

4.0 Agricultural History and Farm Buildings

The existing stock of traditional farm buildings results from centuries of change and development. As a general rule, farmhouses (see 5.1) pre-date farm buildings, even in areas of 18th- and 19th-century enclosure. Larger-scale and higher-status buildings, which were consistently used for the same purpose or capable of being adapted to later uses, generally have the greatest chance of survival. It follows that barns are the overwhelming type of building to have survived from before 1750, and that steadings adapted or built anew in the later 18th and 19th centuries have retained evidence for a greater diversity of functions. Rates of survival differ both regionally and locally, but placing a building within its broad national and historical context will enable decisions on their wider value to be made.

4.1 AN INTRODUCTION TO ENGLISH AGRICULTURAL HISTORY AND FARM BUILDINGS: THEIR DEVELOPMENT, SURVIVAL AND SIGNIFICANCE

4.1.1 UPTO 1550 (Figures 9 & 10)

The 12th and 13th centuries were characterised by rising population, the colonisation of new land (through the drainage of fens, clearance of woods and expansion of farming on to upland moors) and the direct commercial management by estates of their land, whether this was dispersed among other holdings or ring-fenced in its own boundaries. The Church was a particularly active landlord, and monastic orders such as the Cistercians ran their estates from both home (or demesne) farms and outlying granges, which could be very large in scale (commonly 3 to 1000 acres in size). Climatic changes in the second decade of the 14th century, with increased rainfall and lower temperatures, led to famine. These troubles, compounded by pestilence (the Black Death of 1349 and subsequent epidemics), resulted in a sharp fall in population and the contraction or desertion of settlements on marginal soils. Direct cultivation by landlords continued on some home farms, but in most areas farms on estates became leased out – in whole or in part – to tenants, a process often accompanied by the breakdown of traditional customary tenancies. Other developments which accelerated from the 14th century included the amalgamation of farms into larger holdings, the enclosure of former communally farmed strips, and a steady growth in productivity sustained by greater emphasis on pastoral farming, new techniques and rotations of crops.

4.1.1.1 Survival and Value

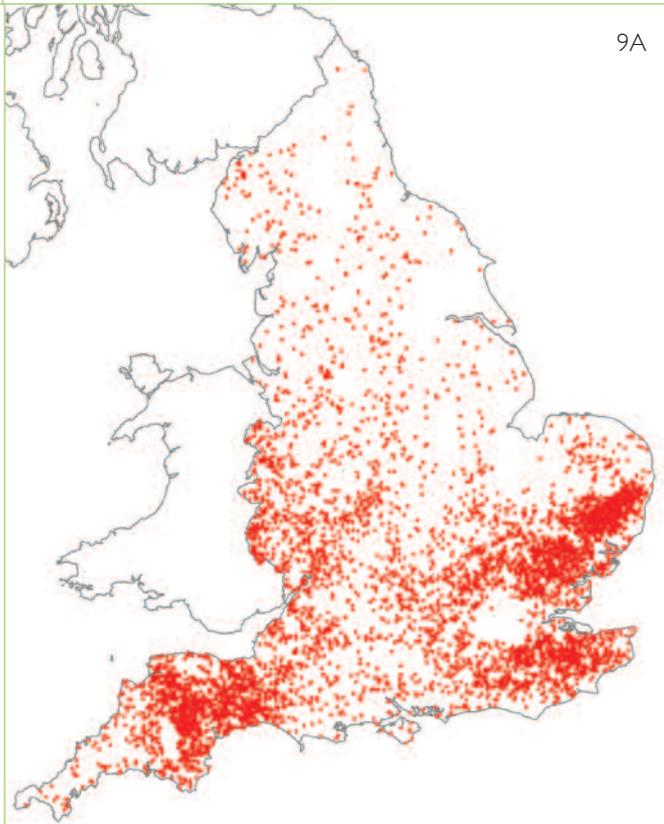
All survivals of this period are of great rarity and significance. The best-known survivals are the great barns of secular and especially ecclesiastical estates. These

comprised the foci of farmyards with ancillary buildings that have been almost completely swept away, for which documentary but very little archaeological evidence exists. The great cattle ranches (vaccaries) of the northern uplands have left no traces in terms of built fabric, although their impact on the landscape is still legible. Archaeological and documentary records – the latter particularly after 1350 – are similarly the main source of evidence for the farmsteads of peasant farmers, and for the emergence of a wealthier class of tenants and freehold farmers from the 13th century. In recent years evidence has brought to light farmhouses and occasionally barns of a wealthier class of farmers (both customary tenants and freeholders), providing the first evidence for wealth generated solely from local agriculture and of a class of farmers counted as among the wealthiest in Europe. These structures are concentrated in mid-Devon, the southern half of the West Midlands and in particular the South East and southern East Anglia.

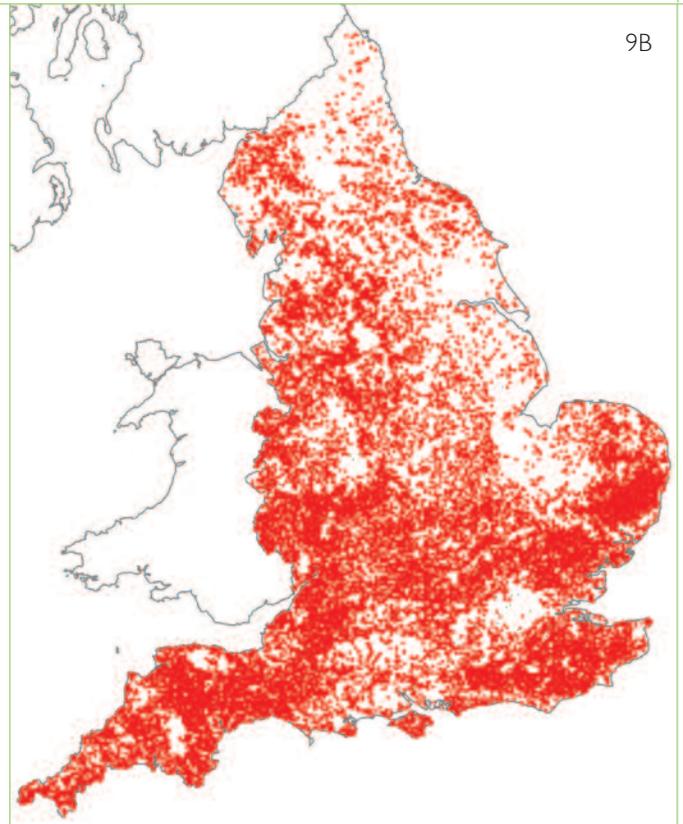
4.1.2 1550 TO 1750 (Figures 9 & 10)

Larger farmers and landowners initially benefited from the great land sales that followed the Dissolution of the Monasteries in the 1530s, while most farmers gained from rising prices and favourable leases. Agricultural productivity – particularly of grain – was spurred by a doubling of population from between 2.5 and 3 million to over 5 million by 1660, and an associated rise (by six times) in grain prices. After 1650, a fall in grain prices, a rise in cattle prices and demand from London and other growing urban markets, led to a rise in cattle rearing in the north of England, and of the dairy industry and specialised produce (such as hops and cider) in other areas. Improvements in transport, including the coastal and river trade, provided access to new markets. New rotations and crops, particularly clover, grasses and turnips, had become established by the end of this

9 Distribution of listed farmhouses in England, pre-1550 and 1550–1750. There is an obvious danger in making sweeping generalisations from such maps, but they do present valid questions for future analysis and research. Wealth derived from arable farming, including the proximity to the London market, dairying and fattening, wool and cloth production are obvious from the pre-1550 map. Here the distribution is thinnest for large parts of northern England, where rebuilding in stone – particularly from the late 17th century – had made its mark by 1750. Notable by their continuing thin distributions are the Lincolnshire and Yorkshire Wolds and Northumberland, where agricultural improvements and the re-planning of landscapes resulted in extensive rebuilding and re-siting of farmsteads after 1750. © Crown copyright. All rights reserved. English Heritage 100019088. 2005



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period on the light soils of East Anglia and adopted with varying success in other parts of the country. This period is strongly marked by the continuing process of enclosure and the related process of exchange and consolidation of farm holdings, the growth of farm size (especially in corn-producing areas), large estates and the widespread development of a landlord–tenant system. Landowners, notably the county gentry, emerged as ‘influential pioneers of new crops and new systems of farming’ (Thirsk 1984, p.xxiii). The consolidation of estates and holdings are reflected in the continuing – and in more anciently enclosed areas often the final – phase of enclosure. The national market became more integrated from the later 17th century, in tandem with the emergence of specialised regional economies. This, and the development and strengthening of local building traditions, are also reflected in the layout and design of both farmhouses and more substantial farm buildings.

4.1.2.1 Survival and Value

Substantially complete farm buildings of this period are rare. They will often provide the first surviving evidence for the development and strengthening of regional traditions and building types: for example, the timber-framed West Midlands barns that replaced earlier small cruck barns; the linear farmsteads of the North Pennines; the development of bank barns in Cumbria; the growth of the southern English downland farmsteads with their

associated large barns. The smaller farms of anciently enclosed pastoral areas are the most likely to retain fabric dating from this period, although it is very rare for farmsteads to have more than a barn and house.

4.1.3 1750 TO 1880

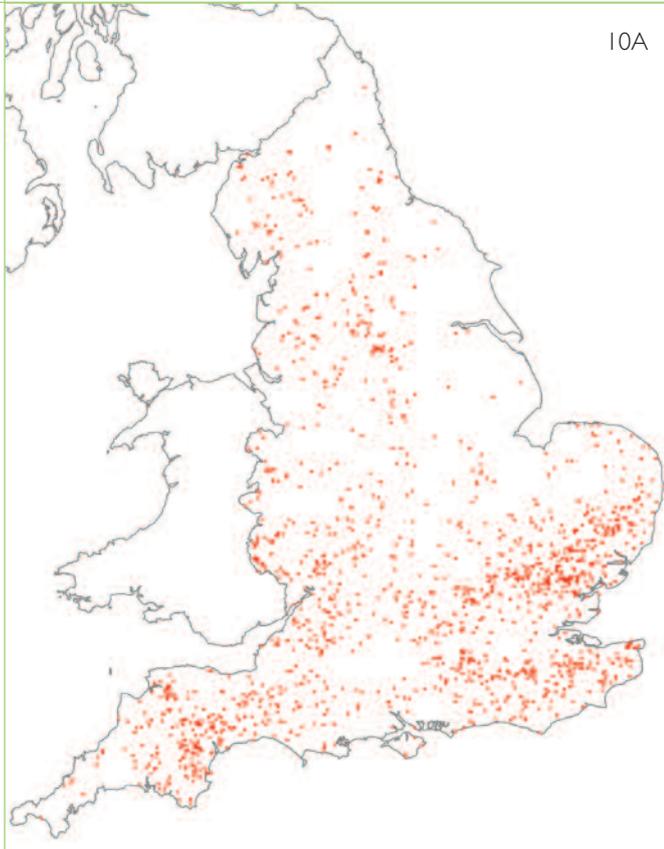
Agricultural productivity sustained a massive increase in population, which had risen from around 6 million in 1750 to over 16.7 million by 1851 and 26 million in 1881. This was the most important period of farm building development, commonly divided by agricultural historians into two periods: before and after 1840. Probably under 25% of the land area of England remained unenclosed by 1750, and the majority of this was enclosed by 1815. This was a process at first concentrated on the Midland clays (for the management of land as pasture for fattening) and then – from the start of the Napoleonic Wars in the 1790s – on the expansion of the cultivated area onto poorer and lighter soils such as the northern moorlands and the southern downlands, and poorly-drained land such as the Fens and the Lancashire mosses.

In the ‘High Farming’ years of the 1840s to 1870s, high-input/high-output systems – based on the availability of imported artificial fertilisers and manures (superphosphates, nitrates, guano and bones) and feeds such as oilcake brought on to the farm – replaced the

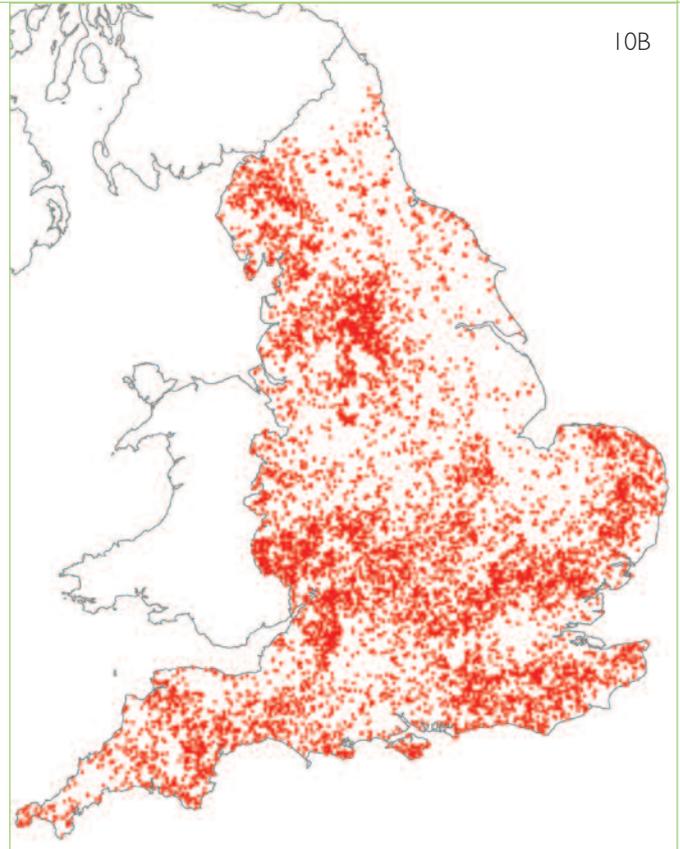
10 Distribution of listed barns in England, pre-1550 and 1550–1750

The great majority of substantially complete pre-1750 barns have been listed. These maps pose important questions for future research. In the pre-1550 map, the concentrations in a belt around London, the southern Pennines and from the Feldon of Warwickshire into mid Devon conceal a wide range of sizes and types of barn, stretching from large aisled barns to relatively modest barns which have not been replaced in later centuries due to farm size and other factors. Many of the outliers, such as in Cornwall and Durham, represent the building of substantial barns on ecclesiastical estates in the medieval period. In the 1550–1750 period, regional patterns of building and survival emerge more strongly, such as the concentration stretching from the Lancashire Plain to the southern Pennines, and the relative absence of pre-1750 barns in the planned landscapes of eastern and central England most profoundly affected by the agricultural improvements of the post-1750 period. The distribution for threshing barns of the 1750–1880 period reinforces rather than adjusts this distribution. Such maps present an obvious invitation to future analysis and research.

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'closed circuit' methods that relied on farm-produced feeds and manure. A major development – as observed by the agricultural journalist James Caird writing in the 1850s – was an increased distinction between the intensively cropped landscapes of the eastern half of the country, and the wetter and more pastoral-based economies of the western half.

There were several key drivers behind this development:

- Higher grain prices from 1750, peaking during the Napoleonic Wars (1794–1815), were joined from around 1840 by a steady increase in meat and dairy prices, both the result of population growth and the demands of an increasingly affluent urban population.
- The strengthening of a national market, facilitated by the ever-expanding transport infrastructure (of canals, improved river and road communications and the railways) and the growing importance of middlemen, both of which facilitated the marketing of food.
- Marked increases in land prices from the 1760s. This increased the incentive especially of estates to invest, outgoings on repairs and improvements occupying an increasing share of gross rentals from this period to as much as 25% by the 1850s (Mingay 1989, pp.602–3).

- Increasing interest and involvement by government: for example through the Board of Agriculture set up in 1793 (and which immediately set about the commissioning of its famous county studies in order to gather information on best practice); and from the late 1840s the establishment of loan companies for buildings and drainage, which added to the development of a national banking system.
- Textbook and journal literature such as *The Book of Farm Buildings* by Stephens & Scott Burn (1861), and the examples of best practice included in J Bailey Denton's *Farm Homesteads of England* (1863). Agricultural societies, from farmers' clubs to the Royal Agricultural Society of England (RASE) founded in 1837, played an important role through their shows and publications. The Royal Agricultural College was established at Cirencester in 1845, and – as seen in the founding of the Rothamstead experimental station in 1832 – the following two decades witnessed the development of agricultural chemistry and veterinary science.
- The accelerating trend towards larger farming units, both through purchase of smaller farms by more substantial tenants and freeholders, and through estate

policy. This was especially pronounced on the poorer soils, which often required the highest levels of capital investment.

- The role of estates, through the development of the land agent profession, investment in infrastructure (especially buildings and drainage) and the encouragement through leases of improved husbandry techniques by their tenants. Estate policies were also a major factor in the rationalisation of holdings and the emergence of larger farms.
- Enclosure. This was often a major factor in increasing output, through facilitating new rotations of crops and the improvement of grassland and stock management. Expenses associated with enclosure – of fencing, hedging and ditching (as much as 50% of the cost), and occasionally the construction of new steadings and buildings (which could be 17%) – increased the incentive of small owners and occupiers with little capital to sell to larger landowners (Wade Martins 1995, p.83). An additional incentive to enclosure was the doubling of rents that could result.
- Improvements in livestock, for example the emergence by 1850 of the Shorthorn as the leading cattle breed and the replacement of the horned wool-producing varieties of sheep by sheep bred for their meat and manuring value.
- The widespread adoption of improved grasses such as sainfoin and winter feed-crops such as turnips, accompanied by the production of better seeds and farm machinery and the efficient distribution of good manure by livestock increasingly wintered in yards or buildings.
- Drainage through traditional techniques, such as bush drains and U-shaped tiles and from the 1840s tile pipes, the use of these being concentrated on the heavy soils of the Midland clays.
- The improvement of soils through liming and marling.

Farmstead design was being affected by the widespread introduction of new types of building and layout, and from the 1840s by the widespread extension of mechanisation (for preparing feed and threshing), the increasing availability of mass-produced fittings and materials, and the adoption of industrial and scientific principles to the accommodation and feeding of ever-increasing numbers of livestock. The building of planned steadings for some estates and wealthy farmers, in the period up to 1840 concentrated in the eastern lowlands, was accompanied by the rebuilding or adaptation of many thousands of existing steadings with cattle yards and buildings, and the replacement of the traditional threshing barn by the multi-functional and much smaller mixing barn (see Figure 25, bottom). In some areas, regional differences were beginning to disappear: for example, the removal of floors and walls for livestock and lofts in the combination barns in the wood pasture areas of Suffolk and the eastern Weald attest to the fact

that they were becoming part of eastern England's arable region, as recognised by James Caird who conducted a survey of British agriculture for *The Times* in 1850–51 (Caird 1852).

4.1.3.1 Survival and Value

Substantially complete examples of farm buildings of the 1750 – 1840 period are far less common than those of the post-1840 period, when many farmsteads matured into their present form and huge numbers of buildings were erected. Some, particularly the planned farmsteads of the period, represent new developments in farmstead planning or the architectural aspirations of landowners. Others continue to be strongly representative of both the variety and development of local and regional agricultural systems and local vernacular traditions, such as granite in west Cornwall or cob in mid-Devon, and even new materials such as clay lump (as developed in large parts of Suffolk and southern Norfolk).

4.1.4 1880 TO 1940

For over 100 years, agriculture had been increasingly subject to national and international fluctuations in commodity prices, to its considerable benefit in the Napoleonic Wars and the High Farming years. However, after a run of poor weather in the late 1870s, the income from arable crops that farmers had enjoyed in the 1860s collapsed (for example, by 40% in wheat between 1880 and 1900) and farming entered a severe depression. Britain, its urban economy prospering through free trade, became by the 1930s the world's greatest importer of agricultural produce, including animal fodder, from both neighbouring parts of Europe and the New World. This was the beginning of large-scale importation of grain from the American prairies, meat in refrigerated ships from New Zealand and Argentina, and cheese and bacon from Europe. More than in any preceding period, British domestic policy (the supply of cheap food) and the world market now directly affected regional variations and the supply of capital to British farmers. The result was the concentration of grain production on the drier soils of the eastern and southern counties, and in the areas that experienced the greatest contraction from the High Farming peak of grain production a focus on meat and dairy produce in order to meet urban demand. The growing demand for liquid milk and the importation of dairy produce also led to a decline in the farmhouse manufacture of butter and cheese.

The Government endeavoured to boost production through price support. Against the backdrop of the U-boat menace during the First World War it sought to reduce the country's dependency on imported grain and attempted to extend and co-ordinate both advice and legislation (over hygiene, for example) through the establishment in 1919–20 of the Ministry of Agriculture

and Fisheries and county council committees and councils, in conjunction with organisations such as the National Farmers' Union (founded 1908). However, despite an increase in net output, the rising costs of labour, feeds and other inputs, combined with the decline in prices and rising levels of imports, ensured that little was invested in fixed capital. Arrears in rent characterised the period, even in years of relative recovery (such as after 1936 in arable areas). The holdings farmed by the new class of owner-occupiers – numbering 147,000 in 1927, as against 56,000 in 1909, the biggest change in land ownership since the Dissolution of the Monasteries (Whetham 1978, pp.160–61) – were burdened with debt.

As a consequence there was little fresh investment in farm buildings other than repair and modification, and any buildings constructed tended to be of the cheapest materials. Many, such as Dutch barns, were prefabricated, and concrete and corrugated iron or asbestos sheet were being increasingly used for the refitting of cow and dairy units and the repair of traditional roofs. National and local surveys, such as the 1910 Land Valuation Survey, attest to the growing levels of disrepair; especially of pre-improvement farm buildings using traditional materials such as thatch and timber. Reduced rents and growing building costs meant that only the wealthiest farmers and landowners continued to invest in model or experimental farms, and many of these concentrated on the production of meat and dairy produce; most built very little, perhaps investing in dairy buildings or cattle sheds in an attempt to attract tenants or meet increased demand in some areas for meat and dairy produce.

The continued promotion of scientifically based agriculture was matched by the application of new ideas on ventilation and farm hygiene to farm buildings, such as the regulations for dairying introduced in 1885. This was brought into effect mostly through the conversion of existing buildings (especially stabling into dairies) and to a small degree through new-build, notably on the smallholdings owned by county councils. Milking machines, where introduced, brought considerable changes to building layout, but the spread of mechanisation was very varied. By the mid-1930s, the mobile horsepower of the growing tractor fleet exceeded that of the stationary engine; the latter form of power having itself witnessed the transition to oil engines (from the 1890s) and electric power (not widespread until the 1950s). However, horses 'remained the dominant source of power' in the western half of England, and tractors were mostly confined to holdings of 300 acres or upwards, and the arable eastern areas (Whetham 1978, p.210). In the inter-war period, cereal, poultry and dairy farmers, and pig producers using imported North American feed, were in the vanguard of cost-cutting innovation that had a strong impact on post-war developments. There were some examples of

planned steadings that in their adaptation of modern industrial theory bucked the trend (Brigden 1992).

4.1.4.1 Survival and Value

Planned steadings and buildings in some areas reflected the increased importance of dairying, particularly of liquid milk – the steadings of the Tollemache and Westminster estates in south Cheshire being one such example. The inter-war period witnessed the development of more intense forms of housing for pigs and poultry, and the replacement, as a result of hygiene regulations, of earlier forms of housing for dairy cattle with concrete floors and stalls, and metal roofs and fittings. County councils entered the scene as a builder of new farmsteads, built in mass-produced materials but in traditional form, in response to the Government's encouragement of smallholdings of up to 50 acres (20 hectares). Alongside the construction of new farm buildings, traditional farm buildings were adapted to new needs, and the use of corrugated iron (mostly for repair) has guaranteed the survival and reuse of earlier buildings, particularly the increasingly redundant threshing barn.

4.1.5 1940 TO THE PRESENT

The 1937 Agriculture Act anticipated the need to increase self-sufficiency, and the Second World War witnessed a 60% rise in productivity; this was the result of the growth in livestock numbers, increasing scientific and government control and guidance, more specialised systems of management and the conversion to arable of permanent pasture. The invention of artificial fertilizer (patented by Haber and Bosch in 1910) enabled otherwise uneconomic land to be brought into production, and finally made redundant earlier forms of fertilizer. The National Farm Survey of 1941–3 (Barnwell 1993) attested to the long years of neglect of the depression, less than half of the building stock being classed as in fair condition. The Agriculture Act of 1947 heralded the intensification and increased specialisation of farming in the post-war period, accompanied by the development of government and industry research and guidance. From the mid-1950s, strongly influenced by American models, there emerged a growing body of trade and advisory literature. The first of these, produced in 1956, highlighted the dilemma of 'old buildings too good to pull down but not suitable for their new purposes' (Benoy 1956). The Government provided grants to cover the capital cost of new building under the Farm Improvement Scheme (introduced 1957). The introduction of wide-span multi-purpose sheds in concrete, steel and asbestos met increasing requirements for machinery and for the environmental control of livestock and on-farm production, particularly of milk. The national stock of farm buildings grew by a quarter between 1945 and 1960 alone. The Agricultural Research Council's *Farm Buildings Survey of England* (published 1967) estimated that the average farmstead

contained 6 pre-1914 buildings, 2.4 from 1918–45 and 2.5 built since 1945.

4.2 FARMING IN THE NORTH EAST

By the 15th century intra-regional distinctions between the pastoral economies of the uplands and the mixed arable-based economies of the lowlands were already strong. A pattern had emerged in upland areas of tenant farmers holding enclosed fields and meadows interspersed with those of their neighbours and open communal fields (Tuck 1991, pp.179; Brassley 1984, p.34). In contrast larger, nucleated townships and a more mixed arable-based economy were typical of the broader and more fertile lower upland dales, lowland and coastal districts. Here there was more cultivatable land organised around two or more open fields laid out in strips (Butlin 1964, p.119; Tuck 1991, p.175). Villages were typically smaller than in the Midlands, and the extent of rough pasture contributed to the fact that open fields (townfields) took up a much smaller proportion (up to 50% in the lowlands) of the land area (Roberts & Wrathmell 2000, pp.45–6).

Large estates have dominated the development of landscape and architecture in much of the Region, particularly in Northumberland. Great landowners, including the Crown, made use of the uplands as private hunting forest or chase, and exploited them as part of large estates with inter-linked farms which embraced lowland areas. The 12th and 13th centuries had witnessed the establishment of stock farms (vaccaries) in the valleys of the Pennines and sheep farms on upland fells, and of grange farms in lowland areas. New holdings and steadings appeared from the 15th century, due to the leasing and subdivision of these farms, the enclosure of common arable and pasture and the reorganisation of holdings into the hands of a smaller group of wealthier customary tenants (Tuck 1991, p.588). Enclosure was also accompanied by the engrossing of holdings and the abandonment or conversion of farmsteads to domestic use, accompanied by the dominance of a handful of farms (Chapman 1970, p.91).

In those parts of the Region where large estates were dominant, and increasing in impact from the late 16th century and after the Union of Scotland and England in 1603 (which helped bring to an end the intermittent instability that had characterised the border areas from the 1290s), commercial stock farming and the replacement of customary by leasehold tenure were linked to the reduction and restructuring of farms (Brassley 1984, pp.49–50). By the 18th century large country houses, often incorporating earlier medieval fortified structures, were built in the lowland and transitional landscapes and set in designed parklands. Many of their owners – both long-established and newly enriched – were transferring profits from the coal

industry and trade firstly to the development of their own parks and residences (from the late 17th century) and then to agricultural improvement (for example, the Dukes of Northumberland around Alnwick, the Blacketts around Wallington), in response to the major urban expansion and the growth of industry in the Region.

In these landscapes – and particularly in Northumberland – the large size of estates facilitated the redrawing of landscape on a scale comparable to the reshaping of the Scottish lowland and later highland landscapes. In the Cheviots, for example, single-tenancy farms, often over 1000 acres in extent, were replacing old multiple-tenancy 'fermtouns' (settlements usually characterised by longhouses, see 5.3.2) with new farmsteads and cottages. Settlements were either abandoned altogether, or reduced to individual steadings. The period between 1650 and 1750 witnessed a peak in the rate of desertions (Jarrett & Wrathmell 1977, pp.108–119). Throughout the Region, the period after 1750 witnessed the final phase of enclosure and the establishment of new farms, and the addition and reconstruction of old farmsteads in the villages and hamlets. Hodgson, writing in 1827 in his *History of Northumberland*, stated: 'Many villages in Northumberland have entirely gone down, but farm houses and cottages have risen up in their place in more convenient situations, a mode better adapted to the growth of good principles and usefulness than the village systems' (Hodgson 1827, p.337).

In the 17th and 18th centuries, upland farmers became engaged in a lively cross-border trade in cattle from Scotland that was comparable to but not as intense as in Cumbria. Although grain was imported into the Region, mainly from East Anglia, the amounts were relatively small and by the early 18th century it had been able to increase its food production to supply its rapidly growing population (Brassley 1984, pp.43–5). The main agricultural improvements were made after 1750. A general feature was the appearance of alternate systems of husbandry using turnips and other forage crops (Thirsk 1967, pp.27–8; Brassley 1984, pp.47–51, 53–6). It also witnessed the arrival of a new agricultural prosperity based on more efficient grain cultivation, more intensive cattle rearing and fattening, dairying for local and distant markets, and much more large-scale sheep farming in both lowland and upland areas. By around 1800, the arable land in lowland areas had increased considerably, grain being exported via Berwick, Alnmouth and other ports. The 'Corn Road' opened up the area around Hexham in the Tyne Valley to Alnmouth. The development of the railway network opened up new markets or allowed the transport of products such as fresh milk to urban markets. Smallholders and part-time farmers near urban areas also benefited. Overall, the incentive was the rapid emergence of industry and

commerce as the major employers in the Region, facilitated by a 'complex network of specialist suppliers' – coal mining employing more workers than farming in County Durham in 1851 (McCord 1995, pp.252–3).

After 1850 the extent of arable continued to decline in favour of permanent pasture especially on some of the heavier claylands. However, not all parts of the Region made significant improvements. The nature of the mixed and pastoral farming of the Region, coupled with the increasing demand for animal products from the industrial cities, meant that agriculture in the North East did not experience the late 19th-century depression in farming to the same extent as across much of the south of England. In some areas from the 1870s – and especially in the 1920s and 1930s – there was a marked reduction in the acreage of arable crops and an increase in grassland (Whetham 1979, pp.174–8).

AREA SUMMARIES

These summaries have been compiled as preliminary statements on the agricultural development of the distinctive parts of the Region. Inevitably, these do not relate as strongly to county boundaries as distinct landscape zones. These are outlined below, either by including the Joint Character Area (JCA) title – see 2.1 – after the area heading or, if they approximate or relate to groups of JCAs, in the first line of the text. The sources for them are diverse, and include Historic Landscape Characterisation where completed, work in progress on developing historic profiles for the Joint Character Areas (see www.cqc.org.uk) and sources listed in the bibliography. They are generalised statements, within which there may again be important differences in farming practice, settlement and estate patterns and landscape character.

Broadly, the Region divides into three agricultural areas:

- The uplands, an area which broadly corresponds with the Cheviots, Border Moors and Forests, and the North Pennines character areas. The uplands of the North East Region share many features with those of northern England (and specifically the Pennines and Cheviots).
- A transitional zone along the foothills of the upland area, generally represented by the Pennine Dales Fringe, the Durham Coalfield Pennine Fringe, Mid Northumberland and the Northumberland Sandstone Hills character areas.
- The lowlands, represented by the North Northumberland Coastal Plain, Cheviot Fringe, the South East Northumberland Coastal Plain, the Tyne and Wear Lowlands, Durham Magnesian Limestone Plateau and the Tees Lowlands character areas.

4.2.1 UPLANDS

The most important animals on upland farms were cattle, providing dairy products for home consumption and young stock for fattening on lowland farms. Many parts were too wet for sheep until at least the 18th century, when improved breeds and better drainage extended the range of hill sheep farming. Bigg, a variety of barley, rye, wheat and peas, were most commonly grown in the uplands, but the most widely sown crop, and the one best suited to the short, wet summers, was oats.

Ring-fenced single farms with no subdivided fields – often the products of colonisation by individual farmers early in the medieval period – were mostly found at the upper limits of settlement, such as in the Forest of Teesdale above Newbiggin. The more general pattern in upland areas was for arable land and meadows to lie either in closes or in small common fields. A stock-proof boundary (often termed a head-dyke) separated an 'infield' area from an 'outfield' area of rough grazing subject to communal control (to prevent over-grazing by individual tenants) and intermittent cultivation (Butlin 1964, pp.118–9). Livestock were not permitted into the 'infield' area during the closed season when corn and hay were growing. They were allowed into the inner area in the open season after the harvest of hay and crops, their manure serving to fertilise the land.

Throughout the uplands, the period after 1550 witnessed the enclosure of both infield land and valley-side pastures, enabling the growth and retention into the late summer of grass through the more systematic containment of livestock, and the dropping of their dung to enrich the land. The final process of further subdivision and enclosure, signalling the end of the traditional open-closed season, was linked to the transfer of communal cow pastures and grazing rights to individual tenants (Winchester 2003, pp.61–73). Throughout the uplands, farms thus created out of the moorland sides between the 15th and 19th centuries are set within their distinctive 'intakes' of enclosed land. Additional factors in both enclosure and the creation of new farms were the decline of hunting in the wider landscape and the population increase from the 15th century, the latter sometimes linked to the emergence of a dual economy based on industrialisation in the upland dales. There was a further increase in farms from the 17th century, connected in the North Pennines to the boom in the lead industry.

A vital feature of the upland farming economy was the huge proportion of inter-commoned and communally regulated grazing on the moorlands. Walled tracks were created, leading up from the valley bottom to the fell tops, giving access to the open moorland for summer grazing. Livestock were moved up and down the valley

sides at different times of year: flocks of sheep grazed on the hill tops in summer and were brought down to the sheltered valley bottoms in winter and for lambing in the spring; cattle were over-wintered in buildings on the valley bottom and slopes and moved onto the hills in the late spring. The movement of livestock (particularly cattle) to summer pastures on the high ground (a process known as transhumance) had been a key component in the economies of upland valleys probably since the prehistoric period (see 7.1.2). Vast areas of moorland were enclosed from the end of the 18th to the middle of the 19th century, the pressure to create more productive pasture and especially arable land resulting in a dramatic new landscape of large square fields and mile after mile of straight boundary walls.

4.2.1.1 The Cheviots (JCA 4)

Romano-British farmstead clusters are often associated with extensive rigg-and-furrow field systems, some terraced into the steeper slopes, which may be contemporary in date or medieval in origin.

Villages and hamlets often retain in-field patterns of great antiquity, used for the most intensive cropping. Distinctive farms with intakes from the surrounding moorland developed from the 15th to the 19th century. Medieval or earlier origins are likely for the scattered nucleated villages in the foothill valleys, associated with inter-commoning drove roads. Deserted medieval villages and hamlets together with visible remains of abandoned field systems indicate a period of greater population and farming diversity prior to the 14th century. By the later medieval period the Cheviots was largely given over to sheepwalks: according to Bishop Richard Pococke, by the turn of the 18th century the Cheviots, 'produced the best and soundest mutton, and the country is almost wholly laid out in sheepwalks' (Hodgson 1915, p.220).

The upland landscapes remained largely open as common pasture until the parliamentary enclosures of the late 18th and 19th centuries. These are characterised by large rectangular fields marked by stone walls ('dykes') or defined by hedgerows on lower slopes.

4.2.1.2 Border Moors and Forests (JCA 5)

Medieval or earlier origins are likely for the scattered valley hamlets and farmsteads. Seasonal grazing in the uplands from the prehistoric period has left patterns of small shieling settlements, some adopted for permanent settlement in later centuries. Cross-ridge dykes, sheep stells and other scattered enclosures reflect centuries of pastoral farming, especially following the expansion of the 17th to 18th century. Reduced border hostility in the 17th century and an improved climate led to more settled agricultural practices, and agricultural

improvement driven by landlords. Areas within the valleys were taken under plough to a far greater extent than ever before, and pastoral farming also expanded. The lower valleys of Redesdale and North Tynedale in particular demonstrate 18th- and 19th-century agricultural improvements: large regular fields of permanent and improved pasture divided by walls and fences, with earlier patterns of enclosure in the sheltered valleys.

4.2.1.3 North Pennines (JCA 10) (Figure 11)

The development of the area's distinctive patterns of tracks and droves is the product of the mixture of cattle rearing and cereal production that was still practiced in the medieval period. The lower reaches of the main dales have historically supported arable cultivation as well as pasture, and were generally enclosed by 1750. The middle and upper dales are almost entirely pastoral with small hay meadows – a pattern with medieval if not earlier origins. They were mostly subject to enclosure from the 17th century, maintaining long-standing divisions of in-bye and out-bye leading out to extensive grazing rights on the adjoining moorland.

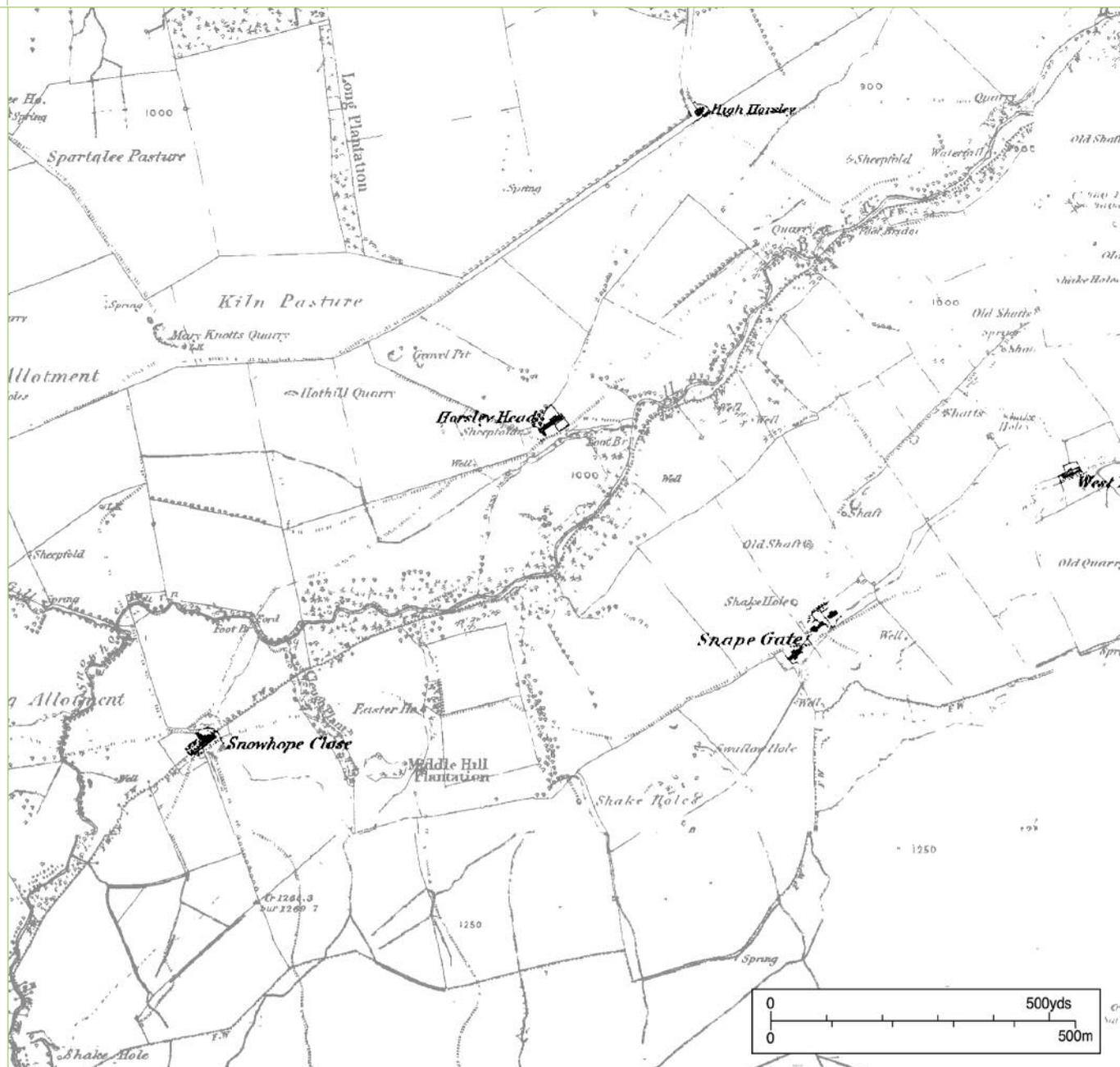
The heads of the dales (Upper Weardale, Teesdale, Allendale and South Tyne Valley) were populated with vaccaries in the 12th and 13th centuries, many of these and also medieval parks becoming subdivided as farms and hamlets from the 15th century. The leasing out and subdivision of directly managed estate farms and hunting lodges led to the appearance of new holdings and farmsteads throughout the upland dales from the 15th century, as Brian Roberts has demonstrated for Weardale (Roberts 1977, pp.177–9, 182–3, 187–8). Small-scale tenant farming – on favourable terms of customary tenure as in the uplands of Yorkshire and the North West, remained as a strong characteristic of the upper reaches of the North Pennines.

There was a further increase in farms from the 17th century, connected to the lead industry, and the establishment of large farming estates, coinciding with the formalisation and intensified exploitation of mineral rights in the 18th and 19th centuries. The farmsteads have around them distinctive, patterned small enclosures, some probably reflecting 17th- and 18th-century 'miner-farmer' smallholdings. By the 19th century purpose-built villages (i.e. Allenheads and Nenthead) emerged, importing the terraced housing patterns of the industrial townscapes, joined by a wide variety of 'squatter' settlements complete with small agricultural plots. The import of cheaper lead from abroad led to the abandonment of the lead mines and the desertion of many of the associated settlements and smallholdings in the late 19th century, leaving parts of the uplands sparsely populated.

11 Farmsteads in the landscape: Weardale, Durham (North Pennines)

Some farming families of Weardale managed to make a living through combining agriculture – mainly cattle and sheep farming – with working in the nearby lead mines. The extensive moorland provided the smallholdings with sufficient grazing and their enclosed fields on the valley sides provided hay for winter fodder. The farmsteads usually consisted of linear ranges comprising the farmhouse and a byre. The decline of the British lead industry in the late 19th century left most of these smallholdings unviable, and the landscape is scattered with the abandoned ruins of these farms. Based on OS 1st Edition 6" map 1843–1890.

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The moorland summits and plateau were used as common grazing pasture. Despite extensive enclosure in the late 18th to mid-19th century, 27% remains common land.

4.2.2 THE LOWLAND AND TRANSITIONAL ZONES

There is a central transitional area formed by the overlap between the mainly pastoral farming upland areas to the west and the lowlands to the east. The meeting of pastoral and arable farming is still evident in the character of the present-day landscape, in its mix of hill and vale farming systems. In the foothills of the upland areas, glacial deposits provided some areas of better soils

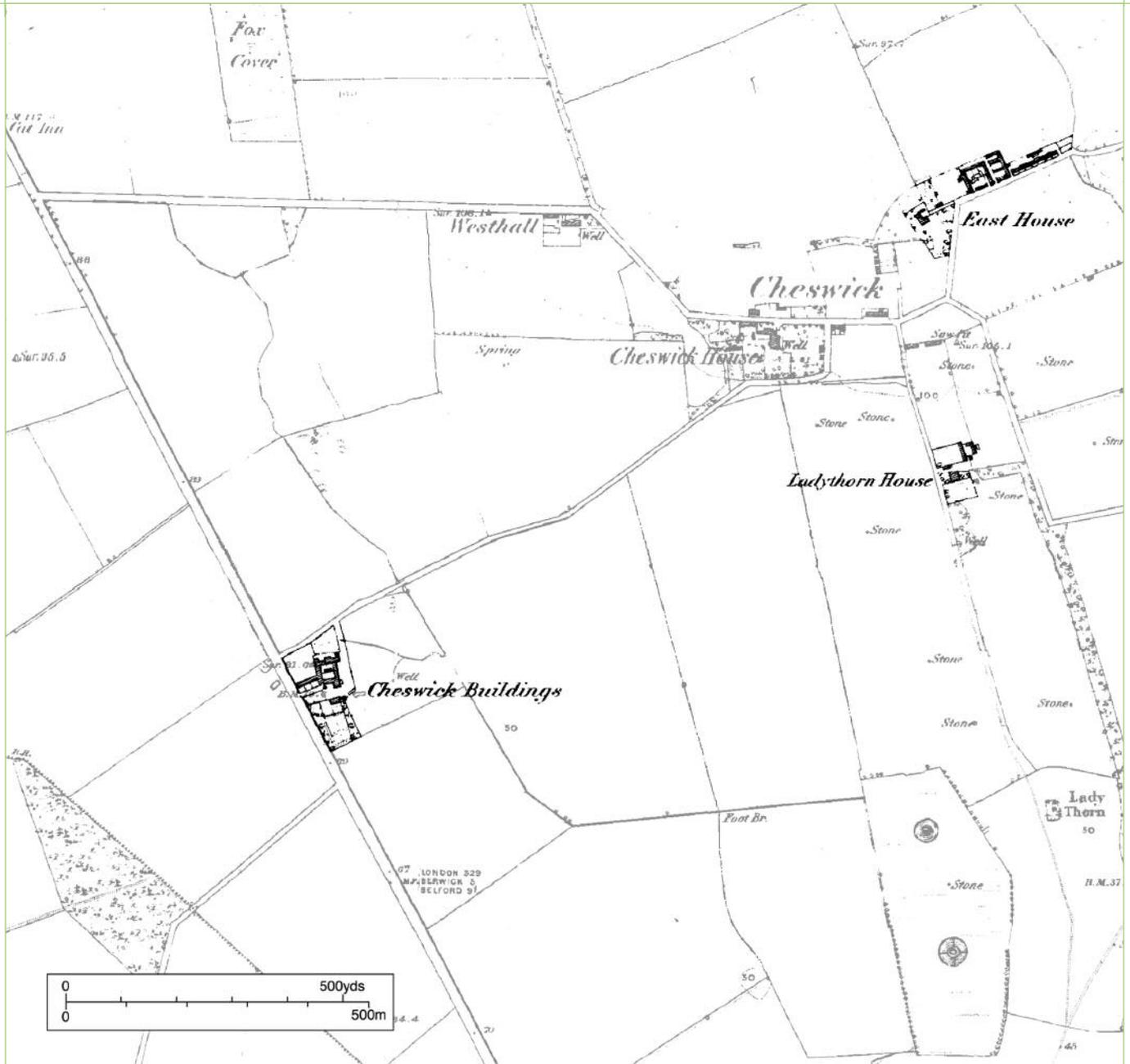
allowing more arable, giving the farmsteads of this area a higher value than those of the uplands (Brassley 1984, p.35). Cultivation of these lower slopes in the medieval period was based on three or four large common arable fields, sometimes with areas of meadow intermixed. By the 18th century barley had emerged as the principal grain crop, but cattle (for fattening and dairying) and sheep (for fattening as well as wool) comprised the mainstay of the agricultural economy (Brassley 1984, p.36).

The farms of the coastal lowlands were larger than those of the foothills, with the largest farms being found in the

12 Farmsteads in the landscape: Cheswick, Northumbria (North Northumbrian Coastal Plain)

In the 18th century much of this landscape was re-written. Large estates cleared away the small villages and reorganised the fields, creating large regular fields that were worked from large planned farmsteads that often incorporated the most modern ideas about animal husbandry, work flows and the use of mechanisation. The large regular courtyard farmsteads were geared to the large-scale production of meat. The populations of the small villages were re-housed in terraces of cottages (hinds cottages) such as those seen adjacent to East House Farm (see cover image), which was built in the 1840s for the Haggerston estate. The farm manager's house (grieve's house) was usually sited close to the farm enabling him to observe the working of the farm. This process of change transformed the area from one of the most agriculturally backward parts of the country to the forefront of best agricultural practice. To the east of Cheswick House, next to the saw pit as marked on the map, is a rare surviving longhouse that predates the re-planning of this landscape. Based on OS 1st Edition 6" map 1843–1890.

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Tweed valley and the northern part of the coastal plain of Northumberland. As with the transitional area, in the 17th and 18th centuries arable farming was mixed with cattle and sheep farming, although the arable produced as much as one third of the farmer's wealth (Brassley 1984, pp.36–7). Rotational cropping using turnips, and enriched by the dung of large sheep flocks and farmyard cattle, had by the early 19th century led to a marked increase in productivity – for example of wheat for export. By the late 18th century, a distinction had emerged between the large farms of the lowlands of

Northumberland and the smaller farms of south-east Northumberland and Durham, particularly in the coal-mining areas (including the Durham Coalfield Pennine Fringe) where farms rarely exceeded 50 acres (Bailey 1810, p.67). Cattle numbers per farm in Durham (commonly five or six) were one third of the average further north (Brassley 1984, p.39). Dairying, which extended to the export of butter and cheese from the Region's ports, emerged as an important industry, and the liquid milk trade developed in close proximity to Newcastle and the emerging industrial centres associated

with the coal industry and (in the Pennine valleys) lead mining. Livestock rearing and dairying developed from the 17th century at the head of the Tees valley (in the Pennine Dales Fringe) in tandem with the development of the textile industry

As a result of topography, soils and land use, there are strong local differences within these lowland and transitional zones.

4.2.2.1 North Northumberland Coastal Plain (JCA 1) and South East Northumberland Coastal Plain (JCA 13) (Figure 12)

The most intensively farmed arable land, and the largest farms, are found along the North Northumberland Coastal Plain and South East Northumberland Coastal Plain, an open landscape with large, regular fields that between the 17th and 19th centuries replaced a complex pattern of nucleated settlements linked to small medieval fields, open-field systems and extensive pastures. The coastal railway line opened new markets and supplies of materials (e.g. Welsh slate) in the 1840s, and stimulated the development of ports and seaside resorts. The coal industry in the South East Plain also stimulated markets.

4.2.2.2 The Northumberland Sandstone Hills (JCA 2)

These extend in a wide north–south arc across the county, separating the vales of the Cheviot Fringe from the Northumberland coastal plain. Earthwork remains of villages and hamlets, and of ridge-and-furrow cultivation, suggest that medieval settlement – subject to shrinkage and desertion from the 14th century – was quite extensive to the south and east of the main plateau. On the lower slopes widespread rotational farming was introduced by the 19th century within patterns of broad and regular enclosed fields centred on large farms or farming hamlets. Elsewhere within the hills the medieval and later settlement pattern is characterised by isolated farmsteads and small hamlets. The summits and upper slopes were used as hunting chase and common pasture in the medieval period, with some emparkment for deer. Rothbury Forest and other upland areas were enclosed as private land under Parliamentary Acts in the early 19th century, and apportioned for improved and semi-improved pasture.

4.2.2.3 Cheviot Fringe (JCA 3)

Enclosure of the lowland and vale landscapes was largely completed by the late 18th century, in contrast to the more arable-based economy around the larger-scale and mostly post-1750 enclosures on the productive alluvial terraces of the Till Valley and Milfield Plain.

4.2.2.4 Tyne Gap and Hadrian's Wall (JCA 11)

More settled border conditions from the 17th century promoted the development of county house estates,

some derived from fortified predecessors, and agricultural improvements. Grain export was enabled by the turnpike constructed from Hexham to the coast in the mid-18th century, and east–west communications further improved by General Wade's military road along the wall. Railways within the Tyne valleys opened up still further markets from the mid-19th century as well as the residential development based on employment in Newcastle. The wider valley floors to the east supported arable cultivation as well as pasture, usually managed from single manor farmsteads in each of the small and widely spaced villages. These are often the result of agricultural reorganisation by estates of village agriculture in the 17th and 18th centuries. The flanks of the valleys and the narrower western vales are farmed from regularly spaced isolated farms and farm hamlets, the result of new agricultural expansion from the late 17th century onwards.

4.2.2.5 Mid Northumberland (JCA 12)

A number of the area's nucleated settlements were reduced in size or abandoned through the 14th and 15th centuries in particular, leaving earthwork traces of their former extent and of ridge-and-furrow cultivation. The development of estates was a major factor in the reorganisation of landscapes from the 17th century, with former common arable around settlements in the lower lying areas to the south and east being subject to enclosure in the 17th and 18th centuries and higher rough pasture ground generally from the later 18th century.

4.2.2.6 Durham Coalfield Pennine Fringe (JCA 16) and Northern part of the Pennine Dales Fringe (JCA 22)

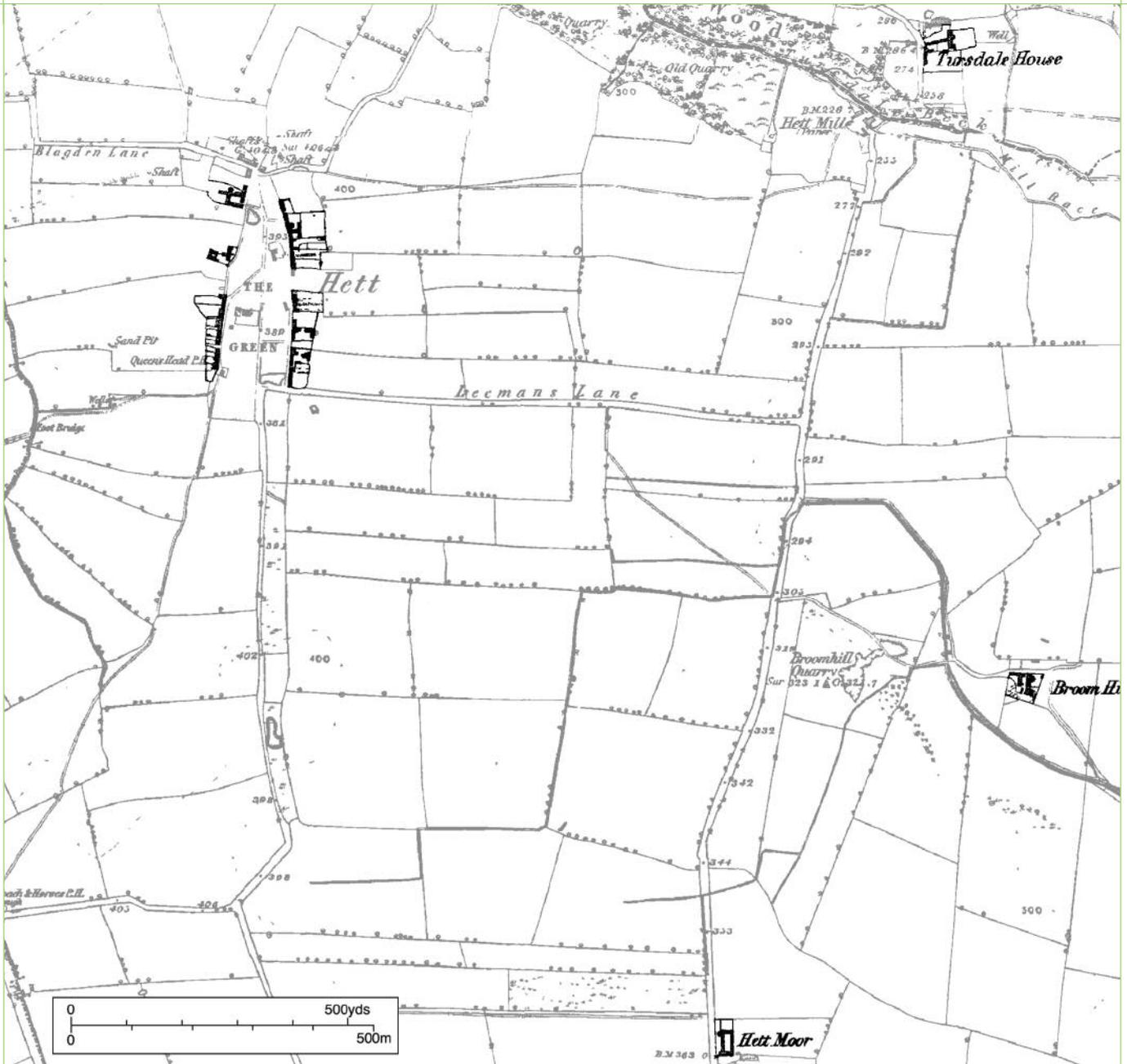
This landscape dips towards the Tyne and Wear Valleys and here the coal and related industries expanded rapidly from the later 18th century. The landscape was divided into large regular fields in the 17th and 18th centuries (the eastern and southern valleys having occasional survivals of earlier irregular enclosures in steep folds and adjacent to villages). Common fields were largely enclosed by private agreement in the 17th century; wastes and commons on the upland fringe were enclosed between the late 18th and mid-19th centuries.

4.2.2.7 Tyne and Wear Lowlands (JCA 14), Durham Magnesian Limestone Plateau (JCA 15) and northern edge of the North Yorkshire Moors and Cleveland Hills (JCA 25) (Figure 13)

Arable production has been a feature of the plain since at least the medieval period. Farming was reorganised to match the demands and markets provided by the coal industry, which expanded from medieval and earlier origins after the 16th century and particularly during the 19th century. The enclosure of common fields from the 15th century led to farmsteads being relocated to new

13 Farmsteads in the landscape: Hett, Durham (Tyne and Wear Lowlands)

Hett is a characteristic 'green village' typical of the Durham area with its rows of farmsteads and cottages set either side of a wide green. The farmsteads shown on this map include a larger steading with a courtyard arrangement, reflecting the amalgamation of earlier farms that is typical of this area. Most of the buildings shown were small farmsteads, with at least one of the surviving farmhouses having raised crucks. It is probable that for many of the smaller farmers of the village the local coal mines, recorded from the medieval period, and quarrying offered additional employment opportunities. Surrounding the villages are fields that, as shown by their slightly curving boundaries, represent the enclosure of former open field strips. The creation of these fields, by agreement, is likely to have occurred between the 16th and 18th centuries. In the north-east corner of the map extract is Tursdale House, a former manor house on the site of a shrunken medieval village. Based on OS 1st Edition 6" map 1843–1890. © and database right Crown Copyright and Landmark Information Group Ltd (All rights reserved 2005) Licence numbers 000394 and TP0024



sites or left in village centres, the Durham Magnesian Limestone Plateau having a large number of deserted medieval settlements. Enclosure of the arable fields was complete by the close of the 18th century and the remaining commons and open pastures enclosed from the 18th century. The large regular fields reflect the ease with which open fields of the medieval townships could be re-ordered in the 17th and 18th centuries as production was reorganised around larger centralised

farming units, many linked to coal-enriched country estates. The fertile loam-based soils of the Tees Lowlands have underpinned a predominantly arable-based economy, the large-scale enclosure of the open fields being largely complete by the 18th century. The Cleveland area – generally regarded as backward by contemporaries – specialised in horse breeding, with the Cleveland Bay gaining widespread recognition (Hallas 2000, pp.402–10).

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 14) 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.

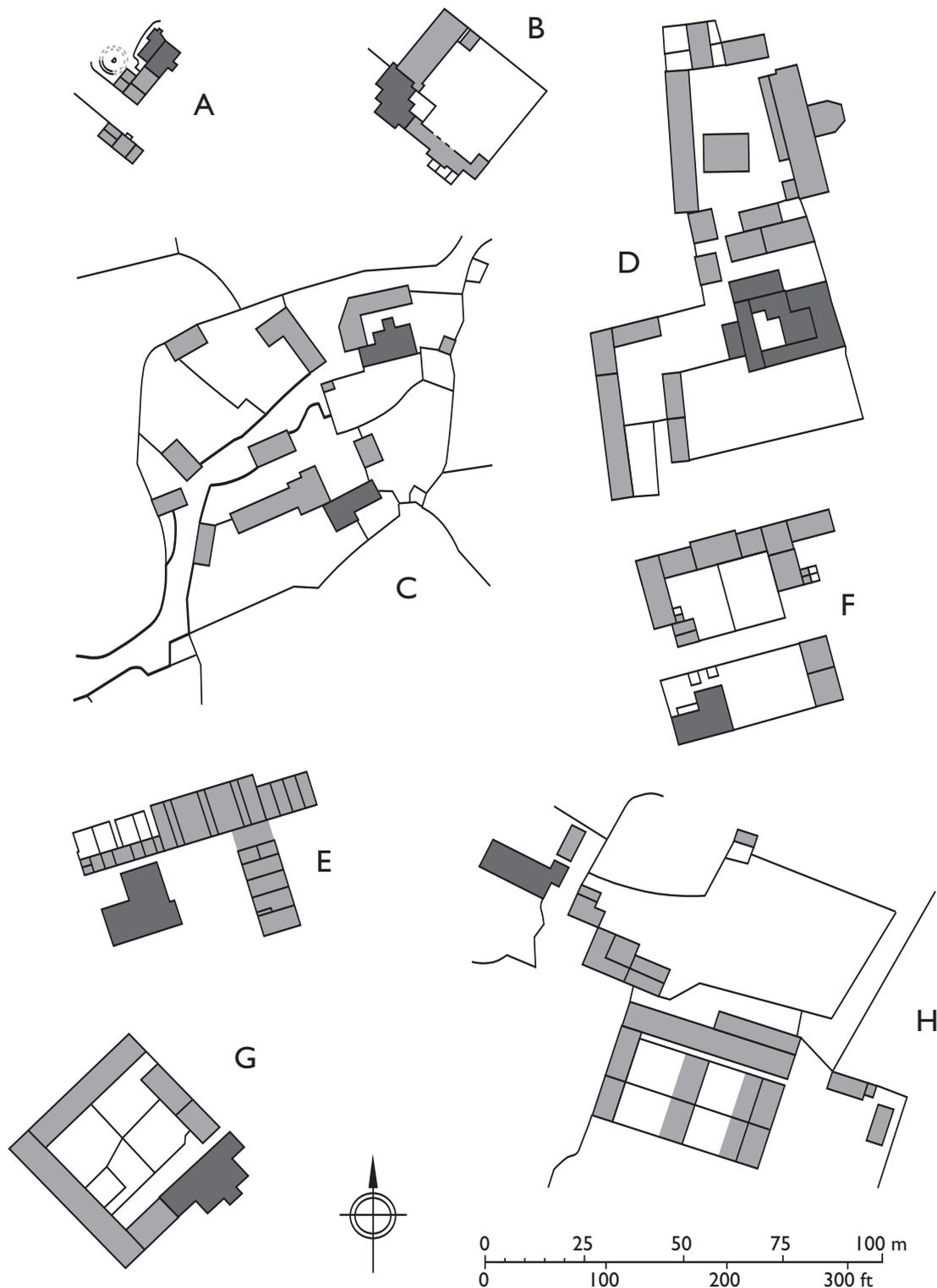
14 Farmstead plan types (Farmhouses are shaded darker)

- 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 can be a development of a linear plan or can represent 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 plan 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 15). 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 (Figure 8B), 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.

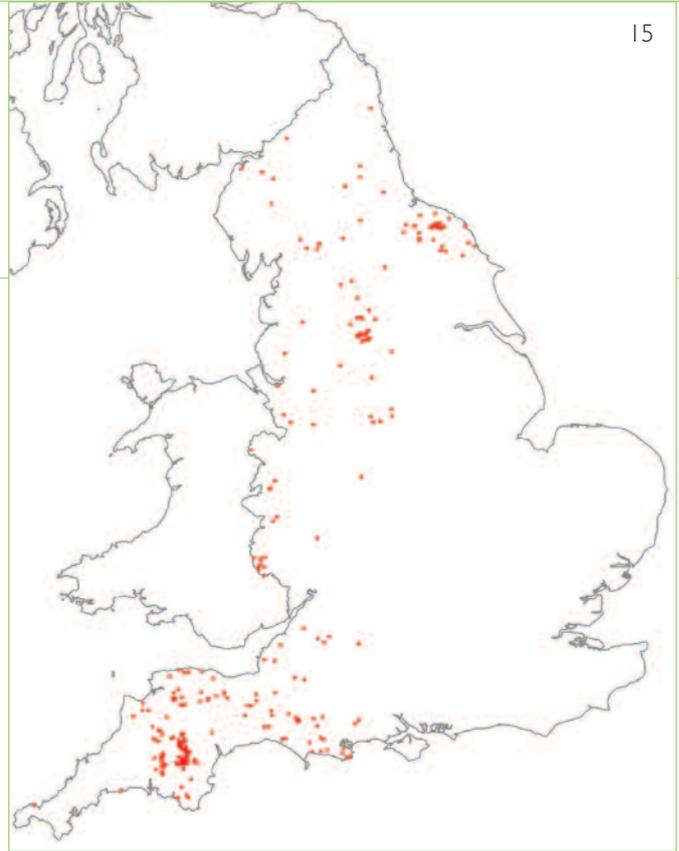
5.1.3 DISPERSED PLANS

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

15 Distribution of listed longhouses in England. Surviving longhouses – a proportion 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.
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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 16), 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

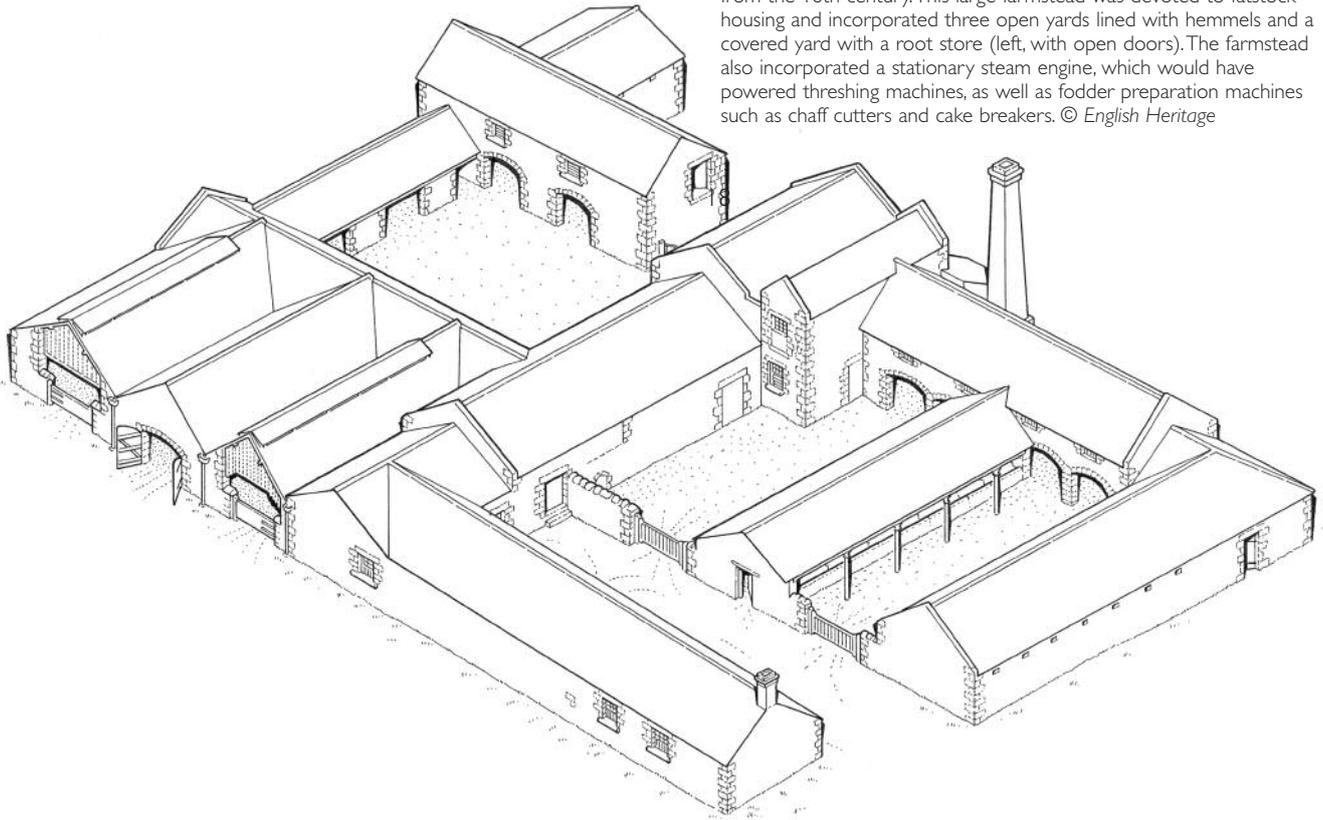
The occasional merging of plan types can make the variations on these principal themes seem almost infinite. The identification and analysis of the broad patterns of plan types can reveal much about the impact of the factors that influence farmstead character.

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).

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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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 BARNs

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.

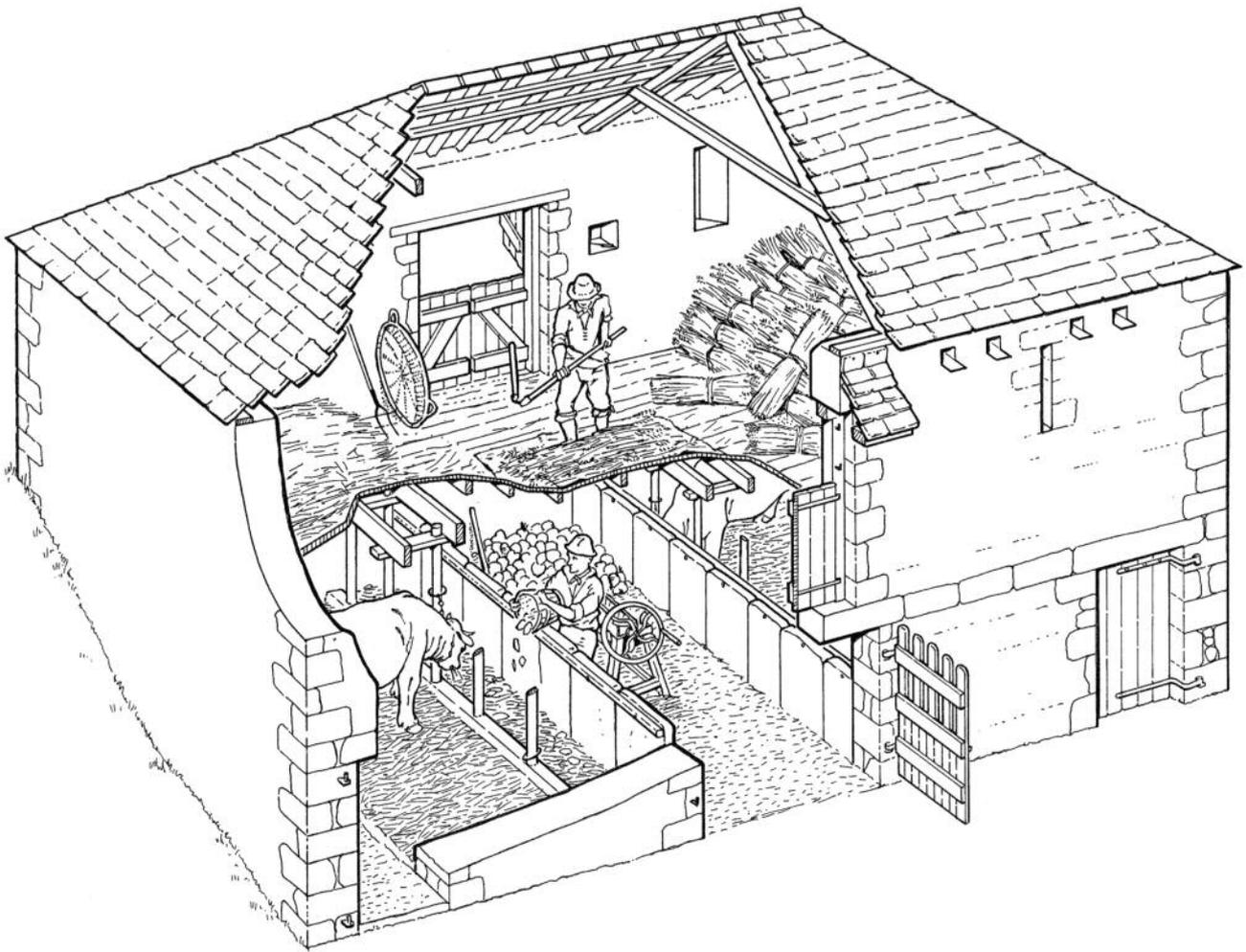
Major variations were in the five following areas.

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).

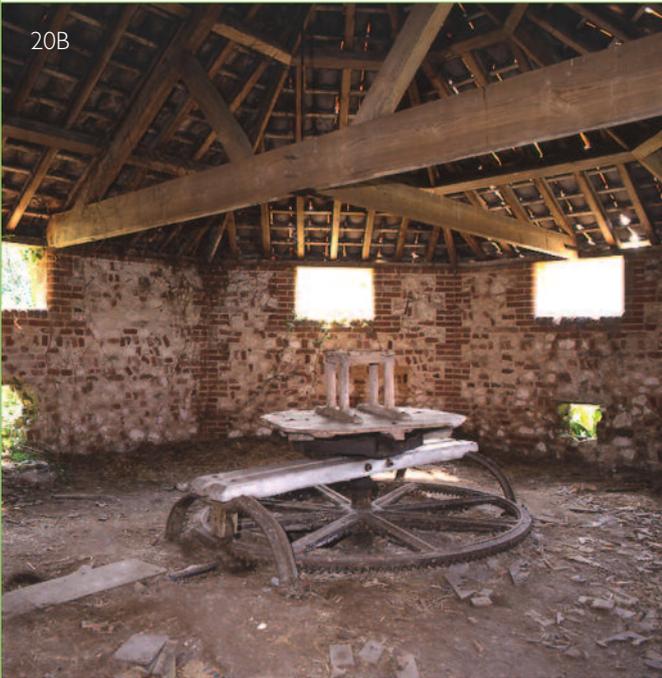
20 Power in barns: national examples

- 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

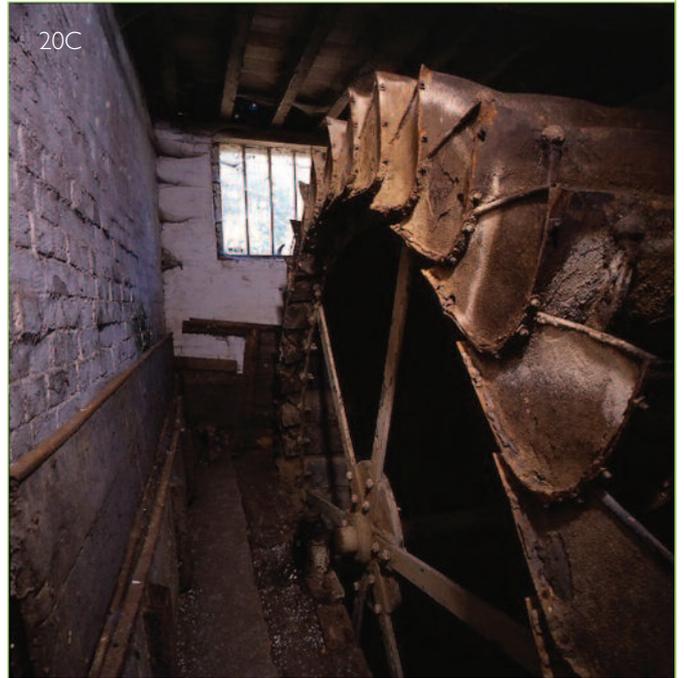
20A



20B



20C



20D



20E



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

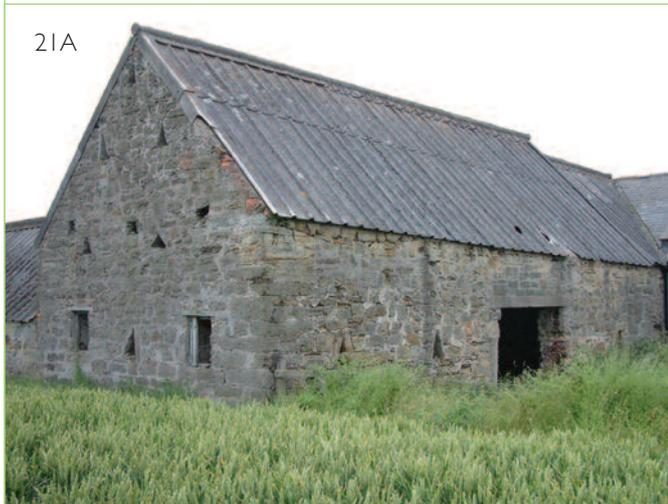
- A The few late medieval barns that survive in the North East Region are mostly found in the Durham area and were mainly built by religious houses. The distinctive triangular ventilation holes, a characteristic feature of early barns, was used into the 17th century, as in this example of a barn on a 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



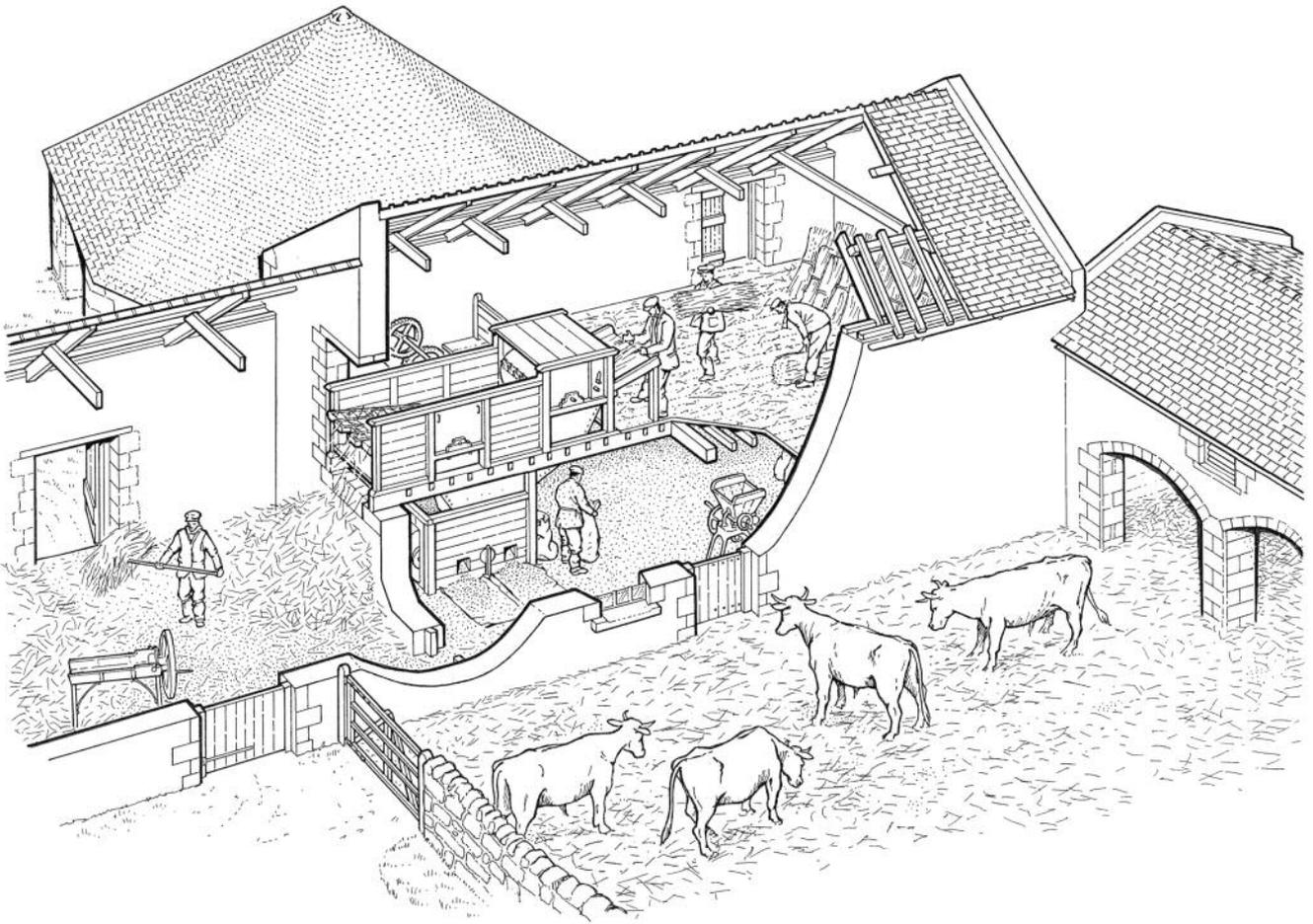
By the 19th century the Northumberland barn consisted of two attached buildings: a two-storey threshing barn housing threshing machinery, and a straw barn. Corn from the stack yard 'passed to the upper floor via a sheaf door', and after passing through the threshing machine chaff fell to the ground floor 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

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).

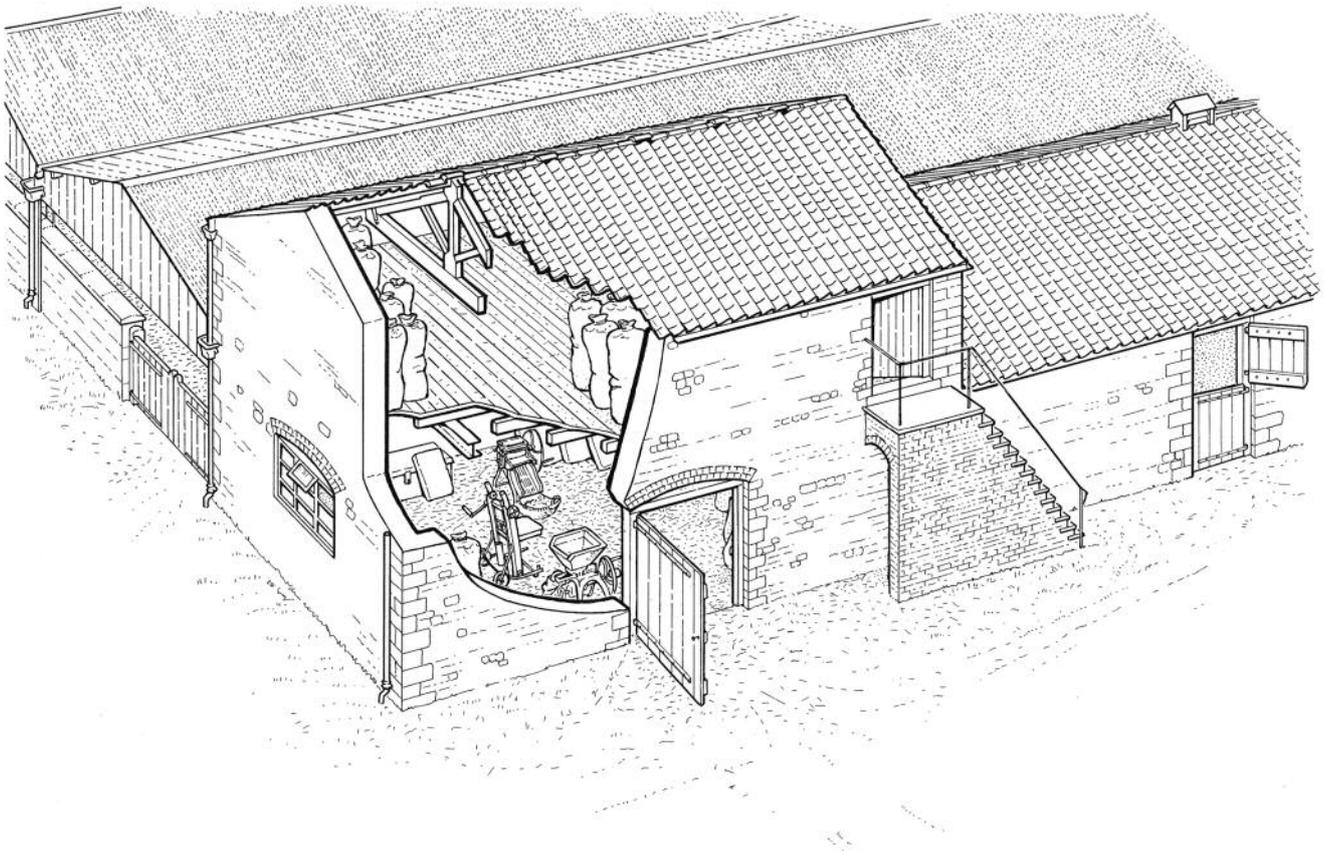
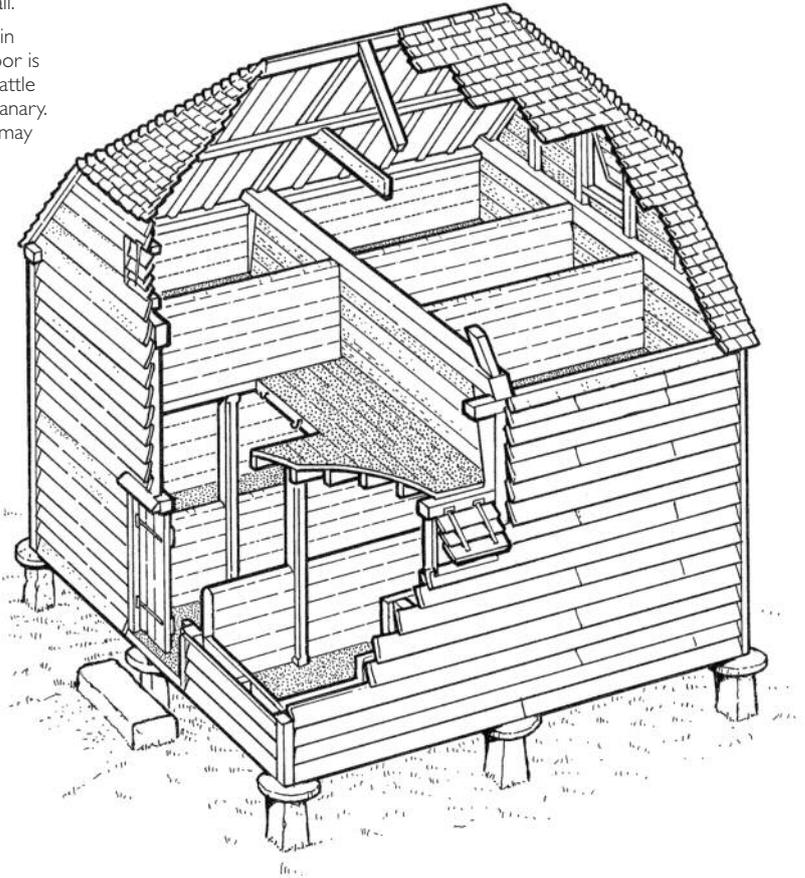
Examples of pre-19th-century date, concentrated on estate farms and in the arable lowlands, are extremely rare.

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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25 Granaries and cart sheds in the North East Region

- A Detached, free-standing granaries are rare in the North East. This example was built by Durham Cathedral Priory. (Tyne and Wear Lowlands)
- B Granaries in the North East Region often form part of a linear range, located on the first floor and approached by a flight of external steps

(B North Pennines) or are located above cart sheds. Cart sheds typically form part of combination ranges (C Cheviot Fringe) and are sometimes located over hemmels.

A & C © Jen Deadman; B 404168 Taken as part of the Images of England project © Mr Thomas S. Bolton

25A



25B



25C



6.3.2 CART SHEDS IN THE NORTH EAST

Few pre- or mid-19th century cart sheds survive, and many are later additions to pre-existing farmsteads. The increases in the number, size and sophistication of carts and field implements after about 1840 were associated with greater mechanisation and intensification of farming in the Region. Some of these mid-19th century cart-shed ranges in lowland arable areas can extend up to 13 bays (Barnwell & Giles 1997, p.84). Combined granary/cart-shed ranges are a distinctive feature of larger lowland steadings, and on smaller steadings or upland areas cart sheds can appear as individual or single-bay structures.

6.4 HAY BARNES 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 latter differed from corn barns in that they were open-sided to allow a good flow of air through the hay. They comprised little more than a roof supported on brick, stone or iron piers with solid gable walls. They mostly date from the second half of the 19th century, and are more typical of the wetter pastoral west than the

arable east. A very small number of timber hay barns with adjustable roofs – as commonly survive in the Netherlands – survive intact, mostly in Yorkshire. The agricultural depression from the 1870s meant that dairy farming was one of the few branches of farming to remain profitable, leading to an increase in the production of hay. This period saw the introduction of some of the first mass-produced iron farm buildings, such as Dutch barns for hay storage, and also of airtight clamps for the preservation of silage. Silage towers were built in small numbers in the inter-war period, but were not generally adopted until the 1960s (Shaw 1990).

As the use of fodder crops, such as turnips, and over-wintering of cattle became countrywide, there developed a need to store the fodder in earth clamps or small rooms. In some of the better-planned farmsteads the root and fodder stores would be incorporated into the cattle housing, usually located close to where the cattle were stalled with access between the two. On smaller farmsteads the root store was either a separate building or formed part of a combination building, perhaps being associated with a granary or workshop. At present, it is not possible to identify any particular features of these buildings, other than the building

26A



26 Hay barns in the North East Region

Hay barns are found on some pastoral farms but they are not as common in the North East compared to the North West Region. Most date from the 19th century and may be found located in the fields (A North Pennines) or at the main farmstead (B North Pennines; C Cheviot Fringe).
 All © Jen Deadman

26B



26C



materials, that are regionally characteristic.

Some areas of the country developed a specialisation in the production of particular crops such as hops or fruit. In some cases these crops required the construction of particular buildings that are regionally characteristic: for example, the oast house/hop kiln of the South East and West Midlands and the cider house of Herefordshire and the South West.

Small kilns for drying corn and particularly malt for brewing have been recovered through excavation (Le Patourel in Miller 1991, p.875) and a small number of much larger and more solidly constructed examples survive from the 17th century, especially in the North West and South West. Surviving examples of corn-drying kilns, concentrated in upland farming areas, are very rare. The processing of corn to flour was undertaken in mills normally powered by water or wind. Mill buildings are

often found isolated from farmsteads but occasionally they can form part of the farmstead.

6.4.2 HAY BARNs AND OTHER CROP-RELATED BUILDINGS IN THE NORTH EAST (Figure 26)

A feature of many larger pastoral farms – but not as common as in the North West – was the hay barn. This was usually a separate structure with open sides that allowed adequate ventilation of the hay whilst keeping it dry. There are some very fine examples of large estate hay barns (for example at Croxdale Hall and Home Farm, Ushaw College, both near Durham).

In northern and upland areas of the country it was not always possible to fully ripen the grain sufficiently by natural means, and so corn-drying kilns were used (Ramm et al 1970, p.17; Hillelson 1984, p. 58). See North West and Yorkshire and the Humber for further details.