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Title	Fortification in the North (1200 -1600)
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Publication Date	2011-11
Publication Information	Kieran O'Connor (2011) 'Fortification in the North (1200 -1600)' p.243-260 In: Martin Carver and Jan Klapste(Eds.).The Archaeology of Medieval Europe. Volume 2 - Twelfth to Sixteenth Centuries. Acta Jutlandica Humanities Series 2011/9, Aarhus University Press.
Publisher	Aarhus University Press
Link to publisher's version	https://en.unipress.dk/udgivelser/a/archaeology-of-medieval-europe-vol-1plus2,-the/
Item record	http://hdl.handle.net/10379/6794

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The Archaeology of Medieval Europe

Vol. 2 · Twelfth to Sixteenth Centuries

EDITED BY MARTIN CARVER
AND JAN KLÁPŠTĚ



TWELFTH TO SIXTEENTH CENTURIES

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Acta Jutlandica
Humanities Series 2011/9

are either transformed from medieval castles or represent completely new builds within former castle areas. It is not rare that the old main castle building, now perceived as uncomfortable, is abandoned and new prestigious living quarters are constructed within the more easily accessible bailey. Alternatively, new more pleasant locations are sought. Undefended castles are frequently surrounded by extensive gardens following Italian influence.

PART 2: FORTIFICATION IN THE NORTH (1200-1600) by Kieran O'Connor

The period from c 1200 until c 1600 is prominent for the development of fortification in Europe (for the period before 1200, see AME 1, Ch 11). Castle building reached its apogee in the late thirteenth century, with the building of a number of classic castles in north Wales by Edward I of England. In the later fourteenth, fifteenth and sixteenth centuries, large numbers of tower-house castles were built in Europe. During the course of the sixteenth century castles began to fall into disuse (or were substantially rebuilt as undefended country houses) across many (but not all) parts of Europe, an event coincident with the growth of strong government by kings. Homes no longer needed to be fortified against small-scale raiding and localised warfare between individual lords due to the relatively peaceful conditions imposed across their territories by these monarchs. Many of the early functions of castles – local defence, local administration, the application of law and punishment – began to be taken over by the state from the traditional lordly class, in a way not seen in many parts of Europe since Roman times. The decline of the power of the great medieval landed dynasties and the rise in the power of central government led by a strong monarch can be seen in this shift in the importance of different types of fortification. Now that there was less need for them in many parts of Europe, fortified homesteads were replaced with comfortable houses built in the new Renaissance style with their well-lit, warm and spacious rooms (Anderson W 1970, 285), though some of these might still affect ‘castellation’ for purposes of proclaiming status and prestige.

On the other hand, national identities began to emerge during the later middle ages, and fortifications, such as bastioned artillery forts, were part of national schemes of defence. In this respect, it could be argued that the sixteenth century saw a shift in emphasis, in terms of fortification of the top rank, from privately-owned castles of the elite to state-built fortresses, such as artillery forts protecting territorial boundaries and strategic locations. The most modern fortresses of the day were now being built by kings and their governments to protect their subjects and their territories against attack by external forces.

The principal aim of this section is to give an overview of the main types of fortification in use in the northern regions of Latin Christendom from the very early thirteenth century up until the late sixteenth century. They will include different types of castle, linear fortifications, town walls, artillery forts, strongholds and defended farmsteads. There will also be a brief mention of the continued building of essentially medieval

fortifications beyond 1600 in certain places. In this respect, it must be remembered that the end of the medieval period and the beginning of the Early Modern Age did not happen overnight. Medieval settlement forms and ways of organising society continued somewhat longer in certain places than in others (see, for example, O'Connor 1998, xi).

Communal fortifications: Urban defences

There was a huge growth in urbanism across Europe between *c.* 1000 and *c.* 1600 (Ch 9, p 370), and many of these towns and cities possessed defences (Fig 6.1). There has been a tendency amongst scholars over the last few decades to see medieval urban fortifications as being nothing more than a poor derivative of castle architecture (see Creighton & Higham 2005, 15, 37). This perception is at least partly due to the fact that the upstanding remains of medieval urban defences are now often fragmentary. Many town walls and gateways were levelled or incorporated into new buildings during the eighteenth and nineteenth centuries, when they were seen to stand in the way of economic progress and urban expansion (Kenyon 1990, 183, 191). Perhaps as a consequence, medieval town defences lack the appeal of castles and their study has suffered as a result, at least in Britain and Ireland (Creighton & Higham 2005, 15). Furthermore, there has been a tendency amongst some scholars to downplay the defensive role of urban fortifications. Instead, in an argument that mirrors a parallel debate in castle studies, it has been suggested that town walls and gatehouses were erected by medieval urban communities primarily for social and economic reasons, such as the desire to display wealth and status, to define legal boundaries and to control access so as to allow the effective collection of tolls and taxes on all commodities brought into these places (e.g. Coulson 1995).

It is clear, nevertheless, that many towns across medieval Europe were often besieged or, at the very least, experienced some sort of military threat, even if it was only endemic raiding and banditry in their neighbourhoods. For example, while status was important, one of the principal reasons, if not the primary one, for the building of quite complex defences around Edward I's new towns in north Wales in the late thirteenth century must have been a desire on his part to protect the immigrant English burgesses from the local Welsh. One of these towns was Conwy, completed by at least 1292; its 1,300m stretch of crenellated town wall had twenty-one open-backed D-shaped towers and three twin-towered gatehouses along its length (Fig 6.3). The whole circuit of Conwy's town wall and towers were pierced by a full 480 arrowloops, and a ditch ran along the outside of the wall. At least one of the twin-towered gatehouses, the High Gate, had a drawbridge and a barbican in front of it. Two heavy double-leaved wooden doors and a portcullis stood in the passageway of this gatehouse. Furthermore, a top rank castle defended the southern side of the town (Taylor 1998, 42-44). There can be no doubt that Conwy's urban defences, if stoutly manned by its townsfolk, could see off a sustained attack by the Welsh. It seems logical to presume that the lavish military nature of the defences of this new town, which in plan is not unlike a bastide, was linked to a fear of Welsh rebellion. In this respect, the thirteenth-century fortified towns or bastides of



The town walls of Conwy, Gwynedd, Wales (photo: Jeffrey L. Thomas). These strong, late 13th-century town walls were built by Edward I.

Fig 6.3

southern France, with their high, crenellated curtain walls, numerous D-shaped flanking towers, ditches and twin-towered gatehouses were built in an area fought over for decades by the kings of France and England. For example, the town of Bastide Mirande in Gers was founded in 1281 by order of Philippe III. Its high-walled defences include four twin-towered gatehouses, nine mural towers offering flanking defence and a wet moat (Lepage 2002, 250-4). When stratigraphic, cartographic, pictorial and historical evidence is put together, along with the architectural analysis of supposedly later buildings, it would appear that the defences of many medieval towns across Europe were far stronger and more extensive than their fragmentary remains would suggest today (Kenyon 1990, 191).

Far from copying the defences seen on contemporary castles, town defences could be innovative at times. For example, the closely-spaced double line of walls or concentric defence built in the mid-thirteenth century at Carcassonne, France, pre-date the great concentric castles built by Edward I and others in Wales and elsewhere by two to three decades (see below). Again, provision for firearms can be seen in town walls and gatehouses before they appear in castles. In Britain, gunloops of the 'keyhole' type (which can also be used by archers and crossbowmen) start to appear in town walls and gatehouses during the 1360s and 1370s – a decade or two before they start to be seen in castles such as Bodiam, which was begun in 1385 (see below; Creighton & Higham 2005, 37, 110-1). Nevertheless, it is fair to say that most innovations in town defences ran parallel to (rather than copied) developments in the military architecture of castles (Lepage 2002, 257). Given all of this evidence, it is probably best to take a middle line between the opposed views outlined above and state that defence against attack and local insecurity was always one of the main reasons behind many, if not most, urban communities throughout

Europe deciding to fortify their towns. It was possibly the principal one in areas of conflict and colonial expansion (see Creighton & Higham 2005, 205-7).

Mural towers and twin-towered gatehouses of semi-circular and D-shaped form, looped for archery, became a common feature along town walls from *c.* 1200 onwards, as in castles. These walls have wall-walks and crenellations, which were often pierced by arrowloops. Heavy gates and portcullises can be seen in the passageways of these new gatehouses, which also possess drawbridges and barbicans (Kenyon 1990, 195; Lepage 2002, 257; Creighton & Higham 2005, 40). It has been argued that the average medieval town wall in Europe was about 2m in thickness and between 7m and 10m in height (Lepage 2002, 257). Rectangular-shaped mural towers are relatively rare and tend to be fourteenth or fifteenth century in date, although thirteenth-century examples do occur, as can be seen along the town wall at Rindown, Ireland (Kenyon 1990, 197). Provision for timber hoarding can also be seen on some town walls from the early thirteenth century onwards and, later in the period under review, stone machicolations also appear (Creighton & Higham 2005, 40). Ditches around medieval towns could also be very formidable. For example, the ditches around the towns of Perth, Scotland, and Bristol, England, were between 4m and 5m in depth (Kenyon 1990, 190, 197-99).

The main period for the construction of urban defences in Europe was during the thirteenth and fourteenth centuries, although new towns were built with defences right down to the late seventeenth century in certain places (Kenyon 1990, 194). It should also be understood that many towns throughout Europe in the thirteenth and fourteenth centuries, and even later, including a great city like Kiev, were defended by earth and timber defences (Kenyon 1990, 183; Lepage 2002, 256; Creighton & Higham 2005, 18, 26, 28, 37-39, 89-90, 102). On analogy with timber castles, it is possible that the timber defences of these towns included palisades looped for archery, wooden gatehouses and wooden mural towers. Alternatively, some towns possessed stone gatehouses but with rest of their defences being built of earth and timber (Kenyon 1990, 185). There were also examples of fortified agricultural villages throughout medieval Europe, particularly in southern France (Creighton & Higham 2005, 79; Lepage 2002, 251).

Cannons first started to replace the trebuchet as a siege weapon during the first half of the fourteenth century (Fig 6.4). The earliest known representation of cannon comes from a manuscript dating to *c.* 1325. As cannons cost a large amount of money to buy and needed great technical skill to make, they tended to be owned and used by wealthy territorial princes and great trading cities right throughout the period under review. Cannon were beyond the purchasing power of even quite wealthy nobles (Anderson 1970, 280; Schmidtchen 1990, 3; Kerrigan 1995, 1). It is noteworthy, in this respect, that the Italian city of Florence had artillery by 1326. Other towns and rulers across Italy, England, France and Flanders quickly followed this example and there are references to cannon being used in battlefields and sieges in the latter parts of Europe during the second quarter of the fourteenth century. For example, cannon were used at the siege of Calais in 1346 (Anderson 1970, 280).

The earliest cannon in use throughout the fourteenth and for much of the fifteenth centuries tended to be great wrought iron stone-bombards capable of firing stone balls



(left) Trebuchets at Castelnaud, France (photo: Luc Viatour GFDL/CC); (right) Mons Meg, Edinburgh, Scotland: a mid 15th-century bombard.

Fig 6.4

of up to 700lbs in weight. These bombards were difficult to transport because of their bulk and, due to this and other reasons, while cannon were important to the outcome of specific sieges, campaigns and battles, artillery did not reach its full potential until the late fifteenth century (Schmidtchen 1990, 5). The design of cannon improved dramatically in the late fifteenth and early sixteenth centuries. This led to the development of more reliable, far smaller and, therefore, easily-transportable cannon of iron or bronze, placed on gun carriages, that fired iron balls. These iron balls had the same and, at best, more destructive force than the far larger stone balls fired from the earlier enormous and unwieldy bombards (Schmidtchen 1990, 6). Artillery became a truly formidable weapon in the hands of rulers at this time and greatly helped these men consolidate state power in the sixteenth century (Kerrigan 1995, 1).

Cannonballs, be they made of stone or, later, iron, fired from cannon had a range of 300-500m and struck their targets, usually the walls and towers of castles and towns, on an almost flat trajectory (Schmidtchen 1990, 3). This meant that these balls had far more destructive and penetrative power, causing far more damage, than the stones thrown from earlier and contemporary engines-of-war, even trebuchets (which were still in use up to the late fifteenth century – e.g. at the Siege of Rhodes in 1480; Anderson 1970, 280). The medieval defences of towns across Europe were remodelled in places to meet this new threat. Town walls were made thicker and broader by constructing earthen ramparts against their inner faces initially and then their outer ones. This act strengthened walls against the increased striking power of cannon. Earth was able to absorb the shock of cannonballs better than stone and reduced their penetrative capacity. Earthworks and breastworks were also placed as a line of defence outside town walls for further protection. Yet towns, with their high walls and towers, were still too much

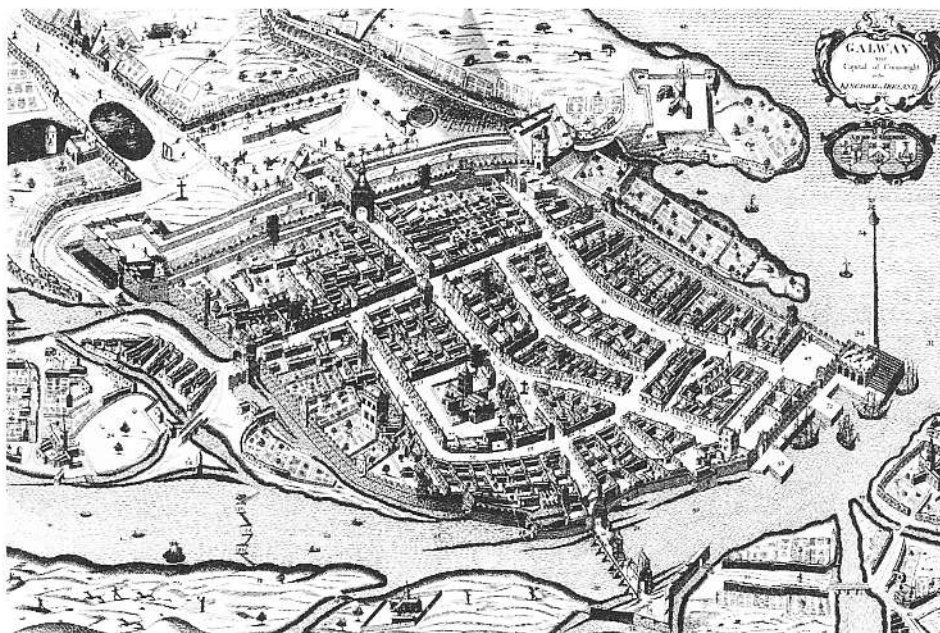


Fig 6.5 A mid 17th-century map of Galway, Ireland, showing bastions carrying cannon on the eastern approaches to the city (Trinity College Dublin MS 1209.73).

of an easy target for besieging artillery and, even in the late fifteenth century, remained vulnerable to cannonfire (Schmidtchen 1990, 3-9).

Another offensive method of countering fire from a besieger's battery was to place artillery on or within the towers and walls of towns but this was to prove a relatively unsatisfactory method (Anderson 1970, 283; Kerrigan 1995, 1). There was a growing realisation amongst military engineers in the second half of the fifteenth century that the high towers and walls seen on town defences and other fortifications needed to be reduced in height. The subsequent lower profile of these defences made them less of a target for besieging artillery. Also, this reduced height meant that defending artillery could fire out at attacking forces more efficiently, instead of firing over their heads as before (Schmidtchen 1990, 9). A new scientific way of fortifying towns and fortresses developed in northern Italy in the very late fifteenth century and, then, helped by the recent invention of the printing press, the ideas spread relatively rapidly across Europe and even beyond in the early sixteenth century. The new method of fortification made use of the angle bastion, first seen in Italy in the late 1480s and 1490s. This type of fortification was designed to withstand fire from besieging artillery and was also able to mount guns for efficient defence. These fortifications had diamond-shaped angled bastions at their corners and along their ramparts to provide defensive flanking fire from their sides and counter battery fire from their fronts (Fig 6.5). Cannon were also mounted on the intervening ramparts / curtains between the bastions of these defensive works. The first large-scale use of the angle bastion for town fortification was at Verona,

northern Italy, where angle bastions were added to the city defences between 1525 and 1530. Other towns in Italy and Europe quickly copied this new idea. For example, Portsmouth, England, was fortified with defences that included angle bastions in the late 1540s (Saunders 1989; Kerrigan 1995, 1-2).

Linear fortifications and territorial defences

There is a belief amongst many archaeologists that great linear fortifications protecting the boundaries of territories are either prehistoric, Roman or early medieval in date. This view is only partly correct as there is evidence from different parts of Europe for the construction and use of such linear fortifications right up to the sixteenth century. It must be remembered that the last phase of the Danevirke in Schleswig-Holstein in northern Germany (which marked the frontier of the old Danish kingdom) was rebuilt in the late twelfth century by Waldemar the Great. This rebuilding included constructing a 7m-high brick wall, a ditch and forewall along much of its length. The Danevirke continued in use into the thirteenth century before becoming obsolete (Hellmuth Andersen 2001, 74). Many entrances to Alpine valleys in Switzerland were fortified by the Swiss confederacies in the fourteenth century. This was achieved by placing 1.2m-1.5m wide stone walls across them from steep slope to steep slope. These blocking walls or *Landwehren* often had ditches in front of them. Towers can be found along these walls at the point where roads cut through them. These walls were a tribute to the power and organisational ability of the Swiss confederacies at this time (Fehring 1991, 142). Linear defences were also constructed in parts of Germany during the fourteenth and fifteenth centuries to protect territories and towns' hinterlands against raiding. These lines of defence can consist of stone walls, palisaded banks and ditches or even banks surmounted by thick and impenetrable hedges. Natural obstructions in the landscape, such as rivers, lakes and marshes, seem to have been cunningly incorporated into them. Again, like Switzerland, watch-towers, often surrounded by outworks, were built at the places along these linear fortifications where roads run through them (Fehring 1991, 142-3).

Linear defences around the English-controlled city of Calais in France were built in the fifteenth century and here, again, natural defences were used to maximum effect. The control of the English government in Ireland was reduced to a relatively small area around Dublin by the fifteenth century. This area, which became known as the English Pale, constantly suffered from Irish raids. In 1495 Sir Edward Poynings, the English Crown's chief governor in Ireland, pushed through legislation in the Dublin parliament that called for ditches and 1.8m-high ramparts to enclose the 'Inglishc Pale'. This concept of territorial defence clearly originated in Calais as Sir Edward had served there prior to 1494 (Lyons 2003). No intensive study has ever been carried out on the defences of the Pale. It is uncertain at present as to whether it was ever fully constructed or what natural defences, such as rivers and bogs, were incorporated into its length. It is clear, however, that in places, including certain parts of Co. Kildare, ramparts and ditches were built and survive to the present day (Barry 1987, 181).

It would seem that these long lines of defence in France, Germany, Switzerland and Ireland were not primarily built to be held against sustained military attack, as the manpower and resources were not really available for this. Instead, these fortifications were really designed to prevent raiding and to make the theft of cattle and other livestock from the protected areas difficult. The existence of these fortifications was a physical obstacle that hindered raiders taking stolen livestock back to their home territories (Fehring 1991, 142).

State fortifications and early artillery forts

Artillery forts constructed by rulers and their governments start to be built across Europe from the late fifteenth century onwards. These forts were often used to consolidate state power, protect territorial boundaries and control newly-conquered lands. One example of this comes from Ireland where the English government regularly built artillery fortifications in its sixteenth- and early seventeenth century re-conquest of that country. For example, Fort Protector in modern Co. Laois was erected in 1548. It had a circular-shaped artillery bastion at one of its corners and it appears that its masonry walls were backed by an earthen rampart. This government fort, along with other fortresses in the area, was built to protect loyal English settlers from local Irish clans. Again, the English Crown, through their administration in Ireland, erected numerous artillery forts at strategic locations throughout the country during the bloody Nine Years War of 1595-1603 and also in its aftermath to consolidate its power (Kerrigan 1995, 2-3).

Technological developments, such as the emergence of lighter and yet very powerful artillery, meant that square-rigged ships were able by the first years of the sixteenth century to carry broadside armaments of heavy cannon. Rulers along the coasts of Europe increasingly realised that they needed artillery forts to protect their ports and anchorages from raids by rival navies and pirates. For example, the series of forts built by Henry VIII between 1540 and 1545 along the southern coast of England were designed to protect safe anchorages in estuaries and ports from attack from France and Spain (Saunders 1989; Linzey 1999, 24-25). These low-lying forts made use of round towers with attached semi-circular bastions (which often gave these fortresses a clover-leaf shape) designed to mount cannon and resist bombardment (Anderson 1970, 284). Their squat profiles made them difficult to hit from the cannon of rolling ships (Linzey 1999, 20). St Mawes Castle and Pendennis Castle in Cornwall are two of these Henrician artillery forts, built on opposite sides of the entrance to the Fal Estuary to protect the safe anchorage in it (known as the Carrick Roads) from naval attack. The fort of St Mawes consists of a central circular tower, which has three semi-circular bastions attached on to it (Fig 6.6). This tower and its bastions were all mounted with cannon firing through embrasures placed at different levels. The fort at Pendennis lies on a headland directly opposite from St Mawes, across the estuary. Its first phase, started in 1540, consisted of a three-storey circular tower, which had cannon mounted on its ground and first floors, along with its roof. Very shortly afterwards, a gatehouse was attached onto its landward side and, also, a circular gun platform was built around the tower to give it stronger



St Mawes Castle, Cornwall, England (photo: Charles Winpenny). This was one of the artillery forts built by Henry VIII along the southern coast of England during the early 1540s to protect anchorages from French and Spanish attack.

Fig 6.6

artillery fortifications (Linzey 1999). Any enemy vessels attempting to enter the Carrick Roads would have been met with a barrage of fire from the numerous cannon mounted on these two forts.

The design of these Henrician forts along the southern coast of England was already out of date by the time they started to be constructed in 1540. The sixteenth century saw the gradual introduction of the Italian-style angle-bastioned artillery fortification throughout Europe and, indeed, to European colonies in the New World and elsewhere. For example, English forces in Scotland were building forts with angle bastions by the late 1540s. This was part of an attempt by the English Crown to take control of southern Scotland and break the alliance between the latter country and France. Eyemouth Fort in Berwickshire is one of these forts and it was erected by the English in 1547. It lies on a coastal promontory jutting out into the North Sea. A massive 4m-high earthen bank, with a great ditch and counterscarp bank, was built and this cut off the promontory from the mainland. An angle bastion was erected projecting outwards from the main rampart. Accommodation for the garrison was also built within the interior of the fort (Yeoman 1995, 106-7). Again, the first evidence for an angle-bastioned artillery fort in Ireland comes from the 1550s. Its construction was linked to a decision by the English administration to defend Cork Harbour and its anchorage from naval attack (Kerrigan 1995, 35).

Further elaborations in the design of the angle-bastioned fort would occur in the second half of the sixteenth century. These developments can first be observed in Italy,

as before, but can also be seen in the Low Countries at this time, as Dutch military engineers began to experiment in the design of artillery fortifications. These elaborations included the *ravelin* (a detached embanked outwork), the covered way or *chemin couvert*, the glacis and the demi-lune. In all, these new features made the angle-bastioned artillery fort, often of pentagonal plan, far more difficult to take. This form of fortification continued to be built right up to the end of the eighteenth century (Kerrigan 1995, 4-6). This was an indication of the efficiency of these forts in being able to withstand attack by trained troops.

Private fortifications: castles

The vast majority of castles were private residences, owned by and occupied for at least part of the time by a person of lordly rank. The fact that castles were residences meant that they had a number of functions. They were, for example, the centres of their owners' estates and much of the countryside of Europe was controlled from these places. While lords and gentlemen of varying ranks rented out much of their estates to tenants, some land was kept in hand and was cultivated directly from these castles. This meant that agricultural and administrative buildings (often built of wood and cob) lay within and around castles.

However, these were not the things that made them special: many moated sites (and crannogs in Ireland and Scotland) were also lordly residences and estate centres but were not regarded by contemporary observers as castles (see below). A key factor was that castles (even timber ones) held structurally-imposing buildings that dominated their surroundings. It is also becoming clear that deliberately-created landscapes (that included deer-parks) lay around castles (Liddiard 2000; Creighton 2002, 65-8). The combined effect of these great castles set within these landscapes was designed to impress all with their owners' lordly status, importance and control of economic resources. This was a propaganda exercise designed to send out the message that it would be unwise to try to undermine the power of the castles' owners, as all the resources that were needed to build such structures and landscapes could also be used to crush opposition. It was a form of 'symbolic violence' (O'Connor 2008, 334-5). It could be argued, however, that great, structurally-impressive undefended manor houses and villas set within their own parkland, built increasingly towards the end of the period, achieved this goal without being seen as castles (see Ch 4, p 147; cf Orser 2006).

This suggests, therefore, that the one thing that makes castles different from other elite residences was the scale of their defences. Castles were designed to a greater or lesser extent to see off sustained attacks in a way that other elite residences were not, although many castles were never attacked or were even threatened during the long centuries that they were occupied (AME 1, 324-5). What is meant by 'sustained attack'? Obviously great castles, such as Edward I's Caernarvon in North Wales, were able to withstand long sieges by professional armies, if stoutly manned. However, semi-defended residences, not regarded as castles, such as certain moated sites or crannogs, were capable of providing a level of defence for their occupants against outlaws and even small

raiding parties. This suggests in turn that small masonry castles and most timber castles offered a level of defence that was higher than that of an elite residence. Thanks to the complexity of their fortifications they were capable of withstanding an attack by large parties of determined men, including trained troops. Let us now examine the various types of castle built and occupied during the period under review.

Earthwork / Timber castles

There are two types of earthwork castle – the motte and the ringwork. Mottes can be described as flat-topped, mostly artificial mounds of earth, on average about 5m in height above ground level, surrounded by a deep ditch (AME 1, 325–331). Such mounds often have a banked and ditched enclosure, known as a bailey, attached onto them. Ringworks usually appear in the landscape as circular, banked and ditched enclosures (Higham and Barker 1992). The original defences and internal buildings associated with these earthwork castles were made of timber and, sometimes, cob (e.g. Higham and Barker 1992, 244–325). Increasing evidence from excavations across north-west Europe indicates that these castles often carried similar defences to masonry castles but that these were built of wood and cob. Evidence for such things as substantial towers and looped palisades are coming to light in excavations of earthwork or – as some scholars now prefer to call them – timber castles (Higham and Barker 2000; Higham 2004; Mittelstraß 2004; O’Conor 2002, 175–80).

It is popularly believed that the heyday of earthwork castles was in the eleventh and twelfth centuries. But many of these castles, built as fortified lordly residences and manorial centres in the latter centuries, continued to be occupied into the late thirteenth and fourteenth centuries (e.g. Kenyon 1990, 8; O’Conor 2002, 174–5). For example, excavated evidence from the motte at Sycharth in north Wales suggests that it was occupied as a timber castle as late as c 1400 and this date is corroborated by contemporary literary evidence (Hague and Warhurst 1966). Also in Wales, the long-term excavation of the motte at Hen Domen, which lay on the border with England, indicated that this late eleventh-century castle was inhabited until c 1300. It seems to have been abandoned more for local political reasons rather than because this form of castle was then seen as being useless from a defensive point of view (Higham and Barker 2000, 159–63). Available evidence from all over northern Europe suggests that, in particular, motte castles continued to be built throughout the thirteenth and even fourteenth centuries but not in the numbers seen before 1200. For example, the twelfth-century ringwork at Aldingham in northern England was heightened and turned into a motte in the early thirteenth century (Davison 1969–70; Higham and Barker 1992, 61). There is good documentary evidence from Ireland for the construction of a motte at Clones in 1211–1212 and a couple of years later at Roscrea (McNeill 1997, 57–58, 72). Excavated evidence from the mottes of Drumadoon, Ireland, and Robertson, Scotland, suggest that these mottes were built in the late thirteenth century (Haggerty and Tabraham 1982; McSparron and Williams 2009). Mottes continued to be built in the Netherlands, Denmark and Poland throughout the late thirteenth and fourteenth centuries (Higham

and Barker 1992, 83-88). For example, the excavation of the motte at Plemieta, Poland, revealed that this earthwork castle was built in the fourteenth century (Higham and Barker 1992, 86-88). It might be added that it is likely that the original wooden tower on this motte summit was up to four storeys in height (*ibid.*). It is noticeable that many of these late mottes in Denmark and elsewhere are square in shape. In Ireland it has been argued on distributional, morphological and historical grounds that a series of mottes, some of them square or rectangular in plan, in the Leinster region were built in the late thirteenth or very early fourteenth centuries (O'Connor 1998, 35-38). This discussion shows that earthwork castles, with timber defences, remained important places in the landscape of north-west Europe well into the fourteenth century. Due to the fact that these places are often overgrown earthworks today, it is sometimes forgotten that many of these castles originally had complex wooden defences and buildings within them. Even quite small mottes seem to have been capable of protecting their owners and their retainers against raids and minor attacks.

Timber defences, however, were not just associated with the late usage of motte and ringwork castles. A large number of important and imposing thirteenth- or early fourteenth-masonry castles across Europe had outer wards and barbicans defended in wood (e.g. Dunamase, Ireland, O'Connor 1996). Masonry tower houses of fourteenth-, fifteenth- or sixteenth-century date sometimes lay within enclosures that were defended by stout palisades. In Poland, also, many fifteenth-century manor houses were enclosed by earthen ramparts surmounted by palisades (Higham and Barker 1992, 86-88). There are also intriguing references from late sixteenth-century Ireland to some Irish chiefs living in 'wooden' castles. It has recently been argued that these were timber versions of the ubiquitous stone tower houses that were so common a feature of the late medieval period in the latter country (Donnelly et al. 2007). Wooden castles and timber defences continued to be used in places for far longer than is popularly thought.

Masonry castles

Methods of besieging castles became more effective over the course of the twelfth and early thirteenth centuries. Crossbows become more widely used at this time and the development of siege engines, such as the trebuchet, gathered pace during this whole period (above). The builders of castles began to respond to this increasing military professionalism by experimenting with the design of these fortresses. This experimentation really starts in the second half of the former century but these new ideas really became widespread after c. 1200 (AME 1, 333-4). Effectively, the defences of major castles became stronger to meet these new challenges (Anderson 1970, 95-104; King 1988, 78-102; McNeill 2001, 44-45). Late twelfth-century examples of castles with this greater level of defence include Framlingham and the Inner Ward at Dover Castle, England, parts of Chepstow Castle, Wales, and Château Gaillard, France, but these were really the exception, being the vanguard of this new defensive style.

Most newly-built masonry castles of rulers and magnates, however, were equipped with this stronger level of defence from c. 1200 onwards. Furthermore, earlier castles,

including some earthwork ones, were rebuilt and re-fitted, to include the new defensive elements. These included: twin-towered gatehouses, well-equipped with arrowloops, having heavy wooden gates, portcullises and murderholes in their passageways; protective barbicans in front of these gatehouses; thicker, higher and straighter curtain walls, whose battlements included merlons pierced with arrowloops; projecting round towers, looped for archery and usually three storeys in height and, thus, rising one floor above the adjacent walls and, therefore, dominating them, occurring on the angles of the curtain; projecting half-round towers found on straight stretches of curtain walls (King 1988, 77-78, 107-25). It is true to say that keeps ceased to function as the most important defensive feature in major castles from this time onwards, although they continued to be built in many castles right down to the end of the medieval period. This discussion all shows that the defences of curtain walls and the entranceways to major castles were enhanced from the last years of the twelfth century onwards. These defensive themes were to be repeated in great castles constructed throughout the next three centuries (McNeill 2001, 45). The arrowloops set in the sides of these new projecting towers and twin-towered gatehouses allowed bowmen to fire along the bases of adjacent stretches of curtain walls and, therefore, control them. This new model of fortification, termed *scientific defence* or *scientific fortification* by certain scholars because of its carefully thought-out and logical nature, was full of arrowloops at battlement level or set in flanking towers at various levels. Sometimes, also, arrowloops can be seen at the bases of curtain walls or in fighting galleries built into the thickness of these walls well below battlement level. The arrowloops themselves were now placed in large embrasures that gave the bowmen within them a wider arc of fire. These loops also developed in form to become more efficient. Plunging loops, allowing bowmen to fire not just outwards but downwards, also make their appearance c. 1200. Cross-shaped arrowloops, which improved observation, start to make their appearance around the latter date too, although narrow rectangular loops always remained popular (King 1988, 116).

Experimentation in castle defences evolved steadily throughout the thirteenth century. For example, concentric defence can be seen on the town walls of Carcassonne, France, by the mid thirteenth century and at Caerphilly Castle, Wales, which was begun in the late 1260s, although far earlier examples of this form of fortification can be found in the Latin East, with the idea itself seen in Late Roman times. A fully concentric castle is one built with two closely-linked lines of defence. In such a castle, the higher inner wall dominated the outer, lower one. No ditch or buildings lay in between these two walls – only flat, featureless ground. This system allowed bowmen on the inner curtain wall to fire over the heads of their comrades, who themselves were firing from points on the outer wall. In this respect, a heavy, concentrated fire came from both walls simultaneously (King 1988, 107).

English-speaking scholars have always maintained that Edward I's late thirteenth-century castle-building programme in north Wales was the high point of scientific defence in the west. These castles, built to consolidate Edward's conquest of the Welsh, are certainly very impressive and continue to inspire awe in the visitor. The erection of these fortresses, which include Caernarvon, Conwy and the concentric castles of

Harlech and Beaumaris, are a testimony to the latter king's military expertise, great organisational abilities and employment of skilled architects – in particular, a Savoyard named Master James of St George (Gravett 2007). The principle of aggressive defence is clearly seen in their plans and this made them virtually impregnable. Defensive features in these castles include: numerous arrowloops at battlement level and at different levels in the many flanking towers and twin-towered gatehouses; fighting galleries, replete with arrowloops, in the thickness of curtain walls; so-called 'keep-gatehouses', capable of independent defence if the rest of the castle had fallen; numerous portcullises, thick wooden gates, murder holes and arrowloops in the passages through the latter gatehouses (King 1988, 103-27; Gravett 2007). Early stone machicolation can be seen at Conwy Castle but this is really a defensive feature associated with castles built across Europe from the fourteenth century onwards (King 1988, 84). A heavily-defended outer wall was also added to the Tower of London by Edward I sometime in the decade after 1275, turning it into a fully concentric castle (King 1988, 112). Recent work in Ireland has shown that concentric defence was part of the original late thirteenth-century design of Roscommon Castle. This was a royal castle and, hence, this made Edward the ultimate owner, as he was lord of Ireland, although he never visited the island (Murphy & O'Connor 2008). In particular, the latter's castles in north Wales are magnificent even today and attract thousands of tourists each year, providing a sizeable income for the region. The scale of this castle building by Edward I was never seen again in Britain and Ireland.

The fourteenth century can be seen as a period of instability across much of Europe with famine, wars, peasant unrest, plagues and economic decline with a background of climatic deterioration (Ch 2, p 60). Some of these troubles continued in places well into the fifteenth and sixteenth centuries. The Hundred Years War (1337-1453) between England and France, the constant strife between nobles and princelings in Germany, inter-clan raiding and feuding in Ireland and Scotland and the threat of the Turks in Central Europe meant that castles continued to be needed, built and repaired. Great castles were still required to protect territory against invasion or to consolidate newly-conquered land.

At one level, the next generation of fortresses continued to use methods of defence perfected during the thirteenth century. Strong twin-towered gatehouses and round mural and angle towers, looped for archery and offering flanking defence, continued to be part of the design of top rank castles during these centuries. Nevertheless, there were changes and developments. For example, there was a far greater use than before of projecting stone machicolations, built on corbels, along the battlements of castles' towers and curtain walls (Anderson 1970, 183, 205; McNeill 2001, 45). The battlements at Raglan Castle, Wales, for example, which were started in the second quarter of the fifteenth century, are well supplied with machicolations. Also, the height of the curtain walls and towers of great castles, such as at the latter castle, was increased during this whole period (McNeill 2001, 45). Furthermore, gun ports start to appear in castles from the late fourteenth century onwards (*ibid.*). They can be seen in the gatehouse at Bodiam Castle, England, a typical quadrangular or quadrilateral castle of



Bodiam Castle, Sussex, England (photo: Kieran O'Connor). This castle dates to the late 14th century and its gatehouse is defended by early gun ports.

Fig 6.7

the time, which was started in 1385 (Fig 6.7). This gatehouse also has stone machicolations at battlement level (Thackray 1991). In this respect, with this greater use of stone machicolations and the addition of gun ports, it could be said the thirteenth-century tendency to strengthen the gatehouse was continued and improved upon during late medieval times right across Europe, especially in countries like France (Anderson 1970, 205; and see Cēsis in Latvia, below).

Minor strongholds: Tower houses, fortified houses, moated sites and crannogs

A far smaller type of castle, known as the *tower house*, was the ubiquitous form of castle built across large parts of Europe during late medieval times (Fig 6.8). Tower houses occur in areas that saw endemic low-intensity warfare associated with raiding, feuding and the breakdown of central authority, such as large parts of France, northern England, Scotland and Ireland (McNeill 2001, 44). In physical terms, the principal element of this form of castle consisted of a tall, usually rectangular tower of between three and five storeys in height. Defences seen on these towers include machicolations at battlement level, angle loops, yetts, murder holes, narrow windows and, in later examples, gun loops. In terms of dating, tower houses first start to be built in the fourteenth century but the majority of them date to the fifteenth and sixteenth centuries in places like Ireland, Scotland and northern England (see Claregalway, below).

Fortified houses, built for example in Ireland by English settlers in the late sixteenth and early seventeenth centuries, featured machicolations, gunloops, very narrow, barred ground-floor windows and provisions for yetts, and stood within walled enclosures (*bawns*) (Sweetman 1999, 175-93). Also seen in Ireland is the *stronghouse*, normally a two-storey, rectangular building with a ground-floor entrance set within a defended



Fig 6.8 Threave tower house, Scotland (photo: Rory Sherlock). Tower houses were built in their thousands across large parts of Europe from the second half of the 14th century onwards.

bawn. The ground floor of the central block was defended by narrow windows and gunloops, with the main living area occurring at first-floor and attic levels (Sweetman 1999, 193–98). The *bastle* house was a form of defended farmstead usually built of large stones, often bonded with clay. They are generally two storeys in height, rectangular in shape and rely on passive defence, such as thick walls, vaulted basements, first-floor entrances, stout wooden doorways, small, barred windows and stone slates, for protection. They were built by well-to-do tenant farmers as a protection against raiding (Durham 2008, 29–33). Their distribution is confined to the troubled border region between Scotland and England and they first appear in the second half of the sixteenth century. *Fortified churches* can also be found in certain parts of Europe, such as Ireland, France and Scotland, during the whole period under review and were used for both communal and personal defence (see Ch 11, p 465; Anderson 1970, 130; Bonde 1994; Creighton & Higham 2005, 103).

The majority of *moated sites* appear in the landscape today as rectangular, banked and ditched enclosures (Fig 6.9). They are often sited in low-lying ground close to a natural water source and this, in turn, means that their ditches are often wet or, at least, were water-filled when these enclosures were in use. Wedge-, square- or, occasionally, circular-shaped moated sites occur as well. Moated sites are common in Ireland, England, France, Belgium, Holland, northern Germany, Denmark and Poland, and the majority seem to have been built during the second half of the thirteenth and early fourteenth centuries (Wilson 1985, 28). About 5,500 moated sites were built in England between the late twelfth and fifteenth centuries, with the majority being erected between 1250



Moated site at Brockhampton, Herefordshire, England, with manor house (left), gatehouse (right) and moat in the foreground. The timber-framed buildings date from c. 1300 (M. Carver).

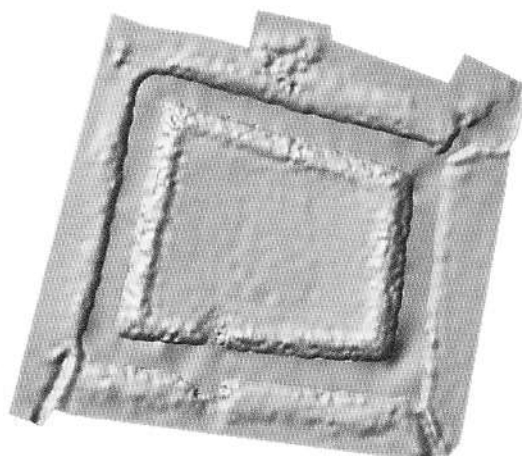
Fig 6.9

and 1350 (Wilson 1985, 8), and up to 1,000 moated sites can be recognised in the Irish countryside today, mostly in an Anglo-Norman / English context. These seem to have been mainly built throughout the thirteenth and early fourteenth centuries (O'Connor 1998, 58-68). However, moated sites in Jutland, Denmark, mostly date to the fifteenth and early sixteenth centuries (Wilson 1985, 28).

Moated sites appear to have been erected by men of different social classes for a variety of reasons. Across Europe, many were built by minor members of the knightly class and, therefore, functioned as their residences and manorial centres. Other moated sites were built as granges located on the outlying lands of different monastic orders, while some functioned as the hunting lodges of the elite (Wilson 1985, 7, 21, 28). Alternatively, many moated sites were the homes of prosperous, often assarting, peasants who were either freeholders or tenants of manorial lords (Wilson 1985, 28; O'Connor 1998, 58-69). Interestingly and in contrast to elsewhere, some moated sites in western Ireland were the principal residences of powerful Irish princes and lords. For example, the wedge-shaped bi-vallate moated site at Cloonfree, Co. Roscommon, was the abode of Hugh O'Connor, king of Connacht, in the early fourteenth century (Fig 6.10; Finan & O'Connor 2002). It seems to have had a defended timber gatehouse, which had a portcullis, and its banks were surmounted by substantial oaken palisades. A deep wet moat lay between the two banks (Finan & O'Connor 2002, 79-81). Nevertheless, the available evidence suggests that none of the moated sites had the complex defences of contemporary earthwork castles (Barry 2002). In this respect, Cloonfree is never

Fig 6.10 Digital terrain model of Cloonfree moated site, Co. Roscommon (plan: The Discovery Programme, Dublin). This well-preserved but average-sized moated site was the principal residence of Aedh O'Connor, king of Connacht, in the first years of the 14th century.

0 10 20 30 40 m



referred to as a castle in the sources, but as a *longphort* which translates as 'stronghold' (Finan & O'Connor 2002, 72).

Another defended residence in use during the later medieval period in parts of Ireland and Scotland was the *crannog*. Crannogs are best described as artificial islands located on lakes, which had a living platform that was on average about 20m in diameter. A dwelling house or houses were located on these platforms. The edges of the islands were defended by either simple oaken, or post-and-wattle, palisades. It is also clear that some small natural islands were also fortified during the period under review and, effectively, were used in the same way as crannogs. Crannogs have been traditionally viewed as being the fortified homes of kings and nobles during the early medieval period. However, more recent work has shown that many crannogs continued to be occupied, and possibly built, by members of the Highland and Irish elite right down to c 1600 (Morrison 1985, 23; O'Connor 1998, 79-84; Brady & O'Connor 2005). For example, the crannog of Island MacHugh, located on Lough Catherine in Co. Tyrone, Ireland, was the principal residence of the O'Neill kings of Ulster in the later medieval period (Brady & O'Connor 2005, 129-30). The crannog of Neish's Island on Lough Earn, Scotland, one of the chief seats of the earls of Strathearn in the thirteenth century, was occupied as a fortified residence up to the fifteenth century (Oram 2008, 179-80). Maps drawn up by the English military cartographer, Richard Bartlett, in 1602 show crannogs in widespread use amongst the Irish in the lakeland districts of Ulster and north Connacht at this late date (Hayes-McCoy 1964) (Fig 6.11).

The popular view that the advent of gunpowder and artillery in the fourteenth and early fifteenth centuries spelt the end of fortified sites in Europe is incorrect. Castles and fortified dwellings were built and occupied well into the seventeenth century, where they continued to function as defence against raiding and attack by small groups of men into the century's end (McNeill 1997, 228). This shows that castles were an important feature of the European landscape for almost eight hundred years and, as the homes of the elite, their study throws light on the way society was organised and developed.