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# GEORGIAN MUD AND STRAW IN DEVON AND CORNWALL

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This paper considers the tradition of building with mud and straw in the Georgian period in Devon and Cornwall. It is heavily indebted to discussion with individuals who have a far better knowledge of these subjects than I do, particularly Ray Harrison and Francis Kelly (cob) and Peter Brockett (thatch), as well as to intensive recording work carried out by John Thorp, partner in Keystone Historic Buildings Consultants.

The use of both materials is at least medieval in origin and both persisted in the Georgian period, determined by availability. The historian Richard Polwhele, writing of Cornwall at the beginning of the nineteenth century put it simply:

The materials for building with which we are furnished... seem to have determined not only the general appearance of our houses, but the mode of their construction. - Where stone-quarries are scarce; we have good houses of mud: And where slate is plentiful, we seldom see roofs of thatch<sup>1</sup>

The local mud tradition was an unselfconscious survival; straw for roofing was both a survival and put to picturesque use on consciously 'rustic' or Romantic buildings.

Mud and straw were produced close to the sites where they were used for building and were often to be found in the field next door. They exemplify the continuity of vernacular technique, particularly the time spent by vernacular craftsmen processing the materials they used. This went hand in hand with less division of labour and thus more responsibility than a 'polite' craftsman working on a highly-managed site and contributing to buildings constructed of materials processed elsewhere.

It would be mistaken to assume that there was less skill in vernacular building techniques than was to be found on the sites of more fashionable building projects. Vernacular building may have been less self-conscious and less schooled but it was work based on *nous*, and *nous* deserves proper credit. Traditional building methods were the result of a close and handed-down knowledge, honed by remembered failures, of the performance of local, non-standard materials and how technique could get the best out of them. The adjustment of technique according to the quality of the materials used is not so characteristic of so-called 'polite' building. Vernacular methods were often simple, but they were far from being simple-minded or unskilled and it is often only when an attempt is made to revive or repeat them that their subtleties are appreciated.

Neither county shows a clean break between vernacular and polite building methods, either chronologically or geographically, in the Georgian period, but a long and fascinating period of crossover. Mud continued to appear as an urban building material, although it was gradually squeezed out to rear walls and outbuildings, by brick or masonry. Straw roofs (more common in Devon than in Cornwall), were often outlawed and replaced by slate in small and middling-sized towns after the catastrophic eighteenth-century fires which are regularly recorded in Devon, although it might appear *de novo* on new eighteenth-century 'cottages' for the middling sort in seaside resorts, as well as roofing labourers' cottages and village houses. In rural areas the pattern of survival shows a marked difference in the two counties. In Devon, with a stagnant eighteenth-century wool trade, rural owners and tenants were likely to update substantial existing houses using traditional mud and straw. Cornwall, with more diverse economic resources and a great rebuilding in the eighteenth century, has a larger number of

thoroughly rebuilt rural (and very urbane) houses, using its strong existing traditions of masonry and slate construction.

## COB

The mud tradition in England has major regional variations and the following applies specifically to Devon and Cornwall. 'Cob', as the local form of the mud tradition is known, has a long history. Medieval cob houses survive in large numbers in Devon. Heavy and bulky to transport, cob was usually produced close to the building site and must often have been a free material dug from the client's own land. The cob recipe consists of a mixture of coarse clay subsoil with an aggregate of stone and/or sand and usually (but not always) chopped straw, the fibrous material of the straw helping to bind the material together and distribute the cracking that occurs during drying. From an engineering perspective cob is simple. The sheer mass of the wall, usually 2 feet thick or more, supports the weight of the roof. Timber lintels for windows and doors were inserted on the way up, sometimes the window frame acting as the external lintel. Once mixed on the ground, either by human effort or trodden by cattle, large lumps of the material were thrown up to the men on the walltop who trod the mixture down, raising the wall about 18" -2ft before leaving it out to dry out somewhat to avoid 'slumping'; there is some evidence for an alternative system of shuttered cob. Building was usually begun in spring and the shell of the house completed before winter, when the walltops were thatched, if necessary, to protect them from wet and frost. Roofing and external rendering would be carried out the following spring.

In terms of technical skill, the act of building in cob can be carried out by anybody with sufficient weight to tread the mixture down and with a good enough eye to pare back the wall face flush with the footings. However, the *nous* that went into the mixing required the kind of skill needed by any good cook dealing with non-standard materials. For cob-mixing this was (and still is) a question of judging the quantity of straw or stone according to availability, experience and the 'feel' of the clay subsoil and making adjustments accordingly. As with cooking without a *regulo*, drying-out time was also a matter of non-standard elements, and depended on the weather. As Harrison has pointed out in his seminal article<sup>2</sup>, the stiffness of some of the Devon clays also meant that the cob mix might need to be left to overwinter, so that frost and rain would make it more malleable when it was used. Harrison refers to Cornish examples, and there are some from North Devon too, where the cob mixture was graded with a coarser aggregate at the base (which might be slightly battered) and a finer mix towards the wall-top. This is similar to the working practice of old craftsmen, who will adjust the mix for lime renders, for example, as they work on a single wall, to accommodate their assessment of differential weathering on any part.

As a building material cob is widely-distributed in both counties, although more extensive in Devon. Even here, there are micro-regions where it is rare, either because the subsoil is less suitable or because there has always been a good supply of workable building stone. Neither county is short of building stone, although few parts have stone of a quality to produce fine ashlar work and rubble buildings are often rendered externally. Cob provided not just a very acceptable local alternative and supplement to stonework, but given the stability of the sedimentary Devon clays, which reduced shrinkage problems, it was a material that could, and did, compete for performance and durability with the local stone. When the material is roughcast externally and plastered internally it can be impossible to distinguish a masonry from a mud building and the two materials, were commonly used together, with masonry footings, sometimes quite low, or masonry up to first floor level.

Unrendered, or with the render fallen off, the colour variations in cob reflect the colour of the local subsoil. Devon is well-known for plum-coloured earth in Mid Devon and around

Exeter, but other parts of the county and Cornwall have a buff-coloured subsoil. It is becoming clear that the cob mix, which varied from region to region, produced cob of different grades of performance. If, for example, it was dug in the shillet areas of Devon or Cornwall, the stone included was often flattish slaty stones which, in the process of treading, tended to lie horizontally in the material, creating a series of effective weather-protecting slate drips as the softer material weathered back.

So far as we know, there have never been any mud-builders guilds in either county, and thus no formal pattern of training specific to cob-building and no official trade secrecy. If it was carried out by masons (for which there is eighteenth-century evidence) it must also have been the province of the plasterer when used as Georgian daub. The precise status of mud building in Devon and Cornwall in the pre-Georgian period is difficult to judge. It was used in high status medieval houses with decidedly grand and unvernacular roofs and in a couple of private medieval chapels, but it does not appear in parish churches, or in any of the principal monastic buildings.

The practice I work for has evidence that medieval cob houses were not always lime-plastered on the inside, even when sited close to limestone suitable for burning. Internal mud walls were not necessarily low status – there is fragmentary evidence for medieval wall-painting directly onto mud at Cullacott, Werrington, Cornwall. It also seems likely that cob buildings were often neither roughcast nor plastered externally. Some very decent seventeenth-century cob farmhouses are still only rendered on the show front, especially when they are built into the slope of the land (which is common), and where the lie of the land protects the rear from driving rain. The more humble buildings from the medieval period onwards appear to have been unrendered altogether, with weather-protection solely from the overhanging eaves and verges of the roofs which were mostly thatch but sometimes local slate.

So how did cob fare in the Georgian period? Unsurprisingly, given its advantages, Georgian commentators describe cob very much as a living tradition. Their attitude to it depended on whether they were local historians, describing with some pride, the genius of the place, or whether they were improvers from outside the region, casting a more critical eye on unfamiliar practices. In the 1770s William Chapple, a local historian described cob as follows, attributing its use, not to farm labourers, but to rural masons and describing a practice unchanged for centuries:

In the Parts where Building Stone is scarce, we have Country Masons who value themselves on their Skill in making Mud-Walls, or as we call them, *Cob*-Walls; which if well perform'd, and supported by a sufficient Foundation of Stone-Work, are very lasting, and the Houses thus built, dryer and warmer than others. The *Cob*, as 'tis call'd, is a Composition of Earth and Straw, wet up somewhat like Mortar, well beaten and trodden together; and after a Wall made therewith is rais'd to a certain Height, it is allow'd some Time to Settle before more is laid on. When any such Walls are pulled down to be re-built, they commonly make fresh *Cob* with other Earth; the Value of the old as a Manure for Land, sufficiently compensating the Cost of the new<sup>3</sup>.

Georgian improvers, however, were inclined to criticise the appearance of cob. In 1808, Charles Vancouver in his Report to the Board of Agriculture, was less complimentary. He considered the continuity of the mud tradition in Devon as a sign of backwardness. He could swallow roughcast cob, but for him the sight of unadorned mud walls 'at once completes the idea of a . . . deserted Tartar village'. According to Vancouver, the old and venerable mansions of Devon were built of stone which should have set an example to the tribal hordes of ordinary Devonians:

. . . it has not, however, produced that effect, as the cob buildings are nearly as

numerous as is presumed to have been the case with the Belgae, who, we are told, were the first who made inroads and established colonies in Devon. Garden-walls, farm-houses, barns, stables, linneys, village fences and cottages, are all built with this dull, heavy, and deforming material. Left without rough-cast, or white-wash to conceal the native colour of the loam, it is utterly impossible, at a distance, to distinguish a village from a beatfield, both having uniformly the same shade<sup>4</sup>.

Even Vancouver, though had to admit cob was economical. £60, he estimated, would provide a cottage consisting of a 14 foot square principal heated room with an oven, two small rooms behind for storing fuel and provisions and two first floor rooms, one for the parents and one for the children. Vancouver gave the comparative costs of cob and stonework in North Devon as 3s 6d per perch for cob to 5s-6s per perch for stone, including all expenses of quarrying and cartage. In the south of the county the difference in price was smaller, masons' work estimated at 2s 6d per perch and 2s for cob. His figures are very valuable since we have so few detailed written records of cob for any period.

Cob persisted in buildings of various statues. Leaving aside the rich Georgian inheritance of farmbuildings, now threatened with redundancy and conversion, it appeared in farm cottages erected for the landless labourer, small and larger village houses and farmhouse improvements. Brand new Georgian cob farmhouses are uncommon in the two counties, for reasons of local history. Enclosed fields are of a very early date in the region and most farmsteads are on ancient sites. There was thus comparatively little call for new farmhouses associated with farms on newly-enclosed land. Cob improvements are common, though, whether extensions (it is difficult, but not impossible, to make a good vertical junction between old cob and new, because of shrinkage problems) or raising the roof (adding to the height of a cob wall is relatively simple) in association with the insertion of sash windows and replanning with a central staircase inserted into the traditional cross passage.

Reading the Georgian local historians and improvers one might be persuaded that in the eighteenth century cob was confined to rural Devon. This is not the case, although for reasons of transport new Georgian townhouses were more likely to be in cob when sited in the urban outskirts than when a tightly-packed town centre was being redeveloped. Cob continued to be an acceptable building material in the eighteenth century, and into the early Victorian period, on some houses with pretensions to fashion. In the 1790s, Exmouth, on the South Devon coast, was developed as a watering place for the gentry, the bay being described enthusiastically as 'inferior only to that of Naples'. Exmouth had a good water supply, mild climate and sheltered position and attracted a superior society (including consumptives) who could enjoy the pursuits of promenades, balls and concerts or spend the winter in a mild climate. Denys Rolle developed the Beacon area of Exmouth in the 1790s, building a series of detached houses that were swiftly infilled to create an irregular terrace. The whole project was successful enough to attract Lady Byron and Lady Nelson as tenants. Specifications to local builders<sup>5</sup> in 1792 required brick for the front elevations but party and rear walls were to be either brick, stone or cob, so long as the last was over 20" thick. No 10, The Beacon, which boasts a decent porch and tripartite sash windows was built with a rear wall in mud, which was slate-hung, the unplastered cob beneath the slate-hanging suggesting that slate was the finish from the outset and not a secondary layer of protection added to roughcast or render. No-one seeing the slate-hanging (another persistent local vernacular technique, gradually replaced by stucco) would be any the wiser as to the homely nature of the construction beneath. The mud rear wall of this house, exceptionally tall for a local mud wall, has only recently come to light and there may be more genteel Georgian houses on the south coast where mud construction is concealed by slate-hanging or render.

Some changes in the use of cob can be tentatively attributed to the Georgian period. Although it was thought good enough for an exceptionally fine 1729 Presbyterian Chapel in Crediton<sup>6</sup>, by the early nineteenth century it does seem to have come down a notch in status and was more likely to be found in smaller buildings. Large seventeenth-century cob houses are common but the large and to all appearances Georgian<sup>7</sup> cob manor house at Brushford Barton is a rarity. By 1825, a lease of land in Heavitree, rapidly becoming a desirable suburb of Exeter, required not only that the houses erected, but that their outbuildings too, should be of brick and stone and not of cob.<sup>8</sup>

It also seems likely that limewash, roughcast or some other version of external render for cob houses became more commonplace in the eighteenth century. Marshall, writing in 1796, claimed that the Devonshire workmen were proficient in rough-cast, or "slap-dash" as it was called locally, using a shining moorland gravel which gave it a splendid effect. 'It is usual' he commented 'to draw cross lines over the surface, to give it the appearance of dressed stonework'.<sup>9</sup>

The Georgian period did add one rather surprising new version of cob, which was the cob brick. At least two villages in mid Devon, Thorverton and Bradninch, have some eighteenth-century buildings (we do not know exactly how many) constructed partly of large mud bricks as nogging to timber-framing.<sup>10</sup> The internal partitions are also made of cob bricks as is part, at any rate, of one of the chimney-stacks. This may have been an attempt to make cob more of a conventional commodity in a capitalist world, permitting the purchase of ready-dried cob bricks and avoiding the unknown factor of the time it might take for each course of more conventional cob to dry out. If this was the beginnings of an attempt to give unbaked bricks the same kind of convenience as the baked variety, it may have been curtailed by the railways which brought ordinary brick within reach of country builders.

## THATCH

Considering that thatch has a limited lifespan it might be imagined that there is no Georgian thatch in Devon and Cornwall. Quite the contrary, Georgian thatch does survive in, rather than on, thatched roofs no doubt, in massive quantities. The traditional re-thatching technique in both counties is to strip back the thatch, not to the structural timber of the roof, but merely to a sound base of old thatch into which the new coat can be fixed. From a visual (and structural) point of view, this means that Devon and Cornish thatch tends to increase in bulk and weight over the years, as part of each thatching programme is retained when the next layer is added. From an archaeological viewpoint, it means that tons of Georgian wheat and rye still survive under later thatch, often sandwiched between Victorian and earlier thatch, the earliest dating back as far back as the fifteenth century. This resource, which includes the evidence of Georgian techniques for fixing thatch as well as important evidence of crop production on Georgian farms, has received relatively little attention from historians, with the exception of recent projects by Dr James Moir and John Letts, commissioned by English Heritage.

The production of grain for flour produced straw as a by-product, involving no additional expense beyond that of labour. Straw was put to numerous different uses, from a bedding material for livestock, to straw mattresses for humans, as well as a packing material for anything breakable that had to be transported. In the form of thatch, straw was the predecessor of the tarpaulin and was used as a temporary roof covering on anything that needed to be kept dry, from ricks and root-crops to unfinished buildings and walls. Ice houses from the seventeenth and eighteenth centuries were often thatched. Turnip and potato clamps were still thatched in the 1980s and elderly farmers still remember the wood pile, that essential feature of any old-fashioned farmhouse, thatched. Thatch was not used only on the farm, however, and

there was a thriving urban thatching tradition in Georgian Devon so long as local bye-laws permitted the material in small towns.

Grown and harvested annually on every Devon & Cornish farm, it made perfect and economical sense use straw as a roofing material for domestic buildings from the earliest period. It was a common roofing material in Devon from the medieval period onwards and there are still something in the region of 7,000 thatched buildings in the two counties, although only about 500 in Cornwall<sup>11</sup>. As with mud, there were no medieval thatching guilds, although there may always have been local distinctions between those competent to fit a short-lived thatch for a rick or woodpile and the more skilled who would carry out house and cottage thatching.

Until the surviving Georgian thatch is identified and examined in detail, techniques in the two counties have to be deduced from contemporary authors and what is known of more recent methods. Both counties are unusual in using a particular method (with variations) of producing straw for thatch, noted before and during the eighteenth-century and still ubiquitous up until the 1950s. Marshall, writing in 1796, called it simply 'reed':

namely, unbruised straw: the grain being separated from the straw without breaking it; in the manner which will be hereafter described: a practice common, I believe, to the WEST of ENGLAND. Straw thus preserved makes a neat and durable covering: and, when no other species of covering can be procured, it is certainly preferable to thrashed straw: which, being less durable, tends still more to the impoverishment of the lands that are robbed of it<sup>12</sup>

In spite of the name 'reed', the thatch used in Devon and Cornwall, as Marshall makes plain, was not water reed, but straw (either from rye or wheat). The modern equivalent of Marshall's 'reed' is called combed wheat reed. Marshall's insistence that this was more durable and neater than 'thrashed straw' - the modern equivalent is called longstraw - is one side of a heated argument that still divides the thatching industry today.

The production of 'reed' (in which the rural thatcher was likely to have been involved) required a sequence of skills in order to transform the object growing in the field into the water-proof roof. The Georgian crop would have been taller than its modern equivalent which has been drastically reduced in height (to the despair of thatchers) by wheat-breeding programmes. George Stubb's 1785 painting, *The Reapers*, shows the crop chest-high and the use of the sickle for cutting. After cutting and stooking and having spent time in a rick, which ripened the grain, a good deal of attention was devoted to the straw part of the harvest. One of the crucial features of south west 'reed' thatching was the care taken during the threshing process to avoid bruising the stem of the plant. This meant that flailing, the process to remove the grain from the ear, was rather different in Georgian Devon and Cornwall from methods used further east and north. Various procedures were employed to minimise bruising the straw. Instead of beating the straw up and down its length with a handflail, the flail was either directed to the ears alone or the head of the bundle of straw was struck over a barrel to detach most of the grain while avoiding damage to the straw. After this, various devices could be employed to extract the last of the grain. In 1796 Marshall described the bundles of straw suspended from a rope, ears upwards, and a comb or small rake used to remove weeds and short straws before a final whacking over a barrel or a final application of the hand flail to the ears only. Other devices were certainly in use by the mid/late nineteenth-century and probably in the Georgian period, including a timber construction, rather like a gymnast's horse, with iron spikes rising from the top, through which the straw was combed.

If there were various methods of achieving the desired result, the end product of 'reed' thatch was a neat bundle of threshed straw, relatively unbruised, the stems lying in the same direction. Georgian techniques for fitting thatch have not been researched in any depth. Ties of

Old Man's Beard and Honeysuckle are known from the medieval period and may still have been in use – Blackberry ties were still being used in Wiltshire in the twentieth century<sup>13</sup> – but tarred twine was also used. Split rods, called sways, either hazel or willow, and laid horizontally across each course of thatch and usually covered by the course above, have been in continuous use since the medieval period. As each course was fixed, the butt ends of the straw were knocked up with a small bat, known as a leggett, to give the close-cropped appearance that characterises 'reed' thatching.

Thatching has a continuous (although changing) history of use and thus we do know that the performance of thatch owes almost as much to the skill of the thatcher as to the quality of available material. If the thatch is laid too tight, water cannot evaporate and decay speeds up. If too loose, water will penetrate deep and the coat will rot. A good thatcher will adjust technique to accommodate the variations in straw quality and length that are determined by the growing season or the varieties of wheat available. The siting of each individual building affects the speed and nature of thatch decay. The thatch on the south side of the ridge, suffering from more extreme variations in temperature than the shaded north side, may need to receive more attention from the thatcher. Adjustment of technique might mean paying particular attention to the problem of wind-lift in Cornwall, where archaeological evidence survives for chains pulled over the ridge behind the gable end stack and fixed to iron hooks in the walls. These literally tied the thatch onto the roof, as did fishing nets.

We can speculate that now-defunct varieties of 'reed' thatching, known from late nineteenth-century photographs, may have been in use in the Georgian period. There may have been thatch found in conjunction with slate eaves and verges as well as different grades of thatching according to the significance of the building, with a thin, cheaper thatch with the fixings visible externally, used on some farmbuildings. The practice of limewashing thatch as a fire-proofing is documented from the nineteenth century and may be much earlier. It is also very unlikely that many thatched roofs in the Georgian period looked as neat and tidy as we have come to expect today. With thatching labour available on the farm, patching was far more common than re-thatching and a roof was unlikely to be attended to, however rotten it looked, until it began to let in water.

It is received wisdom that Devon and Cornish thatched ridges were plain before the twentieth century, when fancy detail was introduced, although late nineteenth-century photographs show both scalloped and knuckled designs as well as the plainer, flush, butts-up type. There is some photographic evidence for what appears to be mud ridges used at the end of the nineteenth century but sadly, no evidence of the delightful practice of burying Iris corms in the mud (the roots help to fix the ridge down), as still occurs in Normandy, resulting in flowering ridges in the spring.

In the Georgian period thatch could be expected on all the building types where cob was used, including those of some architectural pretensions, but was also found roofing stone houses. Later in the Georgian period it is occasionally found as a roofing for brick or brick-fronted buildings, for example on a row of probably 1820s cottages on the outskirts of the mid Devon town of Crediton. As with cob, its status fell somewhat in the eighteenth century. It continued to be specified for new-built small houses and remained on the roofs of many larger houses when they were remodelled and extended. The cost of replacing roof timbers, which a conversion from thatch to slate often requires, clearly persuaded owners that it remained an acceptable hat for a house that might be given a symmetrical front, sash windows and a classical porch. Unlike cob, thatch was visibly picturesque and this lent it to buildings used by leisured classes. It was found both on cottages ornee and pleasure buildings, for example a thatched billiard room was built on Sidmouth promenade by 1797 to shelter the company in bad weather<sup>14</sup>.



Both materials, including their Georgian phases, are threatened. Unsuitable renders can shorten the lifespan of cob and the change from using straw (now harvested and combed mechanically) to water reed sometimes involves stripping ancient 'reed' thatch down to the roof timbers. The Devon Earth Building Association has produced useful leaflets on cob and sensible maintenance. Listed building consent is not always required for a change from straw to water reed thatch and it is pot luck as to whether the Georgian thatching inheritance will survive in roofspaces long enough to be researched in detail.

## NOTES

1. *The History of Cornwall* (f.p. 1803-1808, 1978 edn.), Vol.4, Book III, ch.IV.
2. 'The mud wall in England at the close of the Vernacular era', *Transactions of the Ancient Monuments Society*, N.S., 28 (1984), pp. 154-174
3. *A Review of Part of Risdon's Survey of Devon* (published in 1785 after Chapple's death, 1970 reprint), pp.50.
4. *General View of the Agriculture of the County of Devon* (1808), pp. 92.
5. e.g. Henry Langsford for two of the houses on the Beacon (Devon RO 1225M/T1).
6. Disgracefully demolished in c.1971 but well-illustrated by C Stell in the RCHME's *An Inventory of Nonconformist Chapels and Meeting-Houses in South-West England* (1991), 68-71.
7. This house with a good porch, symmetrical front and Georgian sashes may well have an earlier core but there is no visible evidence for this in the existing plan (*ex info* John Thorp).
8. Falla, T., *Discovering Exeter: Heavitree* (1983), p. 38.
9. Marshall, William, *Rural economy of the West of England* (f.p.1796, 1970 reprint), Vol 1, 64; II, 296.
10. These were first noted by John Uglow, a local historian and archaeologist.
11. Figures based on surveys carried out by the Rural Development Commission and its predecessors, COSIRA and the Rural Industries Bureau.
12. Marshall, *ibid.*, 64-65.
13. Noted by Dorothy Hartley in *Made in England* (1939), p. 60.
14. Described by John Skinner in his diary, published as *West Country Tour* (1985), 25.