain walls, defensive ditch with arched bridge, and cylindrical flanking towers, with a gatehouse and additional wooden defensive structures, here defending a walled city

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 artillery. A typical wall could be 3 m (10 ft) wide 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.

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.

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 was one or more portcullis – 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 and unable to retaliate in a confined space. 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 completely impractical. They were most likely used like machicolations, 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.

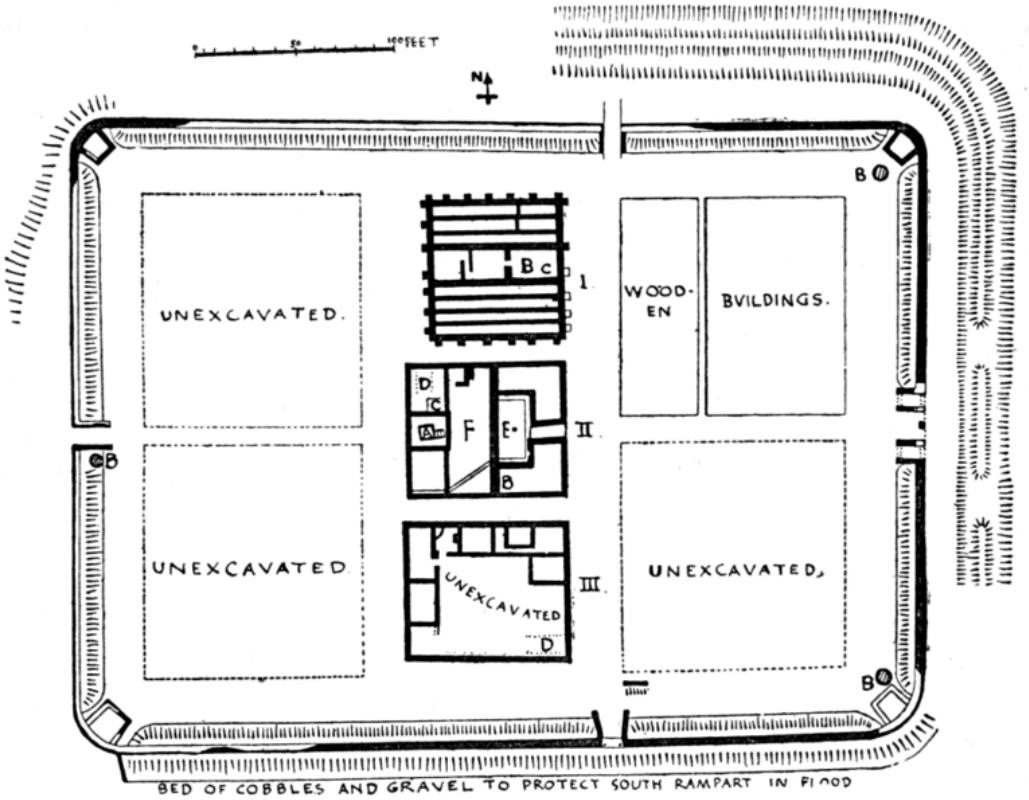
Other features

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



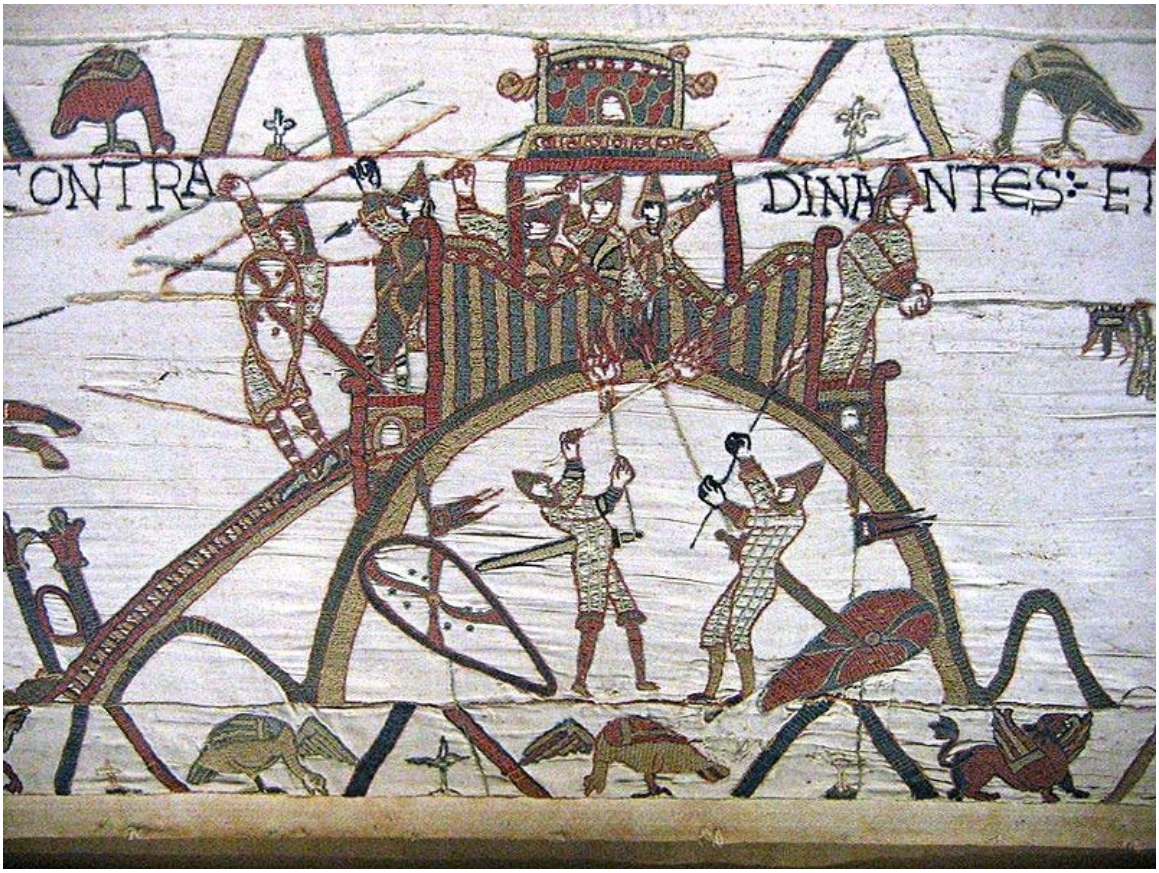
Ambleside Roman fort, England

Historian Charles Coulson states that 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 were developed, which then proliferated across Europe in the Iron Age. These structures differed from their eastern counterparts in that they used earthworks rather than stone as a building material. Many earthworks survive today, along with evidence of palisades to accompany the ditches. In Europe, oppida emerged in the 2nd century BC; these were densely inhabited fortified settlements, such as the oppidum of Manching, and developed from hill forts. The Romans encountered fortified settlements such as hill forts and oppida when expanding their territory into northern Europe. Although primitive, they were often effective, and were only overcome by the extensive use of siege engines and other siege warfare

techniques, such as at the Battle of Alesia. The Romans' own fortifications (*castra*) varied from simple temporary earthworks thrown up by armies on the move, to elaborate permanent stone constructions, notably the milecastles of Hadrian's Wall. Roman forts were generally rectangular with rounded corners – a "playing-card shape".

Origins and early castles

Castles had their origins in the 9th and 10th centuries. This period saw the emergence of a social and military elite in the Carolingian Empire and the development of mounted fighting. Fighting on horseback was a costly and time-consuming endeavour, requiring specialised equipment and trained horses. For their efforts, knights were granted land by the lords for whom they fought. The link between knight and lord was the basis of feudalism, and could go higher up the social scale with loyalties between lords, dukes, princes, and kings. When the Carolingian Empire collapsed in the 9th and 10th centuries, so did effective centralised administration, and it fell to the landed elite to take control. This led to the privatisation of government, and local lords assumed responsibility for the local economy and justice. Although castles were private buildings, lordship was a public office and the holder had a responsibility to protect his peasants. There is a traditional view that feudalism led to the break-down of society that contributed to the downfall of the Carolingian Empire. However, modern academic opinion is that feudalism was a successor to previous government rather than a rival. The building of a castle sometimes required the permission of the king or other high authority. Holy Roman Emperor Charles the Bald prohibited the construction of castles without his permission and ordered them all to be destroyed in 864; perhaps the earliest reference to castles being built without permission, breaking the feudal agreement between lord and vassal. However, there are very few castles dated with certainty from the mid-9th century. Converted into a donjon around 950, Châteaux Doué-la-Fontaine in France is the oldest standing castle in Europe. The Muslim invasion of the Iberian Peninsula in the 8th century introduced a style of fortification developed in North Africa reliant on *tapial*, pebbles in cement, where timber was in short supply. From an early stage, they used castles to secure their conquests; a particularly good example of early castle built by Muslims in Spain is that of Baños de la Encina, dating from the 9th century.



The Bayeux Tapestry contains one of the earliest representations of a castle. It depicts attackers of Château de Dinan in France using fire, one of the threats to wooden castles.

Military historian Allen Brown asserts that the breakdown of society associated with the decline of the Carolingian Empire and the subsequent absence of a working state made feudal ties more important. The rise of castles is not solely attributed to defence of the new feudal lords' lands, but as a reaction to attacks by Magyars, Muslims, and Vikings. 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 to exploit the advantages of height 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 and contained the lord's household. Castles were

not just used as defensive sites, but also to enhance 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.

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; their interpretation 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 increase 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 – 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. While stone castles were being built in Christian Spain in the 11th century, timber was still the dominant building material in north-west Europe.

Built in 1138, Castle Rising in England is an example of an elaborate donjon.

Castles were introduced into England shortly before the Norman Conquest in 1066. 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 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. 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.

In some countries, before a castle could be built it was necessary to obtain the permission of the king through a licence to crenellate, or else the builder risked it being slighted – deliberately damaged to such an extent that the castle was undefendable. This was not universal as 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 after 1066 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. 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.

Innovation and scientific design

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.

In the late 12th century, there was a change in castle architecture. Until then, castles probably 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.

The gatehouse to the inner ward of Beeston Castle, England, was built in the 1220s and has an entrance between two half-round towers.

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. However, 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 upstanding 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. It has been argued – by historian Smail in *Crusading warfare* – 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 *tetrapyrgia* 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.

Krak des Chevaliers is a concentric castle built with both rectangular and rounded towers. It is one of the best-preserved Crusader castles.

In the early 13th century, Crusaders' castles were mostly built by Military Orders, such as the Knights Hospitaller, Knights Templar, and Knights of the Teutonic Order. They were responsible for the foundation of sites such as Krak des Chevaliers, Margat, and Belvoir. The forms of the castles varied not just between orders, but individually from castle to castle, although 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 more than one ring 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 defences into the outer enclosure, they would be caught in the killing ground between the inner and outer walls and have to assault the second wall to secure the fall of the castle. 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 were concentric. 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.

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

The angled bastion, as used in Copertino Castle in Italy, was developed around 1500. First used in Italy, it allowed the evolution of artillery forts that eventually took over the military role of castles.

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.

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.

Fortaleza Ozama in the Dominican Republic was the first castle built in the Americas.

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 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

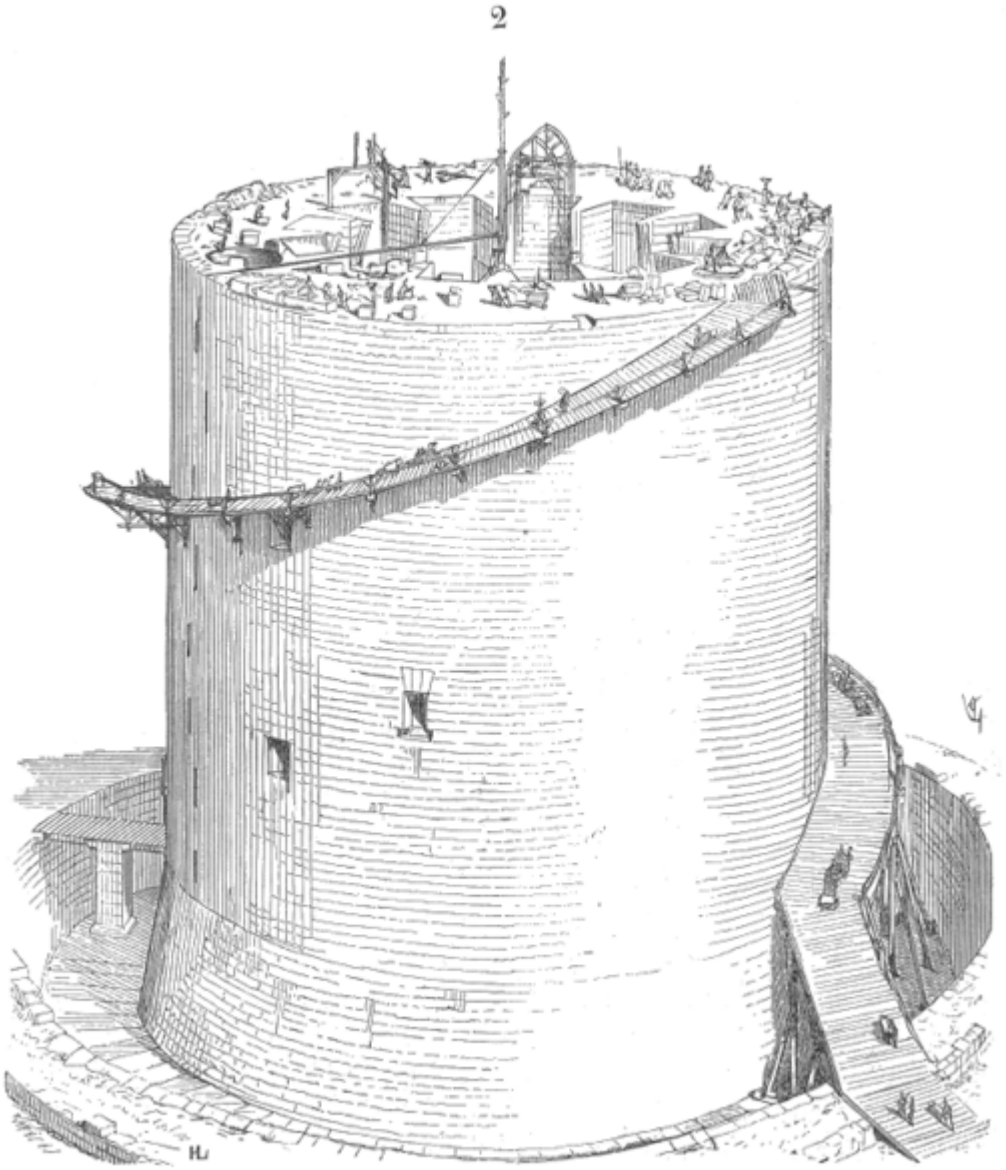
Neuschwanstein is a 19th-century neo-romantic castle built by Ludwig II of Bavaria.

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". Although 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 to 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



Construction of the large tower of the Coucy Castle in France, with scaffolding and masons at work. The holes mark the position of the scaffolding in earlier stages of 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. Finding stone for shell keeps and castle walls was the first concern of medieval builders, and a prominent concern 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.

Brick-built structures were not necessarily weaker than their stone-built counterparts. In England, brick production proliferated along the south-east coast due to an influx of Flemish weavers and a reduction in the amount of available stone, leading to a demand for an alternative building material. Brick castles are less common than stone or earth and timber constructions, and often it was chosen for its aesthetic appeal or because it was in fashion, 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". 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. Also, most Spanish castles were built from stone, whereas castles in Eastern Europe were usually of timber construction.

The Castle of the Teutonic Order in Malbork, Poland, is a classic example of medieval fortresses and built in the typical style of northern German Brick Gothic. On its completion in 1406 it was the largest brick castle in the world.

Castle landscapes

As castles were not simply military buildings but centres of administration and symbols of power, they had a significant impact on the landscape around them. 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 maintenance. 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 grew 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 is 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 the 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 look more 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. This also demonstrates that licences to crenellate were not solely about a desire to defend oneself, but to have proof of a relationship with or favour from the monarch, who was the one responsible for granting permission.

The landscape around Leeds Castle in England has been managed since the 13th century. The castle overlooks artificial lakes and ponds and is within a medieval deer park.

Warfare

A trebuchet at Château des Baux in France

As a static structure, castles could often be avoided, as 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 the army would allow them to interfere with communications and to make raids in the landscape to harry the army. Garrisons

were expensive and as a result often small unless the castle was important. In peace time garrisons were smaller due to the cost of upkeep, and small castles were manned by perhaps a couple of watchmen and gate-guards. Even in war garrisons were not necessarily large as too large a defending force would 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. 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.

If it was necessary to control the castle for strategic reasons, an army could either assault a castle, or lay siege to it. For the most heavily fortified sites, it was more efficient to starve the garrison out than to assault it. Without relief from an outside source, the defending army would eventually submit; but 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.

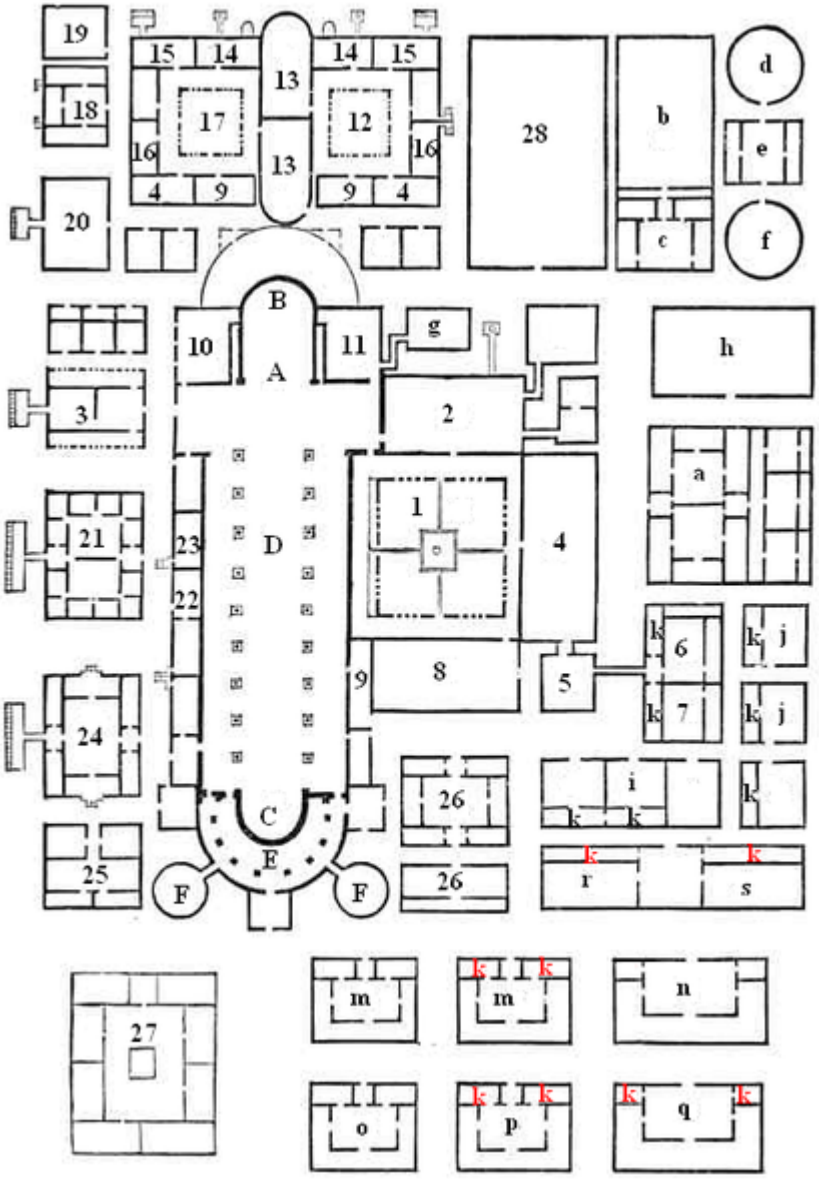
If forced to assault a castle, there were many options available to the attackers. For wooden structures, such as early motte-and-baileys, fire was a real threat and attempts would be made to set them on fire. Projectile weapons had been used since antiquity and the mangonel and petraria – from Roman and Eastern origins respectively – were the main two that were used into the Middle Ages. The trebuchet, 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. 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 the creation of a sap; a mine would be dug to conceal the attackers' approach to the wall, with wooden supports to prevent the tunnel from collapsing. When the target had been reached, the supports would be burned, caving in the tunnel and bringing down the structure above. Battering rams were also used, usually in the form of a tree trunk given an iron cap. They were used to batter down the castle gates, although they were sometimes used against walls, but with less effect. As an alternative to creating a breach in the walls, an escalade could be attempted to capture the walls, with fighting along the walkways on the curtain walls; in this instance, attackers would be very vulnerable to arrowfire, particularly from crossbows or the English longbow.

Chapter 3

Monastery

Monastery of St. Nilus on Stolbnyi Island in Lake Seliger near Ostashkov, Russia, ca. 1910.

Abbey of Monte Cassino, originally built by Saint Benedict, shown here as rebuilt after World War II.



The Plan of Saint Gall, the groundplan of an unbuilt abbey, providing for all of the needs of the monks within the confines of the monastery walls.

Monastery (plural: **monasteries**) denotes the building, or complex of buildings, that houses a room reserved for prayer (e.g. an oratory) as well as the domestic quarters and workplace(s) of monastics, whether monks or nuns, and whether living in community or alone (hermits).

The earliest extant use of the term *monastērion* is by the 1st century AD Jewish philosopher Philo (*On The Contemplative Life,* ch. III).

Monasteries may vary greatly in size – a small dwelling accommodating only a hermit, or in the case of communities anything from a single building housing only a one senior and

two or three junior monks or nuns, to vast complexes and estates housing tens or hundreds.

In English usage, the term "monastery" is generally used to denote the buildings of a community of monks. The name **convent** tends to be used (inaccurately) for the buildings accommodating female monastics (nuns). (The term "nunnery" for the latter is outmoded and considered offensive). It may also be used to reflect the Latin usage for houses of friars, more commonly called a **friary**, or for communities of teaching or nursing Religious Sisters. Various religions may use these terms in more specific ways.

In most religions the life inside monasteries is governed by community rules that stipulates the sex of the inhabitants and requires them to remain celibate and own little or no personal property. The degree to which life inside a particular monastery is socially separate from the surrounding populace can also vary widely; some religious traditions mandate isolation for purposes of contemplation removed from the everyday world, in which case members of the monastic community may spend most of their time isolated even from each other. Others focus on interacting with the local communities to provide services, such as teaching, medical care, or evangelism. Some monastic communities are only occupied seasonally, depending both on the traditions involved and the local weather, and people may be part of a monastic community for periods ranging from a few days at a time to almost an entire lifetime.

The life within the walls of a monastery may be supported in several ways: by manufacturing and selling goods, often agricultural products such as cheese, wine, beer, liquor, and jellies; by donations or alms; by rental or investment incomes; and by funds from other organizations within the religion, which in the past formed the traditional support of monasteries. However, today Christian monastics have updated and adapted themselves to modern society by offering computer services, accounting services, and management as well as modern hospital administration in addition to running schools, colleges and universities.

There were many buildings in a monastery, including a: church, chapter house, dormitory, infirmary, cloister, smithy, stable, balneary and pigsties. Another building which might be in a monastery is a school.

Etymology

The word *monastery* comes from the Greek word *μοναστήριον*, neut. of *μοναστήριος* - *monasterios* from *μονάζειν* - *monazein* "to live alone" from the root *μόνος* - *monos* "alone" (originally all Christian monks were hermits); the suffix "-terion" denotes a "place for doing something".

In England the word *monastery* was also applied to the habitation of a bishop and the cathedral clergy who lived apart from the lay community. Most cathedrals were not monasteries, and were served by canons secular, which were communal but not monastic. However some were run by monastic orders, such as York Minster. Westminster Abbey

was for a short time a cathedral, and was a Benedictine monastery until the Reformation, and its Chapter preserves elements of the Benedictine tradition. They are also to be distinguished from collegiate churches, such as St George's Chapel, Windsor.

Terms

Here, the term *monastery* is used generically to refer to any of a number of types of religious community. In the Roman Catholic religion and to some extent in certain other branches of Christianity, there is a somewhat more specific definition of the term and many related terms.

Buddhist monasteries are generally called **vihara** (Pali language). Viharas may be occupied by males or females, and in keeping with common English usage, a vihara populated by females may often be called a nunnery or a convent. However, vihara can also refer to a temple. In Tibetan Buddhism, monasteries are often called **gompa**. In Thailand, Laos and Cambodia, a monastery is called a wat.

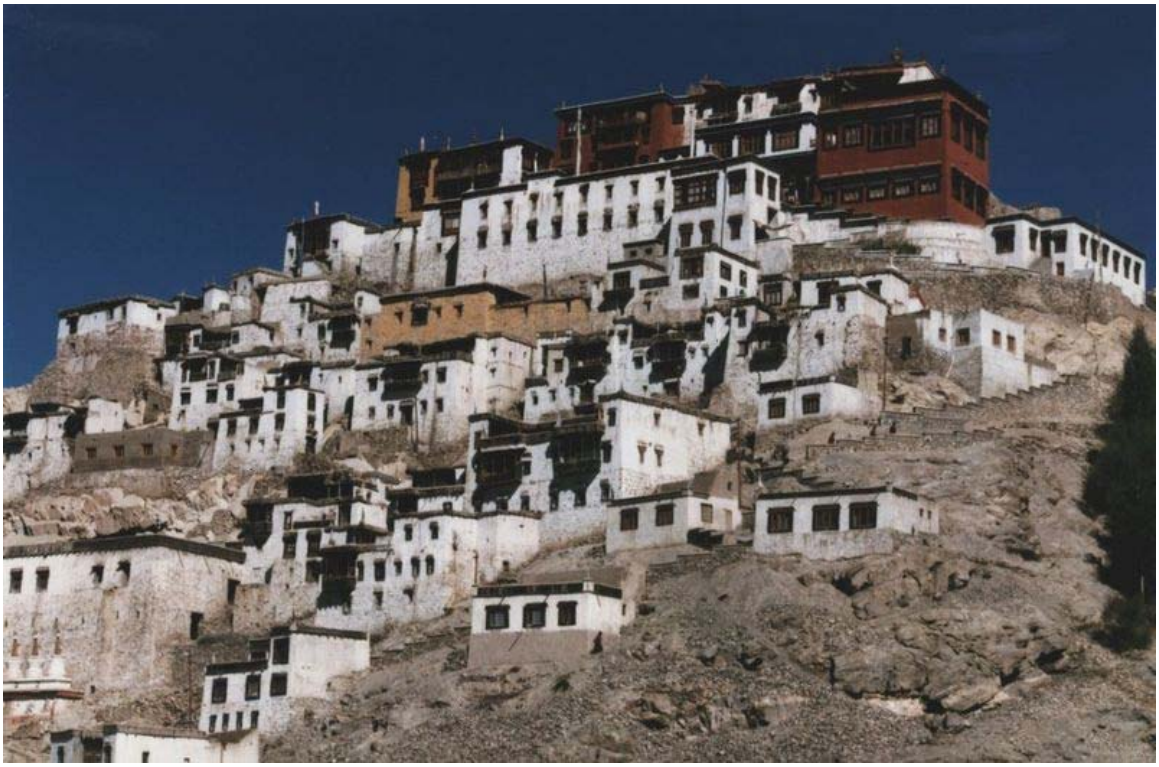
A monastery may be an abbey (i.e., under the rule of an abbot), or a **priory** (under the rule of a prior), or conceivably a **hermitage** (the dwelling of a hermit). It may be a community of men (monks) or of women (nuns). A **charterhouse** is any monastery belonging to the Carthusian order. In Eastern Christianity a very small monastic community can be called a **skete**, and a very large or important monastery can be given the dignity of a **lavra**.

The great communal life of a Christian monastery is called cenobitic, as opposed to the anchoretic (or anchoritic) life of an anchorite and the eremitic life of a hermit. There has also been, mostly under the Osmanli occupation of Greece and Cyprus, an "idiorrhythmic" lifestyle where monks come together but being able to own things individually and not being obliged to work for the common good.

In Hinduism monasteries are called matha, mandir, koil, or most commonly an ashram.

Jains use the Buddhist term vihara.

Buddhism



The Tikse Buddhist monastery in Ladakh, India.

The Golden Temple monastery in Kalmykia, Russia.

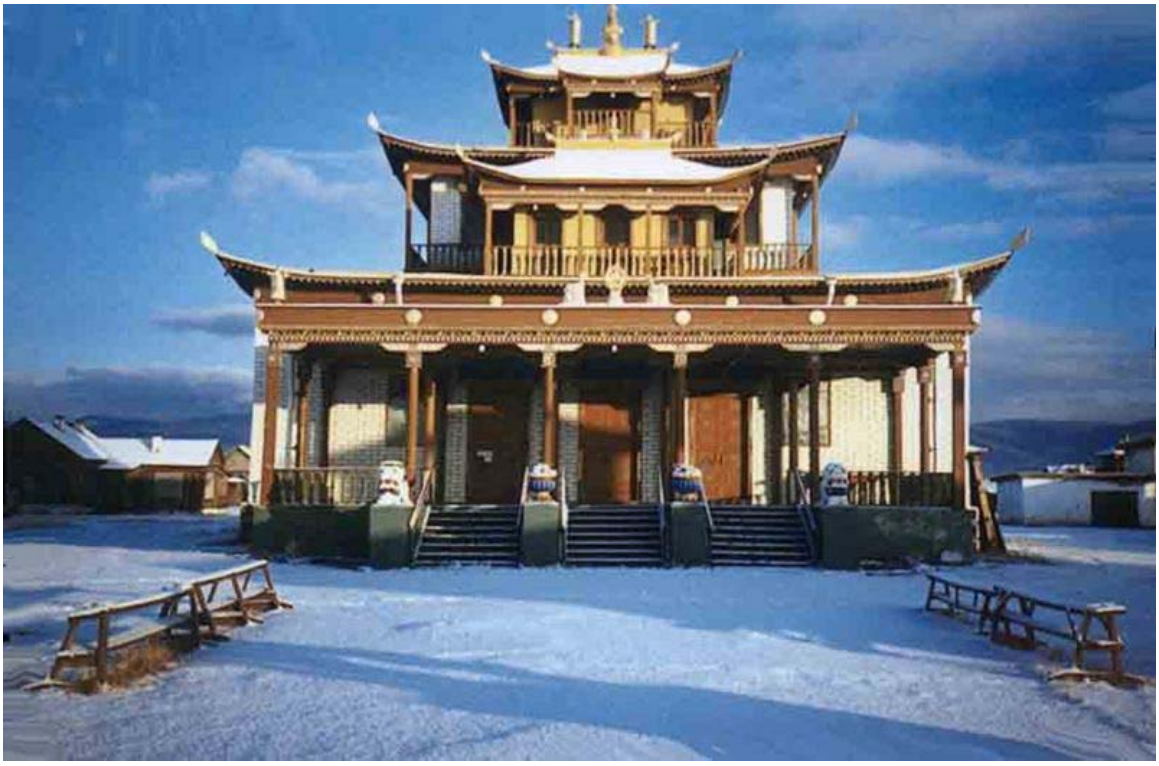
Buddhist monasteries, known as vihara, emerged sometime around the 4th century BC, from the practice of vassa, the retreat undertaken by Buddhist monks and nuns during the South Asian rainy season. To prevent wandering monks from disturbing new plant growth or becoming stranded in inclement weather, Buddhist monks and nuns were instructed to remain in a fixed location for the roughly three month period typically beginning in mid-July. Outside of the *vassa* period, monks and nuns both lived a migratory existence, wandering from town to town begging for food. These early fixed *vassa* retreats were held in pavilions and parks that had been donated to the *sangha* by wealthy supporters. Over the years, the custom of staying on property held in common by the *sangha* as a whole during the *vassa* retreat evolved into a more cenobitic lifestyle, in which monks and nuns resided year round in monasteries.

In India, Buddhist monasteries gradually developed into centres of learning where philosophical principles were developed and debated; this tradition is currently preserved by monastic universities of Vajrayana Buddhists, as well as religious schools and universities founded by religious orders across the Buddhist world. In modern times,

living a settled life in a monastery setting has become the most common lifestyle for Buddhist monks and nuns across the globe.

Tengboche Buddhist monastery, Nepal.

Whereas early monasteries are considered to have been held in common by the entire *sangha*, in later years this tradition diverged in a number of countries. Despite *vinaya* prohibitions on possessing wealth, many monasteries became large land owners, much like monasteries in medieval Christian Europe. In China, peasant families worked monastic-owned land in exchange for paying a portion of their yearly crop to the resident monks in the monastery, just as they would to a feudal landlord. In Sri Lanka and Tibet, the ownership of a monastery often became vested in a single monk, who would often keep the property within the family by passing it on to a nephew who ordained as a monk. In Japan, where civil authorities permitted Buddhist monks to marry, being the head of a temple or monastery sometimes became a hereditary position, passed from father to son over many generations.



The Ivolga monastery in Buryatia, Russia.

Forest monasteries – most commonly found in the Theravada traditions of Southeast Asia and Sri Lanka – are monasteries dedicated primarily to the study of Buddhist meditation, rather than scholarship or ceremonial duties. Forest monasteries often function like early Christian monasteries, with small groups of monks living an essentially hermit-like life gathered loosely around a respected elder teacher. While the wandering lifestyle practised by the Buddha and his disciples continues to be the ideal model for forest tradition monks in Thailand and elsewhere, practical concerns- including shrinking wilderness areas, lack of access to lay supporters, dangerous wildlife, and dangerous border conflicts- dictate that more and more 'meditation' monks live in monasteries, rather than wandering.

Tibetan Buddhist monasteries are sometimes known as **lamaseries** and the monks are sometimes (mistakenly) known as lamas.

Some famous Buddhist monasteries include:

- Jetavana, Sravasti
- Nalanda, India
- Shaolin, China
- Donglin Temple, Jiangxi, China
- Tengboche, Nepal

Christianity

According to tradition, Christian monasticism began in Egypt with St. Anthony. Originally, all Christian monks were hermits seldom encountering other people. But because of the extreme difficulty of the solitary life, many monks failed, either returning to their previous lives, or becoming spiritually deluded.

A transitional form of monasticism was later created by Saint Amun in which “solitary” monks lived close enough to one another to offer mutual support as well as gathering together on Sundays for common services.

It was St. Pachomios who developed the idea of having monks live together and worship together under the same roof (Coenobitic Monasticism). Soon the Egyptian desert blossomed with monasteries, especially around Nitria, which was called the "Holy City”. Estimates are the upwards of 50,000 monks lived in this area at any one time.

Hermitism never died out though, but was reserved only for those advanced monks who had worked out their problems within a cenobitic monastery. The idea caught on, and other places followed:

- Saint Eugenios founded a monastery on Mt. Izla above Nisibis in Mesopotamia (~350), and from this monastery the cenobitic tradition spread in Mesopotamia, Persia, Armenia, Georgia and even India and China.

- Saint Saba organized the monks of the Judean Desert in a monastery close to Bethlehem (483), and this is considered the mother of all monasteries of the Eastern Orthodox churches.

- St. Benedict of Nursia founded the monastery of Monte Cassino in Italy (529), which was the seed of Roman Catholic monasticism in general, and of the order of Benedict in particular.

- 'La Grande Chartreuse' the mother house of the Carthusian Order founded by Saint Bruno of Cologne was established in the 11th century as an eremitic community. The documentary "Into Great Silence" allows viewers a sense of life within the Western Church's most austere religious order.

- Kecharis Monastery is a 13th century monastery, located 60 km from Yerevan.

Orthodox Christianity

St. Catherine's monastery on Mount Sinai, early 6th century

In the Eastern Orthodox Church, both monks and nuns follow a similar ascetic discipline, and even their religious habit is the same (though nuns wear an extra veil, called the *apostolnik*). Unlike Roman Catholic monasticism, the Orthodox do not have separate religious orders, but a single monastic form throughout the Orthodox Church. Monastics, male or female, live away from the world, in order to pray for the world. They do not normally run hospitals and orphanages, they do not consider teaching or caring for the sick a part of their vocation, though they are obligated by Christian charity to provide help when needed.

Monasteries vary from the very large to the very small. There are three types of monastic houses in the Orthodox Church:

- When monks live together, work together, and pray together, following the directions of an abbot and the elder monks, this is called a cenobium. The concept of the cenobitic life is that when many men (or women) live together in a monastic context, like rocks with sharp edges, their "sharpness" becomes worn away and they become smooth and polished. The largest monasteries can hold many thousands of monks and are called *lavras*. In the cenobium the daily office, work and meals are all done in common.
- Sketes are small monastic establishments that usually consist of one elder and 2 or 3 disciples. In the skete most prayer and work are done in private, coming

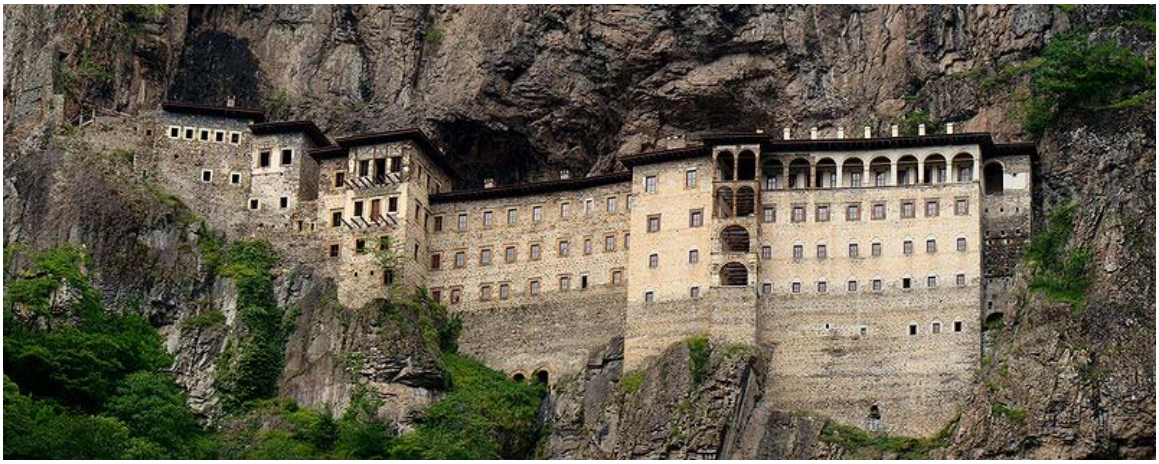
together on Sundays and feast days. Thus, skete life has elements of both solitude and community, and for this reason is called the "middle way".
- The highest level of asceticism is practised by monks who do not live in monastic communities, but in solitude, as hermits.

One of the great centres of Orthodox monasticism is Mount Athos in Greece, an isolated, self-governing peninsula approximately 20 miles (32 km) long and 5 miles (8.0 km) wide (similar to the Vatican, being a separate government), administered by the heads of the 20 monasteries. Today the population of the Holy Mountain is around 2,200 men only and can only be visited by men with special permission granted by both the Greek government and the government of the Holy Mountain itself.

The leading monasteries of the Holy Mountain are:

- Great Lavra
- Vatopedi
- Iviron (Georgian)
- Dionysiou
- Koutloumousiou
- Cheropotamou
- Zograf (Bulgarian)
- Dochiariou
- Simonos Petra
- Stavronikita
- Xenophontos
- Gregoriou
- St. Panteleimon (Russian)
- Esphigmenou
- Philotheou
- Konstamonitou
- Chilandariou (Serbian)

The Svirsky monasteries are an example of twin monasteries that face each other.



Close-up of Sümela monastery from across the valley

Other famous Orthodox monasteries include:

- Sümela Monastery, Turkey
- Meteora, Greece
- St Catherine's Monastery, Mount Sinai
- The Trinity-Sergius Lavra, Russia

- Kiev Monastery of the Caves, Ukraine
- Rila Monastery, Bulgaria
- Putna Monastery, Romania
- Solovetsky Monastery, Russia
- Kirillo-Belozersky Monastery, Russia
- Alexander Nevsky Lavra, St Petersburg, Russia
- Novodevichy Convent, Moscow
- Pochayiv Lavra, Ukraine
- Valaam Monastery, Russia
- Studenica Monastery, Serbia
- Sopocani Monastery, Serbia
- Visoki Decani Monastery, Serbia
- Gračanica Monastery, Serbia
- Ostrog Monastery, Montenegro
- Kykkos Monastery, Cyprus
- Monastery of the Cross, Jerusalem
- Monastery of the Temptation, Jericho, Palestinian territories
- Mar Saba, Kidron Valley, Palestinian territories
- Curtea de Argeş Monastery, Romania
- Voroneţ Monastery, Romania
- Horezu Monastery, Romania
- Neamţ Monastery, Romania
- Monastery of Saint John the Theologian and the Cave of the Apocalypse on the Island of Pátmos, Greece

Oriental Orthodox Churches

The Oriental Orthodox Churches, distinguished by their Myaphisite beliefs consist of the Armenian Apostolic Church, the Coptic Orthodox Church of Alexandria (whose Patriarch, is considered first among equals for the following churches), as well as the Ethiopian Orthodox Church, the Eritrean Orthodox Church, the Indian Orthodox Church, and the Syriac Orthodox Church of Antioch. The now extinct Caucasian Albanian Church also fell under this group.

St. Anthony's (*Deir Mar Antonios*) is the oldest monastery in the world and under the patronage of the Patriarch of the Coptic Orthodox Church.

Latin and Eastern Catholicism

Santa María de El Paular Benedictine Monastery near Madrid (Spain).

The Passionists Monastery of the Presentation in Monte Argentario, Tuscany, (Italy).

A number of distinct monastic orders developed within Roman Catholicism (Eastern Orthodoxy does not have a system of individual Orders, *per se*).

- Canons Regular ('The Black Canons'), which evolved from the Priests Canon who would normally work with the Bishop: now living together with him like monks under St. Augustine's rule
- Benedictine monks ('The Black Monks'), founded by St. Benedict, stresses manual labour in a self-subsistent monastery.
- Cistercian monks ('The White Monks') / *Trappist
- Camaldolese
- Bridgettine sisters
- Carthusian monks
- Gilbertine
- Passionist
- Poor Clares
- Byzantine Discalced Carmelites
- Premonstratensian canons ('The White Canons')
- Tironensian monks ('The Grey Monks')
- Valliscaulian monks

Famous Roman Catholic monasteries include:

- Monte Cassino
- El Escorial
- Melk Abbey
- Pannonhalma Archabbey
- Buckfast Abbey
- Monastery of Santo Domingo de Silos
- Taizé Community
- Mont Saint-Michel
- Abbey of St. Gall

Dissolved Communities and Famous Dissolved Monasteries:

- Fountains Abbey
- Cluny Abbey
- Lindisfarne
- Whitby Abbey
- Rievaulx Abbey
- Glastonbury Abbey
- Westminster Abbey
- St Michael's Mount
- Glendalough
- St Andrews Abbey
- Cluniac monks
- Celestines
- Clonmacnoise

The last years of the 18th century marked in the Christian Church the beginnings of growth of monasticism among Protestant denominations. The centrus of this movement was in the United States and Canada beginning with the Shaker Church, which was founded in England and then moved to the United States. In the 19th century many of these monastic societies were founded as Utopian communities based on the monastic model in many cases. Aside from the Shakers, there were the Amanna, the Anabaptists et al. Many did allow marriage but most had a policy of celibacy and communal life in which members shared all things communally and disavowed personal ownership.

In the 19th century monasticism was revived in the Church of England, leading to the foundation of such institutions as the House of the Resurrection, Mirfield (Community of the Resurrection), Nashdom Abbey (Benedictine), Cleeve Priory (Community of the Glorious Ascension) and Ewell Monastery (Cistercian), Benedictine orders, Franciscan orders and the Orders of the Holy Cross, Order of St. Helena. Other Protestant Christian denominations also engage in monasticism, particularly Lutherans in Europe and North America. For example, the Benedictine order of the Holy Cross at St Augustine's House in Michigan is a Lutheran order of monks and there are Lutheran religious communities in Sweden and Germany. In the 1960s, experimental monastic groups were formed in

which both men and women were members of the same house and also were permitted to be married and have children—these were operated on a communal form. The Jewish Kibutz is a form of monasticism operating on a communal basis.

Hinduism

In Hinduism, monks have existed for a long time, and with them, their respective monasteries, called mathas. Most famous among them are the chatur-amnaya mathas established by Adi Shankara, Ashta matha (Eight monasteries) of Udupi founded by Madhvacharya (Madhwa acharya) a dwaitha philosopher.

krishnapura matha

Recent trends

The number of dedicated monastics in any religion has waxed and waned due to many factors. There have been Christian monasteries such as "The Cappadocian Caves" that used to shelter upwards of 5,000 monks, or St Pantelaimon's on the "Holy Mountain" in Greece, which had 3,000 in its heyday. Today those numbers have dwindled considerably. Currently the monasteries containing the largest numbers are Buddhist: Drepung Monastery in Tibet housed around 10,000 monks prior to the Chinese invasion.

Today its relocated monastery in India houses around 8,000 - nearly four times the current monastic population of the entire Holy Mountain.

On the other hand, there are those among monastic leaders that are critical of monasteries that are too large. Such become institutions and lose that intensity of spiritual training that can better be handled when an elder has only 2 or 3 disciples. There are on the Holy Mountain areas such as the Skete of St Anne, which could be considered one entity but is in fact many small "Sketes" (monastic houses containing one elder and 2 or 3 disciples) who come together in one church for services.

Additionally, there is a growing Christian neo-monasticism, particularly among evangelical Christians. Established upon at least some of the customary monastic principles, they have attracted many who seek to live in relationship with other, or who seek to live in an intentionally focused lifestyle, such as a focus upon simplicity or pacifism. Some include rites, noviciate periods in which a newly interested person can test out living and sharing of resources, while others are more pragmatic, providing a sense of family in addition to a place to live in.

Chapter 4

Palace

A **palace** is a grand residence, especially a royal residence or the home of a head of state or some other high-ranking dignitary, such as a bishop or archbishop. The word itself is derived from the Latin name *Palātium*, for Palatine Hill, one of the seven hills in Rome. In many parts of Europe, the term is also applied to ambitious private mansions of the aristocracy. Many historic palaces are now put to other uses such as parliaments, museums, hotels or office buildings. The word is also sometimes used to describe a lavishly ornate building used for public entertainment or exhibitions.

Etymology

Palazzo Vecchio from Uffizi in Florence

The word **palace** comes from Old French *palais* (imperial residence), from Latin *Palātium*, the name of one of the seven hills of Rome. The original *palaces* on the Palatine Hill were the seat of the imperial power, while the *capitol* on the Capitoline Hill was the seat of the senate and the religious nucleus of Rome. Long after the city grew to the seven hills the Palatine remained a desirable residential area. Emperor Caesar Augustus lived there in a purposely modest house only set apart from his neighbors by the two laurel trees planted to flank the front door as a sign of triumph granted by the Senate. His descendants, especially Nero, with his "Golden House" enlarged the house and grounds over and over until it took up the hill top. The word *Palātium* came to mean the residence of the emperor rather than the neighbourhood on top of the hill.

"Palace" meaning "government" can be recognized in a remark of Paul the Deacon, writing ca 790 and describing events of the 660s: "When Grimuald set out for Beneventum, he entrusted his palace to Lupus" (*Historia Langobardorum*, V.xvii). At the same time Charlemagne was consciously reviving the Roman expression in his "palace" at Aachen, of which only his chapel remains. In the 9th century the "palace" indicated the housing of the government too, and the constantly-travelling Charlemagne built fourteen. In the early Middle Ages, the *Palas* remained the seat of government in some German cities. In the Holy Roman Empire the powerful independent Electors came to be housed in palaces (*Paläste*). This has been used as evidence that power was widely distributed in the Empire, as in more centralized monarchies, only the monarch's residence would be a *palace*.

In modern times, the term has been applied by archaeologists and historians to large structures that housed combined ruler, court and bureaucracy in "palace culturtes". In informal usage, a "palace" can be extended to a grand residence of any kind.

Palaces around the world

The earliest known palaces were the royal residences of the Egyptian Pharaohs at Thebes, featuring an outer wall enclosing labyrinthine buildings and courtyards. Other ancient palaces include the Assyrian palaces at Nimrud and Nineveh, the Minoan palace at Knossos, and the Persian palaces at Persepolis and Susa. Palaces in East Asia, such as the imperial palaces of Korea, Thailand, Vietnam, Japan and China's Forbidden City, consist of many low pavilions surrounded by vast, walled gardens, in contrast to the single building palaces of Medieval Western Europe.

Americas

Mexico

The *Palacio Nacional*, or National Palace in Mexico City

The capital of Mexico, Mexico City, is traditionally nicknamed the *"City of Palaces"*; It was dubbed so by Alexander von Humboldt, after he visited it in the late 18th century and early 19th century.

In Central Mexico, the Aztec Emperors built many palaces in the capital of their empire, Tenochtitlan (modern day Mexico City), some of which may still be seen. On observing the great city Hernán Cortés wrote, *"There are, in all districts of this great city, many temples or palaces... They are all very beautiful buildings. Amongst these temples there is one, the principal one, whose great size and magnificence no human tongue could describe,.. All round inside this wall there are very elegant quarters with very large rooms and corridors. There are as many as forty towers, all of which are so high that in the case of the largest there are fifty steps leading up to the main part of it and the most important of these towers is higher than that of the cathedral of Seville..."*

The National Palace, or *Palacio Nacional*, located in Mexico City's main square, the Plaza de la Constitución (El Zócalo), first built in 1563, is in the heart of the Mexican capital. In 1821, the palace was given its current name and the executive, legislative, and judicial branches of government were housed in the palace; the latter two branches would eventually reside elsewhere. During the Second Mexican Empire, its name was changed, for a time, to the *Imperial Palace*. The National Palace continues to be the official seat of the executive authority, although it is no longer the official residence of the President.

Also in Mexico City is the *Castillo de Chapultepec*, or Chapultepec Castle, located in the middle of Chapultepec Park which currently houses the Mexican National Museum of

History. It is the only castle, or palace, in North America that was occupied by sovereigns - Emperor Maximilian I of Mexico, a member of the House of Habsburg and his consort, Empress Carlota of Mexico, daughter of Leopold I of Belgium. The palace features many *objets d'art* ranging from gifts of Napoleon III's to paintings by Franz Xaver Winterhalter and Mexican painter Santiago Rebull.

View of Castillo de Chapultepec

View of *Palacio de Bellas Artes*

Doorway of the *Palacio de Iturbide*, the residence of Mexico's first emperor, Agustin I.

Palacio de Minería, Mexico City

Uruguay

The Palacio Legislativo (Legislative Palace), is the house of the Uruguayan Parliament.

Asia

China

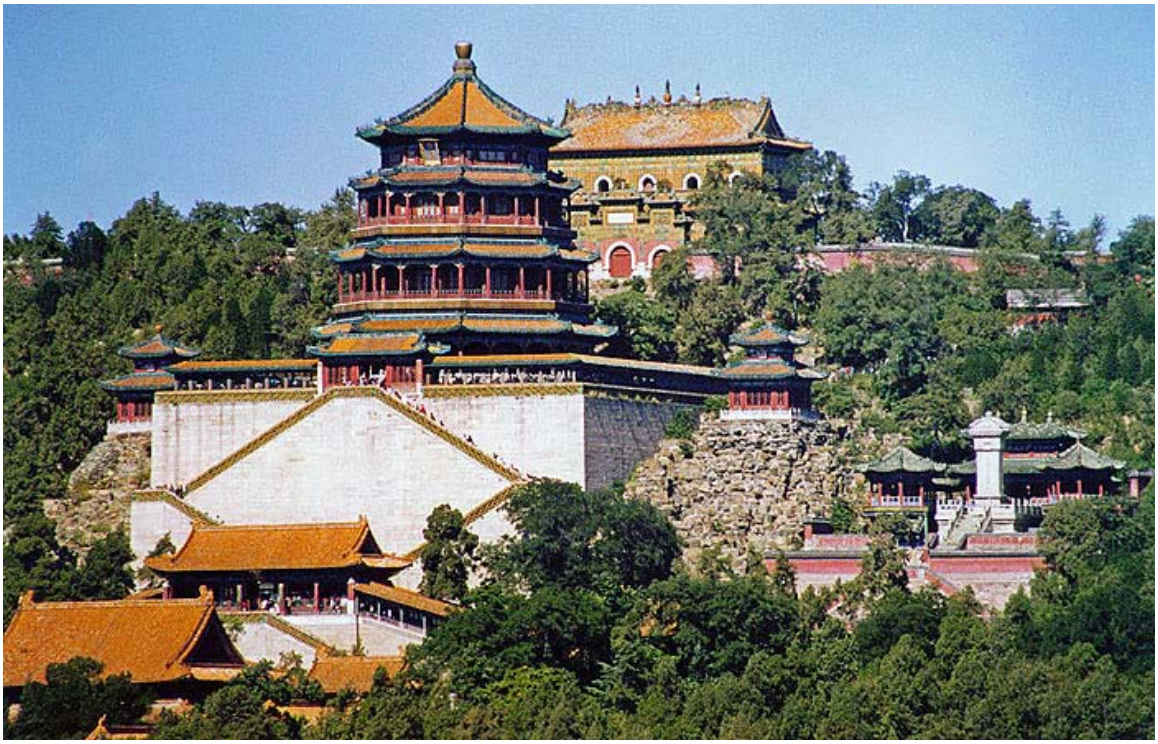
The Forbidden City took form as a grand complex of pavilions enclosed within square walls.

The finest example of Chinese palace is the Forbidden City, the imperial palace of Chinese empire from the Ming Dynasty to the end of the Qing Dynasty. It is largest palace complex in the world and located in the middle of Beijing, China. The palace complex exemplifies traditional Chinese palatial architecture. Another example is

Summer Palace located in the northern suburb of Beijing and Mukden Palace in Shenyang. The Presidential Palace in Nanjing displays European architecture influences.

The Chinese palace is designed in regular square grids and arranged in formal layout, consisted of main buildings and numbers of pavilions enclosed within walls. Unlike massive single structured European palace or castle, Chinese palace is a multitude of complexes contains several large and smaller structures with parks and courtyards.

Hall of Supreme Harmony, Forbidden City, Beijing



Summer Palace, suburb of Beijing

Mukden Palace, Shenyang

Presidential Palace, Nanjing

Brunei

Bandar Seri Begawan, Brunei.

Istana Nurul Iman is the currently the World's largest palace and is the official residence of the Sultan of Brunei, Hassanal Bolkiah, and the seat of the Brunei government. The palace is located on a leafy, riverside sprawl of hills on the banks of the Brunei River, a few miles south of Bandar Seri Begawan, Brunei's capital. The name “Istana Nurul Iman” is taken from Arabic and means *Palace of the Light of Faith.* It was designed by Filipino architect Leandro V. Locsin, who utilized the architectural motif of golden domes and

vaulted roofs to echo Brunei's Islamic and Malay influences. The interior of the palace was designed by Khuan Chew, Design Principal of KCA International, whose other works include the Burj Al Arab in Dubai. Construction was handled by Ayala International, a Filipino construction firm, and completed in 1984 at a total cost of around $400 million USD.

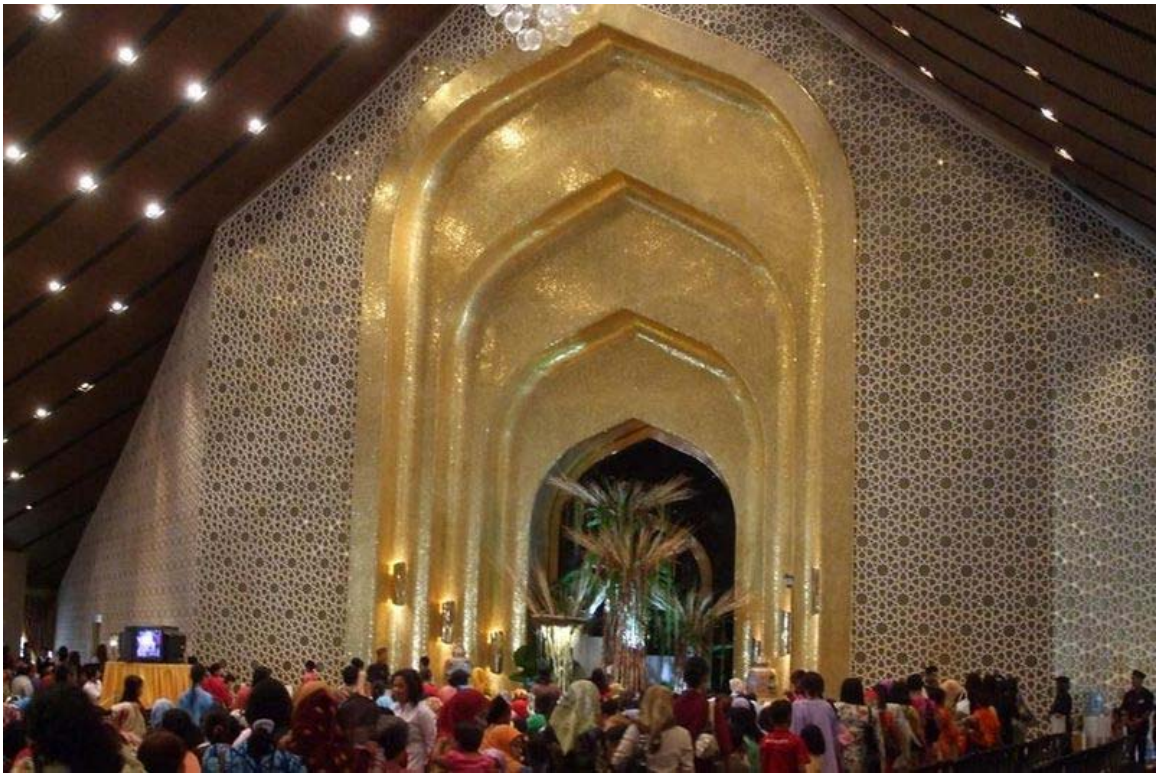
Upon completion, Istana Nurul Iman, became the largest residential palace in the world and the largest single family residence ever built.

The palace contains 1,788 rooms, which includes 257 bathrooms, a banquet hall that can be expanded to accommodate up to 5,000 guests, a mosque accommodating 1,500 people. The palace also includes a 110-car garage an air conditioned stable for the Sultan's 200 polo ponies, and 5 swimming pools. In total, Istana Nurul Iman contains 2,152,782 square feet (200,000 m²) of floorspace.

Because of its massive size, Istana Nurul Iman makes use of 564 chandeliers, 51,000 light bulbs, 44 stairwells, and 18 elevators.

The title of the “world's largest palace” can be difficult to ascertain, and altogether controversial, as many different groups have motivations to use their own unique standards to advance the claim that a particular palace is the largest in the world. Using various self-serving definitions, a number of palaces are claimed to be the world’s largest: Istana Nurul Iman, Buckingham Palace, Royal Palace of Madrid, Stockholm Palace, The Forbidden City, The Palace of Versailles, The Winter Palace, The Louvre, Prague Castle, and Romania’s Palace of the Parliament.

To be considered for the Guinness World Record, the palace must have once been intended for use as a royal residence, and only the actual combined area of the palace’s indoor floors (a measurement commonly known as floorspace) is considered. As measured by these standards, Guinness World Records currently considers Istana Nurul Iman to hold the title as the “world's largest palace.”



The banquet hall, which can seat up to 5,000 people.

Palace courtyard accessible to public during Hari Raya Aidilfitri.

India

The Umaid Bhawan Palace in Jodhpur, India.

India is home to a large number of palaces and vast empires. The history of India is full of numerous dynasties that have ruled over various parts of the country. While most monuments of the ancient period have been destroyed or lie in ruins, some medieval buildings have been maintained well or restored to good condition. Several medieval forts and palaces still stand proud all over India. These magnificent buildings are examples of the great achievements of the architects and engineers of that age. The palaces of India offer an insight into the life of the royalty of the country. While some royal palaces have been maintained as museums or hotels over the last decades, some palaces are still home for the members of the erstwhile royal families. These forts and palaces are the largest illustrations and legacy of the princely states of India. Floats of flowers in grand fountains, shimmering blue water of magnificent baths and private pools, doric pillars, ornamental brackets, decorative staircases, light streaming in through large windows, India possesses some of the most fascinating forts and palaces, a true royal retreat. It is not just a romantic longing for a royal experience, but also the search for the truly authentic Indian experience that brings thousands of heritage lovers to India's palaces.

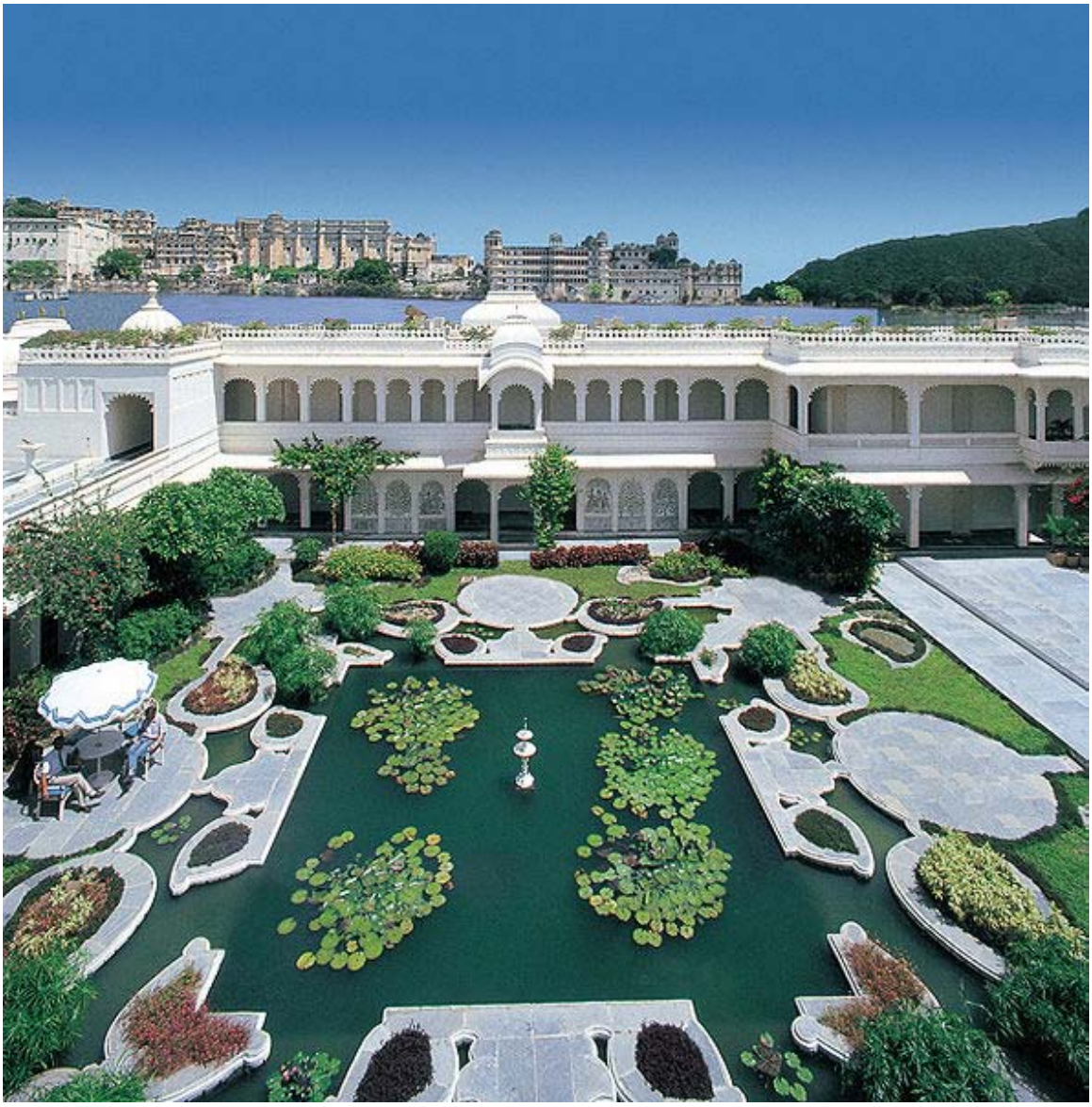
Rajasthan has a large number of forts and palaces that are major tourist destinations in North India. The Rajputs (collective term for the rulers of the region) were known as brave soldiers who preferred to die than be taken prisoners. They were also great connoisseurs of art and brilliant builders. The most famous forts and palaces in Rajasthan are located in Chittor, Jodhpur, Jaipur, Udaipur , Saphieree, Amber and Nahargarh. Taj

Hotels Resorts and Palaces manage some of the most iconic palaces of the region, Lake Palace, Udaipur; Umaid Bhawan Palace, Jodhpur; Fort Madhogarh, Jaipur and Rambagh Palace, Jaipur; and offer authentic royal retreats to the guests in all its grandeur, splendor and magnificence.

Taj Mahal Palace & Tower, Mumbai

Chandni Chowk Gardens at the Rambagh Palace in Jaipur, Rajasthan, India

Kowdiar Palace, Trivandrum



Lake Palace, Udaipur

Indonesia

Bogor Palace.

In Indonesia the palaces are known as Istana (Malay and Indonesian), or Kraton (Javanese and Sundanese). In Bali the royal palace compound is called *Puri*. The palaces reflects the long history and diverse culture of Indonesian archipelago.

Although Indonesia is now a republic, some parts and provinces in Indonesia still retain and preserve their traditional royal heritage, for example Yogyakarta, Surakarta, Cirebon, and Kutai in East Kalimantan. The remnant of palaces and royal houses still can be found in Banten, Medan, Ternate and Bali.

The layout of traditional Balinese and Javanese kratons is similar to Chinese concept; a walled compounds of royal pavilions, squares and parks. Most of these kratons took forms of wooden pavilions called pendopo. While the istana of Sumatra is usually consist of single large structure. The example of Malay palace is Istana Maimun in Medan.

During VOC and colonial era of Dutch East Indies, the colonial government built several European stately palaces as the residence of the Governor General. Most of these European palaces is now become the state palace of the Republic of Indonesia. Indonesian state palaces are the neoclassic Merdeka Palace and Bogor Palace.

Merdeka Palace, Jakarta.

Istana Maimun, Medan.

Kraton Yogyakarta.

Mangkunegaran Palace.

Europe

France

In France there has been a clear distinction between a château and a *palais*. The palace has always been urban, like the *Palais de la Cité* in Paris, which was the royal palace of France and is now the supreme court of justice of France, or the palace of the Popes at Avignon.

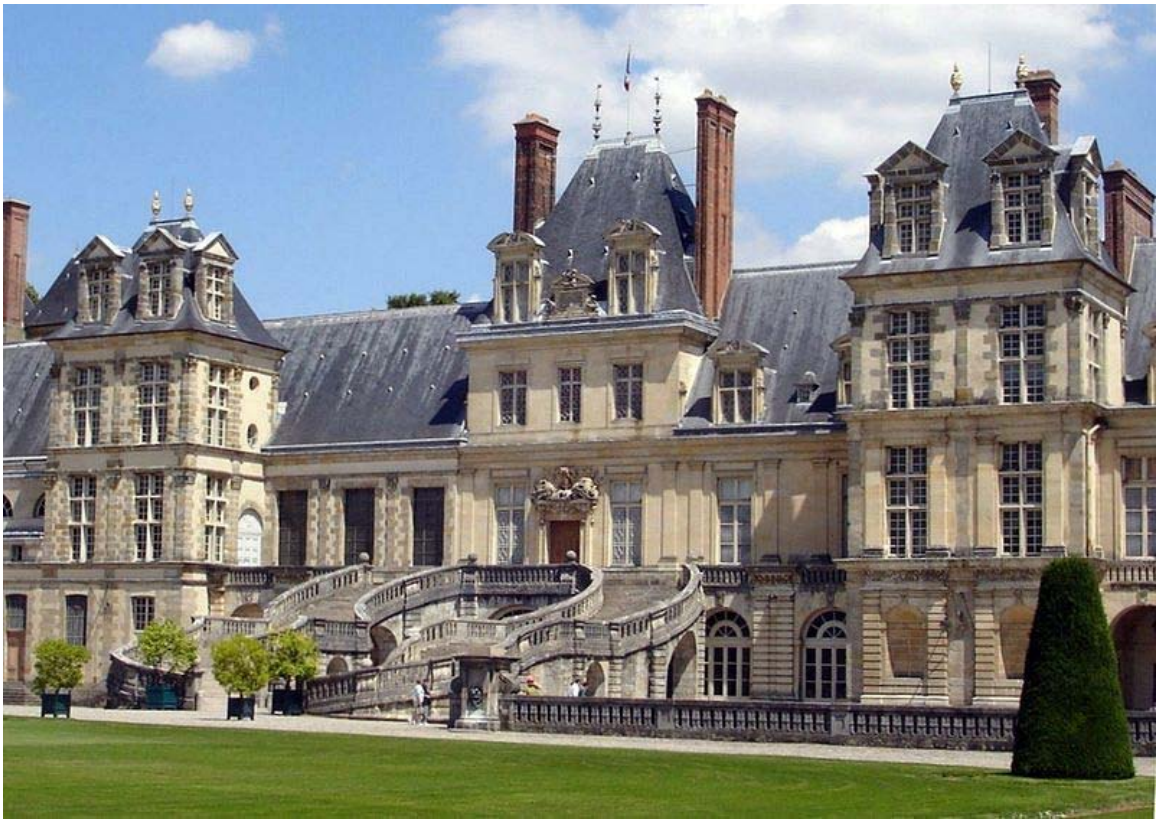
The château, by contrast, has always been in rural settings, supported by its demesne, even when it was no longer actually fortified. Speakers of English think of the "Palace of Versailles" because it was the residence of the king of France, and the king was the source of power, though the building has always remained the *Château de Versailles* for the French, and the seat of government under the *Ancien Régime* remained the **Palais** du Louvre. The Louvre had begun as a fortified *Château du Louvre* on the edge of Paris, but as the seat of government and shorn of its fortified architecture and then completely surrounded by the city, it developed into the *Palais du Louvre*.

The *hôtel particulier* remains the term for an urban residence sited *entre cour et jardin*, behind a forecourt and opening onto a garden; when fronting directly on streets, they are

maisons, "houses". Bishops always had a *palais* in the town of their diocese, an *hôtel* in other towns, though they might possess *chateaux*.

The usage is essentially the same in Italy, Spain and Portugal, as well as the former Austrian Empire. In Germany, the wider term was a relatively recent importation, and was used rather more restrictively.

Chateau de Versailles



Chateau de Fontainebleau

Palais du Louvre

Palais de l'Élysée

Italy

In Italy, any urban building built as a grand residence is a *palazzo*; these are often no larger than a Victorian townhouse. It was not necessary to be a nobleman to have your house considered a *palazzo*; the hundreds of palazzi in Venice nearly all belonged to the patrician class of the city. In the Middle Ages these also functioned as warehouses and places of business, as well as homes. Each family's *palazzo* was a hive that contained all the family members, though it might not always show a grand architectural public front. In the 20th century *palazzo* in Italian came to apply by extension to any large fine apartment building, as so many old palazzi were converted to this use.

Bishop's townhouses were always palazzi, and the seat of a localized regime would also be so called. Many a small former capital displays its *Palazzo Ducale,* the seat of government. In Florence and other strong communal governments, the seat of government was the *Palazzo della Signoria* until in Florence the Medici were made Grand Dukes of Tuscany. Then, when the power center shifted to their residence in Palazzo Pitti, the old center of power began to be called the *Palazzo Vecchio*.

The Ca' da Mosto, a 13th century Venetian palace, the oldest building on the Grand Canal

Portugal

Pena Palace in Sintra, Portugal is the oldest palace inspired by European Romanticism.

Portugal is a nation with long history, culture and tradition. The north, with lush green mountains lined with vineyards, the center, with its rolling hills and plains lined with its many villages, as well as is south, with its Mediterranean plains and whitewashed villages nestled atop the promontories overlooking the great Atlantic are characteristically dotted with palaces like few other nations. From the Douro in the north to the Algarve region of the south, these palatial estates run rampant. The homes of royalty is the example of the culture of Portugal. The example of Portugal palaces are Mafra National Palace, Pena National Palace, Belem Palace, Palácio das Necessidades, Palace Hotel of Bussaco, Palácio da Regaleira, and Palácio da Brejoeira.

Mafra National Palace A national Royal Palace in Mafra, Portugal

Palácio das Necessidades A Royal Palace in the Portuguese capital of Lisbon, Portugal

Palácio da Regaleira A Palace in Sintra, Portugal

Palácio da Brejoeira A Palace in Monção, Portugal

Russia

The Peterhof Palace (1709—1755) in Petergof

The first palaces were built in Russia for about a thousand years ago for the Grand Dukes of Kiev. They were destroyed by the Mongols, and currently they are not preserved. First palaces in European style were built during the reign of tsar Peter the Great and his successors. The example of Russian palaces are, the Palace of Facets (1487–91) in Moscow Kremlin, Tsarevich Dmitry Ivanovich Palace (1489) in Uglich, the Kolomensky Wooden Palace (1528—1532) in Kolomenskoye, the Terem Palace (1635–1636) in Moscow Kremlin, the Menshikov Palace (1710—1727) in Saint Petersburg, the Oranienbaum Palace (1710) in Lomonosov, Kikin Hall (1714) in Saint Petersburg, and the Peterhof Palace (1709—1755) in Petergof.

The Terem Palace (1635-1636), in Moscow Kremlin

The Winter Palace (1754—1762) in Saint Petersburg

Catherine Palace (1752—1756), in Tsarskoye Selo

Saint Michael's Castle (1797—1800), in Saint Petersburg

Spain

Royal Palace of Madrid

Spain, a cultural and beautiful land also has some palaces of its own. One of these palaces is the Royal Palace of Madrid, also referred to as the Palacio Real. With its decor and design it is definitely a must see when traveling to Madrid or Spain. When you look at the design and style of the Palace you would notice no room is similar; it seems it took thousands of men to design because of all the various styles. Also, this palace just does not reign supreme because not just of its beauty but also its size. The palace is the largest palace in Europe with over 2,800 rooms but at the current time is of use for only governmental business while the royal family resides in the smaller Palacio de la Zarzuela.

In addition to the Royal Palace of Madrid, we should point to the Alcázar of Seville (which mixes, with the delicate Moorish filigree, European Christian architectural styles), the Alhambra, the Monastery of San Lorenzo de El Escorial and the Royal Palace of Aranjuez, fine baroque palace is surrounded by beautiful gardens.

Royal Palace of Aranjuez

Alhambra, Granada

Alcazar of Seville

El Escorial

United Kingdom

In the United Kingdom, by tacit agreement, there have been no "palaces" other than those used as official residences by royalty and bishops, regardless of whether located in town or country. However, not all palaces use the term in their name. Thus the Palace of Beaulieu gained its name precisely when Thomas Boleyn sold it to Henry VIII in 1517; previously it had been known as Walkfares. But like several other palaces, the name stuck even once the royal connection ended. Blenheim Palace was built, on a different site, in the grounds of the disused royal Palace of Woodstock, and the name was also part of the extraordinary honour when the house was given by a grateful nation to a great general. (Along with several royal and episcopal palaces in the countryside, Blenheim does demonstrate that "palace" has no specific urban connotations in English.)

Windsor Castle.

Buckingham Palace, the official residence of Queen Elizabeth II of the United Kingdom.

Kensington Palace

Holyrood Palace, Edinburgh

Other

There are buildings or mansions in the United States, not quite called "palaces", that have the grandeur of a typical palace, and which have been used as residences. Hearst Castle, the Biltmore Estate, and the White House are examples.

On the continent of Europe, these royal and episcopal palaces were not merely residences; the clerks who administered the realm or the diocese labored there as well. (To this day many bishops' palaces house both their family apartments and their official offices.) However, unlike the "Palais du Justice" which is often encountered in the French-speaking world, modern British public administration buildings are never called "palaces"; although the formal name for the "Houses of Parliament" is the Palace of Westminster, this reflects Westminster's former role as a royal residence and centre of administration.

In more recent years, the word has been used in a more informal sense for other large, impressive buildings, such as The Crystal Palace of 1851 (an immensely large, glazed hall erected for The Great Exhibition) and modern arenas-convention centers like Alexandra Palace.

The largest in the world is Palace of the Parliament in Bucharest, Romania. Built during the socialist regime, no effort or expense was spared to raise this colossal neo-classic building.