

5.0 Farmstead Types

5.1 NATIONAL OVERVIEW

Farmsteads perform several basic functions: providing shelter for farmers and their families; the housing and processing of crops; the storage of vehicles, implements and fodder; the management and accommodation of livestock. Building functions can be usefully distinguished between crop processing and storage (barns, hay barns, cider houses, oast houses and farm maltings, granaries) and the accommodation of animals (cow houses and shelter sheds, ox houses, stables, pigsties) and birds (dovecots and poultry houses). These functions can either be accommodated within individual specialist structures or combined with others into multi-functional ranges.

The great diversity of farmstead plans (Figure 16) provides a very direct reflection of the degree to which these farm-based functions are located in specialist or combination structures and ranges. The resulting diversity of form and scale is the direct outcome of the significant variation in farming practice and size that occurs both over time and from place to place. Individual farm buildings, for example, could be:

- Small-scale and highly dispersed, as in the wood–pasture landscapes of the Kentish Weald and the Suffolk clays;
- Set out in strong linear groupings, especially in northern pastoral areas with little corn and longer winters and where there was an obvious advantage in having cattle and their fodder (primarily hay) under one roof;
- Arranged around yards, examples being the large aisled barn groupings of the southern English downlands and the large planned layouts built in accordance with ideas being spread through national literature and contacts.

A critical factor in farmstead planning is also the relationship of the farm buildings to the working areas within and around the farmstead and the farmhouse. The major working areas were trackways to surrounding fields and local markets, ponds and cart washes, the areas for the movement of vehicles and animals, the accommodation of animals and the platforms where hay and corn would be stacked, the latter prior to threshing in the barn. The size of the areas for stacking corn (known as rickyards in most of the country) varied according to local custom and the extent of arable crops kept on the farm.

Local tradition and status were the principal reasons for whether the house was accessed through the yard and buildings were attached, or whether the house

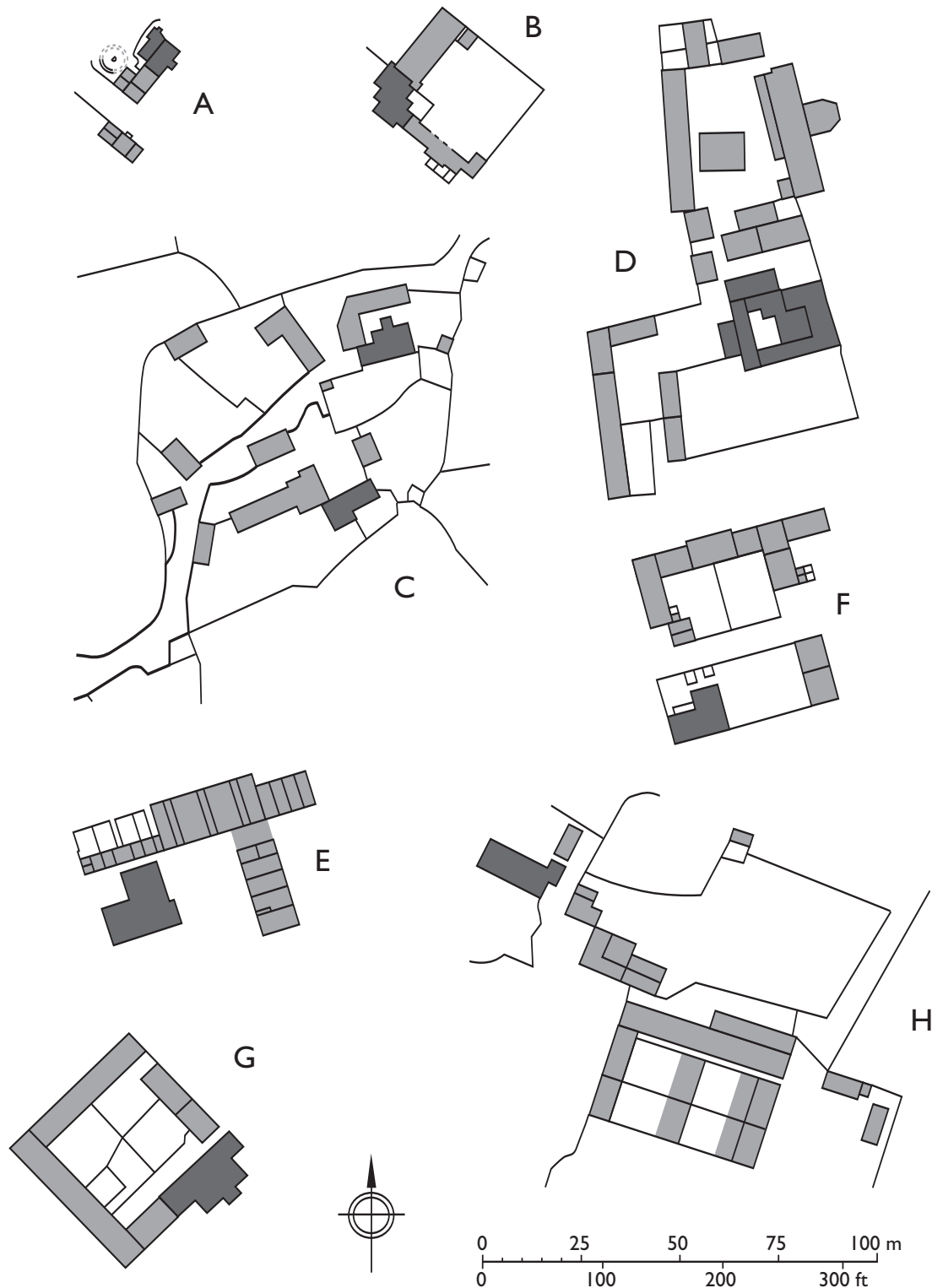
looked toward or away from the yard. Internal access between dwelling house and farm buildings was a feature of farmyard architecture in much of Europe. However, in England from the 13th century it became much more common to have separate entrances, even where buildings and houses were joined. The role of women in the farmyard was commonly restricted to 'milking cows, feeding pigs and calves, making butter and cheese, tending poultry, and occasionally tending with the hay and corn harvests' (Whetham 1978, p.81). This led to the integration into the house of processes such as brewing and dairying, and a formal separation of the house and gardens from the farmyard, especially in the case of post-1750 remodellings and larger farms typically over 150 acres. In such instances, the house could face toward its own home close or garden.

The development of the farmhouse has been the subject of regional and national studies (Barley 1961, for example). Farmhouses can tell us much about the former prosperity and development of steadings, such as the major phases of rebuilding that affected parts of southern England in the 15th to early 17th centuries and the wealth introduced through cattle rearing in parts of northern England in the century or so after 1660. In summary, the most common farmhouse plan of the medieval period, traceable to the 12th century, has the main entrance in one side wall to an entrance passage (usually with a door opposite) that separated an open hall (to allow smoke from the fire to escape through the roof) from a lower end, which could house a kitchen, services and in some areas livestock. The hall served as the main living and eating room, status and space determining whether there would be an inner chamber (for sleeping or a private area) beyond. By the end of the 16th century, farmhouses in most areas of England (except in the extreme south-west and the north) had been built or adapted into storeyed houses with chimneystacks. There was a strong degree of regional variation, for example in the positioning of the chimneystacks and their relationship to the main entrance. From the later 17th century, services in some areas were being accommodated in lean-tos (outshots) or rear wings. From the mid-18th century houses that were more symmetrically designed (with central entrances, chimneystacks on the end walls and services placed to the rear of the front reception rooms) became standard across the country. As a general rule, farms over 70 acres needed to look beyond the family for additional labour, and so rooms for live-in farm labourers – usually in the attic or back wing of the house – became a feature of many farmhouses.

16 Farmstead plan types (Farmhouses are shaded darker)

- A Linear plan. House and farm building attached and in line. This is the plan form of the medieval longhouse but in upland areas of the country in particular it was used on small farmsteads up to the 19th century.
- B L-plan including the farmhouse. Such plans are usually either a development from a linear plan or resemble a small regular courtyard plan (see E–G, below).
- C Dispersed plan. Within this small hamlet the farm buildings of the two farmsteads are intermixed, with no evidence of planning in their layout or relationship to the farmhouses. Dispersed plans are also found on single farmsteads where the farm buildings are haphazardly arranged around the farmhouse.
- D Loose courtyard. Detached buildings arranged around a yard. In this example the yard is enclosed by agricultural buildings on all four sides with the farmhouse set to one side. On smaller farms the farmhouse

- may form one side of the yard, which may have agricultural buildings to only one or two of the remaining sides.
 - E Regular courtyard L-plan. Two attached ranges form a regular L-shape. The farmhouse is detached from the agricultural buildings.
 - F Regular courtyard U-plan. The yard, in this example divided into two parts, is framed by three connected ranges. Again, the farmhouse is detached.
 - G Full regular courtyard. The yard is enclosed on all sides by buildings including, in this example, the farmhouse. Other examples are formed by agricultural buildings on all sides with the farmhouse built to one side.
 - H Regular courtyard E-plan. This plan form (and variations of it with additional ranges) may be found on some of the larger planned farmsteads where livestock were a major part of the agricultural system. Cattle were housed in the arms of E, the 'back' of which provided space for fodder storage and processing.
- Drawn by Stephen Dent © English Heritage*



The predominant farmstead plan types, which are closely related to farm size, terrain and land use, are listed below. There are many variations on these themes, particularly in the manner in which fully evolved plan groups can, as a result of successive rebuilding, contain elements of more than one plan type.

5.1.1 LINEAR PLANS

This group comprises farmsteads with farm buildings attached to, and in line with, the house. It includes some of the earliest intact farmsteads in the country.

The earliest examples of linear plans are *longhouses*, which served as dwellings for farmers' families and housing for cattle. Each longhouse had a common entrance for the farmer's family (accommodated at the up-slope end of the building) and livestock, the cow house being marked usually by a central drain and a manure outlet at the lower gable end. Longhouses were often found grouped together and associated with strip farming of the surrounding fields. Documents and archaeological excavation indicate that they had a widespread distribution in the north and west of the British Isles in the medieval period, but that in much of lowland England they were either absent or being replaced by yard layouts with detached houses, barns and cow houses from the 14th century (see, for example, Gardiner 2000 and Figure 17). Such re-buildings are commonly believed to be associated with the decline of smaller peasant farmers and the emergence of a wealthier peasant class. Longhouses, and their variant types with separate entrances for livestock and farmers, continued in use in parts of the South West, the Welsh borders and the northern uplands and vales into the 18th and 19th centuries. Those built in or before the 17th century were originally entered from a passage, which also served as the entrance to the house. However, during the 18th century social pressures led to the provision of a separate dividing wall and byre door, and to the demolition of some byres and the conversion or rebuilding of others to domestic or new agricultural use (barns, for example). The piecemeal rebuilding and conversion of both lower end and house-part that this permitted tended to discourage total reconstruction, inevitably limiting the ability to respond effectively to changing requirements. These later changes are clearly visible in the buildings, as is evidence about the size and layout of the original byres, and of the arrangement of the passage (against which the stack heating the main part of the house was positioned) that once formed the common entrance to these longhouses as a whole. The initial dominance of the longhouse in some areas is significant, since, as a house type capable of almost infinite adaptation, it exerted considerable influence on the subsequent evolution of farmsteads.

Linear layouts (including the *laithe house* of the Pennines) are now most strongly associated with the hill farms of northern England (North East, North West and Yorkshire and the Humber). A major reason for the persistence of the layout in northern England was that it was suited to smaller farms (of 50 acres or less) needing fewer buildings – other than for the storage of subsistence levels of corn for the household and livestock, and the housing of some milk cattle, poultry and pigs. The close proximity of farmer and livestock during the winter months was another factor, cattle being stalled indoors from October to May. It was also a layout ideally suited to building along the contours of a hillside and so this farmstead plan remained in use in upland areas of England into the 19th century.

Linear plans have often evolved as a result of gradual development, for example in the rebuilding of a lower end for the cattle as service area for the house, and the addition of new cow houses, stabling and barns in line. Linear layouts will often be associated with loose scatters or even yard arrangements of other farm buildings.

5.1.2 PARALLEL PLANS AND L-SHAPED PLANS

These invariably enclose two sides of a yard, and often represent developments from earlier linear plans, if they have not been constructed in a single phase. L-shapes often evolve from the addition of a barn or byre to an original linear farm, or can represent the partial re-organisation of a dispersed plan. They are typically found on farms in the 50- to 150-acre bracket, and can be formal or highly irregular in appearance, with or without scatters of other farm buildings.

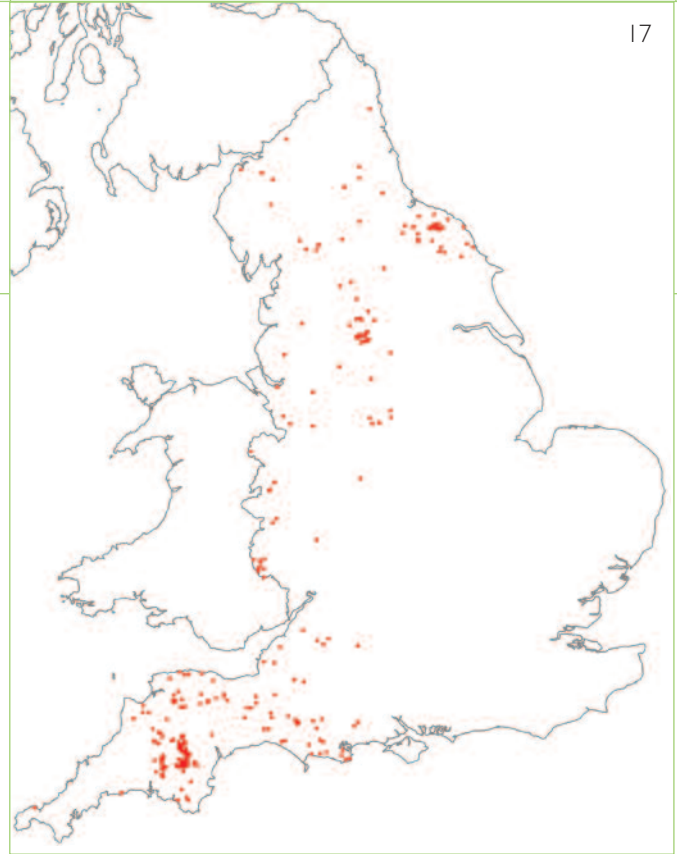
5.1.3 DISPERSED PLANS

The buildings of this group appear to be arranged haphazardly around the farmstead. Dispersed plans are typically found on smaller farms in stock-rearing or dairying areas, where a large straw yard for cattle was not required. They can range in size from the very small – for example a farmhouse and combination barn – to large groups of two or more blocks or individual structures, some or all of which may combine a variety of functions.

5.1.4 LOOSE COURTYARD PLANS

This group is characterised by single or double yards flanked by buildings on three or four sides, with or without scatters of other farm buildings close by. There are excavated and documented examples of this layout dating from the 13th century (in Hallam 1988, pp.860, 889) associated with: the base courts of large baronial and episcopal establishments; with moated manorial sites (where the farm buildings were arranged either within or outside the moat); and with the farms of an emerging wealthier class of peasant, the latter often replacing two or more previous steadings with

17 Distribution of listed longhouses in England. Surviving longhouses – some of which have been recognised as such in listing descriptions – represent only a small proportion of a building type that was once prevalent across large parts of western and northern England. The concentration of a fine group of surviving longhouses on the eastern fringes of Dartmoor is particularly prominent. Recent research has shown that in some areas such as north Yorkshire many village-based farmhouses have longhouse origins that have previously not been recognised. There are no known longhouses in the East of England Region.
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longhouses (Le Patourel in Miller 1991, pp.843–65). This plan became most strongly associated with large arable farms: for example, many farmsteads on the downlands of southern England have one or more barns providing shelter to a south-facing yard (as recommended but not always followed), typically bordered by a stable, granary and later shelter sheds.

5.1.5 REGULAR COURTYARD PLANS

Formal courtyard layouts, where the barns, stables, feed stores and cattle shelters were ranged around a yard and carefully placed in relation to one another in order to minimise the waste of labour, and where the manure could be conserved, were recommended from the mid-18th century and many are documented from this period, although no surviving groups can be dated before the 1790s. The earlier examples are courtyard or U-plan with the barn forming the central block, and shelter sheds, stables and enclosed cow houses the two side wings. The fourth side could be no more than a wall with a gateway, or contain further sheds or smaller buildings such as pigsties, or be distinguished by a house (usually looking away from the yard). From the 1820s and 1830s, extra yards made E or even double-E plans.

The ultimate examples of courtyard farmsteads are the planned and model farms of the late 18th- and 19th-century estates (Figure 18), the ideas for which were widely disseminated in textbooks and journals (Wade Martins 2002). They are generally associated with holdings over 150 acres, and are far less likely than the other plan types to be associated with other loose scatters of buildings.

5.2 FACTORS INFLUENCING FARMSTEAD CHARACTER

The occasional merging of plan types can make the variations on these principal themes seem almost infinite. The identification and analysis of the broad patterns of plan types can reveal much about the impact of the factors that influence farmstead character.

5.2.1 FARM SIZE

Generally, larger holdings were more likely to be provided with larger and/or more buildings. In the 18th and 19th centuries, the 'contemporary rule of thumb was that a man was needed for every 25 or 30 acres of arable and every 50 or 60 of pasture' (Mingay 1989,

p.953). Statistics on the numbers of farms by size can be misleading: although 71% of holdings were under 50 acres as late as 1880 (Howkins 1994, p.53), the proportion of land area taken up by small farms was much smaller and regionally very varied. By the 1850s, medium-size farms – typically mixed arable holdings – were between 100 and 299 acres, and occupied nearly half of England's acreage; as much as one third was taken up by large farms of over 300 acres, these being best placed to invest in 'High Farming' (Mingay 1989, p.950). Farms of 500 acres and above were found on the chalk downlands of southern England, and in the Lincolnshire and Yorkshire Wolds: 1000 acres was not uncommon in these areas (Prince in Mingay 1989, p.82). These farms had greater access to capital and were usually associated with corn production, which typically demanded more labour for carting, harvesting and threshing and increasingly for yard and stock management: strawing-down yards, lifting the heavy manure-laden straw into middens and carts and spreading it on the fields. Smaller farms, typically found in dairying and stock-rearing and fattening areas, required fewer large buildings and were less likely to have the capital to expend on rebuilding farmsteads to fit with developing agricultural practice. The very smallest (of under 50 acres) thrived in fruit-growing and market-gardening areas (often clustered around urban sites), and in locations such as west Cornwall and the Pennines where there was gainful by-employment in industry – for example the weaver-farmers of the West Riding linear-plan farms, noted by Caird (1852), who kept dairy cattle on holdings of around 20 acres, supplying nearby towns with milk (Mingay 1989, p.940).

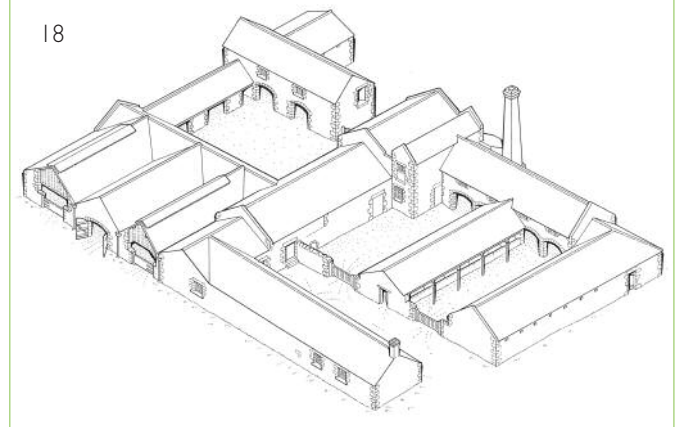
5.2.2 ESTATE POLICY

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

18 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*



northern wood-pasture area are of a more dispersed 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 EAST OF ENGLAND

We know little of the form of the farmstead before 1600, but excavation evidence would suggest that a group of buildings around a central court was the usual layout (Wade-Martins 1980, pp.113–14). This is matched by documentary evidence from the medieval period, which records the importance of yard-produced dung (Hallam 1988, pp.281–5). There is no evidence that longhouses (see 5.1) were ever a building type found in the Region. The survival of medieval barns rather than other farm buildings suggests that these were always the most substantial buildings, but sheds for livestock and implements as well as stables are clearly indicated in medieval documents (Davenport 1967, pp.21, 49). Map evidence becomes available from the 16th century. In the South Suffolk and North Essex Claylands, for example, a particularly detailed map for Ingatestone, Essex, in 1556 indicates that most of the larger farms had cow houses and stables as well as barns (Ryan 1986). Map evidence also shows loose courtyard plans for gentry and manorial groups often comprising a barn, stables and granary (Wade Martins 2002, pp.37–9). As late as 1792 a valuation of the Tollemache estate in Helmingham and Framsdon described eight of the 11 holdings as having barns and stables adjoining, the stable with a hayloft above. From an exhaustive analysis of the documentary sources in High Suffolk, John Theobald has concluded that before 1650 the only two buildings found on a typical farm in the area were barns and stables (Theobald 2000, pp.161–2) and very few buildings other than barns remain. Livestock sheds were frequently replaced and extended in the 19th century. A terrier of 1830 describes 25 farms in the Needham Market area of the Suffolk claylands. Although stables and cow houses were mentioned on all the farms, those of timber were frequently described as in 'indifferent repair' or in a 'very bad state, should be removed'. In contrast, a newly built stable for ten horses with a granary over of brick and tile was described as 'capital' (Suffolk Record Office HA1/HB4/2).

5.3.1 EARLY LOOSE COURTYARD AND DISPERSED LAYOUTS

This Region retains some of the earliest farmstead layouts in the country, matched only by parts of the

West Midlands, South East and South West regions. Early (pre-1750) farm buildings are largely absent from the acidic coastal and heathland soils affected by post-1750 improvements, being instead concentrated on deeper soils (notably the Flegg Loams), the claylands and in valley bottoms. These areas of predominantly mixed and later dairying farms experienced little investment in the first phase of the agricultural revolution, mid- and later 19th-century additions for cattle housing ensuring the survival of earlier barns, stables and even cow houses.

A typical layout of an evolved farmstead in the Region includes an earlier barn, extended or with a porch added as grain output increased at the end of the 18th century. A second barn might then have been built or an integral stable opened up to increase barn space. A granary above a cart shed was often also a later addition, again providing housing for the increased grain output. A separate cow house and later stable block to replace the stable originally in the barn was also built. Individual buildings were sometimes connected by temporary hurdles or brick walls to create yards for the winter sheltering of animals. A terrier of farms in the Creeting area compiled in 1830 describes 25 sets of buildings in detail (Suffolk Record Office HA1/HB4/2). Nearly all have at least one barn with stables, cattle yards, wagon lodges, granaries and cow houses. Piggeries and hen houses were also an important part of most yards. Cheese rooms, apple lofts and granaries were sometimes located in the house. However, they were not in good condition and in this may well have been typical of others in the Region: 'It must be observed that the farm houses and agricultural buildings are of a very inferior description, mostly very old and having been much neglected for a great many years, there are now considerable repairs wanting' (Suffolk Record Office HA1/HB4/2). The landscape of the Creeting is typical of the Central-West claylands of Suffolk (around the junction of the South Suffolk and High Suffolk Claylands, dominated as it is by irregular and irregular-sinuuous pre-18th-century field systems. The farms are isolated across the parish in the centre of their fields and in 1838 at the time of the tithe map the farmsteads mostly comprised a scatter of buildings. Most of the farms were owner-occupied or in small estates of one or two farms.

5.3.2 REGULAR COURTYARD LAYOUTS

Regular courtyard farms are documented in the Region from the mid-18th century, although no surviving groups can be dated before the 1780s (Wade Martins 1991, p.198). They are concentrated in areas of post-1750 enclosure, and are strongly associated with the activities of estates: North West Norfolk, Breckland, the Greensand Ridge of Bedfordshire, Mid Norfolk, Central North Norfolk, North West Norfolk and North Norfolk Coast. The earliest examples are courtyard or U-plan, with the barn forming the central block and shelter

sheds, stables and enclosed cow houses the two side wings. The fourth side could be no more than a wall with a gateway, or contain further sheds or smaller buildings such as pigsties. The main yard would be undivided allowing the cattle to roam across it. Only rarely in East Anglia did the house form one side of the yard. Formal courtyard farms are more usual on the great estates where they could make major architectural statements. The most famous of Norfolk landlords was Thomas William Coke of Holkham on the north coast. During the 19th century most of the 70 farms on his estates were remodelled and large red brick barns surrounded by pantiled shelter sheds are typical of that part of the county (see 4.2.1).

Some of the largest examples of mid-19th century industrial farms in the Region are to be found on the Duke of Bedford estates around Woburn on the Bedfordshire Greensand Ridge/Bedfordshire and Cambridgeshire Claylands character areas. Whilst little survives of the first phase of estate building around 1800, the mid-19th century saw the rebuilding of about 35 estate farms, many on a very grand industrial scale with tall chimneys over engine houses. These brick-built, mostly E-plan groups include a steam-engine house with tall chimney and wide feeding sheds often forming the central wing (Wade Martins 2002, pp.118–19; 146–7). The Lucas West estate around Silsoe and Gravenshurst was also active at this time putting its distinctive mark on its farms (Wade Martins 2002, pp.207–8). Cambridgeshire was a county with few landed estates, although the Duke of Bedford again owned the area of Thorney level in the Fens where he improved drainage and rebuilt farms after 1840. Not many of his farms survive because these brick buildings, which included such features as hit-and-miss ventilator windows, sliding doors and steam engines, were erected on the peat, which shrank and caused the walls to crack. They were replaced with much lighter weatherboarded buildings at the end of the 19th century (Wade Martins 2002, p.209). In the mid-19th century Essex farming prospered, with east Essex described as one of the 'best farmed districts in the kingdom'. Owners such as Dr Cline, Lord Petre and Sir Henry Smith were building excellent farmsteads 'in the modern style'. Where substantial older buildings existed, these were being adapted, 'so as to render them everything a tenant requires or could even wish for' (Baker 1845, p.31).

5.3.3 L- AND U-SHAPED COURTYARD LAYOUTS

L- and U-shaped courtyard layouts that evolved from earlier dispersed layouts are found throughout the

Region. In the mid- and late 19th century, it was common for open yards to be divided up to form a greater number of smaller yards allowing for individual feeding of different groups of cattle. E-plan steadings developed from earlier U-planned steadings, as in North West Norfolk and Breckland, and from L-plan and dispersed groups after 1840 (Wade Martins & Williamson 1999, p.86): estate policy was often a critical factor in their adoption (Wade Martins 1991, p.200). These changes were less likely on the smaller dairy farms where cows had always been kept in sheds overnight and here a scattered group of buildings around a yard remained typical.

The years 1840 to 1870 saw unprecedented activity of farm building and improvement. Changes in design reflected various farming and technological developments of the period. As standards of living rose and railways made the transport of animals easier, the demand for meat grew and livestock began to play a more important part in the farming system of eastern England. Previously stores had been bought in, kept in yards and valued primarily for their manure before they were walked to London for the Smithfield market where prices could be volatile and weight was lost on the long walk (a week from Norwich). With the railways and more certain prices, animals were valued for their meat and so interest in efficient fattening techniques increased. Individual loose boxes and covered yards were introduced on the more progressive farms, particularly on the great estates where there was plenty of money to spend.

Agricultural depression in the last years of the 19th century affected farm buildings in two contrasting ways. The large estates tried to spend their way out of depression, either by using their own money or by borrowing from the land-improvement companies to build cattle yards and sheds to house livestock, which was the branch of farming that remained most profitable. The L- and U-plan shelter sheds with walls enclosing yards were often dated and stood at a distance from the old steading, sometimes out in the fields. Around London many farms changed to dairying and this involved the building of new, more elaborate accommodation for cows and commercial dairies. Away from the estates, owner-occupiers could not afford any changes and so buildings received little attention except for some essential patching. Mid-19th century buildings remained very little altered and it was not until farming prosperity returned in the 1950s and '60s that a new phase of building alteration, often involving the demolition of the old, began.

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

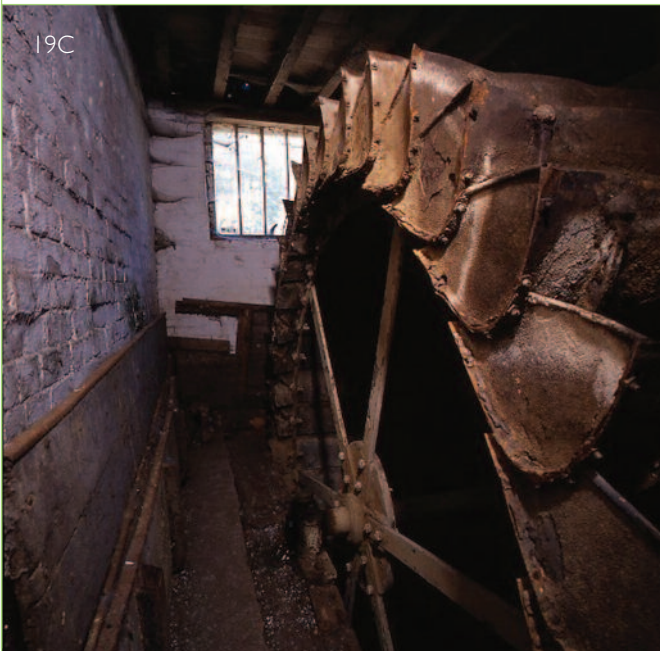
In the most common form of plan the threshing floor was in the centre, although it could be sited off-centre or at one end. A greater span was enabled by aisled barn construction, either in single or double aisles. This was common in East Anglia and the South East (Rigold 1971 and 1973), and for high-status 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 Power in barns: national examples

- A & B A projecting 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. (Bedfordshire and Cambridgeshire Claylands)
 - 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)
- All © English Heritage/Michael Williams except E © Bob Edwards

19A



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 22), 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 19). 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 22, 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 EAST OF ENGLAND (Figure 20)

6.1.2.1 Threshing Barns and Aisled Barns

Proximity to the London market, climate and soils were major factors in the dominance of arable husbandry in much of the Region, which shares with the South East the principal concentration of surviving pre-1550 and pre-1750 barns in England. There is a marked concentration of pre-1750 farm buildings (predominantly barns) on the Flegg Loams and across the claylands of the Region (see 5.3). They also survive in village centres, ranging in scale from five-bay 17th-century barns (at Ringstead in North West Norfolk) to small in scale (such as Fenstanton in the Bedfordshire and Cambridgeshire Claylands). The heyday of barn building was the period 1700 to 1850. The increase in grain production stimulated after 1796 by the war with France, created a need for increased barn capacity resulting in either the adaptation, rebuilding or enlarging of existing barns or the building of additional ones. Very few pre-18th-century barns survive in the areas owned by the improving estates. These tend to be the light soils of Suffolk and Norfolk where timber was scarce.

Barns were often seen as a status symbol and so could be treated decoratively. Weatherboarded barns in Suffolk

20 Barns and crop storage in the East of England Region

- A Some of the earliest barns in England are to be found in the Region, including this large aisled barn at Cressing Temple – built by the Knights Templar in the mid-13th century. (South Suffolk and North Essex Claylands)
- B Aisled barns such as this 15th-century thatched barn are a characteristic feature of the southern half of the Region. (South Suffolk and North Essex Claylands)
- C A mid-16th-century unaisled barn. Many early timber-framed barns were multi-functional buildings that provided crop storage and animal housing, often with floored bays. This barn originally had three bays of stabling with lofts over, one of which was converted to barn space in the 18th century. Smaller barns often had all the animal housing function removed to provide increased crop storage capacity from the 18th century. (South Suffolk and North Essex Claylands)

A & C © English Heritage / Michael Williams

B © Susanna Wade Martins

(continued overleaf)

20A



20B



20C



were sometimes painted with 'ruddle', giving them a red appearance, and giving rise to numerous Red Barn Farms – this was also used to colour the framing of timber-framed farmhouses. Very few of these red barns still survive, and many have been incorrectly stained or painted black. Although there is little stone in the eastern Region, there was plenty of scope for the use of decorative brickwork either on its own or in conjunction with timber framing in the form of ventilation slits, grilles, owl holes, buttresses and pilasters or decorative gables such as the Flemish crow-stepped gables that were popular in East Anglia by the 17th century (Lake 1989, p.72). By the 18th century brick was becoming the more usual building material and on the new farms of the enclosures (such as in North West Norfolk) five-bay brick barns with pantile roofs, often linked to adjoining cattle sheds, are more typical.

A highly distinctive characteristic of the Region, also shared with the South East, is the concentration of aisled barns. These date from the 12th century and continued to be built into the 19th century. The earliest unaisled barns date from the late 15th century. Aisled barns of post-1550 date can reuse major components from 13th- and 14th-century barns that may have stood on the same site or nearby (Aitkens 1989).

Aisled barns – many of them the result of a massive rebuilding programme underway between 1550 and 1650 – were particularly concentrated in the west of Suffolk (Dymond and Martin 1999, pp. 176–7), in the

rich loams of the Broadland fringe in Norfolk, and in most of Essex, Hertfordshire and east Cambridgeshire. The majority of barns are of a medium four- to six-bay size and are found across central Suffolk on the rich loams of yeoman holdings, with slightly larger barns of seven to eight bays being found in the cereal-growing areas. In Hertfordshire the majority are between five and eight bays. Some of the largest manorial farms of the county had two or three separate barns while typically medium-sized farms had two, allowing for the wheat and barley to be housed and threshed separately. Smaller farms were typically provided with only one barn (Wilcox 2003, pp.68–78). This pattern is reflected across much of the south and east of the Region where the thatched (or formerly thatched) weatherboarded, timber-framed three- or five-bay barn, often dating from the 16th or 17th century, is typical of the smaller farms of the heavy clays. Throughout the eastern part of the Region it is clear that much of the crop was stacked in yards from an early date (Wade Martins & Williamson 1991, p.83).

6.1.2.2 Combination Barns

Documentary and archaeological evidence shows that barns in many parts of the Region were multi-functional buildings. On inventories of the 17th century implements and farm produce other than cereals, such as wool, are listed as being stored in them. On the dairy farms of the South Norfolk and High Suffolk Claylands 16th-century and later pre-1750 barns were typically of three bays with a central threshing floor and a fourth bay containing

20 Barns and crop storage in the East of England Region (continued)
 D & E The Region also contains some important early secular stone- and brick-built barns. (D South Norfolk and High Suffolk Claylands; E The Broads)
 F In the north of the Region solid-walled barns are characteristic, with flint and gault brick used in this early 19th-century seven-bay barn. (South Norfolk and High Suffolk Claylands)
 G & H Whilst the large, fine barns attract the attention, the characteristic barns of the south of the Region range from three to seven bays and are typically timber-framed, clad in weatherboard and often retain a thatched roof.
 (G East Anglian Chalk; H South Suffolk and North Essex Clayland)
 D & E © *English Heritage / Michael Williams*;
 G © *Susanna Wade Martins*; F & H © *Jeremy Lake*



20D



20E



20F



20G



20H

lofted stable or cattle accommodation. This is the direct result of both the need to house dairy cattle and the reduced requirement for crop storage in these pastoral areas (Aitkens & Wade Martins 2002, pp.10–11). In barns where the actual divisions have since gone, archaeological evidence in the form of mullioned windows and the mortises for loft floors often remains. Only as corn production increased in the 19th century did barns become dedicated crop storage and processing buildings. In High Suffolk in the early 18th century, where farming was primarily pastoral and arable was periodically left fallow, the typical three- or four-bay barns capable of holding the crop from 30–40 acres may well not always have been full. After 1750, however, as output increased and more land was ploughed up for cereal production, there was a shift towards outdoor stacking and the creation of stack yards. Barns were also extended by one or two bays and arch braces replaced by knee braces.

Porches were also added. The earliest reference found to a porch in High Suffolk was in 1727 at Thomas Mill's farm in Parham (Theobald 2000, pp.170–76).

6.1.2.3 Mechanisation

The mechanisation of the threshing process was not common in the Region until the late 19th century. In the early 19th century this might be a horse gin, possibly housed in a round house. These were very rare in the Region, the more common being the later arrangement where a traction engine was used and a hatch cut in the barn wall to allow belting to enter. A barn on the Gunton estate in Norfolk was described in 1894 as excellent: 'Very wisely, it has been turned into a chaff cutting house, dressing house and turnip house' (Wade Martins 1991, p.171). These alterations might well have involved the dividing of the building with partition walls, thus breaking up the wide-open spaces that are usually

21 Granaries

A 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 louvered or, in this example, adjustable louvers. (Hampshire Downs)

A © English Heritage / Michael Williams; B © Bob Edwards

considered so important to the character of the traditional barn. However, they form part of the story of adaptation, which is the essence of farm building history and must be recognised as such.

Two round barns survive at Little Tawney Hall and Woodhatch Farm, Essex. They were probably built in the 1860s by Sir William Bowyer-Smith, who also rebuilt farms and provided a village school. It is eccentricities such as these that add interest and character to the local scene (Padfield 1991, pp.60–61).

6.2 GRANARIES

6.2.1 NATIONAL OVERVIEW (Figures 21 & 22)

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).

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 22). 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 21).

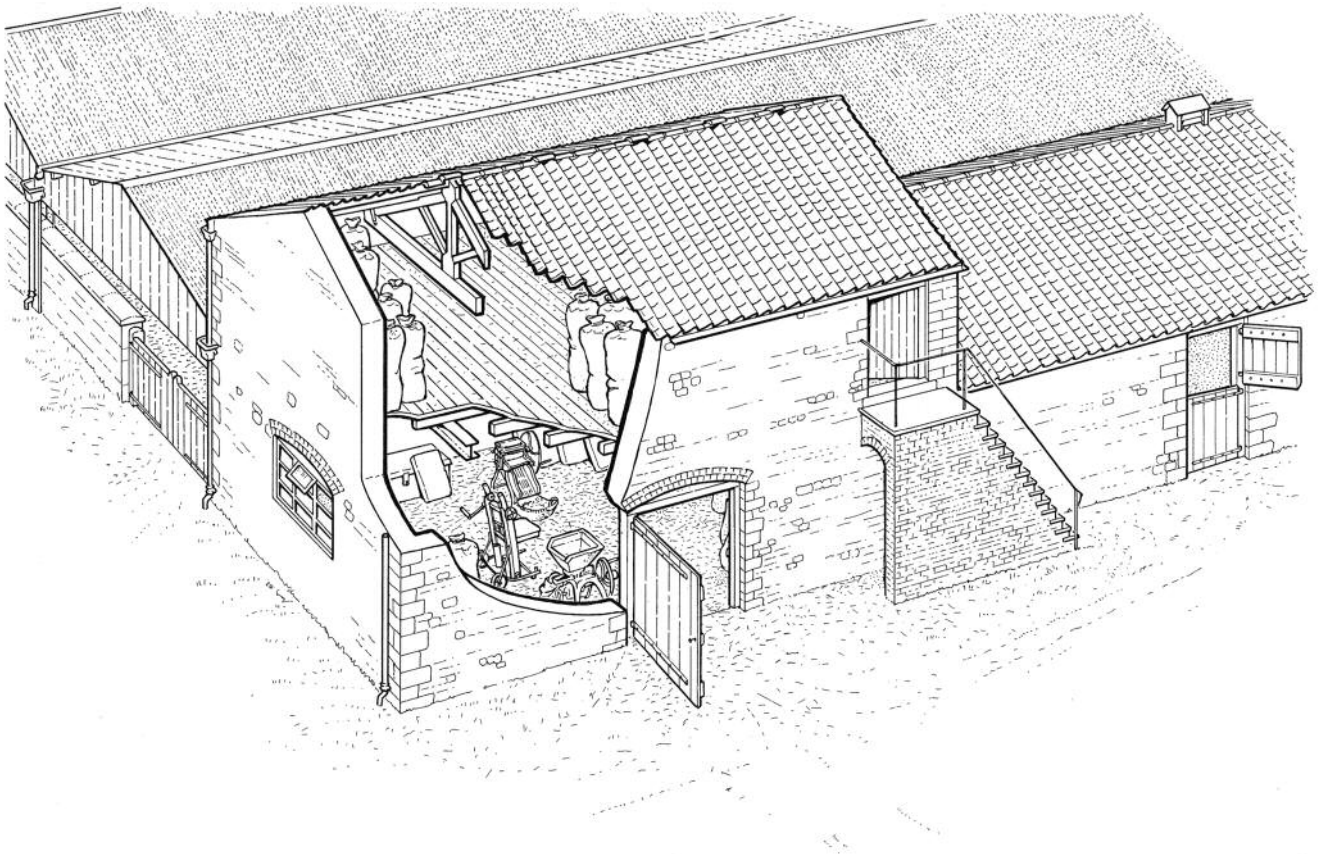
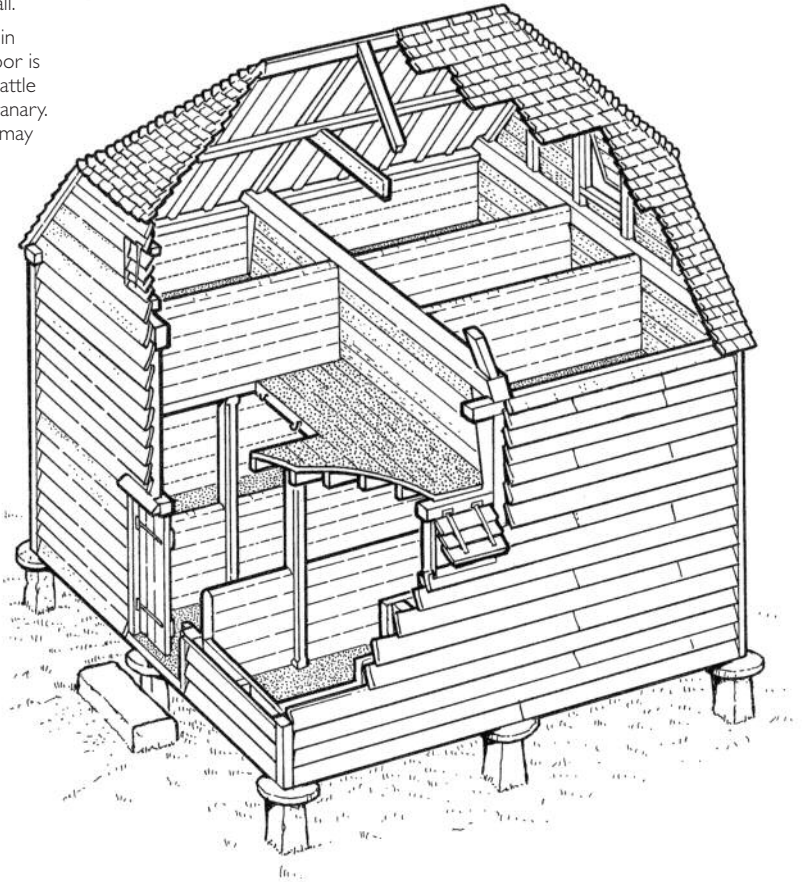
- The upper floors of farm buildings, most commonly barns – observable from the 14th century (Le Patourel in Miller 1991, p.872) – and from the 17th century in the South East and East Anglia, much later further north and west, above cart sheds (see 6.3.1). Exteriors are usually marked by shuttered windows for ventilation. The side walls are sometimes weatherboarded, even in regions where weatherboarding is unusual, again to help

22 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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ventilation. Examples date from the 17th century in arable areas. A separate external stair often gave access to the granary door (Figure 21). 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 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 EAST OF ENGLAND (Figure 23)

The earliest granaries in the Region are thought to date from the 16th century, but such an early date is generally unusual (Wilcox 2003, p.59). Probate inventories suggest that up to the 18th century barns and houses were used for storing implements and threshed grain. The Region has some of the earliest granary buildings in the country: substantial brick structures, in the upper floors of tall cart-shed structures or free-standing structures mounted on brick or stone piers (McCann 1996, pp.3–7). In many cases granaries were inserted over already existing cart sheds after about 1750 as more grain was being produced and traditionally pastoral areas were becoming arable. Most granaries were at first-floor level, although there were a few later examples built up on brick piers. The overwhelming majority of granaries date from the 18th and 19th centuries. Where stone was available for building, such as in parts of Hertfordshire and Cambridgeshire, they were free-standing buildings raised up on mushroom-shaped staddle stones or cast-iron staddles, but over much of the Region granaries were built over cart sheds. An unusual example from Norfolk has a double waggon door in the back wall of the cart lodge to allow a waggon to drive through and be loaded (in this case through a trap door in the granary floor) without having to back out. The granary walls were often weatherboarded, even in areas where weatherboarding is unusual, which helped ventilation; surprisingly, in Hertfordshire, where weatherboarding is usual on most farm buildings, the framing of granaries is in-filled with brick (Wilcox 2003, pp.84–6).

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.

6.3.2 CART SHEDS IN THE EAST OF ENGLAND (Figure 23)

The Region does retain some very early examples of cart sheds dating from the 17th century, although the great majority of surviving examples date from the expansion of grain production from the late 18th century. Over most of the Region cart sheds formed part of a combination building, with a granary above and wooden, cast iron or brick piers supporting the upper floor along the open side. Occasionally wide brick arches supported the openings, but this was more unusual. One bay of the cart shed was sometimes enclosed, with a wide door for the storage of small implements or perhaps a pony trap. Hertfordshire cart sheds differ in that all are single-storey buildings, none having granaries above them.

6.4 HAY BARNs AND OTHER CROP-RELATED BUILDINGS

6.4.1 NATIONAL OVERVIEW

Hay would be kept in lofts over the cow house and stable, stored in stacks or in purpose-built barns. The