

# The Black Barn at Tow House, Bardon Mill, Northumberland: a heather-thatched barn and its context

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## SUMMARY

*Tow House is a Northumberland hamlet, on the north bank of the South Tyne 16 km west of Hexham, and 40 km east of Carlisle. Its recently-restored Black Barn is one of a handful of heather-thatched structures in the North Pennines, survivors of a once widespread vernacular tradition; it is also a cruck-framed structure, which is again something of a rarity in this area. The hamlet is of interest itself as having been a defensible settlement, and retains several other notable post-medieval buildings which reflect this period. The barn and its recent restoration are described, and then the building and hamlet are considered in their various contexts, locally and regionally.*

## INTRODUCTION

TOW HOUSE IS A HAMLET that lies on the north bank of the South Tyne 1 km west of Bardon Mill, on the south side of what was formerly the main Newcastle to Carlisle road. The older part of the hamlet is centred on a short road running for c. 150 m south-east from the main road, along the top of a bluff rising c. 10 m above the North Tyne flood plain, between the main valley and that of its northern tributary the Henshaw Burn. The southern limit of the settlement is now formed by the Newcastle-Carlisle railway line which follows the edge of the flood plain (fig. 1).

The last house on the south-west side of the road, looking south from the end of the bluff, is Burncliffe, an early 20th-century building, but close to this to the north-west is a much older barn (NY 76706432), set parallel to the road. Locally known as ‘the Black Barn’, this is one of a very small group of buildings in the area to retain a heather-thatched roof.

Little is known of the history of the barn; the older Ordnance Survey maps show it as once forming the south-eastern end of a longer linear range of buildings (see fig. 11), the remainder of which were replaced by a terrace of houses in the earlier 20th century. It would appear that the barn was first recognised as being of importance during the National Resurvey of Buildings of Historical and Architectural Importance in 1985 (when it was afforded statutory protection as a Grade II\* structure); at this time the thatch was in poor condition and covered by corrugated iron sheeting. The sheeting was removed and the thatch repaired in 1990, but the thatch was not maintained and deteriorated. The building was placed on the English Heritage Register of Buildings at Risk in 2009. Major work was carried out in 2012–2013,<sup>1</sup> with the aid of grants from English Heritage and Northumberland County Council.

The contract for this work was started in December 2012 with the erection of scaffolding and a temporary roof over the whole barn to make the archaeological investigation and the works independent of external weather conditions. Inside the barn the primary roof structure was propped and braced to make access safe while dismantling the masonry round the cruck

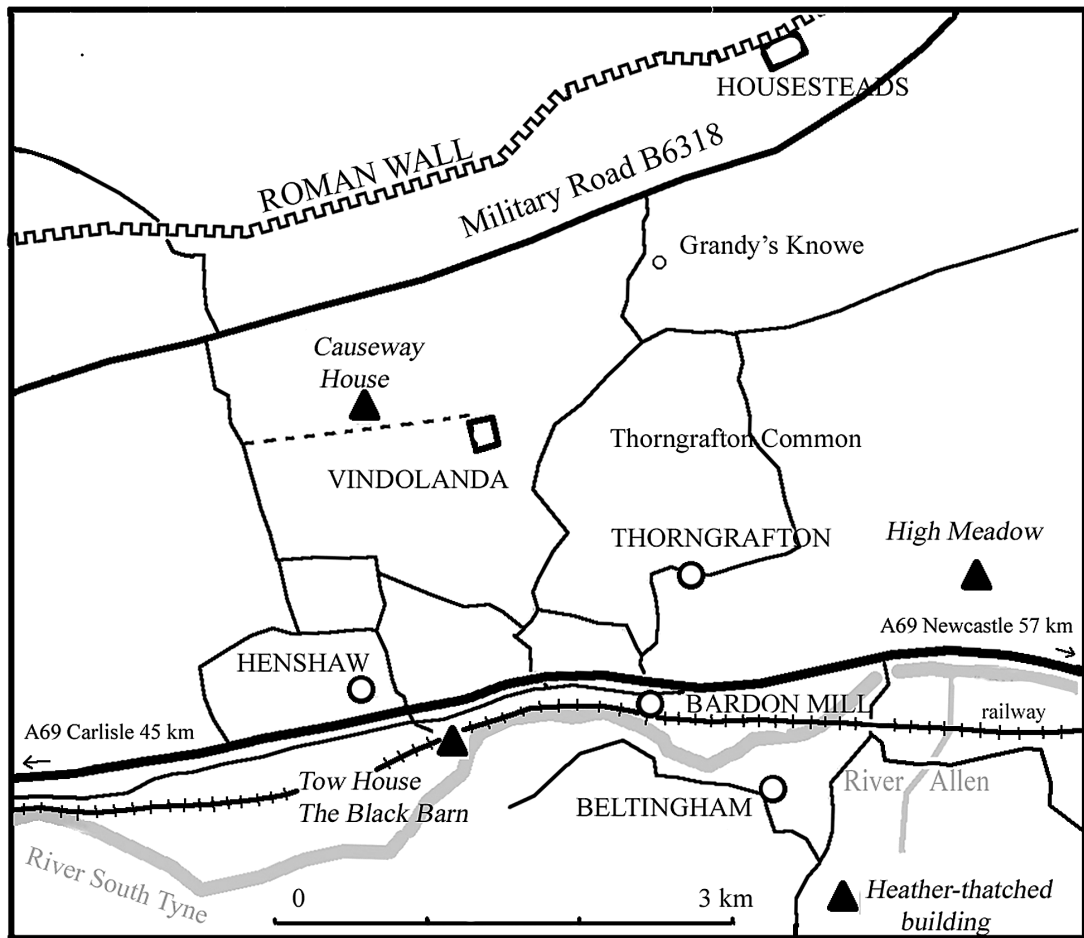


Fig. 1 Site Location: note the group of heather-thatched buildings referred to in text.

blades where they were built into the walls. Most of these were discovered to be severely weakened by fungal rot which had to be cut away, treated and the sections extended with epoxy resin on stainless steel armatures. Some sections of wall which had been pushed outward by the spreading timber structure were dismantled and rebuilt. The full condition of the rafters and purlins could not be determined without some stripping back of the more severely decayed heather, but this process became part of the archaeological evaluation in preparing for the restoration of the roof covering. In the meantime new long-stem heather was cut from Forestry Commission land in mid-Northumberland and brought to storage close to the site. The final three months in autumn 2013 were focussed on the thatching repairs, retaining as much as possible of the existing and where necessary laying new loose material and building up the whole profile to completion. The thatching project has been described as 'experimental archaeology' designed to establish an understanding of the practice of past generations for whom skills were ingrained in their way of using locally available materials.



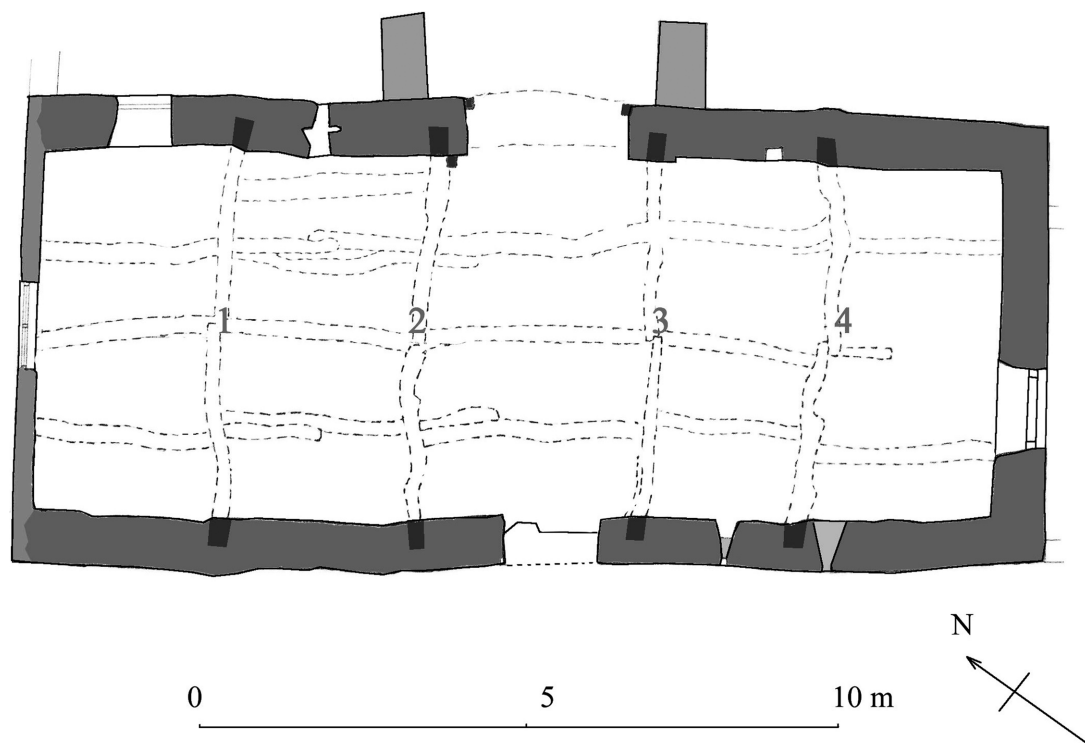


Fig. 2 Plan of Black Barn based on survey by Greenhatch Group 2011.

### DESCRIPTION OF THE BARN

The Black Barn is a rectangular structure *c.* 12.0 by 5.4 m externally, with walls of roughly-coursed and roughly-shaped sandstone rubble 0.5–0.6 m thick, except for the north-west end which is of brick, and much thinner (fig. 2). The north-east elevation (towards the road) has a central pair of boarded doors (renewed) flanked by short wing walls only *c.* 1.0 m high; to the right of this opening is an area of irregular rubble, with a slit vent that has a projecting block as its sill, and then, close to the end of the wall, a square window with a timber lintel. The south-east gable end has a rough boulder plinth and a single window, with a timber lintel, set left-of-centre. The steep gable (typical of a heather-thatched building) has a number of projecting through stones, but lacks any real coping, although the outer face is carried up above the inner face of the wall to form a stepped profile. The north-west gable is all of brick, in English Garden Wall Bond; the orange brick is of earlier 20th-century character, and may have come from one of the local small brickworks. There is a window set centrally, under a timber lintel; the ends of the purlins and ridge are exposed in the wall; above this, the apex of the gable was missing. The south-west (rear) elevation has a central single-leaf door with a timber lintel, and to the right a pair of slit vents and evidence of another, now blocked, to the left (fig. 3).



Fig. 3 South-west side of Black Barn 2010. The failure of the thatch is evident.

#### THE FLOOR

The barn floor is in three parts; the central threshing bay, the byre floor to the north-west and a paved area to the south-east. Before the 2012/13 works it was partly covered by stored materials; after the works it was cleared and recorded but no work was carried out (fig. 4).

The threshold stone of the main entrance to the barn contains sockets for timber jambs, defining what was originally a smaller opening around 1.0m wide (similar to that in the south-west wall); at some later date the opening has been almost doubled in width to the north-west. The threshing bay is 1.8m wide and defined by virtually continuous straight joints in the flooring slabs. Inside the main threshold is an area of pavement made up of large irregular flagstones carefully fitted together, with small gaps between them infilled with either cobbles or small stones. Adjacent is a concreted area 2.0m by 1.4m, its long side on the line of the south-eastern edge of the bay, with two lines of cut stones *c.* 120mm wide showing through the concrete forming the north and east sides of a rectangle 1.5 by 0.75m internally, the south-eastern and south-western sides being contiguous with those of the concreted area. South-west again is another area of large slabs within the threshold of the smaller door.

Close to the north-west edge of the threshing bay and 1.28m inside the north-west jamb of the main entrance is a shallow socket *c.* 0.1m square cut into a flagstone, roughly aligned with the south-east side of a central drain 0.45m wide that runs down the byre floor. The drain is lined in concrete with a central groove that ends in a short length of ceramic pipe; it seems to be laid on top of earlier cobbling and *c.* 1.2m from the north-west end its concrete floor has broken away to expose a patch of cobbles, *c.* 0.50m square. On either side of the drain is a line of elongated blocks raised *c.* 50mm above its floor, running parallel with the structure. Inside and set against the blocks to the south-west side is a timber, decayed for 0.60m at its



Fig. 4 Plan of floor, surveyed by Peter Ryder December 2013.

KEY

- A Original threshold
- B Threshing bay
- C Central drain
- D Cattle stalls
- E Plate for feeding rack
- F Polygonal pavement (storage?)

north-western end but then extending for 2.70 m. Behind the blocks and at the same level as their tops is an area of cobbles, and then another timber 130 mm across, decayed at its north-west end for 0.90 m but then intact for 4.0 m. This timber contains a series of circular holes for staves with small rectangular sockets between, and presumably formed the base of a feeding rack. Between it and the south-west wall is a passage/gap only c. 0.35 m wide, roughly paved with small slabs. At its south-west end the cobbled strip is bordered by a series of slabs c. 100 mm thick, which appear to rest on top of the flagstones of the threshing bay.

To the north-east of the drain is an area that has been concreted over, with occasional large slabs showing through. To the south-east of the threshing bay the floor is quite different, a level pavement made up of large (up to c. 1.0 m across) polygonal flagstones (a number now cracked into smaller pieces), which have been fitted together in a very careful and painstaking manner, leaving only very occasional small spaces infilled with smaller stones.

#### THE ROOF STRUCTURE (fig. 5)

The roof structure is carried by four cruck trusses which divide the building into five bays, with the main entrance and rear wall doorway set opposite each other in the central one. In



Fig. 5 Interior of barn roof looking north, December 2013. The sawn timbers have been added, perhaps in the late 19th century, to control spread of crucks.

the following description the trusses are numbered from north-west to south-east; no original system of carpenter's numbering is apparent. Each truss has curved oak blades that are waney (irregular) in both elevation and plan, and spring from the side walls at between 0.50 and 1.40 m from the floor. Each has a collar half-lapped onto the south-east faces of the blades and set high so as to carry the purlins on its projecting ends; the collars on trusses 1, 2 and 4 have roughly central pegholes, of uncertain function. Each truss also has a more recent sawn softwood tie (doubled in some cases) bolted through the blades at a lower level. The ridge is carried between the overlapped ends of the blades. The joints between collar and blades are generally secured by pairs of pegs, driven diagonally at approximate right angles to each other, a distinctive technique seen in other buildings in the area (e.g. in the upper crucks of the early- to mid-18th-century Woolley Cottage near Allendale).

#### *Truss 1*

The cruck blades here do not match, and it is clear that the north-eastern is a re-used piece; it has a pair of empty halvings (each with two pegholes) set vertically, showing that it has been re-used upside down (fig. 6). There is also an empty diagonal halving on the collar, which

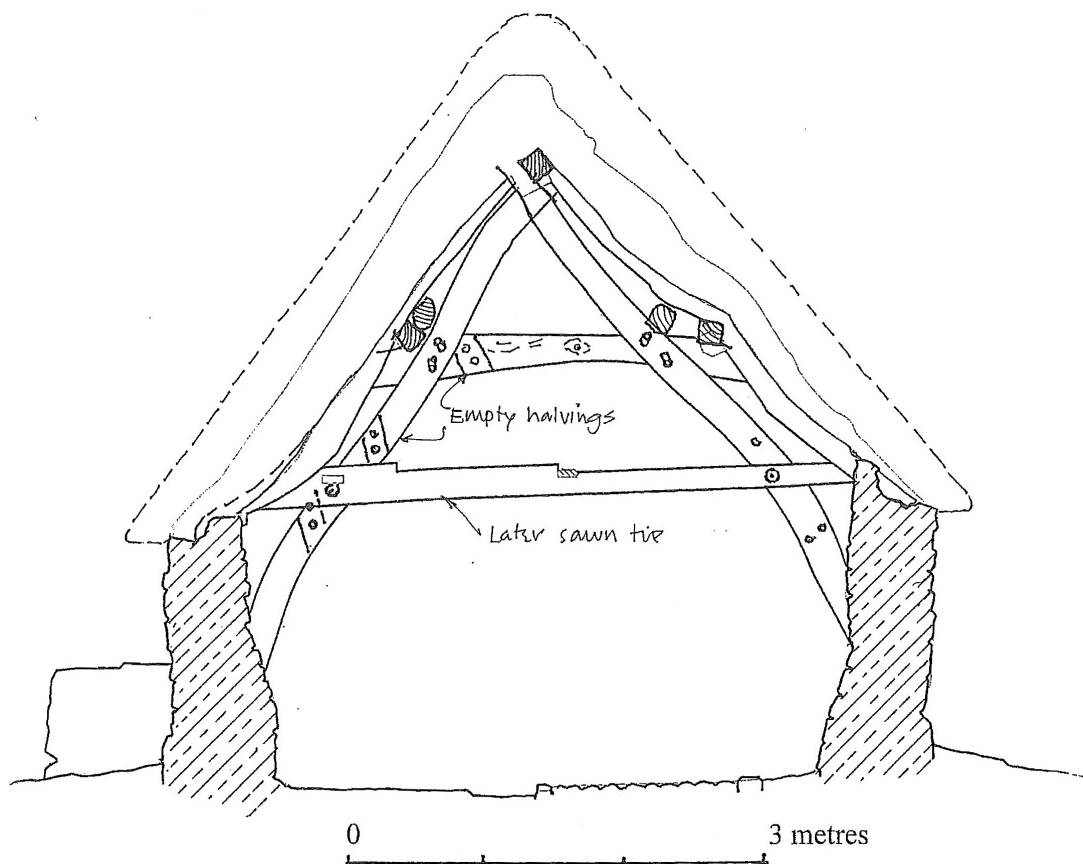


Fig. 6 Truss No. 1. North elevation showing empty halvings — evidence of re-use.



Fig. 7 The south-west eaves wall showing effect of spreading trusses and rafters.

may have been part of a purlin and housed a windbrace. On the south-eastern face of the south-western blade, 1.75 m above the floor, are a series of parallel burn marks; there has been recent debate as to whether these may have some ritual intention, as with apotropaic markings (more usually incised circles etc) offering protection against malign spiritual influence (Lloyd *et al.* 2001).

#### *Truss 2*

Once again one blade shows evidence of re-use, this time an empty horizontal halving, whilst the collar has a diagonal one. There is a small post set against the base of the north-eastern blade. There were remnants of a relatively recent boarded loft, carried by the lower tie beams of trusses 1 and 2, but this has been removed to allow access for repairs to rafters.

*Truss 3*

Here there is a rather odd timber nailed to the north-western face of the south-western blade, and there seems to be an empty halving on the collar, again suggesting re-use; iron bolts had been used to strengthen the joints between collar and blades.

*Truss 4*

The blades here seem to be at a rather shallower angle than on the other trusses, springing from a little higher up the walls; on the north-west of the truss the ridge widens to a broad plank-like form.

## PURLINS AND RAFTERS

The roughly-shaped oak purlins midway up each slope are overlapped on the backs of the cruck blades and supported on the extended ends of the truss collars. There are no wall-plates. It appears that a few of the original rafters were full length to the slope but that most were cut to span from ridge to purlin or purlin to wallhead. Rafters were generally cleft oak though ash was also used. There is no consistent evidence for the fixing of the rafters; some may have been pegged side by side across the ridge beam to hang them from the top but most seemed to rely on support on the wallhead and the loading at the purlin to hold them in place. The fact that the eaves wallhead had been deformed by outward pressure from the roof structure certainly appears to have had as much to do with slippage of the rafters as with spreading of the trusses (fig. 7).

## THE THATCH

Following an inspection of the Black Barn on 3rd July 2008, John Letts, Historic Thatch Consultant and Archaeobotanist, described the tradition of heather thatch roofing and its maintenance.

Heather roofs were very strongly built in order to support the weight of the thick layer of semi-decayed thatch that would inevitably build up over time. A base coat was usually applied prior to the first weathering coat, creating a 75 cm (30 inches) thick roof after the *first* thatching. Successive 'spar coats' of heather were simply fixed onto the weathered surface as required, so that over several centuries an average roof would accumulate c.8–10 semi-degraded spar coats of heather 1.5 m plus (5 feet) thick. The surface layer shed most of the water falling onto the roof, and any moisture that seeped into the upper layers evaporated in dry weather. Within the semi-degraded roof, fungal decay was limited by the same biological factors that leads to peat formation in local moors. Records indicate that heather thatch could last 35 plus years with minimal repair (and regular re-ridging) when good quality heather was applied by an experienced thatcher.

Historic thatch and traditional thatching methods are disappearing rapidly throughout the UK. Heather has not been widely used in thatching for over a century ... The Black Barn at Tow House appears to be the last surviving historic heather thatched roof in England and perhaps the UK (Letts 2008).

It is worth going back to the repairs carried out in 1990. The then owners, Mr and Mrs Hayward, had contacted John Warner, a Master Thatcher from Brandon near Coventry, who was working on the heather thatch at Causeway House near Vindolanda a few miles north of

Bardon Mill. Warner inspected the Black Barn in September 1989 when it was still under corrugated iron sheeting. His specification and estimates were therefore of a tentative nature until a preference could be confirmed by the removal of the sheeting; he quoted two options:

A. If the existing coat of heather is in good enough condition, patch where necessary with new heather and fix new eaves. Thatch a new ridge using heather and turf fixed with hazel spars and liggers. Cover entire roof with  $\frac{3}{4}$ " square mesh UV protected plastic netting.

A fixed quote will be submitted prior to start of work.

B. If the condition is so bad: strip off all existing heather and to a sound timber roof and stone gables/eaves thatch a new coat of heather fixed with hand-forged iron hooks and iron sways. Thatch a new heather and turf ridge fixed with hazel spars and liggers. Cover the entire roof with UV protected netting as A.

Estimate supplied.<sup>2</sup>

Once the sheeting was removed Warner realised that the existing thatch was in good enough condition to repair (Option A). This was an important decision, for while the work done in 1990 came to a lamentable state of decay in too short a time, through weathering and lack of maintenance, the significance of this rare surviving and sufficiently intact example of historic heather thatch pre-dating the repairs of 1990 has grown.

On the appointment of the project team by a new owner in 2011 it was agreed with English Heritage that the roof of the barn was an archaeological site. Not only would there be an initial site investigation through trenching across the profile of the roof, but every effort was to be made to ensure that the careful removal of waste heather compost and the preparation of the thatch that could be kept as a basecoat would be part of the archaeological investigation and recording. Furthermore the re-thatching of the barn would follow on directly from the investigation of the roof covering as a kind of experimental archaeology to understand why thatchers of past generations chose particular materials and developed preferred ways of doing things. John Letts set out three objectives in planning the archaeological work.

1. To identify and record the evidence for the materials and methods used by thatchers in the past.
2. To interpret this evidence to help develop a better understanding of historical and regional thatching traditions to inform new thatching work.
3. To assess the evidence gathered from investigation in relation to off-site data in order to address broader issues and research questions (Letts 2013).

His strategy was to record and sample all the important features on the site (i.e. the roof) focussing on primary thatching materials and fixing methods that would occur within every layer. The key, of course, would be to recognise, by previously gained comparative knowledge, what sorts of data were worth recording and would most improve the understanding of this roof and its regional distinctiveness. The difficulty in establishing data from other sites of historic heather thatch in the north of England lay in the propensity of thatchers to strip all old thatch off in preparation for new thatching so that few, if any, other examples of heather-thatched buildings contain historic thatch. Other archaeological evidence could only be drawn from written records and photographs of which a significant collection were available at the Beamish Museum Archive in County Durham — a sad gazetteer of buildings lost in the last century through the ‘march of progress’ in rural housing and agricultural development.



The conservation strategy adopted for the 2012/13 repair of the Black Barn was to avoid any more disturbance to the historic thatch than was absolutely necessary to ensure a sound roof upon completion. This would be influenced not only by the condition of the remaining thatch but also by the state of the supporting timber structure. On the more exposed south-west slope of the roof many of the rafters were obscured by a damp sagging mattress of decomposed heather and parts of the roof had fallen in where rafters had rotted away. However over the ridge and on the north-east slope both thatch and rafters were in much better condition being protected from the strongest winds and from the direct heating of the sun which leads to more rapid composting.

The archaeological investigation was the first activity on site under the temporary roof. A deep gully in the north-east slope had formed in the heather in the 1990s and had been temporarily filled with straw thatch in 2008. This was used as the site of a trench through the thatch from the ridge down to the eaves to give a profile of the best preserved build-up of historic thatch either side of it. Other work explored the details of eaves and gable verges and by carefully raking off semi-composted fill to the roof-slope surface the sequence of layer upon layer of earlier spar coats was recorded.

While the full report of John Letts' work is not yet available, his evaluation of the evidence of the historic thatch was translated into the text of a specification for the careful preparation and consolidation of the existing undisturbed thatch as a base for new build-up to a full profile.

Heather is unique amongst thatching materials in being laid so that its roots or cut-stem lie up the slope and its head down the slope. As a bushy dividing growth with springy hard stems it is difficult to persuade the material to bed down into a dense compact surface. With wheat straw and water reed the long stems laid with the cut end down the slope do lie tightly together and form a dense surface down which water can run freely and drain off. With heather there is something of a competition between water running down the slope or percolating through the stems into the heart of the deep thatch cover. This race can be influenced by the steepness of the roof pitch. At the Black Barn this is relatively shallow, about 50° from horizontal, but much steeper pitches can be seen at other buildings (for instance the Whitehouse at Featherstone where the structural roof pitch must have been not less than 58° from horizontal and the finished thatch probably 60°). One possibility is that, with successive coats of thatch, the pitch might be increased by enhancing the thickness of the thatch towards the top and creating a very deep build-up over the ridge (fig. 8).

One of the key issues of the thatching specification was the selection and cutting of long-stem heather. The short moorland heather managed for sheep and grouse on a seven-year burning cycle is not suitable material for thatching, but stands of heather over 1.0m tall were found within Forestry Commission plantations in mid-Northumberland and cut in the spring before the contract. This was assembled for transport in bundles — the basic unit in which the thatcher will measure his need for the material in relation to the roof area. Over 3500 bundles were cut and tied to cover 1700 square feet or seventeen Thatcher's Squares.

Over closely spaced cleft-oak rafters a first layer of roughly tousled heather is laid to span the 150–200mm gaps between the rafters. Heather is strong enough to do this and close-spacing is a characteristic arrangement of rafters related to heather thatching. The angle between the top surface of the rafters and the outer part of the wallhead is built up with a bed of short heather laid cut-stem up the slope supported over the jumbled first layer. On this was found a thick layer of clay not directly bedded on the masonry but placed into the heather.

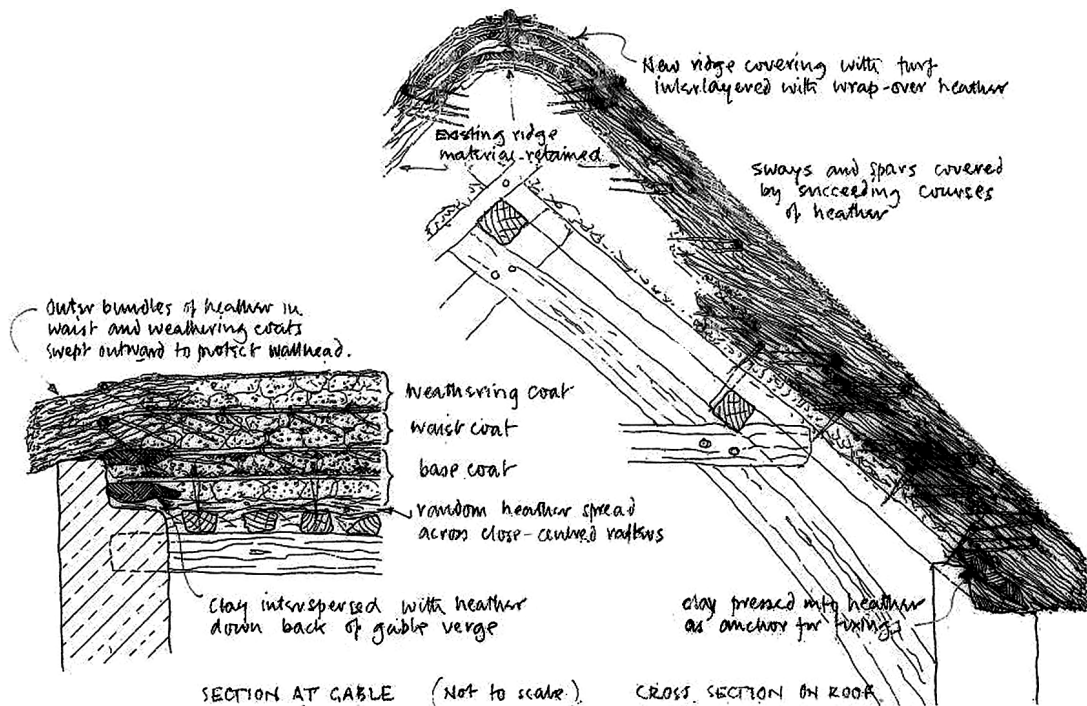


Fig. 8 Detailed section of gable verge, ridge and eaves with schematic layering of heather, clay, turf and fixings.

This appears to act as a weight to keep that layer of heather down but also provides a key into which the next bed of projecting eaves heather will be fixed.

The base coat over the whole width of the roof is built up in successive lapping courses of long heather held down by sways. The fixing of the base coat was often done with metal spikes driven into the rafters or sways were tied to the rafters. There was no evidence of either method here and when it came to fixing new areas of base coat a modern solution developed by Dutch thatchers was used. This consisted of brass screws driven into the rafters each armed with a long double tail of chromium-plated wire which could then be twisted round the sways and tightened while the sway was knelt upon to compress the heather. This process continued up the slope to bring the base coat up to meet the underside of the existing ridge covering. Where the base coat met the gable verges clay was also incorporated between successive courses of heather to form a sandwich — heather /clay/heather/clay — sitting on the sloping ledge formed across the inner face of the masonry behind the outer verge upstand so typical of a heather-thatched structure.

The next coat, normally referred to as the waistcoat, starts at the bottom in much the same way but now the sways (willow or hazel rods of a man's thumb thickness) are fixed with twisted hazel spars (in the North East also called staples or stapples) about 0.40m long with sharpened points driven into the basecoat. Care is taken that these should not point downward and risk conducting water into the thatch, but are driven at least horizontally against the slope of the roof (fig. 9). Across the top of each course the dip above the stems of heather



Fig. 9 The waist coat is fixed with hazel sways and spars (or staples).

is filled with loose peat or composted heather and moss so that each course is fully bedded and does not rock or lift as it is fixed. At the gable verges the waistcoat also runs in behind the upstand outer face of masonry and spars are fixed into the clay/heather sandwich of the base coat.

The basecoat and waistcoats have been used to fill out the uneven framework of the rough cleft-oak rafters and to increase the pitch of the roof surface by making each coat thicker at the top than at the eaves. The resultant work of these two coats has left a good surface plane to which the 'spar' or weathering coat can be applied. As this will be the finish to the barn a good deal of care is taken to dress the heather at the eaves and verges so that it can be neatly trimmed to straight lines.

The laying and fixings are the same as the waistcoat but along the eaves and down the verges an extra precaution is taken to hold the exposed tail of the heather down firmly against



Fig. 10 The exposed ridge eaves and gables are reinforced against wind with liggers.

wind by fixing hazel liggers held with frequent spars hammered deep into the combined waist and base coats. At the bottom corners an extra short diagonal ligger is added to resist strong wind ruffling (fig. 10).

At the ridge the archaeological evidence quite clearly shows a succession of interlayered wrap-over heather and turf. As the ridge is the most vulnerable element to weather and disturbance this succession will reflect many generations of renewal. So to finish this repair it was seen that the heather should be carried over the ridge and lapped as the finish to protect the turf from the cycle of wetting, freezing, drying and crumbling in which it is more likely to disintegrate if it were exposed as the top layer. The longest heather stems are wrapped over from either side and held with a double line of liggers in each slope.

### THE BLACK BARN AND ITS FUNCTION

The older maps, up to the mid-20th century, all show the Black Barn as forming one end of a linear range of buildings, now represented by the three houses of the Hillcrest terrace. A study of the map evidence, comparing the 1st edition Ordnance Survey 25 inch: 1 mile map of c. 1860 with the current edition, suggests that the barn, despite its early 20th-century end wall, has not been truncated by any detectable amount. The c. 1860 map also shows the

continuing structure as not aligned with the barn but slightly offset to the west; it also shows the structure at the other end of the terrace as having the same footprint as the present no. 3 (including the small outbuilding to the north-east, but not the rear outshut). The demolished building in between was rather longer than the Black Barn and had a small outbuilding at its south-east corner. It remains a roofed structure on the 2nd edition Ordnance Survey sheet of *c.* 1895, then on several 20th-century editions as a hollow rectangle, as if a roofless ruin; the present pair of houses here (nos 1 and 2 Hillcrest) take up rather less space, leaving a short gap between them and the barn; if indeed the Ordnance Survey cover had been regularly updated they may be no older than the 1970s, but look of rather earlier (1930s?) character.

Whilst the pre-1970s Ordnance Survey maps all show the line of three building as having a common rear garth, two older maps, the *c.* 1773 Enclosure and the 1841 Tithe Award, show this divided into two areas, and the Tithe Award makes it clear that the barn and the remainder of the range then had separate owners and tenants. Thus it seems that the preliminary interpretation of the whole range as a traditional linear farm may be mistaken; if it was linked to a house in the village then that may have been the former structure at the west end of Tow House Farmhouse, which is indicated on the 1841 map as being tenanted by Thomas Harding who also held the barn. Overall the pattern of ownership and tenure in the hamlet, as demonstrated by the Tithe Award, is rather more complex than one might have expected.

The structure does seem to have been built as a barn, as it has a central threshing bay with a pair of opposed doors. Originally these were both of the same size (the central and western compartments of the High Meadow Barn both have opposed pairs of equal-width doorways). At some later date the eastern doorway has been widened to its present cart entrance form. Both doors were relatively small; with larger barns one threshing door at least was usually wide enough to admit the entry of a cart but this was not the case in relatively small upland barns like this, in an area of subsistence farming, with threshing being carried out by hand in winter. The Black Barn has clearly later served as a multi-purpose building, as is shown by its flooring; the southern part its rather remarkable floor of carefully-fitted polygonal flagstones, whilst the northern part has clearly been converted into byres with cobbling on either side of a central drain, and a feeding passage along at least the west wall; there is some indication that the cobbling may overlies older flags, and that during the 20th century the eastern section of cobbling has been concreted over.

## THE BARN IN ITS CONTEXT

### WITH THE BUILDINGS OF TOW HOUSE

The Black Barn is only one of a number of interesting buildings in the hamlet of Tow House. The earliest map so far traced that gives a detailed representation of the settlement is the Henshaw Enclosure Award of 1783–1787<sup>3</sup> and this depicts sixteen separate structures, most of which can still be identified today. The Tithe Award map of *c.* 1840<sup>4</sup> shows 'Toe House' having a virtually identical layout, and indeed successive Ordnance Survey editions from *c.* 1860 onwards document a surprising continuity (fig. 11). There has been relatively little change beyond some infill, and 20th-century development along the main road linking Tow House with Redburn *c.* 800m to the east.

Closing the northern side of the northern green (marked A on fig. 11), with the entrance to the hamlet from the main road at its west end, is Town Head Farmhouse (NY 7665 6441)

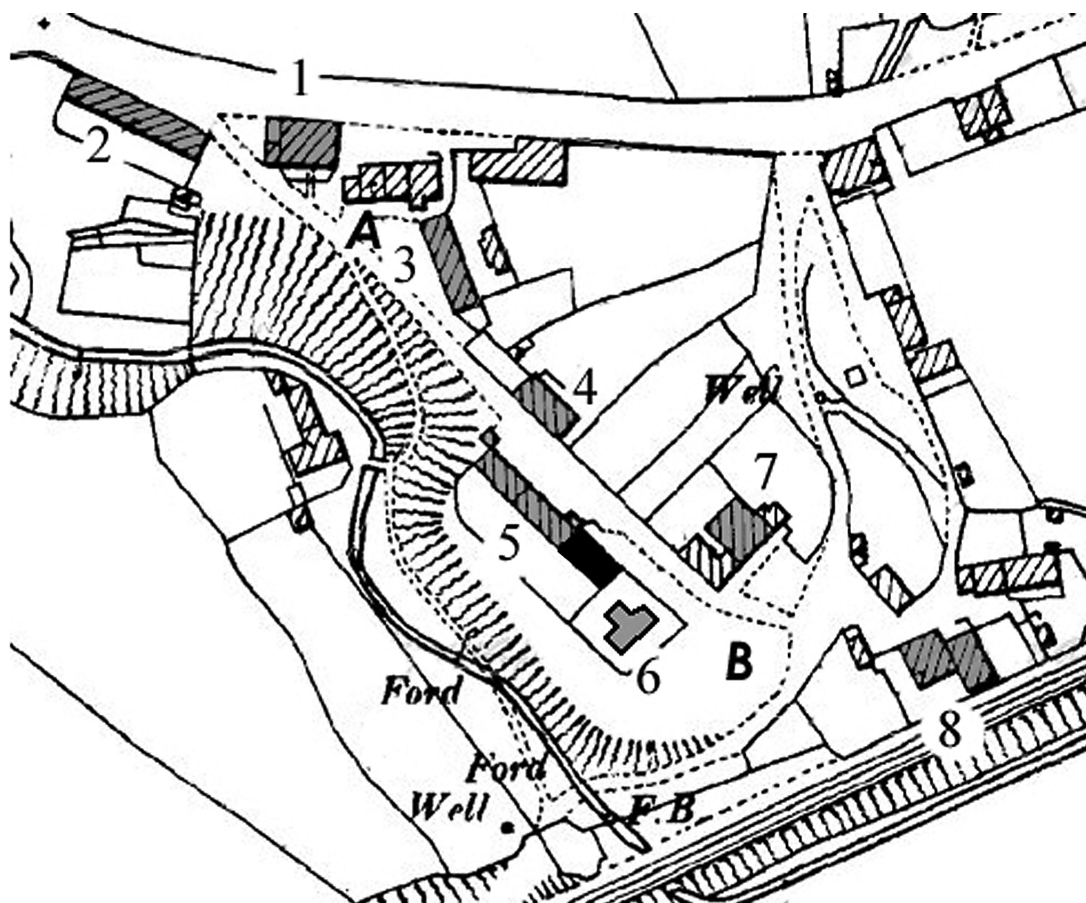


Fig. 11 Tow House (based on c. 1890 Ordnance Survey) showing buildings mentioned in text.

KEY

- |                            |  |
|----------------------------|--|
| 1 Town Head Farmhouse      | 5 Range (Thatched Barn highlighted in black) |
| 2 Town Head farm buildings | 6 Burncliffe                                 |
| 3 Barn, now ruined         | 7 The Bastle                                 |
| 4 Stronghouse              | 8 Tow House Farmhouse                        |
| A North Green              | B South Green                                |

(fig. 12). The thick walls and boulder plinth of this building indicate that it was probably originally a bastle (a defensible farmhouse of the early 17th century). This was remodelled and had a rear outshut added in the 18th century. The east side of the northern green was closed by an 18th-century barn, now a ruin; south of this were a pair of houses, the northern now a fragmentary ruin and the southern now a dwelling with ground-floor accommodation only, with thick walls and a bastle-like doorway defended by a drawbar tunnel, best described as a 'Strong house'.<sup>5</sup>

On the north side of the the southern green (marked B on fig. 11) is The Bastle, facing south onto the sloping green. This ranks alongside the Black Barn as the most significant of the



Fig. 12 The North Green Tow House; the rendered building at the back is Town Head Farmhouse: the long wall to the right is all that remains of an 18th-century barn.



Fig. 13 The South Green overlooked by The Bastle on the left.

hamlet's historic structures, and like it has a Grade II\* statutory listing; it is one of the best-preserved bastles in the area.<sup>6</sup> On the south side of the southern green is Tow House Farmhouse, much altered but with evidence of a former steep roof-line at its east end suggesting that it was once heather-thatched (fig. 13).

The site and morphology of the hamlet clearly relate to a concern for defensibility. A naturally strong site has been chosen, and continuous lines of building or steep natural slopes (possibly topped by a hedge or stockade) used to define an enclosure, or rather a pair of greens or enclosures, in which animals could presumably be secured, linked by a street. A number of the individual houses were clearly defensible in their own right. There are a number of other defensible settlements in Tynedale; Chesterwood and the larger village of Wall are good examples, each with a number of bastle houses clustered around greens. Hexham itself is built on a river terrace bluff bounded by two stream gullies, and there is some evidence that it may have been walled.

Further downriver, in 1570 the Royal Commissioners described Bywell as 'buylded in lengthe all in one streete', the inhabitants being 'subject to the excursions of the theaves of Tyndale, and are compelled wynter and somer to bring all their cattell and sheepe into the street in the night season and watch both endes of the strete' (Northumberland County History 1902, 83). Tow House is a smaller settlement than Bywell, but one can imagine the same sort of thing happening, the ends of the street being closed by gates or hurdles and watch being kept, with each 'green' being overlooked by a substantial bastle.

#### WITH CRUCK-FRAMED BUILDINGS IN THE NORTHERN PENNINES

The Black Barn is a rarity not only in its retention of heather thatch, but also because it is a cruck-framed building. Brunskill (1985, 40) defines cruck construction as 'making use of inclined pairs of heavy, usually slightly curved, beams joined together by a collar or a tie-beam to make an A shape and spaced out in bays so as to transmit roof loads collected from ridge purlin, side purlins and wall-plates direct to the ground'. The singular nature of the cruck truss, sometimes termed 'the arch that never sleeps' was first underlined in the works of pioneer researchers such as Sidney Oldall Addy (1898) and Charles Frederick Innocent (1916), who were both based in Sheffield, on the fringe of the Southern Pennines and in an area where there are many examples of full cruck buildings. In full or 'classic' (as Brunskill terms it) cruck construction the inclined timbers or blades spring from ground level, or are set on a low plinth; the other variants generally recognised are raised crucks, which spring from the side walls at mid-height, and upper crucks, in which the blades are tenoned into a tie-beam which may form part of the first or second floor construction. It has been argued that cruck construction was introduced at a high social level; some of the earliest known examples are in high-status medieval buildings such as some great monastic barns, e.g. Leigh Court in Worcestershire (belonging to Pershore Abbey and dating to c. 1325) but the vast majority that survive today are in buildings that can be classed as vernacular, with a wide range of regional variants not only in the overall form of the crucks but in features such as the manner in which the ridge is carried and whether or not the blades are formed from single timbers or jointed. The clear distinction between 'cruck' and 'non-cruck' areas has led to much speculation as to the origins of building traditions. Alcock (1981) provides a catalogue of over 2000 recorded cruck-built structures, along with distribution maps *etc.* of the principal varieties. More recent research — in particular the revision of the statutory lists of buildings of historical and archi-





Fig. 14 High Meadow Barn — later 18th- or early 19th-century heather-thatched structure.

tectural interest that took place in the 1980s — has added many more examples, but the crucks of North East England have received relatively little attention. The most comprehensive gazetteer is probably that compiled by Martin Roberts; a select inventory from this has been published (Roberts 2008) but the full MS list has a total of 65 examples in Durham and the Tees Valley, and 46 in Northumberland/Tyne and Wear. Upper or raised crucks are overwhelmingly dominant — Durham has only three full crucks (none of which survive today) and Northumberland five. Chapman has published studies of some Tees Valley cruck buildings (Chapman 1982) and Roberts of crucks in and around Durham city (Roberts 1980).

Turning to the other Northumberland examples, the Black Barn cannot really be considered, either as a cruck-framed or as a heather-thatched building, other than alongside its near neighbour, the barn at High Meadow (NY80256536), *c.* 3.7km to the east (fig. 14). The Tow House building is more clearly a barn — despite the rebuilding of its north wall, map evidence suggests any truncation has been minimal, and its trusses are disposed more or less symmetrically around a threshing bay with a traditional pair of opposed doorways. High Meadow is a more elongate building, but its cruck trusses are interspersed with stone cross walls which divide it into three more or less equal compartments.

The central and western compartments have opposed doorways, but each has only a single cruck truss, whilst the eastern has a door on the south only, and two trusses, one set hard up against its west wall, which only rises to eaves level. High Meadow has the feel of being more recent than the Black Barn; its plan is more carefully laid out, with stone walls that are considerably more regular, but in contrast its crucks are of poorer-quality timber and wanier (fig. 15). Early workers such as Addy might have seen their crude nature as evidence of an early date, but the opposite is more likely to be correct, that they represent the last gasp of a dying



Fig. 15 High Meadow Barn — interior. The rafters renewed in round-pole in the 1990s and re-thatched.

tradition, whereas the stone structure on its own — and there is no reason to doubt that the cruck frame and walling are contemporary — is competent and unremarkable, and its character very typical of the late 18th or even early years of the 19th century.

Looking further afield, the two barns seem very much like isolated survivors, and it is difficult to assess how widespread a tradition they represent. Scanning a map of cruck buildings,<sup>7</sup> it is clear that over England as a whole there are three major concentrations of cruck (usually full cruck) buildings: the Welsh Borders and North Wales; up the spine of the Southern Pennines — from Leicestershire into what is now West Yorkshire, but with the greatest densities in North Derbyshire and the modern South Yorkshire; and a separate area in the North York Moors. There are a fair number in Cumbria — with a concentration on the Solway coast where crucks are often associated with ‘clay dabbin’ buildings (Jennings 2003) — but only the merest scatter of dots in Northumberland and Durham. Crucks are entirely absent to the east of a line from the Humber to London, and again in South West Wales and Cornwall.

The question that arises in regard to the North East is whether crucks were once common, but no longer survive, or whether their use was only occasional. Roberts (2008) cites several medieval references to the use of crukes, or ‘siles’ or ‘syles’ as they were then termed, in properties associated with Durham Cathedral Priory, at Sacriston Heugh in 1348, Nun Stainton in 1364 and 1392, Fery in 1371 and at Billingham in 1458–9. At Nun Stainton ‘gavel-forkes’ are seen as end crucks (a form which implies a hip-ended roof, but rarely survives today; seen in a surviving barn at Corrimony, Inverness-shire (Dixon 2001, 192)). There is a strong argument that their absence is due to the poor survival of any early vernacular buildings; one is hard put anywhere in Durham or Northumberland to find cottages or minor farm

buildings pre-dating the great rebuilding of agricultural buildings that took place in the 19th century. The handful of full cruck buildings that survive, or have been recorded, are all relatively humble structures, the only exception being the Tithe Barn at Hurworth, only known from an old photograph,<sup>8</sup> which looks to have been a massive structure more in line with the great cruck barns of South Yorkshire and Derbyshire. Given the disappearance of some once-common vernacular building traditions, such as the earth-and-timber houses of the 'heddesmen' of Tynedale (known to us from the relatively-detailed description provided by Bowes and Ellerker's 1541 survey (Long 1967, 41) but no longer represented by either standing buildings or, so far, excavated remains), it would seem quite possible that cruck buildings were once widespread in the area. The near-disappearance of heather thatch makes the same point. As in other areas, cruck construction in the North East was used equally for houses and agricultural buildings, indeed the house directly across the road from the Black Barn seems to have had full crucks prior to mid-20th-century alterations.

#### WITH OTHER HEATHER-THATCHED BUILDINGS IN THE NORTHERN PENNINES

As a roofing material, heather thatch was once all but ubiquitous across the Northern Pennines, but its use declined markedly throughout the 19th century, and finally became extinct in the early years of the 20th century. Without maintenance the thatch does not have a long life span, so the number of surviving examples of buildings roofed with it dwindled to a handful, before the first restorations began around half a century later. In consequence heather-thatched buildings are known to us in three ways: through the survival of features associated with thatch, such as steep gable-lines (by far the most numerous group); through old illustrations (the Beamish Museum Photographic Archive being a prime source); through the tiny number of actual survivals.



Fig. 16 Causeway House, Vindolanda — re-thatched 1989.

The earliest modern worker to examine heather-thatched buildings in the region was Vera Chapman, whose work was restricted to Teesdale and Swaledale (Chapman 1982, 9). A more comprehensive survey was published by Norman Emery (Emery 1986) in conjunction with his study of Fell Close Cottage near Waskerley in County Durham, in which he gives a valuable review of historical sources relating to the use of heather thatch in the area from the 14th century onwards, lists other known examples (and gives a distribution map) including what seems to be the first published reference to the Tow House Barn, and in particular to the use of moss in its roof. Emery, along with John Warner and Dr Alan Pearson, then published a paper on Causeway House (Emery *et al.* 1990), like Tow House in Henshaw parish (see fig. 1). This paper, as well as giving a detailed description of Causeway House and its 1989 re-thatching (fig. 16), reprises and expands Emery's earlier gazetteer and distribution map. The importance of the three surviving heather-thatched buildings in the Tow House area, Causeway House, the High Meadow Barn and the Black Barn itself, was realised in the 1984–1987 Resurvey of Buildings of Architectural and Historic Interest, when all three were given Grade II\* listings.

Emery's maps demonstrate that survivals of heather-thatched buildings, both contemporary and recorded in the last century or so, are concentrated in two or three enclaves in the Pennines, one in Upper Wharfedale, one around Bowes and one around Bardon Mill in the valley of the South Tyne, in which the Tow House Black Barn is situated.

## TYPES OF BUILDING THATCHED IN HEATHER

As one would expect, given the deficiencies of the material — high maintenance and potential fire risk — the majority of buildings thatched in heather were vernacular, although not necessarily of particularly low status. Some of the Teesdale buildings, such as Levy Pool and the Red Lion in Cotherstone, are well-built houses with some neat masonry detailing; the field barn at West Low Fields near Bowes was a substantial and good-quality building. Others were rather more utilitarian, such as Causeway House which had a small farmhouse and outbuilding under one roof, and the Tow House barn itself. Documentary references indicate a wider range of buildings once roofed in heather, including churches at Muggleswick and Satley, and the peat store of the Old Gang Lead Smelting Mill (Emery *et al.* 1990, 139–144).

### BASTLES

One specific group of Northumberland buildings on which heather thatch seems to have sometimes been used was bastle houses, defensible upper-floor farmhouses usually dating from the early 17th century. None now retain heather thatch, but there are old illustrations showing thatched bastles, e.g. at Woodhouses (Dixon 1903, 287–92) and Henshaw<sup>9</sup> and a number of others including Black Middens and Gatehouse North (Tasset), Hope Head in Allendale and Hill House at Thorngrifton, which have evidence of upper cruck roofs, which would generally seem to have been associated with it. These pose a problem; heather thatch, given its perceived inflammable nature, would seem a very poor choice of roofing material for a building constructed to counter a threat of raiders who were well known to use fire as a weapon, and had features such as quenching holes which were a specific response to the practice of setting a fire against a door. One is left with three choices:

1. Either upper cruck roofs in bastles did not carry thatch, but were too steep to take stone slates — therefore some other as yet unknown material must be sought.
2. Upper crucks in bastles are always later modifications, which seems unlikely, although it is possible that some bastles had 'top vaults' — a solitary example survives at Snabdaugh in North Tynedale — which might be prone to structural movement and early replacement.
3. Heather thatch, particularly if combined with a turf layer, and kept damp, was perhaps not the fire risk that we now perceive it to be. Stone flags, and the substantial roof carpentry needed to carry them, might have been the preserve of the better-off bastle owner.

The bastles/heather thatch puzzle remains unanswered; there is perhaps scope for some entertaining experimental archaeology here.

#### DATE RANGE

Heather thatching was obviously in use from the earliest times, and Emery (1986, 93–4) cites several medieval references; in 1338–40 heather or 'bruera' was in use at the Sacrist of Durham's manor at Sacriston Heugh (Fowler 1899, 378), in 1357–8 it was in use in Durham City on roofs in Old Elvet and at South Bailey. In 1370 and again in 1477 the Inventories and Account Rolls for the monastery of Jarrow refer to the purchase of heather. It is a little difficult to explain the use of heather in lowland areas where more amenable materials, i.e. reeds and straw, might be readily available. Its use is understandably more general in the Pennines dales; in the mid-17th century John Bewick, appointed to the parsonage at Stanhope under the Commonwealth, was sued by local people who claimed he had no right 'to make use of the fell to pluck ling and cut turfe specially at that time to thatch the parsonage Barne'.<sup>10</sup>

Some heather-thatched houses can be dated by doorhead inscriptions: in Teesdale Levy Pool is dated 1736 and two houses in Hunderthwaite, Grass Farm and Hunderthwaite Farm, 1703 and 1730, respectively; in Northumberland Causeway House is dated 1770.

The letters of Richard Pococke, Bishop of Ossory, in 1760, make clear how widespread the use of heather thatch was; in Stanhope he wrote 'they thatch their houses with a very thick coat of heath and make their roofs steep that the melted snow may not soak into the thatch' (Pococke 1915, 209) and in Rothbury commented 'the houses are mostly thatched; they cover them with sods for warmth, and thatch with heath, which will last thirty years' (Pococke 1915, 223). In the mid-19th century, Cotherstone was described as 'all thatched' by a gentleman who thought 'there could not be a more dreary spot on earth'.<sup>11</sup>

The use of heather thatch clearly declined through the 19th century, first as stone flag roofs became more commonplace (in the areas where such flags were readily available) and then with the general export of Welsh slates made possible through the development of the railway network. In Swaledale, for instance, there are instances too numerous to chronicle of buildings with gable-end evidence of former steep-pitched roof that have had their eaves raised, from the late 18th century onwards, to create roofs of more shallow pitch that would take 'thackstones' — literally 'thatch stones'. Only a few ruined buildings that were never modified retain steep-pitched gables, such as Birks End.<sup>12</sup> New structures were still being built to carry heather thatch, but they were usually of a very humble nature such as the out-building range at Quarry House, Slaley<sup>13</sup> which map evidence suggests was only completed after c. 1860, with a hip-ended roof that used larch or pine poles as its rafters.

The last traditional heather thatchers, by now very localised, worked in the early 20th century. In the 1960s Vera Chapman talked to some of the last survivors, the Kipling family of Baldersdale, who recalled re-thatching Tute Hill (NY 976149) and East Stony Keld (NY 983149) farms in the 1930s (Chapman 1982, 9). In both cases the thatch had been replaced in more permanent materials within thirty years or so, but nearby Levy Pool (NY 968155) managed to retain some of its heather roofs, although in ruinous condition, when sketched by Chapman in 1970. Other heather-thatched buildings in the Bowes/Baldersdale area, shown in ruinous condition in the Beamish Museum Photographic Archive — a barn at Briscoe Gate in Baldersdale (NY 98031942) photographed in 1964, the West Low Fields Barn near Bowes (NY9993 1323) photographed in 1959 — may have been their work as well. It would seem that without protection properly-constructed heather thatch roofs seem to last for between twenty and thirty years. Another photograph in the archive shows Grandys Knowe apparently undergoing re-thatching, with its roof stripped down to its upper cruck trusses, purlins and ridge. The date is not clear; it is reported that the house was re-thatched in the 1960s (?) when taken over as a bothy by the Barnsley Mountaineering Club, but by the 1980s all thatch had gone — hardly surprising given that this is an extremely exposed hilltop site. More recently, experience on several sites across the country, including museums, suggests that re-thatching carried out without the benefit of traditional knowledge specific to the use of heather does not even have this longevity.

Another small enclave of thatched buildings, like the Bowes/Baldersdale one, occurs around Bardon Mill with the Black Barn, the High Meadow Barn, and Causeway House, leading one to suspect that local heather thatchers must still have been active into the earlier 20th century. Although Emery *et al.* (1990) detail the renewal of the thatch at Causeway House, they do not suggest a date at which it was previously renewed or repaired. Similarly other clusters of current or recorded survivals — such as that around Edmundbyers and Muggleswick (several entries in Beamish Museum Photographic Archive) and, further south, the group in Wharfedale, are probably evidence of the late survival of specialist thatchers as the main factor behind the local continuance of the tradition and practice.

The actual date of the Black Barn remains uncertain, attempts at dendrochronological analysis having proved inconclusive (Arnold and Howard 2006). It is possible that the low pitch of the roof — together with the obvious re-use of several elements of the cruck trusses — indicates a relatively late date, perhaps mid-18th century

#### DISTINCTIVE MASONRY FEATURES ASSOCIATED WITH HEATHER THATCH

The distinctive features of a stone building that was built to take heather thatch are now often the only indication of its former use, and they are best seen in structures which have now lost their thatch. An excellent example is the ruined house at Whitehouse, Featherstone, (NY 6843053) c.10km south-west of Tow House, which has one gable end still intact, demonstrating a spectacular pitch of 58° and a distinctive internal set-back so that the base course of thatch could be contained behind the external face of the coping (fig. 17). Large horizontal flagstones cap the walls and overhang their external faces by 10cm or so. There are similar soaring gables at Levy Pool, which has a claim to be the one Pennine house that has always been heather thatched (whereas Causeway House had a period in which the remains of the thatch were covered by metal sheeting), although its roofs have been completely renewed when restored from ruin, and again after a fire in 2005. In Swaledale the ruined Birks



Fig. 17 The steep gable wall of ruin behind Whitehouse, Featherstone: now sadly a dangerous structure.

End retains one gable, with a slightly concave profile to its slopes and flat slabs at the apex, and also remains of similar slabs capping the side walls, as at Whitehouse.

Whilst such steep gables seem a certain indication of the use of heather thatch, a pitch of around  $50^{\circ}$  seems to have been nearer the norm. At the Black Barn it is nearer  $45^{\circ}$  and there are none of the distinctive masonry features seen at Whitehouse and elsewhere. The surviving south end gable lacks any real coping, and the side walls do not have any slab capping, but were roughly levelled off on the outer face and carried up to a higher level internally, in small rubble, to the underside of the rafters; the overall impression is that of a humble vernacular structure.

## ROOF STRUCTURES ASSOCIATED WITH HEATHER THATCH

If a cruck or more commonly an upper cruck roof is found in the Northern Pennine area it is probably a reasonable assumption to say that it once carried a heather-thatched roof; however other roof structures were also commonly used, most frequently simple principal rafter trusses, sometimes with a collar. The 1964 photographs of the decaying barn at Briscoe Gate show what may have been quite a typical truss, a pair of substantial principal rafters linked by quite slender tie-beam which looks to have been simply nailed or pegged onto one face, carrying two levels of substantial purlins and, between their overlapped ends, a diagonally-set ridge, which in turn carried the usual closely-set very rough rafters that supported the thatch. The roof truss over the granary at Causeway House is described in detail by Emery *et al.* (1990, 134–5), the principals were similar to those at Briscoe Gate but, instead of ties (which would have given little head room in the granary) there were two levels of collars, halved into the principals, the upper pegged and the lower (later?), secured by iron spikes. At Quarry House, Slaley, the 19th-century outbuilding range had a simple principal rafter truss, the principals being halved larch or pine poles of D-section, nailed together, with a pole ridge resting between their overlapped ends, and a single level of purlins. Chapman's 1970 sketch of the truss over the loose house at Levy Pool (Chapman 1982, 11) shows a simple truss with slightly incurved principals springing from the wall head, with a collar set low, fixed against the west face, and a ridge pole carried between the overlapped ends of the principals. Rather confusingly this roof, now renewed, now has a cruck truss, but this is an 'antiquarian import' from Shadforth in County Durham.<sup>14</sup>

## NOTES

<sup>1</sup> Masonry and carpentry repairs were by Team Force Conservation Ltd., thatching by William Tegetmeier, Master Thatcher from North Yorkshire, with John Letts Thatching Consultant.

<sup>2</sup> Report (unpublished?) by J. Warner, September 1989: Glossary:

Basecoat, waistcoat, sparcoat or weathering coat — successive layers of heather built up to the full roof profile.

Liggers — same as sways but used at ridge and eaves and left exposed.

Sways — long hazel or willow rods (occasionally iron) laid along the roof slope to trap each course of heather, fixed with *spars* — twisted hazel bent to form 400 mm long staples driven into the thatch.

<sup>3</sup> Northumberland Archives (Woodhorn), NRO 309/M/7.

<sup>4</sup> Northumberland Archives (Woodhorn), DT 233.

<sup>5</sup> A relatively rare building type, but there are examples at Whitlees (NGR NY 959926) near Elsdon, and two ruined buildings in Greystead parish, Smalesworth (NGR NY 740855) and Stokoe Craggs (NGR NY 752856).

<sup>6</sup> The Bastle is a rectangular structure 9.7 m by 7.4 m externally, with walls c. 1.4 m thick of large roughly-shaped blocks, on a boulder plinth, and megalithic angle quoins. The original square-headed byre door in the west end has a roll-moulded surround; there are various blocked loop windows, and old beams to first and attic floors, and a central principal rafter truss with a collar, of heavy scantling and probably original; the attic floor has old broad boards. A stone newel stair from basement to first floor is probably an early insertion, its treads are almost certainly re-used from a medieval building, perhaps Willimoteswick Castle on the south side of the main valley.

<sup>7</sup> Included in 'Peasant houses in Midland England: how the Black Death prompted a building boom', *Current Archaeology*, 279, 1st May, 2013, see <http://www.archaeology.co.uk/articles/peasant-houses-in-midland-england.htm> (accessed 15th May 2016). This only shows houses (3086 in all) but gives a general impression of cruck distribution.

<sup>8</sup> Demolished c. 1880. Published in the account of a visit by Society of Antiquaries of Newcastle to Hurworth, 12th June, 1899, *PSAN*<sup>2</sup>, 9 (1899–1900), note on p. 55, photo on p. 56.



<sup>9</sup> Beamish Museum Photographic Archive 70915 (1) and (2).

<sup>10</sup> Durham Dean and Chapter MS Hunter 10, sheet 9.

<sup>11</sup> Chapman (1982, 9), quoting an undated cutting from the *Teesdale Mercury* loaned to her by Mr Nixon of Hunderthwaite Farm.

<sup>12</sup> In the parish of Grinton, NGR SD 98579680.

<sup>13</sup> NGR NY 98825665.

<sup>14</sup> Another cruck truss from the same building is reported to have been re-used in a cottage in Boldron.

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