North West Research Framework: Historic Buildings Resource Assessment Summary

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Introduction
This is the first time that a resource assessment for historic buildings and designed landscapes in the North West has been summarised, so unlike the archaeology period summaries, this text covers more than the last ten years of publications. There are inevitable overlaps between buildings, designed landscapes and archaeology, particularly for the late medieval, post-medieval and industrial periods; for these periods the previous Archaeological Resource Assessment for the North West summarised some of the key characteristics of the built environment relevant to the North West, including the region’s textile mills, vernacular buildings and workers’ housing. As industrial period buildings are a very significant strand for the North West, an overview is also provided in this summary, which will result in some repetition. To fully understand all strands of the historic environment it is essential to take an integrated approach that encompasses all disciplines, including archaeology, architectural history, social history, topography, historical geography and documentary research. Although this summary of the historic built environment separates buildings and landscapes from archaeology, as a means of enabling a ‘catch-up’ in the resource assessment, these strands are integrated in the evolving research agenda.

As this summary covers all periods, the text is arranged chronologically with themes covered within each period where relevant. The summary runs from the medieval period up to the late twentieth century, particularly covering historic buildings but with some reference to designed or historic landscapes.

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Medieval 1066-1485
There is considerable overlap between this section and the archaeology summaries for this period; the main themes were also covered in the previous archaeological research framework assessment.

A national interest in medieval buildings and topography during the nineteenth century and early twentieth century was reflected in the North West by studies published by local antiquarians and architects which remain valuable sources for the study of medieval architecture, including for damaged, altered or lost buildings. Key studies include Henry Taylor on medieval halls (Taylor 1884),...
Curwen on castles and fortified towers in Cumbria (Curwen 1913), Stephen Glynne on Lancashire and Cumbrian churches (Glynne 1893; Butler 2011), James Croston on ancient Manchester buildings drawn by James Ralston in the 1820s (Croston 1875) and the architect J S Crowther’s study of Manchester Cathedral (Crowther 1893). The reliable Victoria County History series and early topographical county studies such as those by Ormerod (Ormerod 1882) and Earwaker (Earwaker 1880) of Cheshire remain a useful resource for the study of buildings, particularly of medieval houses and Anglican parish churches. The transactions of the Cumberland and Westmorland Archaeological and Antiquarian Society (TCWAAS) and the Lancashire and Cheshire Antiquarian Society (TLCAS) contain numerous published studies on medieval buildings, from their establishment in 1866 and 1883 respectively.

Compared to other regions, the evidence for early medieval churches is scant (Heysham is a notable example (Hartwell and Pevsner 2009, 9)), although early Christian worship is attested by the presence of pre-Norman carved crosses and grave covers, the latter studied in Cumbria by Peter Ryder (Ryder 2005). Parish churches are by the far most significant building type for this period, built and used for Catholic worship until the English Reformation. The principal readily accessible source is the Pevsner series of county architectural guides recently revised by Hartwell, Hyde and Pollard, which provides summaries of all parish churches; however, most have not been subject to measured survey or analytical study. Where recent assessments of churches have taken place, these suggest that the extent to which medieval fabric survived Victorian restoration is not fully understood. The presence of Romanesque features such as church doorways are recorded and discussed in the online Corpus of Romanesque Sculpture in Britain and Ireland (http://www.crsbi.ac.uk) which is regularly updated. Medieval stained glass in Lancashire and Cheshire has been researched by Hegbin-Barnes as part of the Corpus Vitrearum Medii Aevi project (Hegbin-Barnes 2009; 2010). Other sources for churches include inventories by Nadfas, updated church guidebooks funded by the HLF as part of restoration projects (e.g. Bowdon Church, written by Judith Miller and Sue Nichols in 2016 and St Michael’s Croston, by Clare Hartwell and Marion Barter, 2017), and statements of significance written to support Faculty applications for alterations, required by Dioceses of the Church of England. The latter unpublished reports are written either by local historians and parish volunteers or by professional archaeologists, architects or historians; few are publicly accessible.

In Cumbria and parts of north Lancashire, the building of castles, pele towers and other defensible buildings was prompted by proximity to the Scottish border and political instability. At the upper end of the social and political scale, some major castles such as Brougham Castle have been the subject of monographs (Summerson et al 1998) which informed updated guidebooks and web pages. John Goodall’s typological study of English castles provides the national context (Goodall 2011). Over fifty houses with towers survive in Cumbria where the tower generally formed one wing of a hall house; pele towers were the subject of a county-wide survey by Peter Ryder (for English Heritage) (Ryder 2002), also the author of a report on bastle houses in the North Pennines (Ryder 1996). Pele towers are often embedded in houses that were later extended and remodelled, as at Levens Hall, Hutton-in-the-Forest and Sizergh Castle (Goodall 2000b) and Rose Castle (Weston, 2013). Shielings and bastles in the north of the region (and also in the North East) were a form of defensible farm or domestic building, the subject of study by the RCHME in the 1960s (Ramm, McDowall and Mercer, 1970).

In Cheshire, Lancashire (south of the Ribble), Greater Manchester and Merseyside, the timber-framed domestic tradition reached its zenith towards the end of the medieval period at high status houses such as Little Moreton Hall, Bramall Hall, Speke Hall and in an urban context on the Chester Rows. The latter is understood from intensive study in the 1990s (Brown et al 1999) and some individual hall houses such as Little Moreton Hall have been investigated and reinterpreted more recently for
unpublished reports (Barter and Hartwell 2012). In Greater Manchester hall houses may be timber-framed or stone; Chetham’s School and Library incorporates a rare stone-built hall complex built for the collegiate church in the mid fifteenth century, studied by Hartwell (Hartwell 2004). At Storeton Hall on the Wirral a stone-built hall house was built by the Stanley family in the mid 14th century (Arrowsmith et al 2016), its importance reinforced by the discovery of in situ window tracery in two previously blocked hall windows in 2016, in advance of restoration and alteration (uncovered during a watching brief by Orion Heritage).

In Kendal, the town’s most significant medieval domestic building, the so-called Castle Dairy, is a single-storey hall house with cross wings, generally thought to date from the fourteenth century and altered and extended in the sixteenth century, although the documentary evidence is not clear. Building recording by Greenlane Archaeology (Elsworth, 2010) was supplemented by tree-ring dating in 2015. This shows that the earliest roof timbers are in the north-east wing where the timbers were felled between 1466 and 1502. The timbers in the hall roof and the south-west wing are of a slightly later date range (1485-1507 over the hall and 1486-1506 over the south-west wing) (Tyers, 2015). This may be interpreted as a partial rebuilding and extension in the late fifteenth century of the earlier building, and demonstrates the value of using scientific dating in conjunction with measured survey, building analysis and documentary research.

Landscape features at high status late medieval houses often include moats in Cheshire, as at well-known houses such as Little Moreton Hall but also as lesser known privately-owned houses such as Chorley Old Hall, where excavations on the moat platform revealed traces of former ancillary structures adjacent to the surviving stone hall house (Fletcher 2016). In former medieval deer parks, field survey can identify the extent of extant features, such as a boundary bank in the deer park at Stonyhurst, assessed by Oxford Archaeology North (Barter et al 2015).

**Post Medieval 1485-1750**

*Agriculture – farm buildings and vernacular domestic architecture*

Agricultural and rural domestic buildings of the post-medieval period are a rich part of the vernacular architecture of the region; the diverse geology and traditions of the North West have produced a wide range of vernacular building forms and traditions. Timber-framing and brick are mainly found to the south of the Ribble and the south-west, and stone to the north and eastern Pennine fringe although the picture is more complex than this simplistic division; timber-framing survives in domestic buildings in the Pennines, including for internal partitions in otherwise stone-built houses, as at Withinlow a 17th century farm house near Rainow (Barter, 2017). Academic interest in the vernacular architecture of the post-medieval period flourished in mid-twentieth century Britain; at the University of Manchester, The School of Architecture was an important centre for the subject where Cordingley and Brunskill were nationally influential in the development of vernacular building studies and a typological approach (Cordingley 1961), contributing to an understanding of the region’s buildings (Cordingley and Wood-Jones 1959; Brunskill 1957; 1958; 1962). At Lancaster University’s Centre for North West Regional Studies, vernacular buildings are among the regional themes covered by staff and students; McClintock and Watson’s 1970s study of Fylde buildings recorded a now almost vanished group of clay buildings roofed with thatch (McClintock and Watson 1979).

Collaborative research by Historic England, the Countryside Agency and the University of Gloucester has resulted in the publication of regional character statements for historic farmsteads; the North
West report was published in 2006 (Lake and Edwards 2006). Significantly, vernacular architecture, including farm buildings, has also been the subject of voluntary study, generating building records and published articles in the national journals of the Vernacular Architecture Group (VAG, founded in 1952), the Historic Farm Buildings Group and locally in the journals of the Cumberland and Westmorland Archaeological and Antiquarian Society (TCWAAS) and the Lancashire and Cheshire Antiquarian Society (TLCAS). For example, recent study of dairy cattle housing in Lancashire was published in Vernacular Architecture (Grundy, 2015).

Post-medieval buildings in Cumbria, particularly vernacular and farm buildings have been the subject of numerous studies, published by Ron Brunskill, David Butler (on Quaker Meeting Houses - Butler 1978), Janet Martin, Adam Menuge (Menuge 2015), Susan Denyer, Blake Tyson (e.g. Tyson 1988; 2000) and Tim Whittaker, among others. The National Trust’s programme of building surveys in the 1980s created an important record of their farm buildings and houses in the Lake District; Denyer’s book (Denyer 1991) draws on this body of work which also provided valuable training in building recording. Tim Whittaker, one of the National Trust survey team, later published a study of Cumbrian bank barns, one of the county’s most characteristic building types (Whittaker 2001). Peat-scales or storage huts for peat used for fuel are a feature of the landscape in Eskdale, the Duddon, Langdale and Mardale, built before 1750 (Winchester 1984). The clay buildings of the Solway Plain, locally known as dabbins, have been studied by Jennings (Jennings 2003), Harrison (Harrison 1989; 1991) and Messenger (Messenger 2000, 7-12). The contribution of farm buildings to the cultural landscape of the Lake District is recognised in the Lake District World Heritage Site nomination dossier (Lake District National Park Partnership, 2016), with descriptions arranged by valley (http://lakedistrict.gov.uk/caringfor/projects/whs/lake-district-nomination).

Pictorial sources such as drawings, paintings and prints are a useful source for vernacular buildings; some of the more accurate are by artist William Green of Ambleside whose prints of Lake District domestic buildings were published in the early 1800s (Burkett and Sloss 1984), part of the growing interest in the area’s topography and history encouraged by Wordsworth, West and other writers. Continuing interest in vernacular buildings is reflected in the Cumbrian Vernacular Buildings Group, founded in 2013.

In part of the Lancashire Pennines, stone-built vernacular houses are covered by Pearson’s detailed study for the RCHME (Pearson 1985), combining documentary research with measured survey. There is no comparable assessment for most of the county, with the exception of Miller’s study of houses in the Douglas Valley (Miller 2002) and McClintock and Watson’s for the Fylde (McClintock and Watson 1979). During the 1950s, Singleton published two articles on vernacular houses in Cheshire and Lancashire, and Mercer provides plans and summaries of a small selection (Singleton 1953; 1956; Mercer 1975), but since then there has been a surprising lack of typological study into Cheshire’s vernacular houses and farm buildings in the post-medieval period. Recent studies of farm buildings, farm houses and cottages on the Dunham Massey estate, for the National Trust, has revealed that a higher number of buildings retain timber-framing concealed within later brick re-facing than was previously realised (numerous farmstead and historic building studies produced by Matrix Archaeology since 2009, previous reports by the University of Manchester Archaeological Unit). It is not known whether this pattern exists in the rest of the county, although for Barnwell and Giles suggest that few farm buildings built before the late eighteenth century survived in Cheshire (Barnwell and Giles 1997, 127) due to later farm improvements by large estates.

In Greater Manchester building recording by the University of Manchester Archaeological Unit (now at the University of Salford) produced studies of post-medieval houses and farm buildings, for example as part of the wide-ranging series of publications funded by Tameside Council (e.g. Burke and Nevell
For Merseyside north of the Mersey, a short summary on vernacular buildings is contained in the introduction to the Buildings of England volume but there appears to be a lack of recent systematic study into post-medieval vernacular buildings in Merseyside. Farm building recording has been promoted by the use of planning conditions, particularly in Lancashire, Cumbria and Greater Manchester, although synthesis of the results has not taken place; this should be a research priority. Several recent surveys are referred to in the Post-Medieval Resource Assessment. The National Trust is a significant owner and curator of rural buildings from this period, commissioning recording and analysis to inform their management of the assets and in advance of alterations, for example Oxford Archaeology North recently recorded Gawthorpe Great Barn for the National Trust, an aisled barn built c1605 (Quartermaine and Taylor, 2014).

Although timber-framing is mainly associated with the south and west of the region, the use of cruck frames to carry roofs is recorded throughout the region, in clay and stone buildings. Records of known cruck-framed buildings may be searched on the VAG database, available via the Archaeology Data Service (ADS) website (dated crucks were first published by VAG in 1973 and the database was established online in 2003 by Nat Alcock). In Cumbria, 226 recorded crucks are associated with stone and clay buildings built for agricultural or domestic use; on the Solway Plain they are associated with clay dabbins built to a ‘longhouse derivative’ plan form, comparable to a building form that occurs in the Mersey valley where cruck-construction continued into the eighteenth century. In Lancashire, the cruck database contains 292 records of crucks, variously found in high status stone barns on gentry estates as at Rivington, Stonyhurst and Harrock, as well as in lower status domestic buildings, on the Fylde for example. Crucks are recorded in 116 domestic and farm buildings in Greater Manchester and 125 in Cheshire, but more are likely to survive embedded in altered structures. The dating of roof structures and constructional timber by dendrochronology has contributed to the more accurate dating of buildings which could previously only be allocated to a broad date range; as for crucks the VAG tree-ring database is hosted by ADS (http://archaeologydataservice.ac.uk/archives/view/vag_dendro/).

**Rural settlement and land use - estates, gentry houses, designed landscapes**

After farmsteads and farm houses, historic buildings and landscapes associated with gentry and nobility estates are the most characteristic aspect of the rural historic built environment in this period of growth and relative stability. The study of estates has often been divided between the social and art historic evaluation of the mansion house and designed landscape, and the agricultural development of the estate (Knight et al 2012, 113), although there are some examples of a more comprehensive approach in the region; research and analysis by or for the National Trust has studied both the landscape of the estate, the farm and estate buildings and the mansion at Dunham Massey (Woodside and Miln 1999 and Matrix Archaeology forthcoming).

Historical pictorial sources for key country houses and gardens in this period include the remarkable bird’s eye view engravings published by Knyff and Kip (Knyff and Kip 1707), which record designed landscapes and buildings that in many cases were swept aside by later changes. Lowther Castle, Eaton Hall and Dunham Massey were all recorded by Knyff and Kip; at Dunham, later bird’s eye paintings of the estate by Harris from c1750 have assisted with interpreting subsequent changes to buildings and landscape features (Gregory and Miller 2013). Gentry and nobility estates developed and expanded during the post-medieval period, and many examples survive in the North West, with or without an intact country house at their heart. However, most pre-1750 designed landscapes with geometric and formal gardens were later swept away by more naturalistic landscaping in the later eighteenth century, although some notable formal landscapes partially survive at several North West country houses, including the landscape under restoration on the south side of Lowther Castle. At Stonyhurst
the parterres, twin canals and avenue laid out in the 1690s by the Shireburns have survived within an earlier deer park landscape, assessed by OAN, Chris Burnett Associates and AHP (Barter et al 2015). Levens Hall garden, first laid out by Guillaume Beaumont in the 1690s, is nationally significant for the topiary and also for the *ha ha*, a feature introduced to separate the pleasure gardens from pasture fields whilst enabling an uninterrupted view; the Levens example is considered to be the earliest in England (Hyde and Pevsner 2010, 495). The formal compartmentalised gardens at Little Crosby Hall in Lancashire, owned by the Blundell family, were referred to in the early eighteenth century diaries of Nicholas Blundell, and the subject of a paper in the journal of the Garden History Society (Edmondson and Lewis, 2004). The gardens of the North West have not received the attention they merit, and further study is needed to highlight whether more design and features from this period are extant.

The phasing and key aspects of North West country houses are recorded in the Buildings of England volumes and in the gazetteer compiled by Robinson, county sections are preceded by his useful summaries (Robinson 1991). Renaissance influences on the houses of the gentry from c1600 mark a shift towards ‘polite’ architecture, although local vernacular traditions continued further down the social scale. The use of symmetry was gradually adopted for houses which otherwise retained some elements of late medieval plan-forms; a distinctive group of Lancashire and Greater Manchester houses adopted symmetry for the principal elevation, as at Bispham Hall, Hacking Hall, Harrock Hall, Staley Hall and Winstanley Hall, all built or rebuilt in the 1590s to early 1600s, as noted by Hartwell for the Pevsner revised volumes (Hartwell and Pevsner 2009, 15-19). In these houses, the double-height hall characteristic of medieval houses was replaced with a central 2-storey range with chamber above the hall, and the offset position of the screens passage and entrance was often retained, as part of a new symmetrical facade. Staley Hall, a timber-framed house of c1556 was re-faced in stone in the early seventeenth century, recorded by York Archaeological Trust before refurbishment by Persimmon Homes (York Archaeological Trust, 2018).

The shift from late medieval to early modern houses is an area meriting further research. Research and analysis can enable reinterpretation of previously misunderstood houses; at Astley Hall near Chorley, a building condition survey by Geoff Maybank and research by Hartwell and Barter for Chorley Borough Council shed new light on the phasing of this fine gentry house (Barter and Hartwell 2016) showing that the current brick front façade was built onto the timber-framed structure of earlier front range which survives behind later wall linings. The fine hall panelling and staircase were found to have been introduced as part of nineteenth century remodelling. Studies of other multi-phase gentry houses including Bramall Hall where Barter and Hartwell initially researched the house for a conservation plan (Donald Insall Associates 2009), followed by detailed recording by Matrix Archaeology supplemented by dendrochronology (Matrix Archaeology 2017). The introduction of classical features during the Elizabethan period in the North West is reflected in internal joinery, chimneypieces, plasterwork and painted interiors in gentry houses as at Bramall Hall where the chamber over the hall was created in c1590, with Renaissance details (Hartwell et al 2011).

In Cumbria a distinctive group of late seventeenth century stone houses incorporate classical details; Moresby Hall is one of the earliest Cumbrian house with a classical elevation and features such as pediments and moulded architraves (new wing built c.1670, attributed to William Thackeray). Hutton-in-the-Forest, retaining a pele tower, was modernised with a classical facade (designed by William Addison) in c1680. These gentry houses are covered by Cooper’s national study of gentry houses, noting the influence of Dutch pattern books, which helped to spread Renaissance architectural details across northern Europe in the seventeenth century (Cooper 1999, 235-40). Worsley’s national research on stable buildings refers to significant early examples in the North West such as Peover Hall’s remarkable stables of 1654 and the classical stables at Dunham Massey, built in the 1730s to
complement the remodelled house (Worsley and Rolf 2004). The Dunham Massey stables are the subject of recent research and measured survey (Arrowsmith et al 2015).

Not all medieval houses were developed and improved for domestic use in this period; there are examples of decline where a high status house was abandoned for domestic use and converted for agricultural use. The Stanley's mid fourteenth century medieval hall house at Storeton Hall on the Wirral was partly demolished and the remains adapted for farm buildings in the late seventeenth century; recent research, confirmed by dendrochronology, showed that a farm building was built against one retained wall of the hall, containing timbers felled between AD 1682 to c AD 1701 (Tyers, 2010).

Urban
During the early part of the post-medieval period, timber-framing continued to be an important form of construction, with good extant examples in Cheshire market towns, such as Nantwich, for example. New buildings in brick or stone are a theme in the later part of the period, but post-medieval buildings are rare in the region’s industrialised cities, such as Manchester and Liverpool due to later redevelopment; understanding these structures relies on the excavation of below-ground archaeology, such as recent work at Greengate in Salford. Wealth from maritime trade, including the Atlantic slave trade, generated new commercial and domestic buildings in the region’s ports for newly prosperous ship-owners, merchants and professionals from the first half of the eighteenth century. Andrew White's research on Georgian Lancaster provides a social context for the town’s architecture, although Georgian urban architecture was more significant in the town after 1750 (White 2000). Towns less affected by redevelopment in later periods, such as Cockermouth (Leech and Gregory 2013), Kendal, Penrith and Appleby in Cumbria, generally retain more fabric from the pre-1750 period than the North West’s industrialised towns. In Appleby, buildings in the conservation area have been investigated in detail by Historic England as part of a Heritage Action Zone, with a separate report on the Moot Hall first built in the late 16th century (Barter and Elsworth, 2018).

Religion and Belief – churches and chapels, burial grounds
In the post-medieval period, new parish churches are rare, such as the brick church of St Michael’s at Much Hoole in Lancashire, built in 1628. The few Anglican churches built in this period are summarised in the Buildings of England series, which also refers to the numerous churches where new box pew seating was installed in the eighteenth century, although examples are fairly rare due to losses caused by Victorian re-ordering schemes. Essays on the history and typology of pews and church seating published by the Ecclesiological Society (Cooper and Brown eds, 2011) provide a useful overview but the case studies are drawn from the south of England; research on church seating in the North West is needed to inform decisions about re-ordering Anglican church interiors. An equally important theme is the building of meeting houses and chapels by dissenting groups, notably the Quakers established in the 1650s. Brigflatts near Sedbergh is the earliest Friends meeting house in the North West, built in 1675, 14 years before the 1689 Act of Toleration. Cumbria and north Lancashire contain an important group of early meeting houses still in use; these and all those in the North West were recorded and their significance assessed as part of a national survey for the Religious Society of Friends in 2014-2016, part-funded by Historic England, by the Architectural History Practice (AHP building reports are available via ADS and at heritage.quaker.org.uk). Quaker volunteers contributed to the research. Burial grounds next to meeting houses were noted during the survey and the locations of detached Quaker burial grounds identified, although the latter were not assessed for the survey and require further research and assessment. Butler’s and Stell’s (Butler 1978; 1999; Stell 1994) published work on meeting houses and Nonconformist places of worship has been brought up to date by Wakeling’s national assessment of chapels in England (Wakeling 2016).
Trade, Transport and Communications

Industrial activity in the post-medieval period developed skills in the region that contributed to the dramatic developments of the industrial period after 1750. The post-medieval period used renewable sources for energy, with water power particularly in Cumbria and the Pennines and wind power in the west, including on the Solway Plain, the Wirral and the Fylde. In Cumbria, research by Davies-Shiel on water mills has been brought up to date, posthumously, by the publication of his research into water mills within the catchment of the river Kent (Davies-Shiel, 2017). Articles by the Cumbria Industrial History Society are published in a series of occasional papers, *The Cumbrian Industrialist*, covering some post-medieval sites. The Society maintains gazetteers of sites such as lime kilns and water mills but phasing information is generally not provided ([http://www.cumbria-industries.org.uk/a-z-of-industries/lime-burning/cumbrian-limekilns/](http://www.cumbria-industries.org.uk/a-z-of-industries/lime-burning/cumbrian-limekilns/)). Also in Cumbria, woodland industries were an important strand, related to charcoal making, iron manufacture, potash and the making of items such as swills (baskets). The Furness bloomeries were significant from the medieval period, expanding in the post-medieval and industrial periods, and have been the subject of detailed study published by English Heritage (Bowden, 2000).

The estuaries of the western and southern Lake District were important for coastal transport from the post-medieval period, serving industries such as mining, slate quarrying, iron-manufacturing and lime-burning. In Lancashire and Cheshire river navigation connected inland towns such as Manchester with the coast, until superseded by canals and railways. River bridges and traces of roads used before turnpike road improvements survive in parts of the region, such as a rural hollow-way section of the road from Blackburn to Bolton and Manchester, noted by Crosby in a paper on the early road network in the Manchester area (Crosby, 2008, 12). In the seventeenth century, some earlier timber bridges were rebuilt in stone on key river crossings, such as Ringley Old Bridge over the Irwell; records refer to it being built with two arches in the 1630s, (Crosby, 2008, 9-10), although the present Grade II* listed structure is said to be of 1677 (Historic England List Entry). More detailed research is needed to fully understand the region’s surviving historic bridges, which are at risk from more frequent and increasingly severe flooding events.

In Cheshire, particularly to the east of the county, water-powered mills were developed for processing corn and for other industries, but the rapid expansion for textile manufacturing, notably silk, mainly occurred after 1750. Corn mills in this period were numerous, but few are intact due to later redevelopment of mill sites for other purpose; two good examples have survived on estates, at Nether Alderley (for the Stanleys) and at Dunham Massey (for the Booths), both recently researched and surveyed by Matrix Archaeology (Arrowsmith, Fletcher and Middleton, 2012 and Arrowsmith, Fletcher, Middleton and Watts, 2013). The Dunham Massey corn mill was first built in c1600, powered by a single water wheel, and extended to the north by 1697 for a second wheel, although this was later removed. In the mid-nineteenth century the mill was converted for use as a saw mill for the estate. The first record of a mill at Nether Alderley occurs in 1391, but the present mill represents the rebuilding and enlargement of a mill built in the 1590s, in about 1746; the water management system and the remains of a corn drying kiln are also mid-eighteenth century. The mill has two overshot wheels in line, one above the other, a once common arrangement but now rare; the water wheels and in situ machinery at Nether Alderley date from the second half of the nineteenth century, steam power was introduced in 1892. The mill closed in 1939 and was restored in the 1960s by millwright Cyril Boucher.

In Greater Manchester, research published as part of the Archaeology of Tameside Series (Nevell, Grimsditch and King, 2006) found that there were around 540 eighteenth century textile mill sites in the area, but only a small fraction of these have extant standing remains, due to later redevelopment.
of sites. On a small scale, loom shops in weavers’ cottages were characteristic of domestic buildings in the south-east of the region, but few examples pre-date 1750; Numbers 16 and 17 The Flash in Carrbrook is a pair of houses with a first floor taking-in door, potential evidence of textile manufacturing, and probably built in the early eighteenth century (Nevell, Grimsditch and King, 2006, 189). Documentary research is important to supplement the oftenscant physical evidence of domestic textile production in buildings; in the Lancashire Pennines, studies of probate inventories dated between 1600 and 1730 show that textile manufacturing took place in many domestic buildings, with looms and spinning wheels recorded in rooms at the service end of houses or on upper floors (Pearson, 1985,111-113). A good example is Hobstones in Colne where a workshop was built in 1710 by Edmund Stephenson, with an external door at first floor apparently the only access (Pearson, 1985, 98-99). More research into this early phase of industrialisation would be valuable.

**Industrial period 1750-1914**

**Agriculture**

The industrial period was marked by a national movement to improve agricultural production, partly to supply expanding urban populations and facilitated in the later part of the period by improved transport, particularly rail. Improved farmstead design was influenced by published advice on agricultural processes and animal welfare; on country estates the home farm was often rebuilt as part of an ensemble of estate buildings; classical style was chosen at Tatton Home Farm (Arrowsmith et al, 2015a) and Heaton Park, but lower down the social scale and on smaller farms, older farm buildings continued in use with varying levels of adaptation. A survey of nineteen farmsteads on the Downham Estate in north-east Lancashire recorded the effect on the estate’s vernacular stone-built farm buildings of a shift from mixed arable farming to dairy farming and raising cows for beef in the second half of the 19th century (Lancashire Heritage Trust, 1995). In central Cheshire, farm buildings were substantially rebuilt as part of agricultural improvement (1750-1914), recorded by the RCHME as part of their national survey of improved farmsteads (Barnwell and Giles 1997), but there has been no systematic survey of improved farmsteads in most of the region. There are several good examples of Georgian model farms in the region, particularly in Cheshire where they are associated with large estates that dominated land tenure; the fine Georgian farm at Doddington Park was designed in the 1770s by architect Samuel Wyatt, a specialist in model farms as well as country house design (Robinson 1979, 33). This farm was probably the most advanced farmstead of its time in the North West. Later examples of model farms in the region include Bulkeley Grange at Malpas in Cheshire, built 1861-70 for Thomas Brassey the railway contractor; the U-plan brick farm buildings were recorded prior to conversion to residential use (Morris September 2013).

Mechanisation of some farm processes influenced the layout and design of larger farmsteads, to accommodate increased efficiency and the use of machines for threshing grain and processing animal fodder. During this period, power was provided by horses, water, steam and lastly electricity. At Dunthwaite near Cockermouth a large barn bank built in 1823, with a slightly later water-powered threshing machine, has been recorded for the National Trust (Arrowsmith et al 2016). At Marsh Grange near Kirkby-in-Furness, a large barn was built with a water wheel in the early nineteenth century date, probably to run a threshing machine, as part of investment by the Wakefield family; this was recorded by Greenlane Archaeology in advance of conversion (Elsworth 2015). Both wheels were supplied with water from specially constructed leats or reservoirs. Water power was used for threshing on some larger farms in parts of Cumbria into the mid nineteenth century, but extant examples elsewhere in the region are rare. Steam power was introduced on model farms during the
nineteenth century; at Tatton Home Farm, a steam-powered mill combining corn and fodder processing with a saw mill for the estate yard was built in the 1850s, recently recorded by Matrix Archaeology (Arrowsmith et al. 2015a).

During a late improvement phase from the late nineteenth to early twentieth century, Dunham Massey estate remodelled tenanted farmsteads for dairy farming, to meet urban demand for fresh milk. This resulted in the replacement or remodelling of almost all of the estate’s post-medieval farm buildings and the building of new shippons and pig cotes. The impact of this on the farmsteads has been the subject of building surveys undertaken for the National Trust, which has shown that evidence for timber-framing sometimes survives within remodelled buildings (Unpublished reports on farmsteads on the Dunham Massey estate by UMAU and since 2009, by Matrix Archaeology for the National Trust).

Efforts to improve farm land including the spreading of burned lime; numerous lime kilns were built in south Cumbria after the canal to Kendal was cut in 1819, giving access to coal, according to Davies-Shiel and Marshall (Davies-Shiel and Marshall 1971). A more recent study discusses the distribution of lime kilns and the uses of lime in Cumbria (Johnson 2013). The Cumbria Industrial History Society provides a gazetteer of lime kilns, but without phasing information (http://www.cumbria-industries.org.uk/a-z-of-industries/lime-burning/cumbrian-limekilns/). A large complex of lime kilns built by Samuel Oldknow on the Peak Forest Canal has been researched by Arrowsmith as part of a HLF-funded community archaeology and repair project (Arrowsmith 2015).

Rural estates, villas, designed landscapes

From the late eighteenth to the early nineteenth century, gentry in the North West commissioned new landscape designs for their parks; informal naturalistic landscaping influenced by Capability Brown’s approach swept away earlier formal landscapes, often diverting public roads, villages and building perimeter walls. A typical example is at Heaton Park, Manchester where a new landscape was created for the Sir Thomas Egerton by William Emes in the 1770s and completed in the early nineteenth century by John Webb; this provided a new setting for the house rebuilt by James Wyatt in classical style (Arrowsmith, 2008). At Lowther Castle, the village was moved twice, the current incomplete village was designed by Robert Adam in the 1760s. Investment in new stable blocks, ornamental park structures, lodges and kitchen gardens, often designed by the architect for the main house, as at Heaton and Tatton (Samuel Wyatt), was a feature of this period. At Lowther, the 1690s formal garden was overlaid with new planting and walks in the early 1800s, to provide the setting for the gothic revival mansion designed by Smirke in 1806, the last in a series of mansions on the same site (Colvin et al 1980), and new gardens were designed in the early 1900s by Thomas Mawson, illustrated in contemporary publications (Holme 1911). The north-west is rich in gardens designed to provide the setting for Victorian and Edwardian villas and country houses, some designed by the country’s best-known landscape designers, such as William Nesfield who in the 1840s designed formal terraces at the site of Worsley New Hall, recently assessed in advance of a major garden project by the RHS (Salford Archaeology 2014). Cheshire is the only county to be the subject of a published gazetteer of historic gardens (Mowl and Marko 2008).

The industrial period spans several different distinct architectural periods: Georgian, Victorian and Edwardian. The Georgian period is the most homogenous in terms of the form and style of buildings; Georgian country houses are summarised in the Buildings of England county volumes and the subject of numerous publications. Colvin’s Biographical Dictionary of Architects is the key national source for Georgian architects and their buildings (Colvin 1995). Cheshire and Lancashire are particularly rich in houses of this period; Robinson (Robinson 1991) and de Figueiredo and Treuherz provide accounts of the houses, their owners and their architects (de Figueiredo and Treuherz 1988). The Wyatts are
recognised as the most influential group of architects for the late Georgian country house and estate buildings in the southern part of the region (particularly in Cheshire); research on Samuel Wyatt for Robinson’s doctoral thesis contributed to the author’s book on the Wyatts (Robinson 1979) and on Georgian model farms, as well as articles for Country Life and other journals. Historical sources for country houses in this period include the weekly magazine Country Life, founded in 1897, a significant resource for country houses and gardens; a Cumulative Index lists architectural history articles on country houses and gardens published by the magazine.

Villas, a sub-set of country houses, are particularly significant in the Lake District where early examples are associated with the late eighteenth century appreciation of the landscape and the picturesque movement. The Lake District World Heritage Site nomination dossier recognises the role of villas and their designed landscape settings in the area’s cultural landscape, the subject of an essay by Adam Menuge published in 2013 (Menuge 2013). Detailed research on individual villas has been undertaken by Menuge and Goodall on houses such as Belle Isle, designed in the 1770s by John Plaw (Menuge 1997), Storrs Hall, remodelled for the Liverpool slaver John Bolton by Gandy in 1808, and Wray Castle, built in the 1840s for a Liverpool surgeon (Goodall and Menuge 2006). Early nineteenth century villas designed by the Websters of Kendal are the subject of books and articles by Taylor (Taylor and Martin 2004). Buildings associated with early tourism in the Lake District are discussed by Rutherford in her 2016 essay on Claife Station (Rutherford, 2013). Boat houses built for villas are a distinctive Lake District building type, the subject of an overview by Menuge (Menuge 2010) and detailed recording at Fell Foot in advance of refurbishment by the National Trust (Buschmann A, 2016). In the rest of the region, villas are also associated with newly wealthy entrepreneurs or professionals, in contrast to country houses built for the established gentry, and they proliferated around the edges of large towns and cities. Villas in Alderley Edge have been assessed by Matthew Hyde (Hyde 1999), including a gothic revival house designed by the Manchester architect J.S.Crowther for himself.

Woodbank, on the edge of Stockport is one of the region’s finest examples of a classical villa built by a mill owner; it was designed in 1812 in Greek revival style by Chester architect Thomas Harrison, for Peter Marsland, and is now at risk. The architect of the house built at Quarry Bank Mill for Samuel Greg is not known, but the house, built in 1798 and extended in 1803 is a good example of a house built for a mill owner adjacent to the mill during the Georgian period (Fletcher, 2007); later in the nineteenth century, mill owners preferred to build houses more distant from the mill as Robert Hyde Greg did at Styal in the 1830s. Quarry Bank House is part of a remarkable ensemble of buildings that includes the pleasure gardens, kitchen gardens, the mill buildings, water management system, workers’ housing and the apprentices’ house. Most of these structures have been subject of detailed recording and research funded by the National Trust, including the Apprentice House (Arrowsmith P, Barter M, Fletcher M and Middleton P, 2014).

The region is particularly rich in villas and houses built for the nineteenth century nouveaux riches, who had accumulated wealth through trade and industry, those in Cheshire studied by Peter de Figueiredo (de Figueiredo 2005). These houses represent a wide range of architectural styles, reflecting shifts in taste and advances in construction and technology. Abney Hall, near Cheadle was built for James Watts, a Manchester draper, to a gothic design by A.W.N.Pugin in the 1850s, but Italianate and neo-classical styles proved more popular such as the Italianate Halton Grange, also 1850s, built for Thomas Johnson, a soap maker.

Particularly in Cumbria and Cheshire, country houses were rebuilt or refurbished during the nineteenth century to express the status of their owners and provide more convenient homes; the architect Anthony Salvin (Allibone 1977) built a reputation for remodelling existing castles such as Muncaster (1862), Rose Castle (1852) and Hutton-in-the-Forest (1860s), and also created Peckforton
Castle (1844) in Cheshire for the 1st Lord Tollemache. Key national sources for Victorian country houses are by Crook (Crook 1999), Girouard, Franklin, Gray and Orbach (Girouard 1971; Gray 1985; Franklin 1981; Orbach 1987).

A published summary of recent research for Historic England and the National Trust on the technology of the country house includes the Edwardian communications and lift installations at Dunham Massey (Palmer and West 2016). The Cumbria Industrial History Society maintains an online gazetteer of country house gasworks including the surviving retort house at Boarbank, near Grange-over-Sands, a gas works at Eden Hall and a gas-related structure at Fell Foot converted to a cottage (http://www.cumbria-industries.org.uk/a-z-of-industries/gasworks-in-cumbria/country-house-gasworks/).

The zenith of villas in the region is reflected in the fine group of Arts and Crafts houses in the Lake District by nationally significant architects such as Voysey and Baillie-Scott; these have been assessed as a group by Matthew Hyde (Hyde and Whittaker 2014) and are the subject of numerous other publications and architectural monographs (Hitchmough 1995). Gardens form a significant part of the settings of some of the region’s villas and older houses; in the late nineteenth and early twentieth centuries, the most influential designer of formal gardens and parks was Thomas Mawson (1861-1933). Initially a nurseryman from Windermere, Mawson ran a successful landscape architecture practice from Lancaster and London. Many of his designs are referred to in his autobiography and contemporary published sources (Holme 1911; Mawson 1927; Kissack 2006) and now protected by designation (the register entries for parks and gardens are a reliable source). Cumbrian houses with Mawson gardens include Rydal Hall, Brockhole and Blackwell and elsewhere his key works include Stanley Park in Blackpool, Tirley Garth in Cheshire, Thornton Manor on the Wirral and Rivington Gardens, the last two in collaboration with William Lever (Lord Leverhulme after 1911) the soap manufacturer. For a different social class, Port Sunlight, was developed by Lever from c1889 to c. 1930, as a model workers’ village; Lever commissioned national architects such as Lutyens and regional architects such as William Owen and John Douglas to design vernacular revival houses and community facilities in the Arts and Crafts tradition (Hubbard and Shippobottom 2005).

Towns and cities

The wealth expressed in late Georgian country houses and villas was partly generated in the region’s cities and towns, where the industrial, mercantile (Harris 2010), commercial, municipal and institutional buildings of the late eighteenth and early nineteenth centuries have national, and in some cases international significance. Georgian urban development is usually characterised by a grid street pattern and regular classical architecture; inner suburbs or planned town layouts of this period have survived in inner Liverpool, Birkenhead, Ashton-under-Lyme, Maryport and Whitehaven (RCHME 1991), but only a little has survived in Manchester due to later redevelopment. Ashton-under-Lyme retains the grid street pattern laid out by the Earls of Stamford between 1787 and the 1820s, and nearby Fairfield is an unusual example of a religious settlement founded in the 1780s and still owned by a Moravian community. In the county towns of Chester and Lancaster, in particular, individual townhouses built by the gentry for seasonal use during the Assizes are significant, alongside merchants’ houses where trade and industry brought new prosperity, as in Macclesfield. Public and civic town buildings by regional architects such as Harrison and Lane are important in Chester, Lancaster and Manchester. National architects also contributed to the region’s urban development and civic buildings; in Liverpool, John Wood of Bath designed the Town Hall (1749-54), completed by James Wyatt in 1802, in Carlisle Robert Smirke designed the courts (1810-22) and Joseph Gandy completed the design of the courts at Lancaster Castle (1802), begun under Harrisson. The revised
Pevsner architectural guides provide a summary of public buildings in each town and city and a good overview of building in provincial Georgian towns is provided by Chalkin (1974).

The sources for the Victorian architecture of this period are too numerous to cover here, but the Buildings of England county series and the gazetteer in Orbach’s Blue Guide to Victorian Architecture (Orbach 1987) are a good starting point. National or regional thematic research by RCHME and Historic England is a valuable resource for several types of buildings that characterise the region in this period including textile mills, warehouses, hospitals, chapels, schools, workhouses, prisons, pubs, workers housing, shops and swimming pools. In some cases, rapid national assessment led to more detailed research commissioned externally by Historic England: post office buildings were assessed in this way (Clarke 2008), followed by research and a report Post Offices of England 1840-1910 by Alan Baxter Associates, in 2010.

Throughout the period, new construction materials influenced the scale and appearance of commercial and industrial buildings, particularly. The early use of steel frames in construction prior to standardisation in 1909 has been the subject of detailed study by Historic England (focussed on London), and includes reference to early examples at Trafford Docks (Westinghouse works 1902), and the Midland Hotel in Manchester (1899), where the influence of American steel construction was a factor (Clarke 2014).

Terraced housing in a national context is covered by Muthesius (Muthesius 1982), and in the region there have been various studies on workers’ housing: particularly in Preston by Morgan (Morgan 1990 and Morgan 1993), in Liverpool by Taylor (Taylor 1974), by Menuge on Anfield for English Heritage (Menuge 2008), and in Manchester by Roberts (Roberts 1983). Workers housing in Lancashire towns has been researched for town survey reports, such as Burnley, published by Lancashire County Council (LCC and Egerton Lea 2005), and for reports produced during the Housing Market Renewal Initiative for industrial towns such as Oldham and Nelson. These studies have added to our understanding of workers’ housing built under local by-laws. Extant worker’s housing built before the introduction of housing by-laws is relatively rare in the region, and merits further study to understand this unregulated type of urban housing and its survival; most was cleared by later urban development but is described in detail by Engels (1845, republished 2009). Archaeological excavation has revealed details in the construction and planning of early nineteenth century workers’ housing not revealed on contemporary maps or plans, for example in the Angel Meadow area of Manchester (Miller and Wild 2015) and on Chapel Street, Salford (CfAA 2013). Later workers’ housing in industrial towns includes the Egerton Buildings in Barrow-in-Furness, where tenements designed by Paley and Austin for shipyard workers are the subject of research by Historic England (Withey 2008).

Victorian leisure provision included urban parks and gardens, funded by private benefactors or municipal authorities; the design of Victorian gardens has been studied by Elliott and others, and including in those in Manchester (Elliott 1986a; Elliott 1986b, 141-145; Conway 1985) and Conway’s research resulted in an overview of public parks (Conway 1996). Brooks published a national gazetteer of Victorian cemeteries (Brooks 1989). For Greater Manchester, a research-led survey of parks and gardens was undertaken jointly by the University of York and University of Manchester Archaeological Unit in the 1990s (Roberts and Currie 1994). Investment and restoration under the HLF’s Parks Programme funded research into some of the region’s public parks, such as Birkenhead Park, the world’s first public park opened in 1847 and designed by Paxton. Some private country estate parks have been the subject of research to inform restoration plans, as at Combermere Abbey (Chris Burnett Associates 2012). Gardens research is also undertaken by volunteers in county garden trusts, which advise the Gardens Trust (a statutory national amenity society) on planning applications affecting registered parks and gardens.
The English Heritage series of booklets on historic leisure facilities include Played in Manchester (Inglis, 2004) and Played in Liverpool (Physick 2007). Indoor swimming pools were researched by Inglis for Historic England (Inglis 2009); the latter are under threat of demolition due to public sector cuts. Recent losses include a Victorian pool in Rochdale (the Broadwater Centre) and Whitworth Baths in east Manchester, both the subject of historic building recording prior to demolition (Barter et al, 2014) and the (AHP, 2016). Many swimming pools also provided public wash houses for working people; those in Manchester the subject of a MA dissertation, focussed more on the social history than the buildings themselves (Worsley, 2000). There has been no synthesis of recent building recording of close or demolished public buildings, such as swimming pools and libraries.

Recognition of Blackpool’s national significance as a seaside resort prompted research into its townscape and buildings funded by English Heritage, carried out by AHP, and the resort has since been the subject of a Historic England publication (Brodie and Whitfield 2013). Earl and Sell’s national gazetteer of theatres includes several in the region, including in Blackpool where the Tower and the Winter Gardens have been the subject of conservation plans.

The nineteenth century building boom encouraged the rapid growth of the architectural and engineering professions and also the founding of new architectural and construction journals; the Builder was founded in 1842 by architect J.A.Hansom as a weekly journal. Illustrations published in the Builder (1843-1883) have been indexed, available in the RIBA Library; as well as elevations and perspective views, journals often contain building plans that explain original room uses. Other important sources for late nineteenth and early twentieth century buildings, particularly country houses and villas, public, institutional and municipal buildings include the Civil Engineer and Architect’s Journal that ran from 1837 to 1867, Building News from 1860, the British Architect and Northern Engineer from 1874, the RIBA Journal from 1893 and the Architects’ Journal from 1895.

Published research on the buildings and architects of Greater Manchester include Archer’s work on the innovative architect Edgar Wood (Archer 1963-64), whose buildings in Middleton are the subject of separate study (Morris 2013). Archer contributed to the study of other buildings such as Manchester Town Hall and the Rylands Library (Archer in Hartwell 2001). Other published monographs on architects include Hartwell on architect Richard Lane (Hartwell 2007), Cunningham on Waterhouse and town halls (Cunningham and Waterhouse 1992), Holden on Stott & Sons (Holden 1998) , Lingard and Timothy on Bradshaw Gass and Hope (Lingard and Timothy 2007), and Pass on Worthington (Pass 1974; 1978; 1998).

Grey literature reports on buildings of this period in Manchester and other cities and towns are numerous; this research and survey work adds to previous knowledge but is rarely in the public realm and synthesis is needed. Whilst recording reports produced under planning conditions may be available via the HER, conservation plans and other strategic reports compiled to inform building management are often not in the public realm, but may contain the results of research and recording of wider interest. Manchester Town Hall has been the subject of several conservation plans and surveys which are not in the public realm, although building drawings by Waterhouse recently discovered by Kirsten McKnight of Stephen Levrant Heritage Architecture are now available in Manchester Archives, which holds an important collection of Victorian building plans approved by the City Surveyor (http://www.manchester.gov.uk/news/article/7556/original_plans_for_manchester_town_hall_rediscovered_by_heritage_expert).

For Liverpool, key studies include de Figueiredo’s research into the design and building of Three Graces (de Figueiredo 2003), Sharples’ studies into the nineteenth century gothic revival (Sharples 2007b;
2008), merchant houses and two Liverpool architects Culshaw and Sumners (Sharples 2012). The internationally important docks and dock warehouses are covered by a series of publications on different sections of the docks, beginning with the RCHME volume in 1984 (Ritchie-Noakes 1984); central docks are covered by Jarvis (Jarvis 1991) and other published studies include the 2014 report by OAN (Gregory et al. 2014). Following the World Heritage Site inscription, Historic England published a series of short books on aspects of Liverpool’s architecture, covering dock warehouses, the central business district, religious buildings, workers’ housing in Anfield and Breckfield, institutional buildings, parks and recreation. Reports produced in advance of building alterations include a study of the Main Bridewell on Cheapside, by de Figueiredo with recording by Morris (2015); the bridewell is a rare example of a mid-nineteenth century city centre prison and the largest to survive from this period nationally. It was designed by John Weightman, the architect of many other Liverpool municipal buildings.

Publications on other notable architects for this period in the rest of the North West include Georgian architect Thomas Harrison of Chester (Champness 2005), John Douglas (Hubbard 1991) whose timber-framed revival buildings define Victorian Chester, and Thomas Beckett (Hinge 1981). The Oxford Dictionary of National Biography contains authoritative entries on many of the region’s architects, compiled by academics and writers such as John Archer (entries on J H Sellers, Edgar Wood and the Worthingtons accessible at oxforddnb.com).

*Religious buildings*

The industrial period was significant for both church building and church restoration, the latter particularly for the Church of England; most of the country’s leading gothic revival architects designed or restored churches in the region Lancaster’s Paley and Austin (including Edmund Sharpe) were a firm of national importance although their buildings are almost all in the North West (Pearce 2006; Brandwood 2012); Brandwood’s gazetteer of Paley and Austin buildings is arranged by date. The Buildings of England volumes provide summaries of all places of worship and churches, with generally brief information on dates, architects and fittings. Stained glass was created for Victorian and Edwardian churches by national and also regional studios, such as Shrigley & Hunt in Lancaster (Walters 2003). For Cumbria churches, there is a useful gazetteer of stained glass, covering this period (Smith 1994). The growth in Nonconformist worship generated numerous new chapels in urban and rural settings (Stell 1994). Manchester has the largest Jewish community in Britain outside London; synagogues nationally, and in Manchester and Liverpool, have been researched by Kadish (Kadish 2003; 2006).

After Catholic Emancipation Act in 1839, many new Catholic churches, convents, seminaries and schools were built in the region; the North West had retained a core of Catholic gentry families, but significant new urban Catholic communities developed in the nineteenth century in towns and cities related to Irish immigration via Liverpool. Catholic churches in the North West were assessed for their architectural and historic significance over a period of ten years, by AHP, as part of the Historic England Taking Stock project to enhance understanding of places of worship, particularly before closure (abridged versions of individual north-west Catholic church reports, in the dioceses of Lancaster, Liverpool, Nottingham, Salford and Shrewsbury, are available online at www.taking-stock.org.uk). A national overview is provided by a recent Historic England book on Catholic churches (Martin and Ramsay 2008). Other Catholic buildings such as convents and seminaries are at risk and merit study within a national context. Architects particularly associated with Catholic patrons include JA Hansom (Walters 2003), Edmund Kirby, AWN Pugin and EW Pugin (Atterbury and Wainwright 1994).
Manufacturing, Trade, Transport and Communications

This period saw a massive increase in the scale and diversity of buildings constructed for industry, trade and transportation as the North West became a global leader in innovation, technology and manufacturing. The early development of canal building in the region, associated with coal-mining, was influential far beyond the North West. The Earl of Bridgewater’s canal to Manchester from his mines at Worsley Delph was the ‘world’s first arterial industrial canal’, begun in 1759 (Nevell, Wyke, Hartwell, Kidd and Redhead, 2016, p1). Canals enabled bulky materials such as coal, building materials and limestone to be cheaply transported, encouraging the growth of steam-powered textile manufacturing and other canal-side industries. The region’s canals have been studied by industrial archaeologists, engineers and historians, such as a recent study into the engineering and business history of the Peak Forest Canal and Railway published (Boyes and Lamb, 2012); the Marple section of this canal was researched in further detail for the HLF-funded repair and community archaeology project that included a large lime kilns complex associated with Samuel Oldknow (Arrowsmith, 2015). and prompting the building of numerous lime kilns, not necessarily in limestone country, as the Marple example attests. In Cheshire, river navigation and canals are one of the key elements of the built environment, with the Anderton Boat Lift one of the most significant survivals. The Manchester Ship Canal of 1894 turned Manchester into an inland port and facilitated the expansion of the chemical industry in the Ellesmere Port area.

The North West has a strong legacy of textile mills, ranging from eighteenth century water-powered mills built in rural valleys as at Styal to steam-powered mills alongside canals and town centres to and the vast steel and concrete floored mills of the early twentieth century such as Pear New Mill, Bredbury. The building of the Rochdale Canal to Manchester directly influenced the development of steam-powered cotton mills in Ancoats, notably Murrays Mills, where Old Mill, 1798, is the earliest surviving example of a steam-powered mill in the region; research and investigation into the mill prior to its repair and conversion is the subject of a publication by Oxford Archaeology North (Miller and Wild 2017). Early mills were designed by mill engineers such as Fairbairn but by the 1860s, some regional firms of architects were specialising in mills, such as Stott and Son and Bradshaw Gass and Hope. Increasing losses in the late twentieth century prompted research by the RCHME on Greater Manchester’s cotton mills (Williams and Farnie, 1992) and on mills in east Cheshire where silk mills are the most characteristic mill type (Calladine and Fricker, 1993), setting the standard for understanding the building type. Conversion of mills to new uses has since resulted in a plethora of unpublished surveys produced under planning conditions, some referred to by Nevell in the Industrial Period assessment chapter. However, the scope and quality of reports varies and the high standard set by RCHME is not always met.

A recent review of the 1980s Greater Manchester mills survey has been carried out by the Centre for Applied Archaeology at the University of Salford (CFAA), charting the rate of loss; almost half (46%) of the mills identified in the 1980s survey have been lost. Syntheses of industrial buildings by sub-region are important in setting the context and enabling key themes and variations to be identified, to assist with assessing the significance of mills to inform planning and management decisions. Hatting, an offshoot of the textile industry, produced distinctive complexes of multi-storey and single-storey buildings, particularly in Stockport and Denton (Nevell, Grimsdith and Hradil, 2007), but only a few examples have survived and are protected.

Historic England’s series of short books on Manchester buildings, informed by research and investigation, includes an introduction to textile warehouses (Taylor et al 2002), the city’s most distinctive building type. These range from early river, canal and railway carrier’s warehouses to specialised cotton warehouses built for the home and export trade. Italianate warehouses by
architects such as Walters are a feature of the central area and Princess Street, while larger early twentieth century packing warehouses such as those designed by Fairhurts for Lloyds are clustered around Whitworth Street. Warehouses are the subject of research by others (Cooper 1991) and numerous unpublished reports related to conversion to new uses. Similarly in Liverpool, English Heritage published a booklet on the port’s warehouses (Giles and Hawkins 2004) which have also been the subject of building recording reports under planning conditions prior to conversion or demolition.

In Lancashire, textile mills were the subject of rapid assessment by Oxford Archaeology North (OA North 2010) and an assessment of risk undertaken 2011-15, culminating in a recent illustrated book produced by Oxford Archaeology North with Historic England, which also covers the part of Lancashire now in Greater Manchester (Phelps et al, 2017). On average, of a total of 1661 identified sites, 619 survive. One of the earliest surviving and most complete Arkwright-type water-powered cotton mills is Kirk Mill, Chipping built in 1785 and now adapted for a hotel (Phelps et al 2017, 24-25). Only five steam engines survive in situ in modern Lancashire; the 1910-11 engine at Holmes Mill, Clitheroe is on view in the pub that now occupies the building. Mill chimneys are also disappearing, a once dominant feature of the industrial landscape. Single-storey weaving sheds, previously the most distinctive feature of north-east Lancashire towns such as Burnley, Nelson and Colne, are vulnerable to demolition as they are more challenging to adapt for new uses than spinning mills; Holden provides an overview of the building type (Holden, 2017). Scholefield Mill in Nelson has one of the best extant examples of a large-scale room-and-power weaving shed, built in the early 1900s. A series of industrial archaeology guides, published since 1979 by Rothwell, cover mills and other industrial buildings in different areas of east Lancashire.

The survival rates of bleaching, printing and dyeworks appear to be poor in relation to spinning mills although their impact on the landscape was substantial, particularly where water was intensively managed. Dyeworks rarely survive and fewer complexes are protected by designation. Wallsuches bleachworks at Horwich is protected by listing and was recorded prior to residential conversion; the site developed form the late eighteenth century although most of the buildings developed by Thomas Ridgway are later. In Lancashire, the dyeworks at Holme Bleaching Mill, Rawtenstall was included in the OAN study (Phelps et al 2017); this operated between the 1830s and 1860s and was later adapted as a cotton mill. Heron chemical works in Lancaster was built by Joseph Storey in 1860 to produce pigments dyes and other chemicals including fertilizer; it was considered for listing but did not meet the national listing criteria. The works’ history and buildings were briefly assessed during a study into the canal corridor development site (Conservation Studio and AHP 2009), but the site has not been assessed in detail and is potentially at risk now the works have closed.

In Cumbria, a wide range of industries from 1750 onwards has left a varied legacy of buildings and structures. Large-scale mineral and slate quarry sites have left a substantial impact on the rural landscape, as at Coppermines Valley Coniston, Honister and Threlkeld, but few structures, such as workers housing or workshops, are extant. Multi-storey textile mills for spinning are much less numerous in Cumbria than in other counties of the region, although where they survive as at Dixon’s Shaddon Mill, a cotton mill built 1836, in Carlisle, they are prominent landmarks in the historic townscape. So far there is no published county-wide detailed assessment of textile-related buildings. Bobbin mills were significant in south Cumbria in this period, built from the late eighteenth century onwards to meet demand from the region’s textile mills; the most intact example is at Stott Park, developed from the early nineteenth century and now owned and managed by English Heritage (Barter and Watts, 2011). Studies published on historic industrial buildings and landscapes before the last research framework include those by English Heritage on a series of seven Cumbrian water-powered gunpowder works developed after 1750, and on mining sites at Alston Moor (Jessop L and
Whitfield M with Davison A, 2013), Greenburn and Force Crag. These are referred to in the previous research framework chapters.

Industries related to goods imported through maritime trade include tobacco; snuff was made in Kendal from the seventeenth century, and the town was an important centre of the industry from the eighteenth century when works were water-powered; the history of the Kendal industry is the subject of a local history book (Dunderdale 2003). There has been a lack of detailed investigation and research, and regrettably some works have been lost without any detailed record. Recent archaeological assessment of a snuff works at 25-27 Lowther Street, established in the early nineteenth century, recorded a steam-powered works run by Gawith, Hoggarth and Co.Ltd from the late nineteenth century until recent closure. In situ line-shafting and tobacco presses were recorded, in rooms used for finishing and packing, but grinding with pestles and mortars did not place at this site (Elsworth et al, 2018). There were also snuff works at Whitehaven and Eamont Bridge, the latter in a former corn mill, operated by Samuel Gawith between the 1830s and 1930s, when the firm’s operation was consolidated in Kendal.

In Cheshire, the processing of agricultural produce such as corn generated buildings over a long period, from early water mills such as Nether Alderley to multi-storey steam-powered mills such as Union Flour Mill in Macclesfield, built in about 1830 on the canal. Salt extraction and processing were particularly important on the west side of the county, contributing to related industries such as chemicals and soap. Ashmore’s assessment of industrial archaeology in the county provided the baseline against which more recent losses can be measured (Ashmore 1982). Nevell and George’s more recent appraisal shows that in some areas the losses have been high; in Warrington 55% of the industrial archaeology sites recorded by Ashmore have been lost, but over 70% of the textile mills survive (Nevell and George 2014, 8). Crewe owes its development to the railway engineering works, developed at the junction of four major lines; the town was laid out by Joseph Locke, engineer to the Grand Junction Railway, in the 1840s, with buildings designed by John Cunningham (Biddle et al 1979, 179-181). The town was planned on a grid pattern, with red brick workers’ housing and works; much has been lost to twentieth century redevelopment.

An aspect of the built environment that lacks detailed research and publication relates to commercial horse transportation; large urban stables were built to serve commercial carriers, railway stations and canals but few examples appear to survive. Ramps, urban stables, horse hospitals and structures designed for horses were part of the urban landscape of transportation and merit further study. In rural areas, coaching inns on turnpike roads were built to serve horse-drawn transport; the stables and outbuildings associated with the coaching routes are at risk as rural pubs close, a building type that appears to lack strategic research into typology, significance and rates of survival.

Twentieth Century Buildings 1914-1980
The twentieth century architecture of the region is broadly covered by the Pevsner county series and also by a plethora of monographs, specialist journals, national thematic studies and regional studies. The built environment of the century is characterised by increasing specialisation, larger scale, the use of mass-produced building materials, technological innovation and theoretical approaches to design and urban planning.

For the inter-war period, key sources for buildings in the North West include the journal of the Twentieth Century Society and numerous articles in the contemporary architectural press. The Liverpool architect and academic C H Reilly provided a contemporary overview of recent architecture of the period in Liverpool and Manchester (Reilly 1924), and has been the subject of published research into his own career and buildings (Crinson 1996; Sharples 1996). The Twentieth Century
Society publishes thematic journals on a wide range of building types, including housing, private houses, and industrial, commercial, civic and religious buildings; articles provide a national context and some cover North West buildings; the 1998 journal on churches includes a gazetteer of churches built from 1914 onwards, arranged by architect (Harwood and Foster 1998) and an article on Merseyside churches designed by Verlade and Miller (Ward 1998). The 1994 journal on industrial buildings includes a paper on the buildings of the glass manufacturer Pilkingtons, in St Helen’s (Holder 1994).

Although international modernism transformed the materials, form, functionality and design of many twentieth century buildings (Powers 2007), other traditions of architecture continued to be fashionable, particularly neo-Georgian; this style remained popular for town halls such as Stretford Town Hall of 1931-3, by Bradshaw Gass and Hope, and schools such as Manchester Grammar School of 1929-31, by Percy Scot Worthington. Neo-Georgian was an under-valued architectural style until recently, and has been the subject of research that includes examples in the North West (Holder 2015).

Recent and earlier publications cover specific building types such as inter-war public houses (Cole 2015 and Oliver 1947), 1930s multi-storey housing (Whitfield 2008), flats in Liverpool (Newbury 1980), churches designed by Cachemaille-Day in Greater Manchester (Bullen 1997), swimming pools (Gordon 2009) and cinemas (Harwood 1999). The influence of American design was explored by Jolley in her article on Lee House in Manchester, built 1928-31 as a warehouse for Tootal Broadhurst Lee and designed by H.S.Fairhurst and Son with input from Henry Sellers (Jolley 2013); the depression curtailed the height of what would have been the city’s tallest steel-framed building. Fairhurst Architects are the subject of a monograph by Whittam (Whittam 1986). Key examples of inter-war modernist architecture in the region include the Midland Hotel, Morecambe (designed by Oliver Hill, 1932-3) and the former Daily Express building in Manchester (Owen Williams, 1930s), the latter constructed with steel frame and glass curtain walling, an approach that transformed commercial building construction (Foot, 2007, pp.86-87)

The twentieth century saw numerous infrastructure projects across the region, to meet the demands of an expanding population, technological advances, defence needs and the economy. Liverpool’s Speke airport (now John Lennon Airport) was found to be the most intact of a significant group of European airports built in the 1930s, in a study that included Tempelhof, Berlin and le Touquet, Paris (Ayrault P et al, 2000). At Barton Aerodrome, structures built in 1928 and 1930 also survive from this phase of aviation (Hartwell, Hyde and Pevsner, 2004, p85). Defence installations in the region include the remains of first and second world war training camps, airfields and munitions factories. Three aircraft hangars at Hooton were built in 1917, with timber Belfast roofs. The First World War national factories at Gretna, straddling the Scottish border, are covered by a recent national study (Kenyon 2015) as are the cold war defence installations and missile testing range at RAF Spadeadam (Cocroft 2004), also the subject of an English Heritage archaeological investigation report (Tuck and Cocroft 2004), but much has been lost including the vast former ROF ammunition factory at Buckshaw near Chorley (Nevell, Roberts and Smith, 1999). The world-class university research facility and observatory at Jodrell Bank includes the Lovell Telescope of 1957, Grade I listed and the subject of research and assessment to support a nomination for World Heritage Site status (Chris Blandford Associates 2016).

The region contains several innovative ‘firsts’ in twentieth century transport infrastructure; the Mersey Queenshay Tunnel, opened in 1934, was the longest underwater tunnel in the world at the time; the country’s first multi-storey car park was built in Blackpool, in 1939 (Rennison 1986, 214-217) and Preston by-pass of 1958 was the country’s first stretch of motorway. The distinctive hexagonal Pennine Tower Restaurant at Forton service station on the M6, built in 1965 and designed by architects T P Bennett & Sons is now listed. The increasing impact of post-war traffic on urban areas
led to new theoretical approaches, set out in the *Traffic in Towns* government report (Buchanan 1963) that advocated separating people from traffic; elevated urban roads such as the Mancunian Way and traffic-free shopping precincts such as the Merseyway shopping centre on the edge of Stockport were built in this context. Research on the national legacy of architecture associated with the motor car includes examples in the North West from the early years of the century as well as the post-war period (Holder and Parisien 2005). The adaptation of country house stables to garaging for the motor car has been researched by Smith, including references to changes made at Dunham Massey and Tatton Park whose owners were early users of motor cars (Smith 2010).

Inevitably, it is in the region’s cities and largest towns that the most significant examples of twentieth century architecture were built and have been studied, with buildings for worship, education, leisure, industrial, commercial, retail and municipal functions particularly well-represented. Development at the region’s universities included major new buildings at Manchester and Liverpool and a purpose-built campus on a green-field site for the University of Lancaster in the 1960s, designed by Bridgwater, Shepheard and Epstein; the spinal plan with pedestrianised area similar to Epstein’s 1945 plan for Stevenage town centre (Hartwell and Pevsner 2009, 413-418). In suburbs and new towns, twentieth century residential estates deserve more study; in some cases good examples from early in the century have been designated conservation areas, such as the Raikes area in Blackpool, the subject of a townscape characterisation study by AHP in 2008, but post-war estates merit further study. Wythenshawe, laid out from 1931 by Barry Parker, was the largest residential estate in Europe at the time (Deakin 1989). Suburban estates were the location for many new churches built in the inter-war and post-war years by all denominations, with Roman Catholic churches a notable group (assessed by AHP for the *Taking Stock* Surveys of Catholic Dioceses). In the North West, some regional architects such as Reynolds and Scott specialised in Catholic churches, which were described in contemporary design and construction journals such as Church Building Review. The context for Catholic churches built between 1955 and 1975 is provided by Proctor’s national study (Proctor 2014).

Large-scale post-war redevelopment had destructive consequences for the existing historic environment, but the sweeping changes envisaged by post-war master-plans were usually not realised, as in Manchester where the 1945 City of Manchester Plan proposed a new city centre and university area as well as large new housing estates. This post-war phase has been researched by Harwood and others and is well-documented in contemporary sources (Harwood, 2002 pp63-66 and Perkins and Dodge 2013 pp248-250). Large-scale retail, office, leisure and public sector development left a legacy of large footprint buildings and tall structures, some built over the existing street pattern in Manchester (Arndale and Piccadilly Plaza, 1963-5) and in Liverpool (St John’s shopping centre and Beacon restaurant, 1966). In Preston the vast 1969 bus station by BDP (architects Ingham and Wilson) and engineers Ove Arup was eventually listed in 2013, after a long campaign, and is being refurbished after the Tithebarn redevelopment scheme failed.

Post-war architecture has been the focus of detailed research by Historic England since the late twentieth century, to inform a programme of post-war listing initiated in the 1990s. Key sources are Harwood’s gazetteer of post-war listed buildings and her overview of architecture in the context of post-war aspirations, published by Historic England (Harwood 2000; 2016). The Twentieth Century Society’s 2000 journal on post-war houses contains a gazetteer by Hardy (Hardy 2000); although the gazetteer is dominated by south of England examples, there is a notable collection of post-war houses in the North West, including nine by Wigan architect Anthony Grimshaw. The work of specific architects is the subject of articles researched for the Twentieth Century Society such as Keith Ingham’s Lancashire houses (Holder 2015) and Jo Parker’s houses in Merseyside (Whitfield 2015). Other notable post-war houses are referred to in the Buildings of England series, including Long Dales
on Windermere, designed in 1961 by Basil Ward for Peter Scott, chairman of Provincial Insurance. Buildings designed by the innovative Lancashire Architects Department include schools, leisure facilities and the Record office in Preston and are the subject of a recent Twentieth Century Society journal paper (Brooks 2018). National themes researched by others include Lionel Esher on post-war housing development, with a good section on Liverpool (Esher 1981, 217-45).

In Manchester, the Modernist Society publishes short articles and booklets on the city’s post-war architecture to raise awareness of buildings and design from this period (Thorp and Marshall 2016). At Manchester Metropolitan University, Richard Brook contributes to the study of modernism and post-war architecture in the region, with recent study into the work of the prolific Manchester firm Cruickshank and Seward, the subject of an exhibition held in 2018 (Brooks, 2018). As yet, twentieth century buildings have not been the focus of more than a few unpublished grey literature reports generated through the planning process; one example is a recording of the 1976-78 Blackpool National Savings and Investments Building with landscaping by the Derek Lovejoy Partnership (Morris December 2013). Buildings from this period are increasingly threatened by demolition and redevelopment, and further studies are needed to understand the significance of often specialised and undervalued buildings before they are lost.