THE POST-MEDIEVAL PERIOD

RESOURCE ASSESSMENT

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Introduction

The Reformation is often seen as the division between the medieval and post-medieval periods. Beyond the redistribution of land from ecclesiastical to secular owners brought about by the dissolution of the monasteries, and the consequent economic and landscape changes, the material cultural impact of the Reformation can be elusive to characterise outside of its effects on the fabric of church buildings (see Gaimster and Gilchrist 2003). There was, however, a long period of cultural transition, perhaps beginning at the end of the fourteenth century and culminating in the mid seventeenth century, when the medieval world gave way to something more recognisably modern (see Gaimster and Stamper 1997). Key features of this period were the impact of Renaissance learning and classicism on art and design, the rise of capitalism and consumerism and their effects on material culture (Johnson 1996), and the impact of more widespread overseas trade. Within the region there are disparities, with the impacts of national developments having a variable significance and chronology dependant on area and social class. There is a convincing argument to be made, for example, for the division between medieval and post-medieval in the northern borderlands to begin with the Union of the Crowns in 1603 (Frodsham 2004, 111), whereas in the Welsh borders it would be marked much earlier.

Environment

The larger part of the period falls within the latter stages of the so called Little Ice Age (sixteenth to nineteenth centuries) with initially colder conditions and later more rainfall (Lamb 1977). Severe storms caused coastal erosion, and sand blows onto agricultural land and settlements, notably along the Wirral and Fylde coasts. Increased rainfall is thought to have been instrumental in causing what are described in documentary sources as bog bursts. Leland writing in 1533 described the eruption in 1526 of Chat Moss (GM) (Crofton 1902, 140-1, Hall et al 1995, 125-131) and in 1633 Earl Cowper of Derbyshire described the eruption of White Moss (GM) (Crofton 1902, 140-1, Hall et al 1995, 125-131). In the eighteenth century it is reported that Pilling Moss (L) erupted (Sobee 1953, 153) and Thomas Patten writing in 1774 described an eruption of Solway Moss (C) in the early winter of 1771 (McEwan and Withers 1989, Hodgkinson et al 2000, 121). The consequences of these bog bursts were devastating, causing both loss of life and the destruction of property, but are yet to be identified in the archaeological record.

Agriculture

Until the later eighteenth century direct involvement in agriculture formed at least part of the employment of the majority of working people. Until the middle of the nineteenth century most of England’s population lived in a predominantly rural environment. The importance of the rural environment to the study of post-medieval archaeology has long been recognised in the Society for Post-medieval Archaeology research agenda (1988) and is confirmed in its forthcoming revision. However, this has not been reflected generally in archaeological research into the post-medieval agrarian landscape. There has been a lack of excavation and survey work on post-medieval rural sites and a need to investigate improvements in plant and animal varieties through the use of palaeoenvironmental remains. Regional or county based archaeologies deal with medieval rural society, seldom straying beyond the fifteenth century. Where the post-medieval appears it is usually urban and industrial. The Archaeology of Lancashire (Newman 1996), passes from medieval settlements to industrial archaeology with only the slightest detour to examine the post-medieval use of medieval buildings. The recent assessment of
Yorkshire’s archaeology (Manby et al. 2003) limited the post-medieval period to a review of industries though set within a social context (Cranstone 2003). A recent overview of the development of post-medieval archaeology acknowledged the lesser prominence of rural in comparison to urban research (Courtney 1999, 6). This is exemplified in the otherwise excellent set of essays edited by Tarlow and West (1999) which ignores rural and agrarian issues completely.

The most common archaeological research undertaken in relation to post-medieval agriculture is the study and recording of farm buildings. One example of research focusing on surviving earlier post-medieval rural buildings is Nina Jennings (2003) study of the Solway Coast clay dabbins, an exceptional local vernacular building type. Elsewhere in the region, while few buildings predating the mid-eighteenth century appear to survive in the rural building stock, the few detailed local building archaeology studies that have been undertaken indicate there is better survival than superficially appears, for example in Lancashire and Merseyside (Watson and McClintock 1979, Chitty and Coney et al 1987, Yeomans 1991). For parts of the region the sequence of farm building evolution is reasonably well understood, most notably in Cumbria, largely as a result of the work pioneered by Ronald Brunskill (2002), with vernacular building studies by the National Trust (Denyer 1991). Tyson has also carried out some farm building recording projects in Cumbria, including the identification of the mid-seventeenth century Low Park Barn, Rydal (1979) and Messenger undertook a survey of the Lowther estate farm buildings (1974). In Lancashire recent farm building recording, undertaken as part of development control, has included recording of a late seventeenth-century barn at Bolton-by-Bowland. In Greater Manchester the local development of yeoman and gentry farms has been set within its social context through a combination of documentary research, excavation and standing building survey (Nevell and Walker 2002).

Much data relating to the archaeology of upland and upland-marginal areas from post-medieval times are available in unpublished survey reports for example in the National Trust surveys of Lake District valleys (Maxwell 1993, 2002; Lund 2000, 2001) and for the Lake District National Park (Quartermaine and Leech forthcoming) and North West Water/United Utilities catchment areas (e.g. LUAU 1997a; 1997b). Systematic mapping of upland landscape features, however, has been low beyond the limits of the inbye land or within the head dyke in areas where the intensity of landscape use in recent years has been limited. An indication of the richness of the detail that can be mapped is demonstrated by the work of Roberts in Cumbria (1993). Ridge and furrow ploughing dating from periods ranging from medieval to early nineteenth century and sometimes above the limits of later improved land is a frequent sight in upland fringe areas but systematic mapping even for small areas has been limited.

The uplands aside, the rural areas that experienced greatest post medieval landscape change in the North West were the lowland mosses. Projects examining wetland reclamation have generally been multi-period investigations but the best have provided significant insights into the development of medieval and post-medieval regional rural landscapes. The North West has benefited from the North West Wetland Survey, a major review and assessment of the archaeological potential of its lowland mires. Early post-medieval reclamation was limited to the moss margins and was a piecemeal process, often as a result of peat-cutting (Middleton et al 1995, 208), with the conversion of moss rooms into enclosures and sometimes crofts. Large-scale reclamations in the North West began later than in the south, not occurring until the eighteenth century and included the draining of Martin Mere, the largest lake in Lancashire. In Cheshire early post-medieval reclamation was piecemeal and linked to the abandonment of moss rooms.

In the last few years the completion of the Historic Landscape Characterisation (HLC) programme for Lancashire, and the commencement of similar programmes elsewhere in the region, has stimulated the archaeological analysis of the rural landscape. The chronology and character of post-medieval enclosure in upland marginal areas has formed a major part of these characterisation exercises, where the period and form of enclosure is still visible in today’s landscape. These studies begin to show the complexity of post-medieval enclosure history in different parts of the region, and also that mapped characteristics cannot always be attributed to one particular type of enclosure event. For example, the area known as the Champion near Slaidburn (L), was enclosed from moorland in 1622 (Porter 1980, 34) into highly regular and straight-sided fields that could easily be mistaken for later parliamentary enclosure.

A rough chronology and typology of post-medieval upland enclosures includes intakes from common pastures by local farming families, often with the approval of manorial lords, and more temporary
squatter intakes during the period of high population in the late sixteenth or early seventeenth centuries (Appleby 1978). One of the most significant of the officially sanctioned intake events was the enclosure of large tracts of moorland in east Lancashire in the early seventeenth century brought about by agreement in 1608 between the Crown and its tenants in the former forest lands of the Duchy of Lancaster (Porter 1980, 31). Between the sixteenth and eighteenth centuries individual farmers or small groups of farmers created enclosed cow pastures on the lower slopes of Pennine commons, as around Colne (L). Similar activity led to fellside intakes in the Lake District, (Winchester 2000; Denyer 1991). These areas were then subdivided by private agreement or acts of parliament during the eighteenth and nineteenth centuries. Most common arable fields throughout the region had been enclosed by agreement well before the mid-eighteenth century, indeed in Cheshire it is considered that the enclosure of common arable lands may have been largely complete by the seventeenth century.

In addition to landscape archaeology, various forms of archaeological science can be used to reveal changes in aspects of farming. A recent review of the recovery of plant and animal remains from archaeological sites in northern England showed that few studies of post-medieval samples of plant and animal remains had taken place in the North West (Huntley and Stallibrass 1995). Revisions of this review currently in progress indicate that the situation is improving slightly (Hall and Huntley in prep; Dobney and Stallibrass in prep). Even so, Huntley’s view that that “no synthesis of any sort is possible at the moment and every opportunity to retrieve well stratified and well sampled material should be taken” (1995 81) is still valid today. Analysis of discrete data can still be useful. It is known that archaeological evidence is more accurate than surviving documentary evidence for shedding light on the development of regional types of domestic livestock (Davis and Beckett 1999). Yet in the North West the only scientific investigation of a complete post-medieval animal carcass was of a young sheep that died in Solway Moss (C) (Hodgkinson et al. 2000, 130). The analysis of the preserved fleece of this animal suggests that it was an early form of longwool, the staples bearing a close resemblance to woollen textiles in the late eighteenth-century Kendal pattern book (Ryder 1990). The animal itself is considered to be an ancestor of the Herdwick, the distinctive sheep breed of the Cumbrian fells.

While Parry’s (1978) study in south eastern Scotland identified a progressive retreat from the uplands from the fourteenth to nineteenth century, recent studies have shown markedly different trends, such as the maintenance of cultivation of cereal crops at relatively high levels in the Cheviots throughout the Little Ice Age (Tipping 1998). The colder and wetter conditions associated with the Little Ice Age are demonstrated in the pollen and plant macrofossil record from northern Cumbria, with reductions in agricultural indicators. Within the North West different chronologies of settlement expansion and retreat can be identified at local scales (Appleby 1978) but more research is needed to establish broader regional patterns. Particularly severe runs of bad weather at the end of the seventeenth century seem to have resulted in widespread starvation and some farm abandonment in the southern uplands of Scotland (Whyte 1981) but the effects of this period have yet to be investigated fully for northern England.

Palaeoenvironmental evidence has to date contributed little to our understanding of post medieval woodland management and exploitation in the region. If anything the sixteenth and seventeenth centuries witnessed a reduction in woodland, though this assertion has not been demonstrated by palaeoenvironmental evidence, but is indicated by documentary evidence at least from Cumbria (Kipling 1974). The sixteenth and seventeenth centuries seem to have experienced a general intensification in woodland exploitation (Rackham 1980). The iron industry especially may have encouraged the development of coppice woods in Furness and also the Arnside/Silverdale area (Marshall and Davies-Shiel 1969, 14-15; Newman, forthcoming). Potash made for the expanding sixteenth and seventeenth century woollen industry also would have had an impact on woodland management (Davies-Shiel 1974). The importance of the archaeological remains of post medieval woodland industries in Cumbria especially has long been recognised (Marshall and Davies-Shiel 1969, 161-179) and a recent survey of the iron industry in Furness examined some of these remains (Bowden 2000). In Lancashire, the HLC for the county mapped the distribution of ancient and post-medieval woodland, noting an unsurprising but strong correlation with the location of bobbin mills, with 23% of this monument type associated with historic woodland, a character type that only comprises 2% of the total land cover of the county (Ede with Darlington 2002, 78-83).
Much woodland in Lancashire and Cheshire, especially new plantation, was contained within landscaped parks. As expressions of landed wealth and power, designed landscape and parks were widely spread throughout the region, and there is a particular concentration of great parks to the south of Manchester in Cheshire (Smith 2001). As well as symbols of prestige, these areas were functional parts of the agrarian landscape. Few survive fully intact but their legacy of landscape features can still be recognized. Frequently associated in location with a medieval deer park, the direct link between deer and landscape park is often more complex than the direct evolution of one to the other as recent work at Rufford (L) and Dalton (C) has revealed. National Trust studies have been undertaken at a number of the larger surviving parks around their country houses but remain largely unpublished. More studies examining the relationship of deer parks with later landscape parks and of the conversion of farmland and woodland to parkland would help inform not only the processes of post-medieval landscape change, but help to elucidate the ways in which power relationships were reflected in and mediated through the landscape. A good example of this approach is research into the development of the park at Lathom (L), from the thirteenth to eighteenth centuries (Keane and Kelsall 1969; N. Neil pers. comm.).

Beyond the evidence for farming, woodland management and designed landscapes, it is important that the remains of what Williamson has termed ‘intermediate exploitation’ (Williamson 1997), duck decoys, fish traps and the other paraphernalia of hunting, fowling and fishing are recorded. There have been occasional local studies of such features like the duck decoy at Wet Holsome in Lancashire (Coney 1992) but much awaits systematic study, from fish traps in Morecambe Bay to the fox kennels of the great estates.

**Rural settlement**

By the mid-nineteenth century the North-West was an area of predominantly dispersed settlement (Roberts and Wrathmell 2000; 2002; 2003). It is claimed that this is a reflection of the medieval settlement pattern but this assumption has been brought into question. The post-medieval period witnessed much change in the layout and organisation of the landscape and whilst broad regional distinctions may not have been affected by post-medieval landscape changes, local variations undoubtedly were (Williamson 2000, 116). This calls into question the validity of advocating significant time-depth within historic landscape characterisation programmes. There can be no doubt that over much of the region the settlement pattern of the mid-nineteenth century was very different from that of the early sixteenth century. At the end of the medieval period the North West was still very sparsely settled in many areas. The wetlands of the region were for the most part undrained and uncoloniised. Over the extensive uplands, beyond the head garth and away from the vaccary centres, the land lay unenclosed and settled by only seasonally occupied shielings. Large areas were held as forest, including potentially good agricultural land, which inhibited the development of anything other than squatter encroachments. Delamere Forest in Cheshire was not enclosed and made available for agricultural and settlement development until 1819 (Hey 2000, 203). Consequently, the settlement geography of the North West in the early sixteenth century consisted of islands of settled and agriculturally developed land set in, if not seas, then at least lakes of unenclosed, agriculturally undeveloped land, lacking in permanent settlements (Whyte 2003, 5). These areas are generally known by the collective term of waste and the expansion of settlement into them is the main feature of the settlement history of the region in the post-medieval period.

Contrast this view with that depicted on Yates’ 1786 map of Lancashire which, in present day east Lancashire and Greater Manchester especially, depicts a busy dispersed settlement landscape full of hamlets and isolated farmsteads. As Porter has argued for the Forest of Bowland, the process of leasing medieval vaccaries, and their eventual conversion and subdivision into leased farms, resulted in a settlement pattern of scattered farms and small hamlets (1994, 55-8). This process was aided in 1507 by the disafforestation of the forests of Lancashire, when many of the vaccaries were subdivided for letting as copyhold tenanted farms. The idea that this opened up Lancashire’s forests for settlement influenced much early writing but is a misguided view. Most vaccaries would have consisted of more than one family and dwelling place and their post-medieval sub-division only intensified an already existing settlement pattern. Indeed in Accrington in the early sixteenth century the New Hold, as the ex-forest lands were termed, had a greater population than the Old Hold, the non-forested ancient tenanted and enclosed land (Tupling 1927).
In the Cumbrian Pennines too the settlement density in the uplands was considered remarkable in the later sixteenth century (Winchester 2000, 16). In Lancashire, the intensity of settlement meant that many holdings were small and woollen textile production grew as a means of generating extra income for small-scale farmers on marginal farmland (Tupling 1927). Elsewhere mining provided an alternative income. Winchester’s recent documentary based survey of upland settlements and landscapes in the fifteenth to seventeenth centuries, clearly reveals how this density of settlement was unsustainable. Only in areas of bi-employment did it continue but elsewhere there was a retreat from the uplands. In the Lake District in the seventeenth century farms amalgamated into fewer, larger units (Winchester 2000, 17). Little archaeological work has been done to examine this phenomenon, though the medieval farmsteads excavated near Tebay and Sedbergh, which both continued into the sixteenth century, may have been victims of this rationalisation (Lambert 1996; Addyman et al 1963). A deserted medieval vaccary identified at Gillerthwaite (C) is another rare example from the LDNPA-commissioned survey programme for Ennerdale Forest (LUAU 1995). At Stephenson Scale (C) the latest rectangular farmhouse was occupied during the fifteenth to sixteenth centuries, with a semi-circular animal enclosure on one side. A substantial ditch to the outside of the building contained grey or green reduced ware pottery jugs of probable local manufacture, similar to material representing the final occupation within the house. Probable Post-medieval shielings have also been excavated on the site, of both square and rectangular plan.

The enclosure of unenclosed land, especially wastes, either through agreement or encroachment had been underway since the medieval period. Outside of Cheshire the region did not have many of the haphazard squatter and green-side settlements which grew on wastes in woodland areas like Kent and the Forest of Dean, but other types of settlement grew which showed evidence of pressure on the waste. At Holcombe Moor (GM) farms apparently of early post-medieval date, though only excavation would confirm this, were built against the head dyke wall which marked the division between the enclosed and unenclosed lands. These farms appear to have been active in illegally enclosing parts of the open moor in the seventeenth century (Egerton Lea 2001a). Similar linear arrangements of farms or cottages on the edge of the waste developed on the margins of wetlands as at Haws Side near Blackpool.

The fabric of these rural settlements has mainly been studied through standing buildings, the majority of which date to after the Restoration. Studies of dated stone buildings especially have shown that for the yeoman and lower classes rebuilding in stone in much of the region did not take place until the later seventeenth century at the earliest (Watson and McClintock 1979). Throughout the region sixteenth and early seventeenth century rural settlements were dominated by structures built of timber and or clay with thatched or turfed roofs. Recent work on the Lancashire Extensive Urban Survey (EUS) has indicated that the situation was similar in contemporary towns.

Urban Settlement

Our understanding of the archaeological significance of the post-medieval urban environment has been recently improved by the English Heritage EUS and HLC projects carried out in Cheshire, Cumbria, Lancashire and Merseyside. The only completed EUS is for Cumbria (Cumbria County Council 2002), which is light on detail and analysis and pays little attention to development after 1750. The Cheshire Historic Towns Survey is nearly complete and, as with Cumbria, an assessment of the resource and a strategy for future work for each town was undertaken (Cheshire County Council 2002). Within these assessments each town was divided into plan components and in the accompanying strategy an Area of Archaeological Potential was identified, comprising a number of Archaeological Character Zones, each defined by its historical or archaeological characteristics. These zones, in combination with accompanying maps, are one of the most successful aspects of the survey as they allow consideration of the focus and character of post medieval settlement. The Cheshire survey was inevitably broad-based and concentrated on below ground archaeology. The survey is perhaps more detailed than that for Cumbria and less restricted to period type, but concentrates in the main on the potential of the medieval town. For a post-medievalist this failure to examine the above ground archaeology is one of its greatest limitations, but it is a weakness that has been addressed in the more recent assessments undertaken for Lancashire.
The pre-industrial town
One of the main documentary sources for pre-eighteenth century towns is maps, particularly Speed’s maps from the early seventeenth century (Nicholson 1995), for Chester, Carlisle, Kendal and Lancaster. Combined with other surveys, such as Brawn’s plan of Chester of c. 1580, the wonderfully detailed map of Ormskirk of 1609, and maps of Kendal (1614) Stockport (1680) and Cuerden’s maps of Lancaster and Preston (1684), they reveal something of the nature of early post-medieval town development. These provide a picture of the density and extent of urban settlement and the distribution of principal buildings. Where maps can be compared, such as Speed’s and Cuerden’s for Lancaster, they reveal a remarkable lack of development during the seventeenth century, encapsulating the typical late medieval town and showing urban centres before they were transformed by Georgian rebuilding, industrialisation and modern developments. The early post-medieval town, in the main, was tiny by modern standards and had few streets. The maps demonstrate par excellence the lack of growth during this period and the continuation of the medieval pattern of urban space into the later seventeenth century. Though this pattern was radically altered in some towns from the early eighteenth century as in Chester, Liverpool, Preston and a little later Manchester, the majority remained little altered until much later. For the most part in Cumbria towns of medieval origin experienced much less pre-twentieth century post-medieval development than is usual in the majority of similar towns elsewhere in the region. Consequently, the plan forms of these towns remained recognisably medieval into the twentieth century and in many cases continue to be so today. Appleby, Egremont, Kendal, Penrith and Ulverston still retain their medieval layouts. Carlisle retained its medieval plan form within its town walls well into the nineteenth century. Only Workington experienced nineteenth century urban expansion similar to that witnessed in east Lancashire and Greater Manchester. Mapping the towns of the North West must be one way to understand the development of the urban landscape and as such should be integral to any research agenda.

In the sixteenth and early seventeenth centuries, sparsely populated, the region lacked large towns, and only had two cities, Carlisle and Chester. The remainder of its towns were small, often two row settlements with a back street, retaining their medieval form and function as local market centres. Of these, the Cheshire salt towns like Middlewich, Nantwich and Northwich were distinctive because of their connection to a specialised activity, salt production, and even this had a long history and retained its medieval association with the towns.

Other than Chester and the Cheshire salt towns, only Carlisle exhibited particularly special characteristics. This town retained its distinctive regional function as a fortress guarding the Scottish border. The town walls were maintained and formed an impediment to expansion until their demolition in 1813 (Towill 1996, 49; Perriam 1976). Building recording has shown that this was only a partial demolition with substantial fabric remaining to be incorporated into later structures. In most instances medieval town defences did not constrain post-medieval development (Newman 2001, 140-1), that they appear to have done so in Carlisle, seems to be a consequence of its border location. Beyond some standing building recording there has been only limited archaeological investigation of post-medieval Carlisle, in comparison to medieval and Roman deposits. Like many towns that underwent significant eighteenth and nineteenth-century development, Carlisle has poor preservation of deposits from its earlier post-medieval phases. This is a feature noted elsewhere in the region as in Kendal, Lancaster, Ormskirk (L), Preston and Prescot (M), where sixteenth and seventeenth-century street frontage deposits have been destroyed by later cellaring (e.g. Philpott 1988, 33). The EUS for Lancashire has shown that much of the evidence for medieval and early post-medieval towns has been lost through redevelopment, as a consequence of industrialisation. This is documented in towns like Preston and Accrington (Egerton Lea 2001b; Egerton Lea 2004). In Preston, excavations have indicated that later eighteenth and nineteenth-century developments have, for the most part, removed earlier post-medieval deposits and features. In Blackburn, however, earlier post-medieval fabric has been found to survive in the cellars of later post-medieval buildings (UMAU 1999).

Little archaeological work has been undertaken on early post-medieval towns in much of the North-West. Aside from in Blackburn there has been no relevant archaeological work carried out in the towns of east Lancashire. Truncation has prevented worthwhile results from Preston and work in Ormskirk has been limited to date. In Liverpool the situation, outside of the docks (OA North 2003b) is little improved from that noted by Philpott in 1988. With the exception of a limited investigation at Cleveland Square (Matrix
Nevertheless, all these towns experienced considerable growth in their populations. In Kendal population is rare survival of an intact merchant’s house with integrated warehousing on one tenement, a strategically-occupied a considerable volume, nearly 50% of the total. Staircase House in Manchester is now seen as a interleafed domestic and commercial space in a typical Rows building indicated that commercial space shops and booths at first floor level (Brown 1999; Carrington 1994). An analysis of the levels, the undercrofts at street level and above them the Rows, continuous galleries giving access to group of buildings. For example, Chester is remarkable for its survival of commercial premises at two levels, the undercrofts at street level and above them the Rows, continuous galleries giving access to shops and booths at first floor level (Brown 1999; Carrington 1994; Grenville 1997). An analysis of the interleaved domestic and commercial space in a typical Rows building indicated that commercial space occupied a considerable volume, nearly 50% of the total. Staircase House in Manchester is now seen as a rare survival of an intact merchant’s house with integrated warehousing on one tenement, a strategically-planned whole, whose rooms and spaces were to remain little altered for some 400 years (McNeil 2003).

Infilling of back plots was a commonplace feature of all English towns in the later seventeenth and eighteenth centuries. In Cumbria for example physical expansion of the towns limits was minimal. Egremont doubled in size, Penrith grew by two thirds, Ulverston by about a half and Alston a third, whereas in Appleby and Kendal expansion was almost non-existent (Cumbria County Council 2002). Nevertheless, all these towns experienced considerable growth in their populations. In Kendal population

As with the so called ‘Great Rebuilding’ in the countryside, more durable buildings, exhibiting a break with the medieval tradition of house layout, were introduced at different times in different areas and for different classes (Newman 2001). In Lancaster physical fabric was transformed from vernacular in timber and thatch to classical-style in stone during the mid eighteenth century (White 2000, 1). Similarly in Carlisle, Hutchinson, writing in the later eighteenth century, recorded that at the beginning of that century buildings were mostly built of wood, clay and lathe (Towill 1996, 143). Elsewhere in Cumbria there are indications of a similar reliance on less durable materials in some town buildings before the eighteenth century. Limited building investigations in Ulverston (C) and Prescot (M) have revealed that behind eighteenth century facades and encased in later stone walls are earlier timber frames, some of which may even be medieval in origin. Timber buildings in urban contexts were susceptible to fire which often acted as a stimulus to rebuilding (Newman 2001). Much of Flookborough (C) was burnt in 1686 for example (Dickinson 1980). In Kendal rebuilding of the town’s medieval fabric in stone appears to have occurred in the seventeenth century. On investigation many of the buildings on the street frontage prove to be seventeenth century in origin as at 68 Highgate (Newman 1991), and some still survive relatively intact and identifiable. One town within the region that reversed the trend from timber to stone or brick was Northwich (Ch). Here, there was a return in the nineteenth century to light-weight, timber-framed structures for building, which could be dismantled and re-erected and had an improved performance in withstand subsidence, a particular problem in the town because of salt extraction (Mark Leah pers comm.).

The significance of studying the use and increasing specialisation of spaces within post-medieval houses, has been demonstrated in recent years, especially by Johnson (1993 and 1996). Few studies of this type have been undertaken in the North-West, despite a relatively high level of building survey, however, one theme that is beginning to be addressed is the analysis of multi-functional uses within one complex or group of buildings. For example, Chester is remarkable for its survival of commercial premises at two levels, the undercrofts at street level and above them the Rows, continuous galleries giving access to shops and booths at first floor level (Brown 1999; Carrington 1994; Grenville 1997). An analysis of the interleaved domestic and commercial space in a typical Rows building indicated that commercial space occupied a considerable volume, nearly 50% of the total. Staircase House in Manchester is now seen as a rare survival of an intact merchant’s house with integrated warehousing on one tenement, a strategically-planned whole, whose rooms and spaces were to remain little altered for some 400 years (McNeil 2003).
expansion was accommodated by the infilling of the rear ends of burgage plots from the late seventeenth century with rows and courts of mixed domestic and small-scale industrial developments accessed by alleys (Marshall 1975). The alleys and some of the ‘yards’ survive though many of the buildings have been demolished. Some of these have been recorded in recent excavations ahead of development and await publication (Newman 1988; LUAU 1988). Similarly, in Carlisle before the early nineteenth century, expansion was largely accommodated by infilling.

Rebuilding of urban fabric and infilling of back plots were common features in all English towns in the seventeenth and early eighteenth centuries. Before the late seventeenth century, there was nothing to distinguish urban development in the region from anywhere else in England. Whilst the development of proto-industrial communities began to make some towns distinctive and acted as seeds for later industrialisation, before the later eighteenth century, it was trade that was the engine behind the earliest significant changes in the North-West’s urban development.

Liverpool and the Atlantic trade
After the Restoration the port of Liverpool began to expand rapidly as a result of trade with the West Indies, attracting merchants from London to settle (Liverpool City Council 2003, 104). This led to the development of industries like sugar refining and clay tobacco pipe making. By 1702 Liverpool was the third trading port in England. During this late seventeenth-century growth Liverpool ceased to be a sub-medieval town, as physically represented by the demolition of its castle. New streets were built and by 1698 their number had increased to 24. Its wealth endowed the town with good buildings and the best urban facilities of the day so that Celia Fiennes could describe it as “London in miniature” (Liverpool City Council 2003, 104-5). The town’s entry into the slave trade around 1700 fuelled further growth. During the eighteenth century the population grew tenfold. The Pool from which the town took its name was in-filled and developed (Davey and McNeil 1980, 27-9).

By 1756 Liverpool had 222 streets and by 1800 was the most important port in the country after London and perhaps the second most important town in the British Empire (Liverpool City Council 2003, 106-7; Newman 2001, 147). The growth of the town is vividly revealed in illustrations, of which the most informative is the Buck Brother’s engraving of 1728, and maps such as those by Chadwick (1725) and Eyes (1765 and 1785). Virtually nothing, except the street layout, survives above ground of the town mapped by Chadwick and depicted by the Buck Brothers, although recent excavations have begun to archaeologically explore this key phase in the economic and urban development of the North West (Alan Lupton pers comm.). Liverpool’s historic waterfront was inscribed as a World Heritage Site in 2004 for its significance as ‘an international seaport from the early eighteenth century to the early twentieth century and the surviving urban landscape that testifies to that role’ (Liverpool City Council 2003).

Along with Liverpool, the ports of Lancashire grew as a consequence of the Atlantic trade. Poulton-le-Fylde benefited from its River Wyre ports, and participated as a creek of Preston in the slave trade, also operating as an importer of flax, much of which was taken to Kirkham for sail cloth making. Lancaster became the fourth most important slaving port in Britain between 1750 and 1775 (Schofield 1985, 74), and this influx of wealth not only led to the growth of the town, but to the establishment of industries and the rebuilding of the town in the mid-eighteenth century (White 2000). Beyond some building recording little archaeological work has been undertaken in Lancaster and none in the other ports. The increased wealth from Atlantic trade also aided the urban growth and specialisation of other settlements, especially Chester and Preston which continued as lesser ports and became provincial centre’s for elite society.

New towns and trade in the eighteenth century
The potential profits from the Atlantic trade encouraged the speculative development of new ports and motivated the relocation of existing ones, exemplified in the migration of Lancaster’s commercial quayside from the town centre south to Sunderland Point, as the tidal waters of the Lune estuary gradually silted up. One of the North West’s distinctive urban features is the number of new towns that appeared in the post-medieval period. In Cumbria three of these are excellent examples of eighteenth-century planned towns, Whitehaven, Maryport and Longtown. Comparable to medieval seignurial boroughs, they were founded by aristocrat industrialists. The earliest was Whitehaven founded as a port in the 1660s by Sir John Lowther to facilitate the development of his coal and salt interests. It has many fine buildings dating to the late seventeenth and earlier eighteenth centuries, which have been the subject of a systematic,
detailed survey (Collier 1991). A similar study could be profitably undertaken for Maryport, which, like Whitehaven, was a planned town based on a grid iron design but dates to the mid-eighteenth century. To date the only archaeological projects focused on the town were the excavation of the coke blast furnace (Miller 2000) and an investigation of the site of the nineteenth century market hall in Fleming Square (NPH 2003b). In Longtown two recent evaluations have examined evidence of nineteenth century courts that grew up in the rear of this late eighteenth century planned town (Headland Archaeology 2003; NPH 2003a). Longtown was founded in an attempt to stimulate trade and industry in a similar manner to the late eighteenth century planned settlements in southern Scotland (Newman 2001, 133), with which it shares a number of topographical and architectural similarities.

Religion, Ritual and Ceremony

The relatively large size of the region’s medieval parishes, the low density of population in many areas and the dispersed nature of much of the settlement pattern ensured that in the sixteenth century much of the North West had only a scattering of parish churches. Some medieval chapels, therefore, took on parochial responsibilities. At Hornby (L), the private church of Hornby Castle was rebuilt in the sixteenth century to become the town’s church following the closure of the local priory, which had previously serviced the community (Egerton Lea 2003). There are examples of medieval monastic houses being converted into non-monastic churches following the Reformation, the most notable being Chester Cathedral, but for the most part the Reformation led to a huge loss in ecclesiastical fabric. In Warrington the friary continued to be used for burial, presumably by local Catholics, but by the nineteenth century the site was redeveloped, in part as a candle factory (Heawood 2003). The Reformation, and its associated periodic iconoclasm in the sixteenth and seventeenth centuries, led to the loss of medieval church decoration and to the removal of wayside crosses and the abandonment of the maintenance of holy wells.

Church rebuilding also took account of liturgical and doctrinal changes, as well as the decay of medieval fabric. At Chester Cathedral, large-scale excavations revealed evidence for internal alterations in the post-medieval period following conversion from an abbey, including a sandstone floor and associated burial markers (Ward 1998).

From the late seventeenth century dissenting communities began leaving established churches to set up their own premises for worship. The early meeting houses were often in adapted buildings, or simple, purpose-built vernacular-style buildings, such as Society of Friends’ meeting houses (Butler 1978), at Lancaster, Yealand Redmayne and near Sedbergh. A domestic appearance reflected the humble nature of worship (Newman 2001, 32-3).

There is a large corpus of seventeenth century burial memorials within the region with characteristic dedications in relief. Most are relatively simple and lack the elaborate iconography favoured in some other areas, perhaps a reflection of non-conformist religious leanings. Ribchester parish church has an interesting example of the arrogation of medieval cultural material where a seventeenth-century dedication is incised onto a medieval tombstone. Blackburn Cathedral precinct includes an important and vulnerable group of earlier post-medieval church monuments removed to the churchyard in the nineteenth century when the medieval parish church was demolished. In Prestwich churchyard a flat slab grave marker of 1641 records the deaths of a family’s three children within a fortnight of each other. Much other evidence of social history, cultural affiliations and spiritual beliefs can be gleaned from more intensive study of the periods surviving grave markers.

Private display through the construction of grand houses and landscaped grounds has been an area of recent study for archaeologists in the region. As well as the National Trust’s detailed surveys of estates such as Dunham Massey and Tatton Park (Ch), there have been other studies examining the relationship of great house and grounds to each other and the wider world. Excavation and survey work in Cheshire at Vale Royal Abbey (McNeil and Turner 1988) and Norton Priory (Greene 1989) showed how a medieval ecclesiastical building was reshaped and reinvented to meet the secular needs of its new owners following the reformation and the transference of the building into private ownership. At Whalley Abbey (L) the post-Dissolution house remains in use as a diocesan centre and was recently reinterpreted as part of its conservation plan (Lloyd, Evans and Prichard et al 2002). A variety of research has been carried on most
National Trust properties within the region, with architectural surveys on most of its major houses combined with research on the contents, the gardens and the wider landscape and grounds.

**Technology and Production**

Before the late seventeenth century, the nature and organisation of industry within the region remained substantially the same as it had been in the medieval period. Industry was craft based, widespread rather than concentrated in specific locations, and distribution networks were local unless connected to the sea. Consequently, though numerous, industrial enterprises tended to be small-scale. Important medieval industries remained significant into the eighteenth century, when market growth, greater capital investment and eventually improved transport links led to significant changes in even the most traditional industries.

**Medieval industries**

One of the most archaeologically identifiable industrial products is pottery. In the sixteenth century local forms of wares present in the Midlands and Yorkshire, such as Cistercian Ware, Midland Purple and Midland Yellow become common in the south of the region although no production sites have yet been identified. In Cumbria and north Lancashire Northern Reduced Greenwares were produced from potteries at Silverdale and may have been produced at Caton (OA North 2003a) and in Carlisle. No kiln complexes have been properly excavated and the role of the region in the technological development of these wares is unknown. In the seventeenth century production sites were more widespread, generally confined to areas on the Coal Measures and often operated as ‘cottage’ industries directly connected with farming. A number of production assemblages have been studied, but no kiln structures.

Liverpool became a major producer and exporter of tin-glazed wares and porcelain during the first half of the eighteenth century and the industry continued there into the nineteenth. During the eighteenth and nineteenth century ceramic production on the coalfields became industrialised, though ‘cottage’ industries continued in more marginal areas. A number of short-lived attempts to introduce factory-scale production were located in other centres such as Whitehaven, Kendal, Manchester, Lancaster and Chester. Of these only the Lancaster pottery has received even limited archaeological examination (Price 1973). Although the nineteenth and twentieth-century pottery industry was dominated by Stoke-on-Trent, the production of specialist wares in Rainford and Melling, for example, reached an international market while a number of country potteries and coarse ware production units often on the Pennine margins in places such as Burnley, continued to supply local markets.

There is a lack of archaeological evidence for the production of pottery in the region at all periods. With the exception of a mid-eighteenth-century coarse ware site in Prescot and possible white salt-glazed stoneware production in Chester, no production units have been seriously investigated and published. Although a number of small production groups have been recovered from evaluation trenches in Liverpool, none of the sites have been subject to detailed archaeological investigation.

Unlike pottery production, leather processing and working seldom leaves much archaeological trace of its products, though its processing sites at least are identifiable. Documentary evidence of leather trades throughout the region is prolific. In sixteenth and seventeenth century Chester documents reveal that over a fifth of the craftsmen in the city were associated with leather trades. Between the sixteenth and eighteenth centuries the trades were controlled by guilds in both Chester and Preston. In addition to the main guild at Preston there was smaller specialist one dealing with leather products. The processing of leather broke away from its traditional medieval organisation during the eighteenth century becoming more centralised in larger complexes. Tanneries are associated with most larger settlements throughout the region, and excellent examples of rural tanneries partially survive as upstanding structures at places like Burton-in-Kendal and Rusland (C) (Howard-Davies 1987; Reeves 2002).

There has been little archaeological study of the post-medieval industry in the region outside of Chester, where several excavations have uncovered evidence for post-medieval tanning. At Bridge St a large assemblage of horn cores was deposited sometime in the late seventeenth to early eighteenth century which probably related to the tanning industry. Excavations at 148 Foregate Street in 1998 and an extensive probably late eighteenth to nineteenth century complex on the east side of Seller Street in 2001-
02 both produced a variety of evidence related to tanning – large timber and stone-lined pits, dumps of horn cores, insects related to tanning, remains of bark and some leather or hide remains. The location of these latter sites in the eastern suburb supports the map evidence for tanners in this part of the city, for example a tannery consisting of about 50 pits is shown on the 1875 OS map behind the Foregate St frontage. Overall the evidence largely relates to cattle hides but there is evidence for the tanning of horse hides too. The large samples of horn cores from the three sites provide data for the approximate ages of the animals used for their hides. Apart from tanning there is little archaeological evidence of the post-medieval leather trades.

One of the region’s most historically important products is salt. Coastal workings have been documented in Cumbria, and around the mouths of the rivers Wyre, Mersey and Dee. Salt was produced by the ‘direct boiling’ process and by ‘sand washing’ or ‘sleeching’, whereby salt-impregnated tidal silts are filtered through a bed of turf or peat, and the resulting brine is boiled in small pans, often of lead. This technique is known to have survived around Morecambe Bay and the Solway into the eighteenth century, and the region also contained salt refineries using the 'salt on salt' process, whereby impure Cheshire rocksalt was dissolved in seawater and recrystallised. There is one site near Maryport (C) that has the remains of a large seawater tank and brine pond. The works continued until 1770 when the site was transformed into shipyard and rope works. There have been no archaeological investigations of the Wyre operations, though documents reveal the industry as active in the seventeenth century. Processing of rock salt was undertaken at Liverpool and Frodsham, where some initial survey has taken place. Similarly rock salt workings at Dungeon (Hale) have been recorded and workings on Hilbre Island are being investigated by Liverpool Museum.

One of the distinctive features of the region was the availability of salt as an extracted mineral from Cheshire and near Liverpool. At inland works brine was usually drawn from natural brine springs, where brine pits were developed. Later, shafts or wells were dug by hand to the wet rock head. Pump Trees were set up between headstocks or gallows to lift the brine by steam engine from the end of the eighteenth century, when John Gilbert purchased Boulton and Watt engines for his sites on the Trent and Mersey Canal at Lawton in 1788 and Marston in 1789. Brine was raised and stored in brine cisterns or tanks, where any solid material was allowed to settle before the brine was allowed to flow through brine pipes by gravity into the evaporating pans. There are fifteen sites on the Cheshire SMR for inland salt production.

Following the discovery of rock salt near Northwich in 1670, a number of mines were established. These early mines were sunk to approximately 45 metres depth into the upper bed of rock salt, the lower bed remaining undiscovered at that stage. Despite the measures taken to prevent water entering the shaft, the top bed mines were prone to flooding and collapse. This left characteristic funnel-shaped hollows (usually flooded) at the surface. These 'rock pit hollows', as they were locally called, were mostly obliterated at a later date when widespread subsidence affected the area of the early workings. Around Northwich subsidence, as a result of brine extraction, has led to the widespread loss of surface remains.

Other than for corn milling, as in the medieval period, the primary application of water power was for the fulling mill. Both grist and fulling mills were in part located near to their markets but the primary locational factor was the presence of a viable watercourse. In both instances the reliability of water supply was regulated by impounding water into millponds. This reliance on water power for larger scale manufacturing continued into the eighteenth century and was a major locational factor in the development of the early industrial centres. Woollen cloth and linen was produced for local markets in the sixteenth century and was a major locational factor in the development of the early industrial centres. Woollen cloth and linen was produced for local markets in the North West in the sixteenth century and the two most significant production centres were Manchester and Kendal. Fulling mills for processing the yarn were spread throughout the region, sometimes sharing the same building as a corn mill. Though later mills have been the subject of a number of surveys, there have been no comprehensive surveys of fulling mills. Mike Davies-Shiel’s documentary searches and fieldwork have identified many fulling mill sites in Cumbria and Rothwell’s industrial site surveys have recognised some in east Lancashire (1979a; 1979b; 1979c; 1980a; 1980b; 1981; 1985; 1990), but for much of the region sites still remain to be identified. Though some of these sites were redeveloped as later textile mills the relationship of the early water mills and the later water-powered textile factories has not been explored archaeologically.
Other than for textiles and corn, the other major user of water power in the sixteenth to early eighteenth centuries in the region was the iron industry. Cumbria especially is a nationally important area for examining the application of water power at bloomery forges in the sixteenth and seventeenth centuries, as the area experienced a late flowering of bloomery production. Excavation at sites such as Stoney Hazel forge (Cranstone 2001, 188) and more recently Cunsey forge (OA North 2004) are helping to elucidate the complex technological relationship between late water-powered bloomeries and the finery forges of the blast furnace industry.

**Globalisation**

Atlantic trade introduced new products that spawned new industries in the sixteenth and seventeenth centuries. In particular, the region became important for industries based on tobacco and sugar. Clay tobacco pipes were produced in the region from at least the seventeenth century though only in Chester and Rainford (M) is there direct archaeological evidence for early production. P.J. Davey’s extensive research in the field is significant in the region and internationally (Davey 1980; 1990). Although the earliest kiln material from Rainford is innovative, if not experimental, the regional makers appear to apply national norms of kiln design and mould technology in the production of regional styles. Study of the pipes in circulation suggests a significant number of makers in the south of Cheshire, probably based in the Nantwich/Crewe area, were highly influenced by the Broseley industry in Shropshire. From the Mersey valley northwards as far as the southern Lake District, south Lancashire forms and marks predominate. North of the Lakes local production is much more closely related to styles current in south west Scotland and the north east of England, reflecting cultural affiliations in the region. Although such sub-regional styles can be identified, a study of excavated groups and documentary sources strongly suggests local production, certainly in Nantwich, Manchester, Liverpool, Warrington, Lancaster, Kendal and Carlisle.

The first sugar refinery was built in Liverpool between 1670 and 1673 and was described as a five storey building (Chandler 1957, 332). Such a structure suggests that there should be substantial surviving remains on the sites of known refineries. Documentary evidence suggests that sugar refining was taking place in Chester from at least the end of the 1660s, possibly until the early nineteenth century. The location of several sugar houses in the city is known from maps and documentary sources. The first sugar house in Lancaster was established in 1684. By 1700 Liverpool had at least three sugar houses (Nicholson 1981, 28) and altogether at least seven sugarhouses are recorded on maps of the city, as Liverpool became one of the three major centres in Britain for sugar refining. Sugar refining was also carried out in Manchester and Whitehaven from the middle of the eighteenth century onwards. To date, however, no structural remains of sugarhouses have been examined in the North West and the exact nature of the early sugar refineries is unclear.

Glass production also benefited from international contacts. In the later sixteenth century the medieval English tradition of glass-making was replaced by technically superior traditions introduced by French immigrants (Crossley 1990, 226). So successful was the adoption of foreign techniques that seventeenth-century England became a net exporter of glass and was in the forefront of European glass-making (Charleston 1984, 96). In the North West archaeological evidence for French influence comes from the excavated kiln at Bickerstaffe (M), where products included vessel glass with moulded and applied furnace decoration typical of products of French Huguenot glass-makers (Vose 1972; 1995; 1996, 286-336). The Bickerstaffe kiln is the only known wood-fired glass-making site in the North West from the late sixteenth/early seventeenth centuries (Vose 1995). Other archaeological studies of this industry include the excavations of the seventeenth century glassworks at Haughton Green near Denton (GM); the only example of an early seventeenth century coal-fired glasshouse in the North West. It had a monopoly for glass-making in this area up to 1642 (Vose 1994; 1996).

**Trade, Exchange and Interaction**

While archaeological evidence for trade links comes primarily from artefacts found during fieldwork the lack of analysed large-scale excavation on post-medieval sites limits the potential for examining post-medieval trade outside of Chester and Liverpool. Additional archaeological evidence for the importance of trade to the region, especially overseas, as well as some evidence for contacts, can be found in a variety of structures that appeared in the post-medieval period. The historical evidence for the medieval and
post-medieval periods points to a wide range of objects entering Chester both by the port and over land, in addition to the movement of people. However the archaeological evidence for these external contacts is relatively rare. Many of the goods were either perishable or raw materials which were converted to or used to produce other objects and materials. They included wine, foodstuffs, including grain, and animals, cloth, metal, pitch/tar and timber etc. The principle archaeological evidence for this trade consists of stone and glass and primarily ceramics. As noted elsewhere, the sources of traded ceramics, do not reflect accurately a port’s trade, thus archaeological evidence alone will provide a skewed picture of domestic and overseas contacts (Allan 1999, 286).

Domestic trade
Until the advent of canals trade within the region was either highly localised or facilitated by coastal shipment. Early in the period, rurally produced coarse ware pottery tended to be traded over a limited distance, unless like the Silverdale kilns north of Lancaster, the production site lay close to the coast. Even then it was only certain wares, from the larger producers, that were traded over substantial distances in any quantity. Though little work has been done into the distribution of Silverdale pottery in the early post-medieval period it seems to have been confined to south Cumbria and north Lancashire. This trading pattern remained true of ‘country potteries’ even after the increased specialisation and factorisation of the pottery industry and improvement in transport facilities during the eighteenth century (White 1989).

Other forms of intra-regional trade can be deduced from remains other than artefacts. The sixteenth to eighteenth-century iron industry of the Lancaster to Kendal area was located because of the local availability of charcoal, but it did not have a local supply of iron ore. Most of the manufacturing sites were close to the coast and the documentary record indicates they were being supplied with ore from Furness via coastal shipping around Morecambe Bay (Newman 2003). Other heavy raw materials are likely to have been moved around the coast in a similar manner. The remains of a quay of unknown date survives at Arside (C), associated with a limestone quarry and limekiln indicating that the quarry’s products were being moved by sea. One of the most characteristic early post-medieval structures associated with trade is the market hall. These early market halls were small, vernacular in style and intimate, suited only to the supervision of local trade, unlike the large, architect designed, commercial emporia built in the major towns in the nineteenth century. Most, like that at Hornby (L), built in 1626, have been demolished or redeveloped and none of these have been investigated archaeologically. A few survive such as the late seventeenth-century example in Shap (C).

Pottery is again one of the principal artefacts for tracing trading links with other regions. For the most part, however, before the appearance of the canals it was only wares that could be exported by sea that were marketed over long distances. ‘Metropolitan’ slipwares from the south-east of England, dating to the sixteenth and seventeenth centuries, are found in excavations in Lancaster and Kendal (Howard Davis 2001, 214). North Devon Gravel Tempered Ware found in ports like Liverpool testifies to links with the South West in the seventeenth and eighteenth centuries. More locally, but probably still in part traded by sea, were the products of the Buckley kilns in north Wales which from the late seventeenth century were sold in Cheshire and Lancashire (Davey 1975). Clay tobacco pipes though produced throughout the region were also imported in large quantities especially from Broseley in south Shropshire.

Overseas trade
In the late medieval period Continental wares appear to be absent from pottery assemblages in Chester. This may be partly because there are few deposits which can be identified for this period. Political and economic reasons may also be responsible particularly for a fall off in trade with France (Davey and Rutter 1977, 21). Such wares do not re-appear in the archaeological record in Chester until the late fifteenth century when Saintonge wares, Iberian wares and Raeren stonewares appear. In the sixteenth century the sources of Continental pottery become more various; in addition to Saintonge wares other French imports appear including Beauvais and Martincamp wares, Rhenish stonewares from Cologne and later Frechen, Werra and Weser wares from modern day Germany, a range of Iberian wares including olive jars, lustrewares, tin-glazed wares and earthenwares, and tin-glazed wares from the Low Countries. It is possible that some of these wares were re-exported as happened with Rhenish stonewares from ports of the South-West (Allan 1999, 283) but the type of research into trade in ceramics from the South-West’s ports has not been undertaken in the North-West.
In common with much of western Britain the main receptors for the North West’s overseas trade in the early post-medieval were Ireland, south-west France and the Iberian Peninsula. This is especially well illustrated by Chester’s leather trade where several excavations have uncovered evidence for post-medieval tanning in the city. Large numbers of skins and hides were imported from Ireland and tanned calf skins were the city’s main exportable commodity in the sixteenth and seventeenth centuries, sent particularly to France and Spain. There is useful cartographic information, and the documentary sources have been extensively studied, particularly for the sixteenth and seventeenth centuries when over a fifth of the craftsmen in the city were associated with leather trades. From the first half of the eighteenth century cabinetmakers Gillows of Lancaster exported products to the West Indies, the Americas, Europe and Asia, in return for local products and hardwoods (Dalziel 2001, 120).

Other types of perishable imports that nevertheless leave archaeological evidence of their trade include two of the trans-Atlantic staples, tobacco and sugar. In Bristol that town’s role as tobacco importer from the seventeenth century is considered to have led to the growth of its clay tobacco pipe industry and a link has also been suggested between the tobacco trade and the growth of pipe production in Chester and Liverpool (Davey 1980; Newman 2001, 150). The Atlantic trade in tobacco led to a number of regional tobacco-based industries, not only in the ports but in towns like Kendal, where there is still a surviving snuff works. The clay tobacco pipe is also a good indicator as an export, of the importance of the Atlantic and wider global trade to the North West’s ports from the late seventeenth century. Liverpool marked pipes are the second most commonly recovered British product (after Glasgow pipes) found in North and South America, West Africa and Australasia. Like tobacco consumption, the importation and refining of sugar is recognisable through associated artefacts such as sugar cone moulds and collecting jars. In Chester a large number of sherds were found in a late seventeenth-century pit fill during excavations at 25 Bridge St in 2001, but these appear to be rubbish brought in from elsewhere. Archaeological evidence from Merseyside consists of sugar refining pottery excavated at South Castle Street, dated to pre 1726 (Innes and Philpott, 1985, 117) and sugar refining pottery, typical of vessel types in standard use in the seventeenth and eighteenth centuries from a kiln excavation site in Prescot (Brooks 1989,63). The South Castle Street finds could have come from the site of a nearby refinery, possibly in Derby Square and further research may determine this question. Several fragments of sugar moulds have been recovered from excavations at Mitchell’s Brewery, Lancaster.

**Defence**

The northern border of the region remained the backdrop of political feuding between England and Scotland, as well as localised power struggles and intermittent raiding and riving (Frodsham 2004, 98-111). Despite this, prior to the Civil War, large violent encounters within the region were rare, with the only open battle resulting in a Scottish defeat at Solway Moss in 1542. The site of this battle is the only registered battlefield in the region. The legacy of this political insecurity and the threat of violence continued to nurture architectural traditions with roots in strength and defence, in both practical and symbolic terms. Carlisle and Chester remained walled and defendable towns although these structures were essentially medieval legacies. The defences at Carlisle were improved under the direction of Stefan von Haschenperg around 1542, including the construction of a citadel at the southern end of the city and the addition of outworks, a breastwork and half moon battery at the castle (McCarthy et al 1990, 172). At Chester, the walls were periodically repaired and the gates maintained while in contrast, none of the Manchester castles continued as fortifications beyond the first half of the fourteenth century.

Within the north of the region a number of ‘strong houses’, sometimes of manorial status, continued to be built. More common is the bastle house, small thick-walled farm houses with domestic accommodation set above a basement byre. Although best known from Northumberland (which has 200 examples) around 60 were recorded in Cumbria in a 2000 – 2002 survey. In contrast to earlier defensible building types bastles are almost all of early post-medieval date and are built by tenant farmers rather than landowners. The building type appears c. 1600 but in some areas, notably around Alston, related structures are still being built into the second half of the eighteenth century (Ryder 2002).

The Civil War period (1641-46) largely witnessed the re-use of existing medieval fortifications. Buildings within the cathedral precinct in Carlisle were demolished to provide stone for the reinforcement of the city walls during 1645 (McCarthy *et al* 1990, 199). Chester was subject to a prolonged siege that
resulted in widespread damage to the economy and fabric of the city, leading to a period of retrenchment and rebuilding. There is considerable documentary and cartographic evidence for the Civil War siege works and skirmish sites in Liverpool and in Chester (Ward 1987). While archaeological evidence remains elusive for the former, in Chester survey and excavation data include earth reinforcement to the walls from the Abbey Green excavations, a Jack of plates recovered from the Debenhams site and possibly outworks ditches from excavations near the Bars. The site of the armoury and mint at Chester Castle, dating to the late-seventeenth century has also been excavated revealing the footings of the buildings lying on levelling deposits which included Civil War period occupation debris (Ellis 1996). Earthworks at Lathom Hall (L) may represent the site of siege works from this period.

Excavations have been carried out on the post-medieval deposits at Beeston Castle (Ch) revealing evidence for refortification during the Civil War. This included a major ditch, the conversion of arrow slits for musket fire and finds illustrating the life of the garrison (Ellis 1993).

Preston was the site of a fierce fighting during the Second Civil War of 1648, after an invading Royalist army under the Duke of Hamilton invaded from Scotland and was engaged by a parliamentarian force under the command of Olivier Cromwell. Fighting took place at Ribbleton Moor, Walton Hall, south of Preston, and finally at Winwick near Warrington, before the Scottish army surrendered. Beyond isolated finds of two swords and some cannonball archaeological evidence for the battle is scarce. A hoard of 300 coins discovered within the chimney of a house at Tenter Hill, Whittingham (Ch), dating from 1645-8, may have been deposited at this time. In 1715 Preston was again the site of a battle when Jacobite rebels clashed with the English army. Again, archaeological evidence for the engagement is scarce.
**Contributions to the Post-Medieval Period Assessment**

Champness, B.  Notes on Industry and the Post-Medieval Period.
Davey, P.  The Clay Tobacco Pipe Evidence
Davies-Shiel, M.  Notes on Watermills in Cumbria.
Fielding, A.  Salt production and the salt industry
Huckerby, E.  Pollen and Environmental Overview
Longworth, C.  North-West Industries 1500-1750
Longworth, C. and Hurst Vose, R.  Glass
McNeil, R.  The Urban and Industrialised Landscape
Morris, M.  Post-Medieval Chester – notes for NW Research assessment
Morris, M.  The Port of Chester in the Post-Medieval Period
Newman, R.  Agriculture and Environment
Newman, C. and Newman, R.  Towns, Rural Settlement, Chapels and Industries
North West Medieval Pottery Research Group (edited by P. Davy)  The Pottery Evidence
Ryder, P.  Bastles and Strong Houses in Cumbria
Stallibrass, S.  The Post-Medieval Period with respect to environmental archaeology: remains of plants, animals and humans, and geoarchaeology
Thorpe, N.  Excavations at Stephenson Scale
Whyte, I.D.  Upland Pastoral Farming Landscapes in The Post-Medieval Period
Wilde, K.  The Sugar Refining and Leather Industries
Woodcock, S.  Current state of knowledge and research resource relating to surviving buildings in National Trust ownership

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