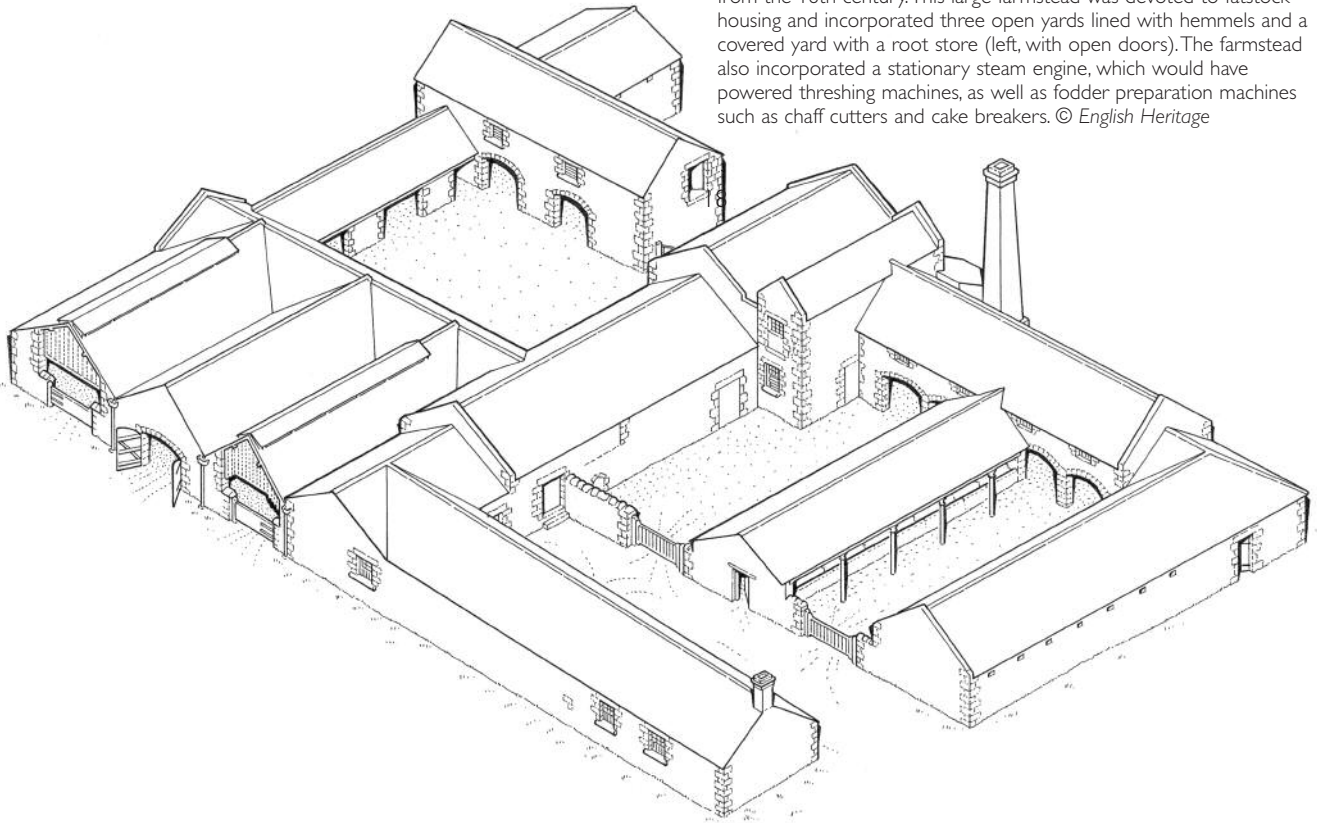


16 A large regular courtyard plan (North Northumberland Coastal Plain Character Area), dating from the early to mid-19th century and placed within a landscape affected by large-scale reorganisation and enclosure from the 18th century. This large farmstead was devoted to fatstock housing and incorporated three open yards lined with hemmels and a covered yard with a root store (left, with open doors). The farmstead also incorporated a stationary steam engine, which would have powered threshing machines, as well as fodder preparation machines such as chaff cutters and cake breakers. © English Heritage



### 5.2.2 ESTATE POLICY

Estates, and thus landlords and their agents, have been massively important in English rural history, with tenants occupying some 85% of the farm area until the land transfers of the early 20th century mentioned in 4.1.4 above (Mingay 1989, pp.943–4). The character of an area thus can be strongly influenced by the estate of which it was part. Family insignia, estate-made bricks and the styling of cast-iron windows or ventilation grills can all give a unity to buildings over several parishes and this is as true of farm buildings as of cottages and village schools. Typically, and observable from 1350 onwards (Le Patourel in Miller 1991, p.846), improvements by landlords were aimed at attracting good tenants in either times of plenty (when capital expenditure could secure an increase in rent) or depression (when it could forestall a decrease). By the mid-17th century, home farms were being developed as examples of best practice for tenants. Between 1650 and 1750 landlords assumed increasing responsibility – in comprehensive lease agreements – for fixed capital works (particularly barns and houses) and after 1750 the influence of estates can be seen in the planning and design of buildings and entire complexes for home farms and tenant farms (Thirsk 1985, pp.72, 235; Thirsk 1967, pp.680–81; Wade Martins 2001). Estates often erected new buildings in order to attract tenants with the working capital to invest in their land and thus, through increased productivity, maintain rents at a high

level. The policies of larger estates often discriminated against smaller holdings and the maintenance of their buildings. County studies (for example, Wade Martins 1991) have demonstrated how varied estate policy in similar areas could be, despite the rise of the land agent as a professional class, increasing access to farming literature and the ironing out of many glaring inconsistencies in estate practice by around 1850. The small estate is less well understood (e.g., Collins et al 1989).

### 5.2.3 LOCAL VARIATION OF FARMING SYSTEMS

The type and form of built fabric display regional variations that are more firmly linked to the broad pattern of land use and its landscape context (whether wood pasture, enclosed or open landscapes). In East Anglia the older timber-framed, evolved farmstead groups with ample barn provision and multi-functional buildings are associated with the small, well-hedged fields typical of the wood-pasture regions, while the large planned farms of brick or brick and flint are found on the later enclosed areas of heath (Wade Martins 1991; Wade Martins & Williamson 1999). The differences within Wiltshire are also clearly demonstrated by the farm buildings: the chalkland typically has loose courtyard plan steadings with their large-scale barns serving specialist corn and sheep husbandry; the smaller farms associated with dairying and cheese production in the northern wood-pasture area are of a more dispersed

17 Distribution of listed bastle houses in England. Bastle houses are only found along the Borders area of northern England and reflect the turbulent history of the area.  
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17

plan (Slocombe 1989). The yard management of stock also displayed a strong variation dependent on regional or estate practice. Thus the long-established practice of buying store cattle in spring and selling them on in the autumn survived longest in areas with rich grasslands, such as the Somerset Levels and the east Midlands, in contrast to Norfolk and the eastern lowlands where yards were filled over winter, even during the lean years for the beef industry in the 1930s (Whetham 1978, pp.290–91).

#### 5.2.4 INTERNAL WORKINGS OF THE FARMYARD

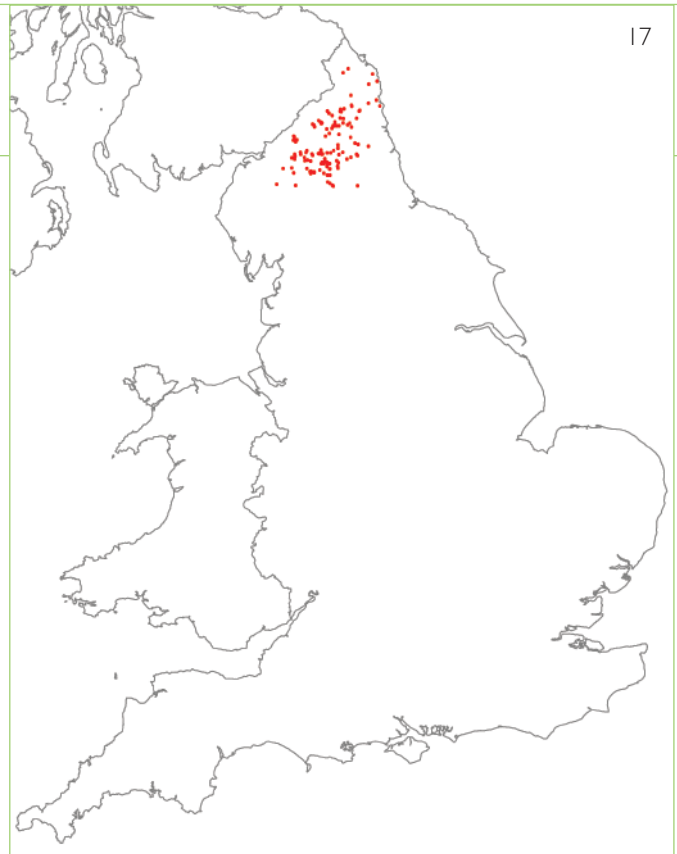
The layout of the farmyard should firstly be seen in relationship to its immediate setting: of crop storage and processing buildings to the fields; of yards, platforms for corn, haystacks and cart sheds to trackways. Secondly, an important characteristic is the degree to which the layout of the farmstead was related to function. The planning of farmsteads to maximise efficiency engaged an increasing number of writers from the 1740s, who generally rated traditional layouts poorly against the perceived benefits of ordered and ideally planned layouts that minimised, for example, the time it took to process a stack of corn, transport the straw to the cattle yard and grain to the granary or mixing room. Many such writers, however, did not display sufficient understanding of the other factors – land use, terrain, weather, farm size, location in village or open countryside – that dictated layout. The most comprehensive analyses of local farming systems in relationship to farmstead layout are contained in Barnwell & Giles (1997).

#### 5.2.5 DEVELOPMENT OF FARMING SYSTEMS

Archaeological evidence from deserted medieval settlements has shown how linear plans, including longhouses, were replaced by loose courtyard arrangements as owners prospered and their holdings grew larger (Lake 1989, pp.81–2; Gardiner 2000). Evidence from the tithe maps and first-edition 25-inch maps for sample Norfolk parishes showed that nearly half the farms were of an irregular layout in 1840 with very few regular E- or U-shaped courtyard plans. By 1880 dispersed layouts had reduced to an eighth, with E- and U-plans accounting for about a quarter of farms (Wade Martins 1991, p.199).

### 5.3 FARMSTEAD PLANS IN THE NORTH EAST

The plan forms of farmsteads in the Region display massive differences in terms of scale. Dispersed plans are common throughout the Region, the principal differences being between the defensible bastle houses and linear



farmsteads, mostly now concentrated in upland landscapes, and the courtyard steadings of the coastal lowlands and inland vales.

Throughout this Region, the most common type of farmhouse plan prior to the mid-18th century comprised the hearth-passage plan, in which the chimneystack backed onto an entrance passage, the stack serving to heat the main living room and sometimes an inner room beyond; the passage served to separate the main living quarters from the service or agricultural end of the house (see Figure 8B and longhouses, below – 5.3.2).

In all parts of the Region, symmetrically designed double-depth houses with central entries and services contained in the rear rooms were being built after the 1750s. They are commonly associated with the later rebuilding of earlier steadings or the construction of new enclosure and regular plan farmsteads.

#### 5.3.1 BASTLE HOUSES AND BYRE HOUSES (Figures 17 & 18)

From the 1290s to the 17th century, the borderlands – particularly Coquetdale, Redesdale and North Tynedale – had been characterised by intermittent instability. The early 16th century was particularly unstable, and the result of attempts to defend livestock and farming families can be seen in the emergence of distinct bastle houses and their associated yards – a building type particular to the Border area of northern England. Over 200 examples are known in Northumberland, with the distribution extending into Cumberland, the north Pennines and south of the Tyne Gap as far as Allendale, Weardale and the South Tyne Valley (Ryder 2004, p.265).

## 18 Bastle houses and byre houses in the North East Region

Bastle houses were fortified farmhouses, usually of high status, in which the family lived at first-floor level. This was accessed by a ladder that could be withdrawn in times of trouble, with their cattle housed on the ground floor (see also Figure 28A). Thick stone walls, small window openings and added steps up to the first floor are characteristic features. Bastle houses reflect the turbulent history of the borders area of the north of England, especially between the mid-16th and early

17th centuries. (A Cheviot Fringe)

Although the Union of the Crowns in 1603 brought greater security to the area, the tradition of living above the cattle continued in the so-called 'byre houses,' which continued to be built into the 19th century (B North Pennines). Larger windows and contemporary steps to the first floor indicate that these buildings were not defensive. All © Jen Deadman



The cattle were housed on the ground floor, usually with the doorway in a gable end, and the domestic space in a room above was accessed by a ladder or later an external staircase. With stone walls up to 1.2m thick, the bastle house and its walled enclosure (the barmkin) offered farmers a defensive retreat where the family and stock could be secure from cattle rustlers in an area that remained lawless into the 17th century. Bastle houses generally date from the 16th and 17th centuries although some are earlier (Brunskill 1987, pp.110–11; Ramm et al; 1970; Dixon 1970 and 1979; Ryder 1992, 1996, 2004). In contrast to the tower houses with enclosed yards that were built between the late 14th and 16th centuries as refuges for high-status families and the tenants and inhabitants of an area, bastles were 'often constructed in series or clusters within hailing distance of each other'; they are also found in terraces (for example at Wall, Tynedale) and may also be associated with surviving ridge-and-furrow cultivation, occasionally with stock pens and enclosures providing access to upland grazing (Adams & Carne 1995, p.93; Lax 1999). Although originating in the endemic lawlessness of this part of the Region, it is probable that many were built as secure houses for new leasehold tenants, occupying land in return for low rents and the expectation of agricultural improvement (Frodsham 2004, p.105). More numerous in Redesdale and North Tynedale, where few stone bastles survive, were earth- and turf-covered timber houses, of which there may be only one survival (Frodsham 2004, pp.103–4). The addition of external staircases and the widening of windows became more common in the 18th century. Other defensible houses in the Region – upper-floor hall towers, solar towers and tower houses – are predominantly medieval in date and of a high social status.

From the later 17th century, bastle houses were being 'commonly abandoned in favour of smaller farmsteads which were attached to or close to the bastle house' (Lax 1999, p.172).

The upland tradition of providing domestic accommodation over cattle reappeared in the later 18th and early 19th centuries with the so-called byre houses of County Durham. Larger window openings and thinner walls differentiate them from bastles (Figure 18).

### 5.3.2 LINEAR PLANS, INCLUDING LONGHOUSES

The linear plan comprised the predominant farmstead type throughout most of the Region until the late 18th century. They vary enormously in scale (Figures 21C & 25B). In the north of the Region linear farmsteads can represent the linear extension of bastle houses (Ryder 2004, pp.269–70; Lax 1999, p.167).

Linear farmsteads north of the Tyne Valley are predominantly late 18th and 19th century in date. The simplest type of linear plan – a single-storey house, heather-thatched and with livestock housed at one end – survived in the north of the Region into the 18th century. Here, longhouses survived until they were swept away by the impact of enclosure and the reorganisation of estates. A well-known excavated example is at West Whelpington in the Wansbeck valley. Deserted as a consequence of enclosure in about 1720, it was built as a planned settlement of longhouses in the decades around 1400 (Jarrett & Wrathmell 1977). Single-storey farmhouses – cruck-framed, built of mud and stud and accommodating livestock – were documented in the late 18th century in the northern uplands of the Region. Unlike in the North York Moors, where even single-storey longhouses were substantial enough to have been

adapted and thus survive to the present day, these were generally completely swept away with enclosure and replaced by symmetrical stone farmhouses and associated farm buildings (Frodsham 2004, pp.117, 121–3). Surviving examples – such as the lone survivor of a green settlement of longhouses at Cheswick on the Northumberland Coastal Plain, adapted for use as a workshop – are of great rarity (Bolter & Gould 2002). Buildings of a similar form, similarly grouped together as *fermtoun* settlements, survived in large numbers in the Highlands of Scotland until the Clearances of the 19th century.

Substantially built examples of linear farmsteads, commonly comprising the hearth-passage plan, survive from the late 17th century in the North Pennines (Brunskill 1975) and the south of the Region. Many retain evidence of rebuilt lower ends, now serving as outbuildings or integrated into the domestic plan or rebuilt hearth-passage or courtyard steadings with double-pile houses (Fairless 1980; Chapman 1978, p.36; Roberts 1980, pp.92–3, 95; NEVAG 1997, p.006); if subject to systematic investigation, it may be clear that many of these comprise substantially built longhouses (see Figure 8B). Thus far, only one longhouse has been positively identified – at Bearpark, Durham (dated to the late 15th century).

The adaptation or rebuilding of the true longhouse, through the creation of separate entrances for people and livestock or the incorporation of the byre end as part of the house itself, did not lead to the abandonment of the practice of linking house and farm buildings in a linear sequence. Buildings were often added to one end or another to produce an elongated range or simply to join together individual buildings or groups formerly not connected. They were built on new farmsteads established after enclosure in the 17th and early 18th centuries and in rebuilt farmsteads in villages in eastern county Durham, for example at Shadforth where two ring-fenced steadings were sited in newly created enclosures after 1635 (Clack 1980, 1981, 1985). Linear steadings of the same period have been recorded on the Magnesian Limestone Plateau in east Durham (Clack 1985) and around Durham (Edwards 1985, pp.103–4; Scott 1985, pp.109–110, 113). Linear farmsteads with cross-passage plans continued to be built anew into the mid-18th century (Hughes 1967). There are recorded examples in Weardale, in the North Pennines, of small common-edge linear farmsteads of late 18th-/early 19th-century date with direct internal access from the house to the farm buildings, although both have separate external entrances (NEVAG 1997, pp.002, 003).

As farm size increased, so did the number of buildings required, particularly for housing cattle, which were normally in-wintered for up to six months in upland

areas of northern England (Grundy 1970, pp.3–5). A second range of buildings could be built along the valley side, parallel to the farmhouse, their design constrained by the dictates of the landscape. Very few linear plans are without a scatter of subsidiary buildings, and some developed – particularly again in the south of the Region – into plans of two or three blocks of attached buildings. In some cases, linear steadings could grow to a very large scale, serving farms of over 300 acres (Bolter, Gould et al 1994). In some areas of the northern uplands, in contrast, such steadings as rebuilt in the 19th century remained very small in scale despite the fact that they served very large sheep farms running into several hundred acres. In the Cheviots, for example, most farms only required stalling for two or three horses, some milk cattle and their fodder; and were typically being surrounded by walls for clipping and sorting sheep (Barnwell & Giles 1997, pp.71, 75).

In the small later 18th- and 19th-century farmsteads associated with the miner-smallholdings in the south of the Region cow houses were commonly built behind, below or beside the house. They are most densely concentrated in areas where farming was a secondary source of income, for example in the lead-mining areas of Allendale and upper Weardale in the North Pennines (Brassley 1984, p.57). Some of these closely resemble the *laithe* house, the word *laithe* or *lathe* being a northern English dialect word for a combined barn and cow house (RCHME 1986, p.178). The house and farm buildings are typically of one build, but there is no cross passage or inter-connection between the domestic and agricultural parts and both the roofline and the width of the various components may differ. The farm buildings housed corn, cattle and occasional other functions (such as stabling). They typically date from the late 18th to mid 19th century, serving farms of about 50 acres or less.

### 5.3.3 COURTYARD PLANS

From the mid-18th century farms of over 150 acres across much of the lowland and in some of the transitional areas would typically be served by a farmstead ranged around a courtyard. This was especially marked in Northumberland, where many landowners continued to generate wealth from outside agriculture that they could then invest in their farms. The result was the complete or partial desertion of settlements, and at the extreme their replacement by planned settlements, which included workers' housing. The large-scale courtyard steadings that developed over the 19th century were amongst the largest in England – even exceeding those of the Yorkshire and Lincolnshire Wolds and southern downlands – and very similar in form to those that appeared across the border in the Lothians (Figure 16).

There is documentary evidence for the improvement of

farmsteads from the early 18th century (Brassley 1984, pp.46–7) but the physical evidence for detached farm buildings – as distinct from linear farmsteads – is more elusive. The proximity of hill grazing and lower-lying lands suitable for root crops meant that a mixed farming system of cereals could develop, relying for its productivity on the manure from turnip-fed sheep (particularly on the light soils of the Cheviot Fringe) and yard-fed cattle on the lowland clays. The enormous size of many holdings – some as large as 1,200 acres and typically in excess of 300–400 acres (Wade Martins 2002, pp.80–82) – and high price of labour due to competition with industries such as mining, resulted in the majority of farms adopting regular planned layouts incorporating a high degree of mechanisation. Where arable land was cultivated, mechanised threshing (see 6.1.2.3) was general by the 1830s (Barnwell & Giles 1997, p.71).

The courtyard farms of Northumberland typically result from two phases of development, in the early 19th century and from the 1860s, and there is evidence that quite substantial and well-planned steadings were entirely swept away – by complexes with more accommodation for fatstock in particular – in this later phase of development (Barnwell & Giles 1997, pp.70–1). On these large farms the general principles of layout remained the same throughout the 19th century. By the mid-19th century farmsteads in Northumberland were described as commonly forming ‘three sides of a square open to the south’ (Grey 1841, pp.190–2). U-plans and E-shaped plans predominate, with some originating as L-shaped plans: threshing and straw storage in the centre, flanked by ranges for cattle and looking over a south-facing yard; attached or detached livestock ranges often built to one side of the yard, sometimes making an extra yard (Barnwell & Giles 1997, pp.71–3; Wade Martins 2002, pp.81–5). Cattle were kept in the open yards, with feed stores along the south wall and access both from the outside and into the yards. Shelter sheds with granaries above occupied the north side. A barn with an engine

house on the side extended north from the north side into the stack yards, with a long wagon lodge connected to it. The house was separated from the farmyard by a wall and roadway. To the north was the stack yard, from which the raw material for threshing was transported to the barn. By the 1820s the barn was likely to be provided with some form of motive power. The power source was typically sited to the north, where the barn had become the focal point as a ‘general food processing and distribution base for the farmstead’ (Linsley 1985, pp.124–5).

Another characteristic feature of the Region – shared again with the lowlands of Scotland, especially the Lothians – was the existence of rows of small cottages for farm workers beside these large steadings. There was sometimes a terrace set slightly apart from the farmstead, or the cottages could form one side of the farm courtyard (see cover image). In the north Northumberland lowlands, where most of the larger planned farmsteads are concentrated, a settlement may consist of a single farmstead with a separate entrance to the farmhouse, the house of a farm manager (the *grieve*) placed next to the site entrance and the cottages of the labourers (*hinds*) employed on it (Barnwell & Giles 1997, pp.90–1).

The situation in Northumberland contrasted with Durham, which was a landscape of earlier enclosure and which in the late 19th century had only 17 owners of land above 3000 acres (in contrast to Northumberland’s 58). Despite some early and surviving examples of regular courtyard plans (notably Beamish Home Farm, Raby Castle, Sokeby and Beamish) they are much rarer (Wade Martins 2002, p.212). Very little is known of farmstead plans in this county, but as a general remark it seems that plan forms are much smaller in scale and range from loose courtyard arrangements – on larger farms of two yards – to L-plan and dispersed layouts.

# 6.0 Key Building Types: Crop Storage and Processing

The analysis of key building types presented here could be presented by function rather than building type, as many functions relate to parts of buildings or parts of entire ranges or farmstead types. As the relationship between farmstead form and function has been outlined in Section 5, Section 6 will comprise a conventional overview of the key functional types. It will be noted in some regions that so many of these functions are combined in one combination barn or farmstead type that they cannot be easily teased out as a separate theme. Nevertheless, the national framework sections do present an overview of on-farm functions, and where relevant their rarity and survival, that are applicable nationally.

## 6.1 BARNES

### 6.1.1 NATIONAL OVERVIEW

In the British Isles and other parts of northern Europe, the harvested corn was often stored and processed inside a barn. After threshing – typically a process that occurred gradually over the winter months – the straw usually remained in the barn awaiting its use as bedding for livestock, while the grain destined for market or next year's seed would be stored either in the farmhouse or in a purpose-built granary.

Barns are often the oldest and most impressive buildings on the farm and are characterised by:

- Internal space for the storage of the unthreshed crop and an area (the threshing floor) for beating by flail the grain from the crop and for winnowing the grain from the chaff in a cross draught. This was also an area for the storage of straw after threshing.
- Externally, typically large opposing doors on the side walls to the threshing floor; although the size of openings is subject to much regional variation. Barns on large arable farms commonly had large threshing doors, sometimes with porches, into which a laden wagon would draw up and unload the crop. In some parts of the country the crop would be forked into the barn through pitching holes, and the threshing doors would be much smaller. Small winnowing doors sufficed in many pastoral-farming areas.
- Blank external walls, in mass-walled buildings often strengthened by buttresses or pilasters. Mass-walled barns usually had ventilation slits or patterned ventilation openings, and the wattle or lath infill to timber-framed barns was often left exposed. In some

areas, the crop would be unloaded from a cart or wagon into the barn through pitching holes.

The distinctive form and plan of barns remained comparatively little altered between the 13th and 19th centuries. Surviving pre-1750 barns represent only a small proportion of the original population, their date, scale and landscape context being major factors in determining their survival. There is only one complete survivor of the 2–2,900 tithe barns that existed on Cistercian estates in the pre-1550 period (Brunskill 1982, p.35). Local studies have indicated that small and pre-18th-century barns are most likely to survive on farm holdings of less than 150 acres that have not experienced major growth in subsequent centuries (Wade Martins 1991, p.160). These are concentrated in landscapes of ancient enclosure, improving estates and the process of enclosure in the post-1750 being linked to often wholesale rebuilding.

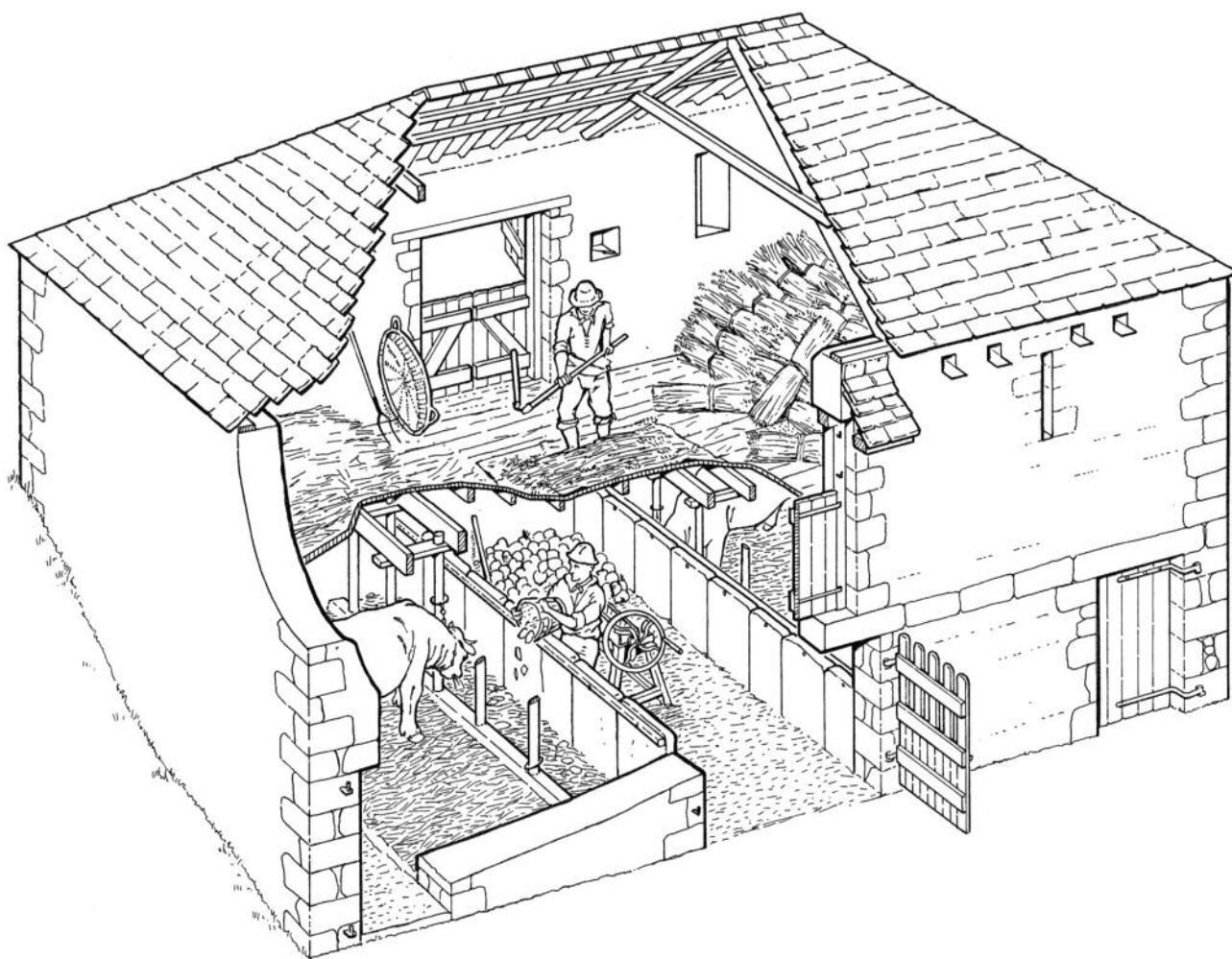
Major variations were in the five following areas.

#### 6.1.1.1 Plan form

In the most common form of plan the threshing floor was in the centre, although it could be sited off-centre or at one end. A greater span was enabled by aisled barn construction, either in single or double aisles. This was common in East Anglia and the South East (Rigold 1971 and 1973), and for high-status buildings outside that area, including a group mostly dating from between 1570 and 1650 in the Pennines (Clarke 1972 and 1974).

Outshots or projecting lean-tos were commonly added to barns, for housing carts, livestock and other functions. The number of additional external openings indicates accommodation for other functions, ranging from minor doors enabling the barn to house functions such as clipping sheep when empty, to lofts and stabling,

19 A bank barn showing the first-floor barn over ground-floor shippons and a fodder preparation area. This example is a true bank barn in that it is built into a bank giving ground level access to the entrance of the first-floor barn. Some bank barns called 'variant bank barns' have the upper level access at the end. Although not widespread in the North East Region, bank barns are found in the western parts of the Region. © English Heritage



#### 6.1.1.2 Size

Barn size can be strongly indicative of the former extent of arable and holding size, ranging from very small in dairying or stock-rearing areas, to very large on the much larger holdings of arable areas. The practice of mowing rather than cutting by sickle the corn crop, widespread by the 19th century, also had an impact on barn size, as large quantities of straw – ready for feeding cattle in the yard – would need to be accommodated.

In the medieval period it was common practice to house all the crop in the barn, but in later centuries the unthreshed crop could be raised off the ground by a platform or by staddle stones (see 6.2 and Figure 24), and stored in an open yard (rickyard) or a staddle barn. Examples of the latter, typically of late 18th- to early 19th-century date, survive on the downland farms of Hampshire, south Wiltshire and east Dorset. Ricking was not a common practice in southern England until the 19th century, but was noted by observers as being common in northern England and Staffordshire in the 17th century (Colvin & Newman 1981, p.97; Peters 1969, p.65).

#### 6.1.1.3 Combination Barns

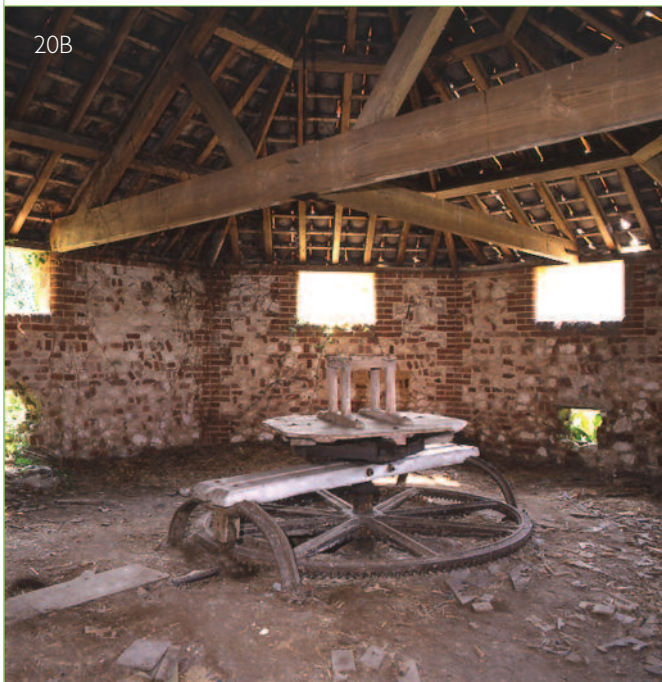
There is increasing evidence in many parts of the country for threshing barns to have originated from at least the 17th century as combination barns, which incorporated other functions in the main body of the barn such as the housing of livestock. These ranged from the end bays of the barn to the aisles of Pennine barns or the ground floors of split-level buildings. Multi-functional two-level barns, including bank barns and their variants, were increasingly adopted from the late 18th century (and noted by the writers of the county reports for the Board of Agriculture) – often along with the introduction of mechanisation – in many areas of England (Barnwell & Giles 1997, p.156).

#### 6.1.1.4 Evidence for mechanisation

The introduction of machine threshing after its invention in 1786 led to the erection in existing barns of additions to house machinery, for chopping and crushing fodder as well as threshing grain. Early machines were powered by horse engines in special-purpose semi-circular buildings, which projected from the barn and were commonly known as 'gin gangs' in the north of England. Steam, water and wind power were also used (Figure 20).

20 Power in barns: national examples

- A A projecting horse engine house attached to a barn. Gin-gangs were a relatively common feature of Northumbrian barns from the late 18th and 19th centuries. (Cheviot Fringe)
  - B The interior of a horse engine house that contains a rare example of an in situ horse gin. (North West Norfolk)
  - C A water wheel, providing power to the feed-processing machinery in a home dairy farm, remodelled in the 1890s. (Breckland)
  - D A farmstead that incorporated a fixed steam engine to drive threshing and other crop- and fodder-processing equipment. (Cheviot Fringe)
  - E The use of portable steam engines often left no physical evidence within the barn structure but in some cases drive shafts and fly wheels survive in-situ. (Dorset Downs and Cranborne Chase)
- A & D © Jen Deadman; B & C © English Heritage / Michael Williams; E © Bob Edwards



The uptake of machinery varied across the country. In areas where labour was expensive mechanisation found favour; horse engine houses and evidence for water power being most common in the lowlands of Yorkshire and the Humber and the North East, in parts of the West Midlands and in the South West peninsula (especially Cornwall). In the southern counties, where

labour was cheap and abundant until the 1850s or later, few barns bear evidence for the introduction of machinery (Hutton 1976).

From the early 19th century the traditional barn began to be replaced by large multi-functional buildings with threshing and fodder-processing areas linked to granaries,



straw storage and cattle housing. These could project from the north of courtyard plans (as was common in Northumberland) or be integrated into other types of plan. In some areas, such as the eastern lowlands from Nottinghamshire northwards, the barn was from the 1850s reduced to a small feed-processing room (Figure 24, bottom).

The introduction of the portable steam engine and threshing machine meant that tackle could be taken to the stack. This was widespread by the 1850s, and heralded the end of the traditional barn as a processing building.

Features relating to the use of power are highly vulnerable and rare, particularly horse wheels.

#### 6.1.1.5 Evidence for reuse and adaptation

Careful inspection of barn interiors may reveal evidence for reused timbers (a common practice), in addition to former floors, partitions, doors and windows. This may well indicate that a present open space was divided off at one end or even provided with an additional floor. The high point of barn building occurred during the 18th and early 19th centuries, as grain yields rose and new land came into cultivation. Additions were commonly made to existing barns or additional barns built. It is also likely that where a barn was originally multi-purpose, the animal housing was removed and a separate barn or cow house built.

Mechanical threshing had removed the need for a threshing floor and the uses to which the barn was put changed. As cattle gained in importance at the end of the 19th century barns were converted into mixing houses for fodder. The introduction of steam-powered machinery (whether fixed or mobile) usually involved the cutting of a hatch in the barn wall in order to allow belting to enter. Alterations might well involve the dividing of the building with partition walls and floors.

### 6.1.2 BARNs IN THE NORTH EAST (Figures 21 & 22)

#### 6.1.2.1 Threshing Barns

Pre-1750 survivals are particularly rare in the Region. North of the Tees and Furness the only surviving medieval barns are believed to be in County Durham. These barns, usually built by Durham Cathedral Priory and other religious institutions, are most commonly late medieval in date, with 15th century felling dates being obtained through dendrochronology for a number of them. They are typically built in rubble stonework, with substantially thick walls. The roof is usually pitched at approximately 45 degrees with truncated principal roof trusses employed in a number of surviving barn roofs. The barn doors are typically opposed and wide enough for carts to pass through. Door surrounds are usually of

large well-dressed stone blocks, plain or chamfered with a heavy timber lintel. Relieving arches are occasionally found over lower narrow doors where the lintel is supporting a sizeable area of stone walling above. Ventilation in the barn is either by rectangular or triangular vents, the latter being uncommon in County Durham barns of any period but more evident in earlier fabric. Further documentary and buildings research will probably yield more surviving examples (Roberts et al, 1999, pp.141–60).

Archaeological excavation has revealed evidence for outbuildings including barns – much smaller in scale given their peasant status – with opposed doorways (Wrathmell 1989a, p.261). Such barns are of extreme rarity in this Region.

Many threshing barns have pitching doors for transferring corn and occasional integral stalling either side of the threshing floor for livestock (see below). By the early 19th century, however, the unthreshed corn was rarely stacked indoors – at least in lowland areas (Linsley 1985, p.119).

#### 6.1.2.2 Combination Barns

There are examples of single-storey cruck-framed barns of 17th- to early 18th-century date without opposed doorways, but with evidence in the form of multiple doors and windows for a mixture of stock and corn housing (Roberts 1980, p.94). The bank barn, which was suited to hilly terrain and is concentrated in the North West Region, is commonly found on the western edge of the Region, from the North Pennines to the borders (Brunskill 1987, p.116; Whittaker 2001, p.4). Threshing barns with flanking or under-housed cow houses/stabling are commonly found.

#### 6.1.2.3 Mechanisation

A key aspect driving the form of threshing barns in the Region was mechanisation, which had become general by the 1830s (McDonald 1978; Hellen 1972). Most surviving barns, which date from the early to mid-19th century, display evidence for machine threshing, mostly in the form of water- or horsepower, the latter in a projecting wheel house. Wheel houses were mostly circular or polygonal. Map evidence suggests that by the mid-19th century 2,000 were in use in Northumberland and 1,200 in Durham (Linsley 1985, p.120). Fewer than 30 gin-gangs now remain in the City of Durham area out of 200 that existed around 1900 (Scott 1985, p.110). Steam power, marked by a stack and a lean-to for the boiler and engine, came into general use in the Coastal Lowlands. There were 200 examples in Northumberland in the early 20th century (Linsley 1985, p.121). There is one notable example of wind power, at Chollerton, near Hexham (Wade Martins 1991, p.50; Macdonald 1975, pp.24, 63–77; Hutton 1976, pp.25, 30–35).

## 21 Barns in the North East Region

- A The few late medieval barns that survive in the North East Region are mostly found in the Durham area and were mainly built by religious houses. The distinctive triangular ventilation holes, a characteristic feature of early barns, was used into the 17th century, as in this example of a barn on a Durham Cathedral Priory estate. (Tyne and Wear Lowlands)
- B This late 17th-century threshing barn is a rare survival of both an early barn and a heather-thatched building. The majority of such barns in the North East were swept away during the 18th- and 19th-century land reorganisations. (Tyne Gap and Hadrian's Wall)
- C A variant bank barn (built across the slope) forming part of a linear

farmstead in Weardale. Such linear ranges were typical of upland farms and farms where agriculture and industry were combined. (North Pennines)

- D By the late 18th century many of the large, reorganised farmsteads of the lowlands and parts of the transitional areas of the Region were provided with barns that were designed to incorporate machinery and consisted of two barns, one for threshing, usually at first-floor level, the other serving as a straw barn, often arranged at right angles (See also Figure 20). This example has the straw barn to the left with the two-storey threshing barn to the right. (Cheviot Fringe)
- All © Jen Deadman

21A



21B

21C



21D



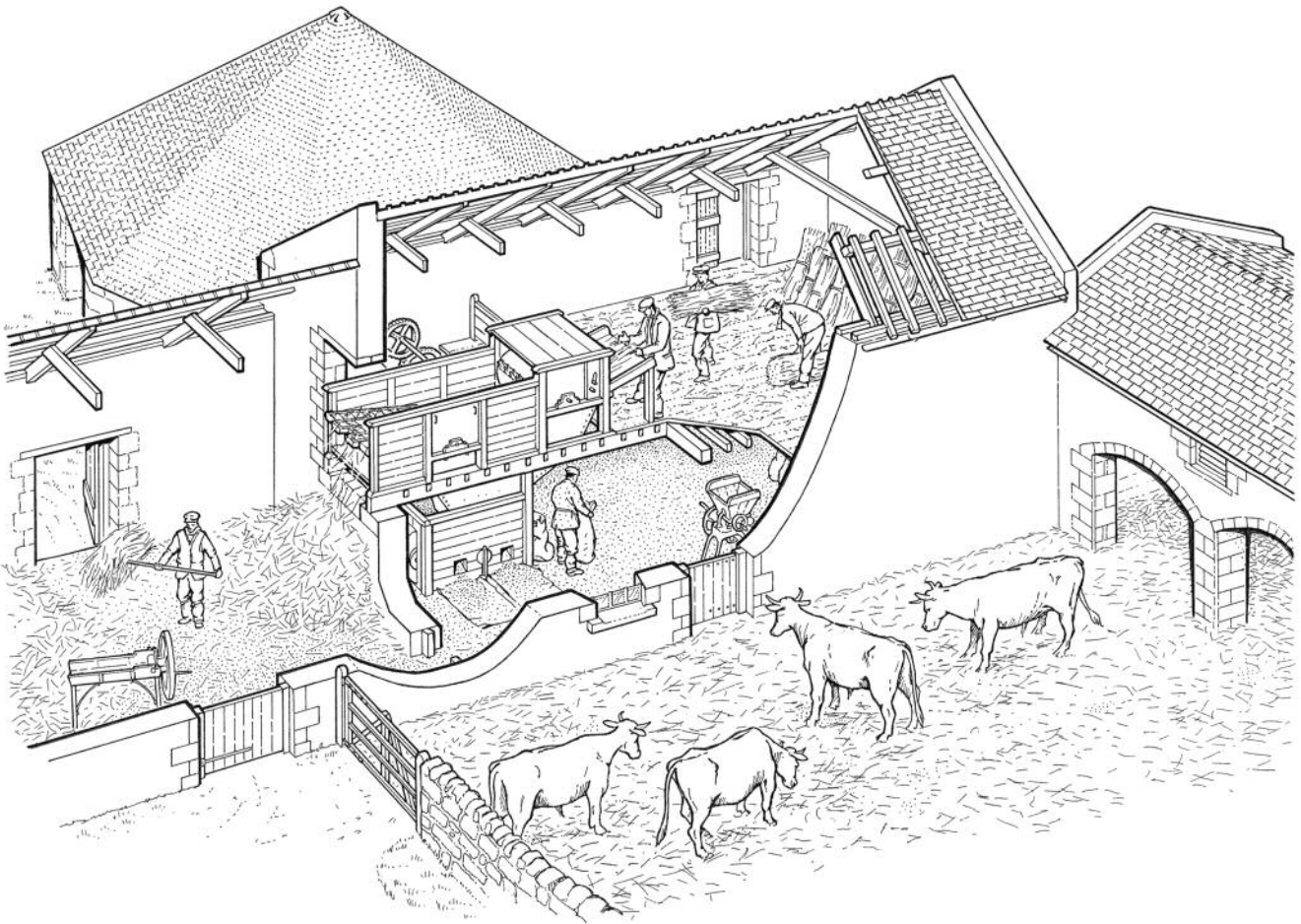
By the 19th century the Northumberland barn consisted of two attached buildings: a two-storey threshing barn housing threshing machinery, and a straw barn. Corn from the stack yard 'passed to the upper floor via a sheaf door', and after passing through the threshing machine chaff fell to the ground floor while straw was discharged into a straw barn by way of an opening in the intermediate wall (Linsley 1985, pp.119–120 and Figure 22). Within the threshing barn the machinery was located on the first floor where the crop was threshed. The grain dropped to the ground floor where it was bagged. The straw was carried along a straw walk to an opening providing access to the straw barn. Some of these barns utilised sloping ground to gain level access to the upper storey of the threshing barn, or an artificial ramp could be provided (Barnwell & Giles 1997, pp.77–8, 82).

## 6.2 GRANARIES

### 6.2.1 NATIONAL OVERVIEW (Figures 23 & 24)

Once threshed, grain needed to be stored away from damp and vermin. It would be sold off the farm or retained for animal feed. A small number of specialist granaries built by large landowners, in particular the monastic institutions, survive from the 14th century. Most granaries are of late 18th- and 19th-century date, the need for more storage for grain often coinciding with the necessity for more cart and implement space at a time when commercial farming and markets were expanding and more implements introduced on farms. The construction of detached granaries raised off the ground, along with the heightening of plinth walls to timber-framed barns, was also a reaction to the threat posed by the rapid spread of the brown rat from the early 18th century (McCann 1996).

22 The Northumberland barn consisted of two attached buildings: the threshing barn and the straw barn. The threshing machine was at first-floor level, the threshed grain dropping to the ground floor where it was bagged, and the straw passing through to the straw barn. Often the threshing barn was built into a bank or provided with a ramp to ease the loading of the crop into the threshing area. In this example the threshing machinery is powered by a horse-engine. (Cheviot Fringe) © English Heritage



Internally granary walls were usually close-boarded or plastered and limewashed, and the floor made of tight-fitting lapped boards to prevent loss of grain. Grain bins, or the slots in vertical timbers for horizontal planking used to make them, are another characteristic feature: close-boarded partitions allowed different crops to be kept separate (Figure 24). Window openings were typically small, and, with ventilation being the main objective, the openings were generally either louvers, sliding vents or grilles.

Grain was typically accommodated in:

- The lofts of farmhouses, a practice common before 1750.
- Small, square or rectangular structures raised above ground level on mushroom-shaped staddle stones or brick arches and accessed by moveable wooden steps. Internally, they may have been fitted with wooden partitions to create grain bins. They were clearly related to the helm, which, according to documents from the 15th to 17th centuries, comprised timber platforms on staddle stones and were concentrated in the Midland counties (Dyer 1984; Needham 1984; Airs 1987; Barley 1990, pp.165–7): none have survived or been excavated. Most are of late 18th- or 19th-

century date. Examples abound in Cambridgeshire, Berkshire, Sussex, Hampshire and Wiltshire, but extend into Dorset, Devon and Cornwall. Free-standing granaries are commonly timber-framed, clad in weatherboard or infilled with brick, but brick or stone examples have been found, particularly at the western edge of their distribution. The larger free-standing granaries were of two or even three floors (Figure 23).

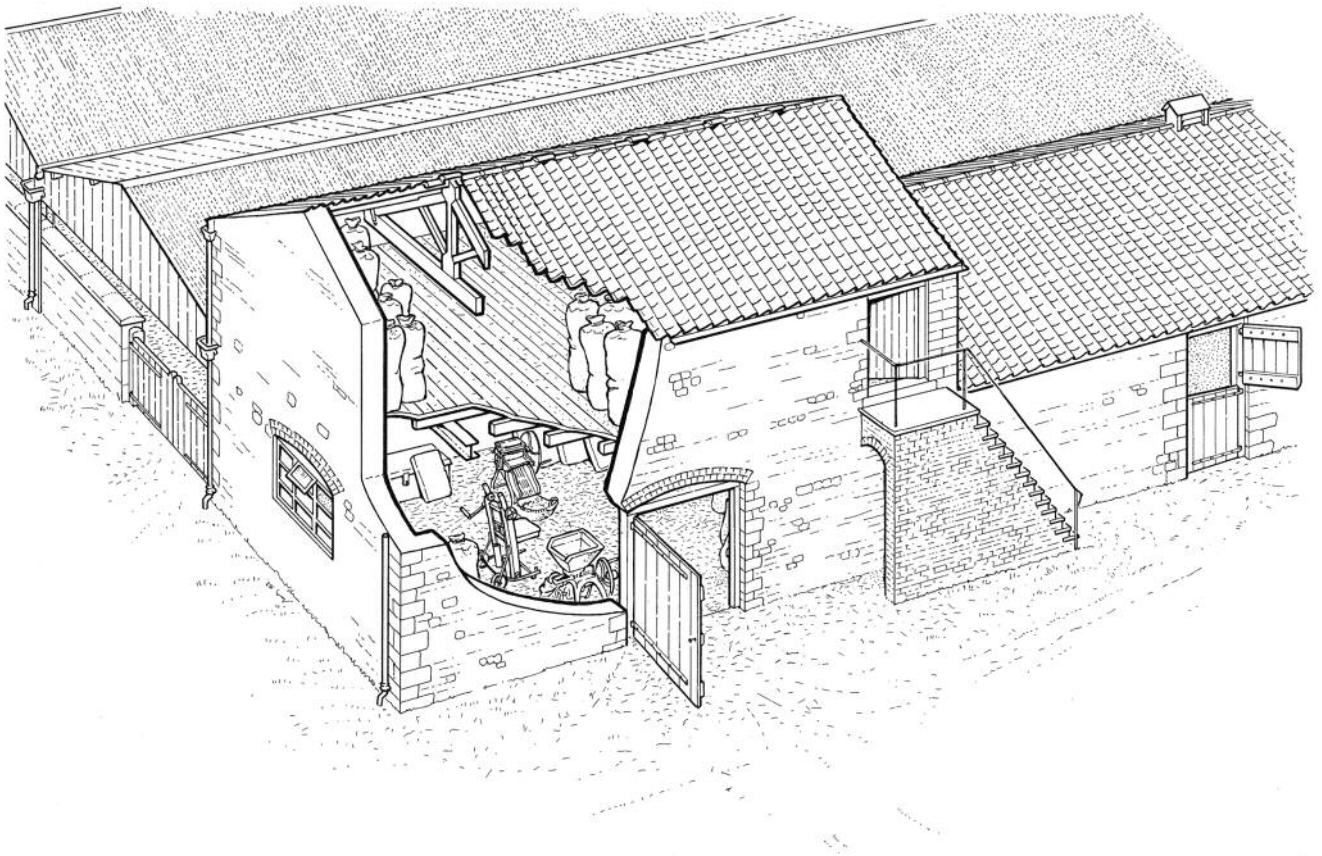
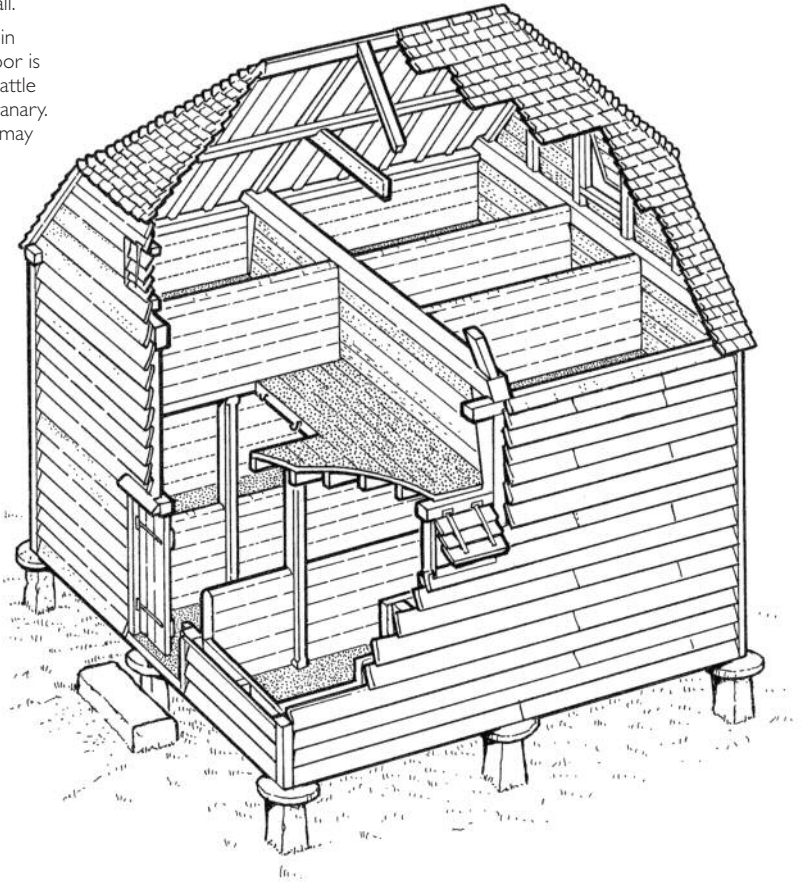
- The upper floors of farm buildings, most commonly barns – observable from the 14th century (Le Patourel in Miller 1991, p.872) – and from the 17th century in the South East and East Anglia, much later further north and west, above cart sheds (see 6.3.1). Exteriors are usually marked by shuttered windows for ventilation. The side walls are sometimes weatherboarded, even in regions where weatherboarding is unusual, again to help ventilation. Examples date from the 17th century in arable areas. A separate external stair often gave access to the granary door (Figure 23). There was often a trap door into the cart shed below with a hoist beside it to allow for the loading of sacks. The granary floor had to withstand heavy weights so was stoutly built. In a

## 24 Granaries

Top: A free-standing timber-framed granary on staddle stones. This example has two floors and is fitted with grain bins on both levels. Staddle-stone granaries are concentrated in a band from Wiltshire to Essex and in South East England with occasional examples being found as far west as Cornwall.

Bottom: Granary occupying the first floor of a mixing barn in Lincolnshire. In this 19th-century building the ground floor is devoted to the preparation and storage of fodder for cattle whilst the first floor, reached by external steps, was a granary. In similar buildings in this area only part of the building may have a loft for grain storage.

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23A The interior of a granary over a cart shed showing the grain bins, which allowed different grains, and even the crop from different years, to be kept separate. (North West Norfolk)  
 B Ventilation was important to keep the stored grain dry. Air circulation could be achieved through small windows with shutters, hit-and-miss ventilation grilles, windows with fixed louvers or, in this example, adjustable louvers. (Hampshire Downs)  
 A © English Heritage / Michael Williams; B © Bob Edwards

few instances the granary was situated over cowsheds or stables, but generally this was frowned upon because the damp and smells from the animals below could taint the grain. Because of the value of the crop, granaries were often the only farm building to be locked, sometimes with a dog kennel or goose house under the steps to deter thieves.

A very small number of pre-18th-century detached granaries have survived, and timber-framed granaries – detached or located over cart sheds or stables – are clearly far less likely to have survived to the present day than examples in stone or brick. Interior fittings such as grain bins and features such as louvered windows are particularly vulnerable when a change of use is contemplated.

**6.2.2 GRANARIES IN THE NORTH EAST** (Figure 25)  
 With the exception of a handful of examples – as at Elvethall, Durham of 1451–2 (Roberts et al 1999, pp.143–4) – detached granaries and granaries forming part of other structures are virtually unknown before 1750 in the Region. It was much more common for grain to be stored in the lofts of farmhouses, such as at Hilton Hall, Teesdale (lime ash floor and grain winched through trap doors in floors), High Shipley, Teesdale (lime ash floor) and St Helen’s Auckland (external stone stair direct to attic).

Granaries were typically sited over buildings such as open-fronted cattle shelters and especially cart sheds. These could be attached in line with the barn although only occasionally was there a direct link between the barn and the granary. The resulting combined granary/cart shed ranges are a distinctive feature of lowland farmsteads, and are very similar in form to those built in lowland Yorkshire and Humberside.

### 6.3 CART SHEDS AND IMPLEMENT SHEDS

#### 6.3.1 NATIONAL OVERVIEW

The cart shed housed not only carts for transporting muck to fields, the harvest to the steading and grain to market, but also the implements needed (primarily for arable cultivation) on the farm. It could also accommodate the coach or pony trap. Left outside, wooden implements could shrink and crack in the sun, while rain and snow caused iron to rust, jamming



any moving parts. Cart sheds often faced away from the farmyard and were often close to the stables and roadways, giving direct access to the fields. They have been found as additions to barns, but are more commonly found as detached single- or double-storey buildings, in the case of the latter invariably with a first-floor granary (see 6.2.1). The size of cart-shed ranges serves as a rough indication of the former arable acreage of the farm. In some parts of the country, often in pastoral areas, the difficult terrain meant that wheeled vehicles were not widely used and so cart sheds tended to be few and smaller, perhaps of only one or two bays. One bay was sometimes enclosed with a wide door for the storage of small implements, or perhaps a pony trap. Cart sheds and implement sheds with lockable doors did not appear in any great numbers until the mid-19th century, when horse-drawn hoes, and later reapers and mowing machines, became more prevalent (Walton 1973; Mingay 1989, pp.532–44).

Examples of pre-19th-century date, concentrated on estate farms and in the arable lowlands, are extremely rare.