

Shared Visions:

The North-East Regional Research
Framework for the Historic Environment

by David Petts with Christopher Gerrard

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and contributions by David Cranstone, John Davies, Fiona Green, Jenny Price,
Peter Rowe, Chris Tolan-Smith, Clive Waddington and Rob Young

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Foreword

The North-East is known throughout the world for Hadrian's Wall, the monasteries at Jarrow and Monkwearmouth, Durham Cathedral, its industrial heritage and much more. Yet besides these jewels there are many thousands of lesser-known archaeological monuments and standing buildings. How much do we really understand about them? What more would we like to know? And how are we going to find out? The intention of this volume, commissioned by English Heritage and Durham County Council, is to stimulate and inform discussion about past and future research into the historic environment of the North-East. This is quite a brief to live up to, especially given that environment as defined here embraces everything from archaeology and artefacts to architecture, from the flint scatters of early prehistory to Cold War early warning systems. But we must set our ideas in order if we are to justify funding for their investigation and future preservation and if we are to be consistent in our judgements.

This document builds upon national frameworks such as *Exploring Our Past* (English Heritage 1991) and its subsequent revisions, many policy documents produced by national and regional societies and interest groups, and regional initiatives such as *Archaeology in the North* (Clack and Gosling 1976) and *Past, Present and Future. The Archaeology of Northern England* (Brooks, Daniels and Harding 2002). It is emphatically *not* an imposed agenda, nor one generated by individuals or parties acting out of self interest, it is an inclusive document debated and discussed by all those with heritage interests from the local region, including local societies, museums, universities, interest groups, contractors and local authorities. All told, over 150 people have been involved in the production of this volume in one way or another, freely providing data and advice over a three year period. At the start, some said we would struggle, given that the region is so large and the number of potential contributors so thinly spread, but that has not been the case, far from it. As we have travelled to meetings all over the region we have seen for ourselves individuals, some new to the region, others veterans in their fields, shake hands for the very first time and begin to talk about what the future might hold. There has been debate, there has been disagreement, but at heart there has also been a real will to create. 'Mass therapy for the heritage sector', one person called it, and at times it has genuinely seemed that way; a brief moment to pause and consider the path ahead.

We think of this volume as one milestone along that path, not an end to the project. Investigations into the historic environment are continuing, even as you read these words, and the results they generate will answer some of the questions posed here and raise new ones. Over the next few years we will keep track of progress and review progress on its recommendations. Most of all we hope people will feel motivated by some of the ideas here, put together partnerships and projects, interpret and develop this framework. To encourage this process, there is a pamphlet available which describes the main results of this project in a few pages and there is also a website, found at www.durham.gov.uk/research, which contains a copy of this text. We hope you will be able to find the time to consult them and think about how you would like to explore the region's heritage.

Christopher Gerrard (Durham University)

David Mason (Durham County Council)

Summary

The North-East Regional Research Framework for the Historical Environment (NERRF) sets out a vision for the future of research into the archaeology and historic environment of North-East England (Northumberland, Tyne and Wear, County Durham and Teesside) over the next five years.

The implementation of *Planning Policy Guidance Note 16: Archaeology and Planning* (PPG16) in 1990 integrated archaeology and heritage conservation into the planning process. This has led to a rapid increase in the volume of fieldwork carried out nationally and locally over the last fifteen years. Concerns have been expressed, however, by both individuals and by organisations, that much of this work lacks research focus. At the same time grant-providing bodies recognise the need to impose some sense of priority on research demands in order to ensure appropriate distribution of what are often limited resources. In response, the NERRF project aims to produce a series of research priorities for the region as a whole which will not only help to provide structure to commercially-driven fieldwork locally but also supply a sense of direction for all strands of on-going research.

The framework described here is built on the tripartite structure first proposed by English Heritage in *Frameworks of our past* (1996). The Research Assessment is an overview of the current state of knowledge for all periods of the human past (Palaeolithic/Mesolithic, Neolithic, Bronze Age, Iron Age, Roman, early medieval, later medieval, post-medieval, 20th century), in addition to recent scientific and environmental research. Building on this knowledge, the Research Agenda then advances a series of key research questions that should be addressed by those working in archaeology and the historic environment. Finally, the Research Strategy puts forward a range of practical suggestions for the implementation of that agenda. Issues are addressed both chronologically and on a thematic basis.

Three distinctive features of this volume merit special comment. First, unlike many of the other regional research frameworks that have already been completed across England, from the outset NERRF was intended to embrace all aspects of the historic environment, including standing architecture and designed landscapes. Second, special efforts were made to include the historic environment of the 20th century, a particularly interesting and visible component of the region's heritage but one which is increasingly threatened. Third, to ensure that the proposals presented in this volume were the product of consensus among all researchers, rather than representing the views of individuals, NERRF consulted as widely as possible with the heritage sector and involved local government curators, academics, commercial units, museum curators, local societies, special interest groups and independent researchers, some of them based outside the region. The result, we hope, is a project which will provide an academically sound foundation for work on the archaeology and historic environment of the North-East of England for at least the next five years, maximising the potential offered by development-driven fieldwork and ensuring the continued generation of high-quality research.

Resumen

En este *North-East Regional Research Framework for the Historical Environment* (NERRF) se plantea una visión de futuro para el estudio de la arqueología y medioambiente histórico del noreste de Inglaterra (Northumberland, Tyne and Wear, condado de Durham, y Teesside) para los próximos cinco años.

La llegada en 1990 de la ley *Planning Policy Guidance Note 16: Archaeology and Planning* (PPG16) ha permitido integrar arqueología y conservación del patrimonio con el planeamiento urbanístico, mientras las actuaciones y trabajo de campo se han incrementado rápidamente en los últimos 15 años. Individuos y organizaciones se han quejado, no obstante, de que gran parte de estos trabajos carecen de objetivo investigador alguno. A su vez, las instituciones financiadoras reconocen que es necesario organizar la investigación de acuerdo a diversas prioridades que garanticen una distribución apropiada de los recursos existentes, ya que éstos son limitados. El proyecto NERRF tiene como objetivo producir una serie de temas prioritarios en la investigación de esta región para ayudar a estructurar los trabajos de campo promovidos por razones comerciales y también generar un sentido de dirección para todos los ramales de la investigación actual.

El presente estudio tiene tres partes, tal y como English Heritage sugirió en *Frameworks of our past* (1996). La valoración de la investigación incluye un panorama actual de todos los períodos considerados (paleolítico/mesolítico, neolítico, edad del bronce, edad del hierro, romano, altomedieval, medieval tardío, post-medieval, siglo XX), junto con los avances científicos y estudios del medioambiente más recientes. Sobre esta base, el NERRF propone una serie de interrogantes claves en la agenda de investigación, a considerar por todos aquéllos involucrados en la arqueología y estudio del medioambiente histórico. Por último, la estrategia de la investigación sugiere una gama de soluciones prácticas para poner en marcha la estrategia investigadora, considerándolas tanto por orden cronológico como por medio de una serie de temas clave.

En este libro se destacan tres características clave. Primero, a diferencia de otros proyectos similares realizados en otras áreas del país, NERRF incluye todos los aspectos del medio histórico, sobre todo arquitectura y paisaje. Segundo, también se ha incluido el medioambiente histórico del siglo XX, componente de gran interés y visibilidad en el patrimonio de la región, pero en peligro creciente de desaparecer. Tercero, para asegurarnos de que la propuesta que este libro presenta es el resultado de un consenso entre todos los investigadores, y no puntos de vista individuales, NERRF ha consultado ampliamente con el sector del patrimonio, desde el gobierno local, a museos, universidades, compañías privadas, asociaciones locales e investigadores independientes, algunos de ellos fuera de la región. Esperamos que el resultado constituya una sólida base académica sobre la que la arqueología y el estudio del medioambiente histórico del noreste de Inglaterra puedan desarrollarse en los próximos cinco años, aprovechando al máximo las oportunidades brindadas por la planificación urbanística y asegurando una generación constante de investigación de alta calidad.

Résumé

Le Programmation de la Recherche pour l'Environnement Historique de la Région Nord-Est (PREHR) expose ses vues sur le futur de la recherche archéologique et de l'histoire de l'environnement du nord-est de l'Angleterre (Northumberland, Tyne et Wear, Comté de Durham et Teesside) pour les cinq prochaines années.

La mise en place du *Planning Policy Guidance Note 16: Archaeology and Planning* (PPG16) en 1990 intégra l'archéologie et la conservation du patrimoine dans le processus de planification. Ceci a conduit à une augmentation rapide du volume des recherches menées à bien sur un plan national et local ces 15 dernières années. Cependant, certains organismes et individus s'inquiètent du manque de direction de la plupart de ces travaux.

Parallèlement, les organismes de subventions reconnaissent le besoin d'imposer un ordre de priorité dans l'allocation de fonds pour la recherche de façon à assurer une répartition appropriée des ressources, souvent limitées. En réponse à cela, le projet du PREHR vise à produire une liste de priorités pour la recherche régionale dans son ensemble, qui permettra de fournir une structure non seulement aux recherches locales à budget mais aussi de donner une ligne directrice à tous les types de recherches existants.

Le cadre décrit ici est basé sur la structure tripartite proposée d'abord par le Patrimoine Anglais dans *Frameworks of our past* (1996). "L'Évaluation de la Recherche" est une vue d'ensemble de l'état actuel des connaissances sur les diverses ères d'existence de l'être humain (Paléolithique/Mésolithique, Néolithique, Age de Bronze, Age de Fer, Époque Romaine, Moyen-Âge, Post-Moyen-Âge, XXI^{ème} siècle) en plus de recherches scientifiques et écologiques récentes. En s'appuyant sur cette connaissance, le "Programme de la Recherche" avance ensuite une série de questions-clé sur la recherche, que devraient se poser tous ceux travaillant dans le domaine de l'environnement ou de l'archéologie.

Enfin, la "Stratégie de la Recherche" énonce une série de suggestions pratiques pour la mise en œuvre de ce programme. Les points sont abordés à la fois de façon thématique et chronologique. Trois traits distincts de ce volume méritent d'être soulignés.

- Tout d'abord-et contrairement à beaucoup d'autres cadres de recherches régionaux complétés sur l'ensemble de l'Angleterre-l'intention du PREHR dès le départ a été d'inclure tous les aspects de l'histoire de l'environnement, y compris l'architecture existante et les paysages modelés par l'homme.
- Ensuite, des efforts notables ont été faits pour inclure l'histoire de l'environnement du XXI^{ème} siècle, aspect particulièrement visible et de grand intérêt pour le patrimoine régional, mais de plus en plus menacé.
- Enfin, pour s'assurer que les propositions présentées dans ce volume soient le produit d'un consensus parmi tous les chercheurs plutôt que la représentation de points de vue individuels, le PREHR-avec l'appui du secteur du Patrimoine-a pris en considération l'avis de chacun en impliquant les représentants politiques locaux, les conservateurs de musées, les universitaires, les commerces, les compagnies locales, les groupes d'intérêts spécialisés et les chercheurs indépendants, dont certains extra-régionaux.

Le résultat-nous l'espérons-est un projet qui fournira au moins pour les cinq ans à venir une base académique solide à l'étude de l'archéologie et de l'histoire de l'environnement du nord-est de l'Angleterre, tout en maximisant le potentiel offert par les travaux de développement sur le terrain d'une part et en assurant d'autre part la production continue de recherches de haute qualité.

Acknowledgements

The North-East Regional Research Framework for the Historic Environment has first and foremost been a collaborative project drawing on a wide range of expertise and experience from across the North-East and beyond.

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1. Introduction

Aims

The North-East Regional Research Framework for the Historic Environment (NERRF) has two broad aims. First, it places academic research at the core of future investigations on the archaeology, historic buildings and landscapes of the North-East. Secondly, it explores and prioritises key themes and presents a strategy through which that research may be mobilised. Only through rigorous, academically informed research can our understanding of the region's past be progressed and by advancing a robust agenda NERRF will contribute actively to the improved appreciation of the rich archaeological and historical record of the region.

Background of research strategies

The advent of PPG16 (*Planning Policy Guidance Note 16: Archaeology and Planning*) (DoE 1990) and PPG15 (*Planning Policy Guidance Note 15: Planning and the Historical Environment*) (DoE 1994) fundamentally changed the relationship between the historic environment and the town and country planning system in England. These two planning policy guidance documents marked the acceptance by central government that archaeological features, historical buildings and other elements of the historic environment were a finite and non-renewable resource requiring careful curation, primarily through a presumption in favour of the physical protection of remains of national importance. The same guidance also introduced the 'polluter-pays' principle, requiring developers to pay appropriate and reasonable assessment and fieldwork costs, and led to a switch away from core funding for these activities.

This had an immediate and profound impact on the organisation of conservation and field archaeology in England (Darvill and Russell 2002) and led to the massive increase in fieldwork and recording which has been such a feature of the 'heritage profession' over the last fifteen years. Across the country there were around three times the number of archaeological investigations in 1999 than in 1990, and archaeological investigations prompted by the development-control process comprise around 89% of all archaeological investigations carried out over the same period (Darvill and Russell 2002, 52).

With the integration of archaeology and historic building conservation into the planning system have come new concerns, however. The presumption in favour of preservation *in situ* and the inherent costs involved in major archaeological fieldwork brought changes to excavation strategies, particularly in the urban context. Instead of large projects focusing on the complete removal of substantial volumes of archaeological stratigraphy, there has been a move towards keyhole excavations, small-scale trial trenching and test pits, and rigorously imposed sampling strategies. While these developments have emerged from an understandable

desire to preserve the archaeological resource wherever possible, this kind of fieldwork often provides only a very limited insight into the spatial organisation of a site and its full chronological development. Supporting historical documentation and cartographical evidence may also be less than fully considered, an inevitable consequence of the commercial pressures involved and a lack of training in necessary skills.

A second development has been the fragmentation of the structure of the development control side of the historic environment sector. The key roles are those of curator (e.g. conservation officers, archaeological development-control officers), contractor (organisations and individuals providing a range of contracting services in assessments, fieldwork, analysis and reporting), consultant (providing archaeological advice and acting as agents or representatives for their clients) and client (whose objectives lead to the initiation of the planning process and who provides funding for subsequent work). Amongst curators there has been an increased pressure to provide advice and instruction on the management of the historic environment through the relevant statutory and non-statutory legislation. This has placed an increased burden on development-control staff to deliver well-tailored briefs, and on Sites and Monuments Record staff to provide information required by contractors and consultants for assessments and consultations.

The commercial element of the historic environment sector has also witnessed a substantial expansion, with organisations ranging from very small to larger bodies employing significant numbers of staff. Some have specialised, for example in environmental archaeology, building recording and geophysical survey, while archaeological and historical environmental specialists are now commonly employed within larger planning and environmental consultancies.

Finally, the increase in fieldwork has massively boosted available archaeological data, much of which remain as unpublished 'grey literature'. There is insufficient funding for the full publication of much of the fieldwork undertaken so that most interventions result in internal reports which are usually held at the offices of the county archaeologist. Though it is recognised by all that small-scale interventions may not produce individually significant results worthy of full publication, their inherent cumulative value is realised only rarely. While most such reports are public documents and available for consultation, the lack of adequate indexing means that awareness of their very existence is limited. It is thus becoming increasingly difficult for specialists to stay abreast of developments in their fields (see Chapter 30).

While the increase in fieldwork offers great potential for an increase in high-quality research into all aspects of the historic environment, these parallel developments are all forming increasing barriers to the continuation and growth of research. The vast increase in data is not being used to

its full potential and remains hard to access, and difficult to contextualise and interpret. If archaeology is to be more than an exercise in data collection, it is essential that all fieldwork should take place within a structured research atmosphere. The requirement for an appreciation of the research value of all fieldwork is embedded in documents such as *Managements of Archaeological Projects* (MAP2), which demands that research value of a project is clearly defined in terms of the existing framework of regional, national and thematic agendas (English Heritage 1991, A2.2.1).

It is to meet this demand for research agendas that a series of such frameworks have been developed over the last fifteen years, with much support from English Heritage. English Heritage themselves have produced a series of research documents, including *Exploring Our Past* and the *Draft Research Agenda* (English Heritage 1991; 1997; 2005a; 2005b) while the major national period societies have also moved forward with their own period-based agendas (e.g. Haselgrove *et al* 2001; James and Millett 2001) and more thematic agendas and framework have also been produced (e.g. Perring *et al* 2002; Ponting forthcoming). Finally, a series of regional research framework projects have been rolled out across the country, of which NERRF is one example (e.g. Brown and Glazebrook 2000; Glazebrook 1997; Williams and Brown 1999; London Archaeology 2002).

estuaries and mudflats to bleak upland moors, but broadly it may be divided into two dominant landscapes: the lowlands running along the eastern half of the region and the flanking uplands of the North Pennines and Northumberland. The lowlands have long acted as an important communications corridor, heading north into Scotland and south into Yorkshire and beyond via the Vale of Mowbray. Movement along this north-south routeway is interrupted by a series of west-east rivers flowing from the upland areas into the North Sea. These rivers, the Tees, Wear, Tyne, Coquet and Tweed, have acted as physical and socio-political boundaries throughout the region's history.

In total, the four Sites and Monuments Records (SMRs) in the region contain details of over 40,000 sites of archaeological and historical interest, ranging from Mesolithic flint scatters to medieval castles (Table 1). Despite agreed standards of data recording (MIDAS), however, there is a still variation and inconsistency between the SMRs both in the range of sites included and the manner in which they are recorded. More positively, all Scheduled Ancient Monuments and Historic Parks and Gardens are now included, and the recent provision of English Heritage's Listed Building data to local authorities in digital format means that all listed buildings should also be incorporated in the near future (Figure 1). Three of the region's SMRs are available online: County Durham, Northumberland, and Tyne and Wear.



Figure 1 Easington Colliery School (Co. Durham). A Grade II Listed building facing demolition. © English Heritage

The region

The North-East of England has a total area of over 8,500 square km and a population of 1.45 million. The region is one of great topographical diversity, ranging from

County	Entries (Oct 2005)
County Durham	8,903
Northumberland	19,112
Teesside	5,285
Tyne and Wear	7,517

Table 1 Total number of entries on the region's SMRs/Historical Environment Records (HERs)

The North-East has a total of 1,381 Scheduled Ancient Monuments (SAMs). Their regional distribution is related to the extent of upland areas, where there is better preservation of standing monuments (Table 2). This explains the significantly higher number of sites in Northumberland. At a more localised level the same pattern can be seen in Teesside: the borough of Middlesbrough has only three SAMs, whereas Redcar and Cleveland, which includes a significant area of the northern fringes of the North York Moors, has 80 SAMs. In terms of chronological cover, most SAMs are prehistoric in origin, and many are upstanding earthworks. There are far fewer Roman and early medieval SAMs, though later medieval and post-medieval SAMs tend to be more extensive and may include standing structures protected by listing. In 2003/4 72 applications for Scheduled Monument Consent were referred to English Heritage in the North-East.

The North-East has 12,207 listed buildings (c. 3.3% of the national total), of which 3.2% are Grade I, 5.8% Grade II*

County	Scheduled monuments
County Durham	247
Northumberland	960
Teesside	99
Tyne and Wear	78

Table 2 Total number of Scheduled Ancient Monuments in the region

and 91% Grade II (Table 3). The percentage of Grade I and II* structures at risk is 8.25% (121 structures), compared with a national average of 3.5% (English Heritage 2004). This is the highest proportion of buildings at risk of any region in the England. In the year 2003/4 the region was the only one in which more buildings were added to the list than were removed. In the same year over 900 applications were made for listed building consent (7.4% of the listed building stock). Over 90% were granted. There are also 279 conservation areas, of which 15% have had character appraisals, defining the special qualities and architectural and historic interest which warranted their conservation area designation.

County	Listed buildings	At risk (all grades)
County Durham	3,075	31
Northumberland	5,556	26
Teesside	1,894	26
Tyne and Wear	1,682	54

Table 3 Listed buildings in the region

There are a total of 52 registered Historic Parks and Gardens in the North-East. Four are Grade I, 16 Grade II* and 32 Grade II. The region also has six registered Historic Battlefields (14% of the national total), of which all but one are in Northumberland (Table 4). This reflects the strategic and political importance of the area as a border region.

County	Historic Parks and Gardens	Registered Historic Battlefields
County Durham	15	4
Northumberland	18	1
Teesside	7	1
Tyne and Wear	12	0

Table 4 Registered parks, gardens and battlefields in the region

The North-East includes two World Heritage Sites (WHS): Hadrian's Wall (inscribed in 1986) and Durham Cathedral (in 1987). Work on the management plan for Durham Castle

and Cathedral is in progress, funded by ONE North-East. There is also work on-going on a bid for World Heritage Site status for the Anglo-Saxon twin monastery of Jarrow and Monkwearmouth.

The landscape of the North-East is subject to a range of landscape conservation designations, which protect the heritage and natural environment. Over 140km (91.5%) of the region's coastline has Heritage Coast status, while the Northumberland coastline is an Area of Outstanding Natural Beauty (AONB). In total 17% of the region is designated as AONB. In addition to the Northumberland coast, which covers an area of 138 square km, the North Pennines AONB comprises almost 2000 square km of uplands in County Durham and Northumberland, and is the second largest AONB in the country. Both AONBs have published management plans that include sections on the conservation of the Historic Environment (Northumberland Coast 2004; North Pennines AONB 2004). The North Pennines AONB has also recently achieved Geopark status, the first such area in Britain. Around 13% of the region is designated as National Park, including the entire Northumberland National Park and the northern fringe of the North York Moors National Park.

The Historic Environment sector in the North-East: a profile

Local government curators and National Parks

The two county councils (Northumberland and County Durham) both employ county archaeological officers; the unitary authorities within the Tyne and Wear area have heritage services provided by Tyne and Wear Museums, while archaeological services in Teesside are provided by Tees Archaeology. These archaeology sections all provide development-control advice, curate SMRs or HERs and carry out a range of outreach activities. There is also a Finds Liaison Officer for the Portable Antiquities Scheme based jointly at the Museum of Antiquities in Newcastle, and Durham County Council. Across the local authorities there is an average of 0.8 FTE conservation officers (21 FTE posts in 26 authorities), significantly less than the two posts per local authority which is the national average. Six of the conservation posts in the region are supported by English Heritage. Both National Parks have an umbrella historic environment management and conservation role but they also employ full-time archaeological staff, who carry out a development-control role and co-ordinate a limited number of research projects.

English Heritage

English Heritage are involved in managing and researching all aspects of the North-East's historic environment, as well as managing a number of historic properties within the region. At a regional level, the North-East office is responsible for dealing with Scheduled Monument Consents and Grade 1 and 2* Listed Building consents. They also supply grant aid for a range of conservation, regeneration and research projects, both regionally and nationally, through the Historic Environment Enabling Programme and the Aggregate Levy Sustainability Fund. The regionally based Field Monument Wardens have a key



Figure 2 Watching brief on the bulk removal of soil from the hillside above The Close, Newcastle Upon Tyne. © Tyne and Wear Museums

role in inspecting sites and providing management advice. English Heritage also contributes to many regional and national strategic policy initiatives, either directly or through umbrella bodies such as the North-East Historic Environment Forum.

The National Trust

The National Trust has been responsible for a range of archaeological projects in the North-East. Although driven by management concerns, partnership projects such as the Dunstanburgh Castle survey carried out with English Heritage have also had a strong research content. Other work has included building recording, research into rabbit damage and erosion on earthworks (jointly with English Heritage and the University of Newcastle), aerial photography of the Wallington estate (Northumberland), an evaluation of the Cold War Tactical Air Navigation Beacon site at Low Newton and major landscape restoration and recording of the Gibside Estate (Tyne and Wear).

Commercial contractors and consultants

There are thirteen archaeological contractors or consultants based in the North-East (Oct 2005). These range in size from individuals who act as consultants to more substantial archaeological fieldwork contractors capable of offering a range of services, including consultancy, excavation, geophysical and topographical survey, and building recording (Figure 2 and 3). Most of the commercial fieldwork in the region is carried out by these local contractors or those from immediately adjacent areas, such as Lancashire or Yorkshire. Southern-based 'super units' have hitherto carried out very little work in the region, though some larger organisations maintain regional offices in the North.

Local societies

Local interest in archaeology and the historic environment is strong and has a long tradition. The Society of Antiquaries of Newcastle is the oldest provincial archaeological society in the country, founded in 1813. It has a substantial library of over 30,000 volumes housed in the Black Gate Museum, Newcastle. Its collection of antiquities forms the basis for the Museum of Antiquities in the city. Its journal *Archaeologia Aeliana* is published regularly and contains

material of international quality. The Society has also published a monograph series but does not carry out fieldwork. The Architectural and Archaeological Society of Durham and Northumberland is a smaller society, founded in 1861. It produces the *Durham Archaeological Journal* and undertakes fieldwork.

There are also a number of smaller archaeological societies in the region, including the Teesside Archaeological Society, the Northern Archaeology Group, the Northumberland Archaeology Group and the Border Archaeological Society. The latter three groups all have active programmes of fieldwork, such as the Border Archaeological Society's work at Bondington (Northumberland), and the Northumberland Archaeology Group also publishes the journal *Northern Archaeology*, which regularly includes reports on excavations and survey.

Research into the vernacular architecture of the region is carried out by two groups, the Traditional Architecture Group and the North-East Vernacular Architecture Group, both of which routinely undertake architectural recording. For example, the latter group has carried out important work in the North Pennines (NEVAG 1997).

Historic environment in education

The North-East is home to several higher education institutions. Archaeology is taught at undergraduate and postgraduate levels in the Department of Archaeology at Durham University and is one of the three main subject areas in the School of Historical Studies at the University of Newcastle. Members of staff at both institutions have active research interests in the region and are also involved in cross-disciplinary research with other departments, notably Classics and History in the case of Newcastle and Anthropology, Earth Sciences, Geography and History at Durham. Newcastle has recognised strengths in the regional archaeology of Northern England, particularly in Roman archaeology and has a research group in Comparative Frontier Studies with current projects on a Hadrian's Wall Education Initiative funded by the European Regional Development Fund and Northumberland Rock Art funded by the Arts and Humanities Research Council (AHRC). Among Durham's

recent studies have been NERC-funded isotopic studies on early medieval populations, innovations in rock art recording funded by the AHRC and the British Academy, biographical work on the 19th-century antiquarian and collector Canon Greenwell and collaboration with English Heritage on new methods for the dating of bricks in historic buildings.

The University of Sunderland teaches evening classes in a number of archaeological and historical topics through its Centre for Lifelong Learning. Of particular relevance for this project is the North-East of England History Institute (NEEH), an initiative funded by the Arts and Humanities Research Council which brings together the five history departments/disciplines from the North-East universities, the Open University, Beamish Open Air Museum, and more than 30 regional institutions, including many local societies. It has developed a series of projects focusing on the history of the region, some with clear links to the historic environment.

Funding

Financial support for the management and research of the historic environment in the North-East of England is derived from a variety of sources.

English Heritage is a major supplier of funds, providing £370,000 funding for projects for the protection of historic buildings, £3.8 million to area partnership schemes and £60,826 for capacity building projects over the same period in 2003/4 (English Heritage 2004, 10). The

Aggregates Levy Sustainability Fund, administered partly through English Heritage, has provided £700,000 to the region since it was first established in 2002.

The Heritage Lottery Fund (HLF) is another important source of funding; it supplies money through schemes such as Local Heritage Initiative, Awards for All, and Young Roots. The region has the highest national success rate for lottery applications (70.35%). Over the decade 1994-2004 the HLF in the North-East has given over 800 grants worth £133 million, and levered in nearly £75m (an extra 55.3%) in matched funding in the region (English Heritage 2004; HLF NE 2004). This includes £25m for historic buildings and townscapes, £1m for community history projects, and nearly £4m to projects to protect the region's places of worship.

Funding for museums includes the Designation Challenge Fund which has provided over £1m since 1999 for conserving and interpreting designated museum collections. The North-East Museum Libraries and Archives Council also awarded a further £177,875 to allow its members to develop a series of projects but both of these are dwarfed by the biggest contributor, Renaissance in the Regions, which has committed £6.7 million over three years to support and develop the agenda for regional museums proposed by the Department of Culture, Media and Sport.

The presence of the several universities in the region also attracts funding from the Research Councils, as we have seen. The largest grant received for the study of the



Figure 3 Recording re-used Roman stones in the early medieval crypt beneath Hexham Abbey (Northumberland). © Tyne and Wear Museums

North-East's past has been the £886,000 from the Arts and Humanities Research Council (AHRC) for the establishment of the North-East England History Institute.

Methodology

The basic approach taken to this project is derived from the model laid out in *Frameworks for Our Past* (Olivier 1996, 5). This provides for a simple tri-partite format for the framework comprising:

- Resource Assessment: the current state of knowledge and understanding.
- Research Agenda: gaps in knowledge, potential of resource, research topics.
- Research Strategy: priorities and methods for implementing the agenda.

This broad format has been adopted by all of the published and on-going regional research agendas. For this volume, the main Assessment and the Agenda have been subdivided into period-based sections, though the agenda also addresses a series of thematic issues. As the Strategy primarily tackles structural issues, it is arranged in an entirely thematic way.

It is essential that Research Frameworks, such as the one outlined here, are seen as consensual documents created and supported by the entire historic environment sector. To achieve this other Research Framework Projects have devolved the process of compiling and developing the text to individuals across the region, working with the input of a series of specialist period groups. Due to the relatively small-size and dispersed nature of the sector in the North-East, it was decided at an early stage that NERRF would take a slightly different approach. The bulk of the writing of the framework was carried out by a designated Project Officer (David Petts), who regularly consulted with the specialist period groups and a steering group. Later editing, additional commentary and consolidation was undertaken by Christopher Gerrard. The steering group was drawn from individuals with a range of roles across the historic environment sector in the region thereby ensuring that the wider community had ownership of the final product.

At the Resource Assessment stage, the Project Officer compiled a draft list of recent and on-going fieldwork and research undertaken in the region. Following consultation with the period groups this was amended and used as a basis for the draft Assessment. There was then a further consultation stage with the period groups and other interested parties. The period groups were put together to ensure that leading specialists for each period were involved in the project; care was also taken to ensure that each group included representatives from as many sectors as possible and included museum curators, academics, contractors, local government curators, and independent scholars and researchers.

The Resource Assessment was used as a basis for drawing up the Research Agenda, noting strengths and weaknesses in the existing resource, and highlighting areas for future research. This then went through a phase of revision following consultation with the period groups.

In addition to the period groups and the steering groups, pains were taken to consult more widely where possible at all stages of the project. Information about the NERRF was disseminated to all interested parties, ranging from universities and museums to commercial contractors and the general public. Tees Archaeology helped organize a very successful day school held in Stockton in November 2004 to which the general public were invited.

The final stage of the project, the Research Strategy, was again compiled by the Project Officer and then revised following further consultation with the period groups, the steering group and other parties. On completion a three-strand approach to dissemination was adopted, involving the publication of a monograph, an information pamphlet, as well as the creation of a website on which a digital version of the monograph and the pamphlet can be found, in addition to supplementary information relating to the project (www.durham.gov.uk/research). It is an inevitable flaw in any project of this type that the information generated quickly becomes out of date. In that sense the Framework described here is one part of a continuous and dynamic project which will be reviewed again in 5 years time to catch up with progress on the many initiatives recommended here and to take action as appropriate.

2. Resource assessment: scientific techniques

The Science and Environment Specialist Group consisted of Ian Bailiff (Dept of Archaeology, University of Durham), Jacqui Huntley (English Heritage Regional Science Advisor), Jenny Jones (Dept of Archaeology, University of Durham), Andrew Millard (Dept of Archaeology, University of Durham), and Charlotte Roberts (Dept of Archaeology, University of Durham).

A wide range of topics can arise under the general heading 'science', ranging from geophysical work and dating techniques to environmental archaeology. Some work in these fields sits comfortably within certain periods and has therefore been integrated into the period overviews. More commonly though, scientific research crosses conventional chronological boundaries and for that reason environmental archaeology and more general scientific developments are separately considered in this chapter. The reasons for this are partly pragmatic. Researchers in archaeological science in the region are few in number and the period groups are many. At the same time, it was also felt that much archaeological science work confronted issues of long-term change that would not fit comfortably with a periodisation based on purely archaeological criteria.

The regional research framework described here has, fortuitously, run in parallel with a series of reviews of the environmental archaeology of Northern England (e.g. Dobney forthcoming; Kenward forthcoming; Hall and Huntley forthcoming; Usai 2002). These documents provide detailed assessments of the existing resource and explore important themes within each topic. They will update the current 'first-stop' volume for plant and vertebrate remains, now over ten years old, which is *Plant and vertebrate remains from archaeological sites in Northern England: Data Reviews and Future Directions* (Huntley and Stallibrass 1995).

The NERRF Science Resource Assessment makes no attempt to duplicate the work contained in these documents. Instead, this section highlights some of the most important pieces of work or assemblages, with an emphasis on more recent work (i.e. the last ten years). The recent overviews of environmental archaeology in *Past, Present and Future* provide additional debate and bibliography (Hall and Huntley 2002; Huntley 2002), but it should be noted here that there have been no significant reviews of human bones at a regional level, though Cox and Roberts (2003) do provide a national overview of palaeopathological issues.

Geophysics

Geophysical techniques have become increasingly widely used by archaeologists over the last fifteen years. They are commonly used in the context of PPG16 and other planning-related assessments in order to determine the presence of buried anomalies.

Although less commonly used on earlier prehistoric sites, geophysical survey has been carried out as part of the



Figure 4 Conservation of a Neolithic hurdle from Hartlepool submerged forest (Teesside). © Tees Archaeology

Howick project on the area surrounding the important Mesolithic settlement site there (Waddington *et al* 2003). Geophysical surveys were also undertaken in an area of Neolithic activity at Mountjoy, Durham, where the anomalies subsequently proved to be ditches of Neolithic or Early Bronze Age date and thus of high importance in the regional context (TWM 2005). Possible Neolithic enclosures have also been traced at Harehaugh hillfort, Holystone (Northumberland), using geophysical prospection (Waddington, Blood and Crow 1998).

Magnetometry has been used to great effect on Roman sites, particularly *vici* and other civilian settlements. Large-scale survey at Halton Chesters (Northumberland) has revealed the survival of the *vicus* (Taylor *et al* 2000). Previously unknown activity has also been identified to the north of High Rochester (Northumberland) (Crow 2004) while lines of defences have been located at Housesteads and Chesters, and fort plans clarified at Binchester, Lanchester, and Halton Chesters (Anderson *et al* 1992; Casey *et al* 1993; Taylor *et al* 2000). A particularly successful survey was carried out at the site of a roadside settlement at East Park, Sedgfield (Co. Durham), as part of the *Time Team* television programme. This produced an impressive plot showing a network of enclosures and probable kilns or hearths alongside a Roman road (Gallagher 2004 and see cover).

Geophysical techniques are increasingly being used on early medieval sites, including the Inner Ward at Bamburgh Castle (Northumberland), the possible monastic site at Gainford (Co. Durham) and a major survey of the palace site at Yeavering (Northumberland). Survey work has also been used to isolate later medieval and more recent features, such as at Sheraton deserted medieval village (Co. Durham) and Edlingham Castle (Northumberland), though the results have rarely been followed by excavation. This is especially unfortunate given the limitations of geophysical survey which are often said to exist in some parts of the region due to the underlying igneous geologies, notably in Northumberland.

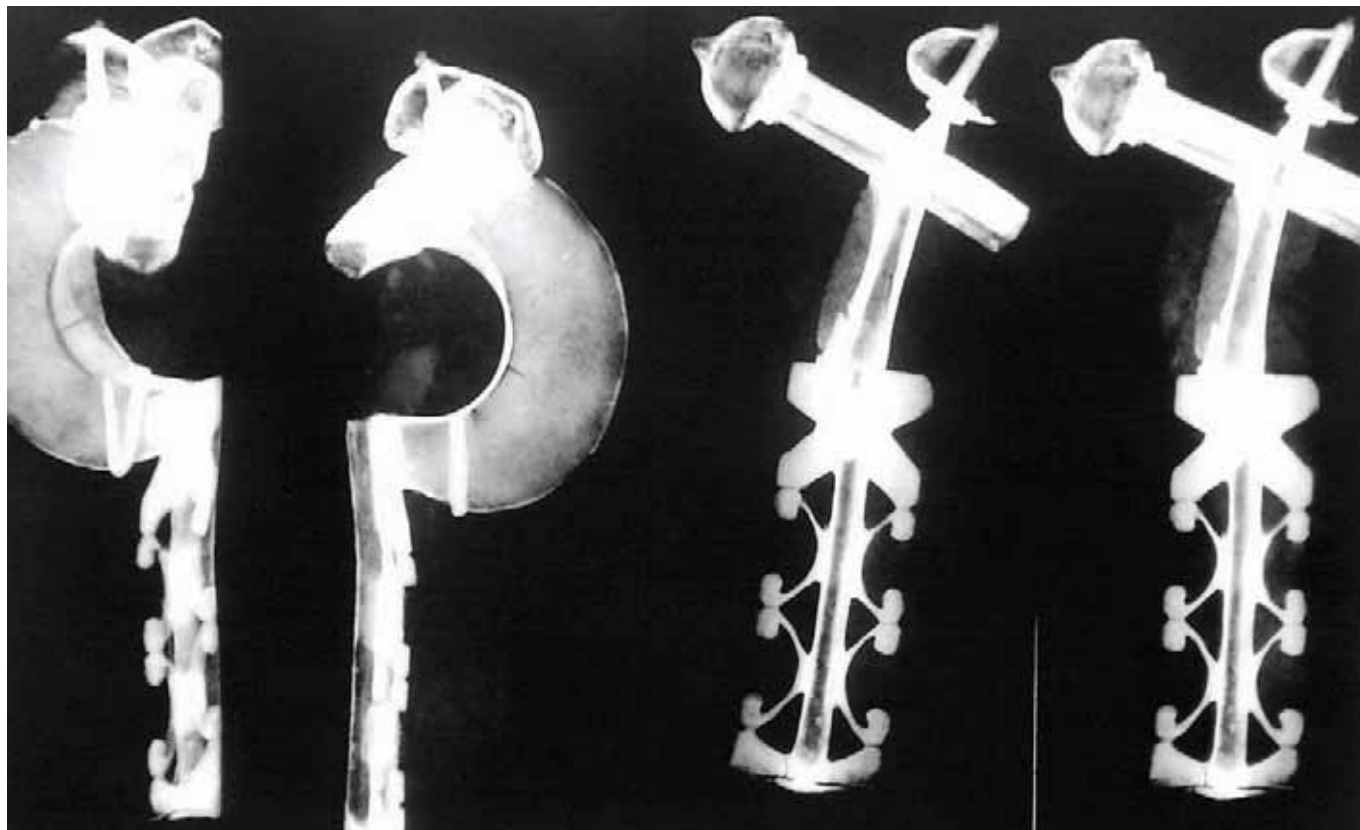


Figure 5 Four views of a late-Roman crossbow brooch from the Quarry Farm villa site, Ingleby Barwick, Stockton-on-Tees (Teesside). © Archaeological Services Durham University

As well as geophysical work, there have also been attempts to use geochemical survey techniques in the region, mainly in Northumberland, where grids of phosphate analyses were used to distinguish areas of stock housing and domestic activity at the Romano-British site of Woolaw [Clogg and Ferrell 1993].

Materials analysis

Important work has been carried out on several different classes of archaeological material and a selection is described here to illustrate their range (Figures 5 and 6). The most detailed research has probably been David Dungworth's compositional analysis on Late Iron Age and Roman copper alloy in the North [Dungworth 1995; 1996; 1997]. Work on more recent metalworking has been carried out by English Heritage on samples taken from the post-medieval cementation furnace at Derwentcote (Co. Durham), including analyses of slag and samples of bar iron [McDonnell and Cranstone 1991; McDonnell 1997]. This proved the use of traditional techniques to produce carbon steel, here seen on an industrial scale and from a period when other 'more modern' techniques had already been developed. The local abundance of iron, water and wood for charcoal in the Derwent Valley may have led to the survival of this tradition. Elsewhere, X-ray diffraction and scanning electron microscopy have been used to analyse a black build-up on an Anglo-Saxon brooch from Andrews Hill, Easington (Co. Durham), leading to a suggestion that a *shakudo* technique was used to blacken the copper [Caple and Clogg 2001]. This technique had been developed by the Romans from an original Egyptian system, but clearly survived long after the Romans had left the region. X-ray diffraction analysis has also been

carried out on mortar samples from Derwentcote [McDonnell and Webb 1992] while experimental use of diatom analysis for provenancing Late Neolithic and Early Bronze Age pottery has been applied to ceramics from the Milfield Basin [Gibson 1986].



Figure 6 Experimental archaeology can help us to understand the processes required to produce materials such as iron in the past, here hammering the bloom. © Jacqui Huntley

Geomorphology

Geomorphological work has taken place in two main areas within the region, both in river valleys and both in Northumberland: the Milfield/Till-Tweed valley [Passmore *et al* 2002] and the Tyne Valley [Macklin, Passmore and Rumsby 1992; Passmore and Macklin 1997]. Work in the Milfield Basin, for example, included investigation into river terraces, soils and associated landscape features in an attempt to classify landscapes into function zones that

might be reflected in the survival of archaeological features and material (Passmore *et al* 2002). This approach worked extremely well and has subsequently been used to develop sampling strategies prior to large-scale planning interventions (Figure 7).

In general, less work of this type has been carried out in County Durham (Wear, Tees), although more is being requested now that Environmental Impact Assessments are being required for water and flood management schemes. Current work to the south of the region, on the Swale/Ure washlands is developing the Northumberland tradition (Long *et al* 2004).

The analysis of soils in relation to archaeological investigations has been rather piecemeal and undertaken mainly when specialists funded by English Heritage have been available (Usai 2002). Soil survey and analysis, for example, was carried out on features at Low Hauxley (Payton and Usai 1995) and at a series of sites on Stainmore (McHugh 1992a; 1992b). The latter was a rare case where soil analysis was combined with the study of pollen. While buried soils associated with Hadrian's Wall have had their pollen analysed (when it survived) very few have been analysed as soils. Black Carts had two such profiles, and here it was demonstrated that a full soil profile survived to the north of the Wall, while only a truncated profile was present under the *vallum* mound to the south (Huntley 1998). Ard marks have been recognised in buried soils at Turret 10 (Keeley 1981) with analysis suggesting a Late Neolithic or Bronze Age date.

Dating techniques

The range of archaeological dating techniques used in the North-East ranges from the traditional, such as radiocarbon dating and dendrochronology, to more innovative methods, such as luminescence dating of bricks, currently being explored by Durham University. Archaeomagnetic dating has been used several times in Durham City, for example at the Old Borough (Williams and Wood 1999) and New Elvet (Fraser, Speed and Costley 1995), but pottery typology still remains the norm for dating later medieval and post-medieval assemblages.

Dendrochronology is used both on archaeological deposits (though it is rare for wood to be sufficiently well preserved) and in standing buildings. In Durham, the truncated principal roof trusses and buildings of religious estates have been examined (e.g. Roberts *et al* 1999). Over 70 sites from the North-East have had samples of wood undergo tree-ring dating, and chronologies have been recorded at around 90-100 sites. Around 65-70% of these chronologies have been dated; the earliest ring dating from AD 950 and the latest c. 1740.

There is, however, no overall regional master chronology (Robert Howard pers comm). All of the dates have been obtained on oak timbers, even though significant amounts of pine were used in roof timbers of more modest buildings from about the 17th century onwards. Recent research on the two modern species of oak and their responses to various climatic parameters suggests that

they have individual responses and that this could, therefore, affect the matching process if the master curves were largely constructed from one species. This is quite possible as the more southern of the two species tends to produce straighter, taller trees more suitable for conversion to timber than the northern species which can have a twisted trunk (Newman 2004).



Figure 7 Coring underlying peat deposits on an urban site. Although a modern urban site, palaeoenvironmental deposits can survive under the buildings and provide invaluable information about past landscapes and the development of the town. Rothbury (Northumberland) 2003. © Jacqui Huntley

Computers

The use of computers is now a part of daily life for all archaeologists, whether writing reports, using Geographical Information Systems (GIS), drawing plans on Computer Aided Design (CAD) packages, analysing finds or carrying out more complex statistical procedures (Figure 8). There is no aspect of archaeology which does not regularly use computers, although it is possible to highlight a number of areas where they have made particular impact.

A GIS system is an organized collection of computer hardware, software, and data designed to capture, store, update, manipulate, analyse, and display all forms of geographically-referenced information. The most routine use of GIS by archaeologists in the region is in the four Sites and Monuments Records. All four have integrated their databases of sites with a mapping system, though Tyne and Wear were particularly innovative in the early development of this technology which allows results from queries to be displayed spatially and lets the user interrogate maps directly. The increasing range of digital data available allows not just modern mapping to be used, but also data from historic mapping, such as the 1st edition Ordnance Survey (OS) maps. These are geo-referenced so as to be compatible with the modern maps. Increasingly, vertical aerial photograph coverage is also being integrated with such systems. Most local authorities are also developing the

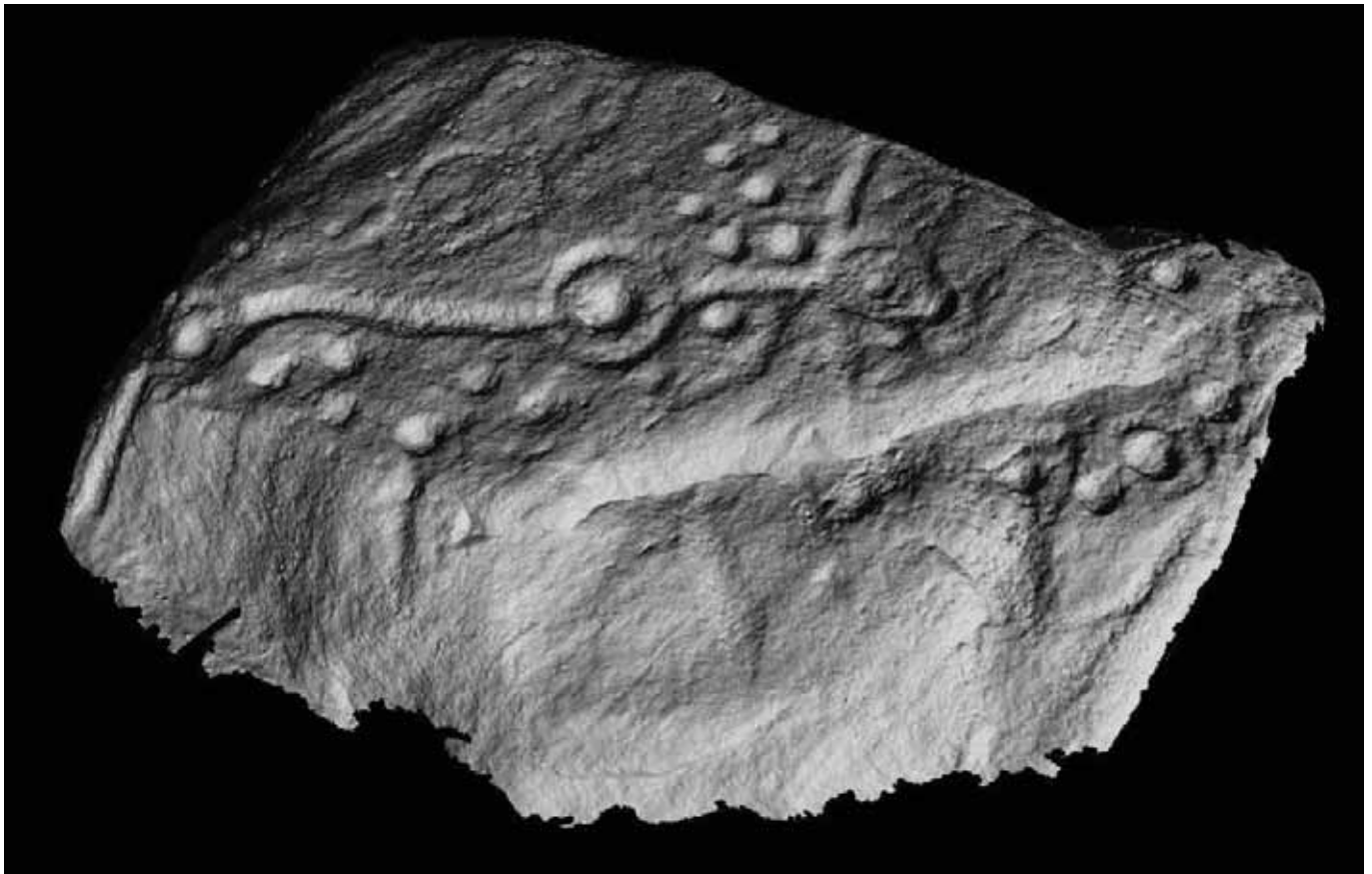


Figure 8 Prehistoric rock art from Howgill, Baldersdale (Co. Durham). Not to scale. Laser scanned at 0.5 mm detail by Alastair Carty of Archaeoptics. © Archaeoptics

use of GIS to include an increasing range of non-archaeological data such as Sites of Special Interest and Conservation Zones. It seems likely that the use of GIS will continue to develop. Plans for Historic Landscape Characterisation programmes in the region will certainly produce further spatial data, which will be integrated into these ever growing resources.

Due to developments in internet technology, it is now easier to create simple read-only GIS systems available over the World Wide Web. The *Keys to the Past* project (www.keystothepast.info), run jointly by Durham and Northumberland County Councils, allowed a rewritten version of the two counties' SMRs to be made publicly available. Users can interrogate the data, plot maps (modern OS maps and the whole range of earlier OS maps), and even compare how an area was depicted on different edition maps. The creation of map-based query systems can also be found in a number of other important web-based archives available on-line. Both *Structural Images of the North-East* (<http://sine.ncl.ac.uk>) and *Tomorrow's History* (<http://www.tomorrows-history.com/>) have interfaces like these, which can be used to search the extensive collections of images and other information available on-line. Simple GIS technology has also been used in some unpublished academic theses (e.g. Pratt 1996).

In general, the internet is now being used as a way of disseminating increasing quantities of data, such as the contents of national archives (e.g. *Church Plans On-line*: <http://www.churchplansonline.org>), archaeological site

archives and important finds assemblages (e.g. Vindolanda tablets: <http://vindolanda.csad.ox.ac.uk>), as well as an ever-widening spectrum of catalogues and indexes (e.g. *Archives to Archives*: <http://www.a2a.org.uk>). This form of publishing will continue to influence the way in which archaeological data are published, dissolving the barrier between report and archive (for further information see *Internet Archaeology* 15, special issue on *Digital Dissemination and Archiving*). Developments in information technology have also seen a massive growth in the use and potential of digital techniques for illustration. Most archaeological graphics are digitised at some point and most illustrators spend more time with mouse in hand than pen. A particularly noticeable development has been the growth of virtual reality (VR), interactive models and images on the computer screen. These are increasingly being used as part of public outreach or education schemes. For example, the joint County Durham and Northumberland County Council project *PastPerfect*, comprises virtual versions of a series of archaeological sites in the region, which can be explored by the user. The extent to which technologies will prove to be a useful analytical tool, rather than merely educational, remains to be seen (Larkman 2000).

The huge increase in digital information also presents some challenges, most clearly in the general issue of preservation. The Archaeological Data Service (ADS) (<http://ads.ahds.ac.uk>) provides a service for the curation, documentation and migration of digital data, as well as acting as a digital archive. It is still a matter of concern, however, that many digital data, particularly those created before the establishment of the ADS, may not be adequately preserved.

3. Resource assessment: Palaeolithic and Mesolithic

The Palaeolithic and Mesolithic Specialist Group consisted of John Davies (independent scholar), Peter Rowe (Tees Archaeology), Penny Spikins (Dept of Archaeology, University of York), Chris Tolan-Smith (independent consultant), Clive Waddington (Archaeological Research Services), Mark White (Dept of Archaeology, University of Durham), and Rob Young (Northumberland National Parks Authority).

History of research

Perhaps due to the relatively low visibility of Mesolithic remains compared with the monumentality of later prehistoric periods or the spectacular nature of Roman features in the North-East, very little work was carried out on this period before the 20th century. After World War I, however, a new generation of independent archaeologists showed a closer interest in the seemingly ephemeral remains of early prehistory. In the south of the region workers such as Arthur Raistrick (1896-1991), Charles Trechmann (1884-1964), Frank Elgee (1880-1944), Clare Fell (1912-2002), and Edward Hildyard were all involved particularly in the recording of significant numbers of early lithics, and through their work it became possible to recognise a distinctively Mesolithic archaeology of North-East England. Arthur Raistrick, though he mostly worked in Yorkshire, was responsible for some of the first regional syntheses of the existing evidence (e.g. Raistrick 1933a; 1934; Raistrick and Bennett-Gibbs 1934). He taught at King's College in Newcastle (a forerunner of the university) and retired as a Reader in Geology in 1956. Throughout the 1930s he was active in recording Mesolithic material in the region, including the important site at Crimdon Dene in County Durham (Raistrick and Westoll 1933; Raistrick *et al* 1935).

In Cleveland, Charles Trechmann, a geologist by training, and Frank Elgee mainly worked on the coast, though from the 1930s Elgee increasingly carried out work on the moorland edge of Cleveland. This work was later continued by Don Spratt (e.g. Spratt *et al* 1976). Trechmann's interest in the coastline led to his work on the submerged forest at Hartlepool (Trechmann 1936; 1946), as well as at Hart, close to Crimdon Dene (Weyman 1984).

To the west, in the North Pennines and particularly Weardale, work was dominated by Edward Hildyard and Clare Fell. This interest was continued by Rob Young as part of his PhD thesis (Young 1984). In Teesdale, Mesolithic material was recovered as part of multi-period fieldwork by Denis Coggins (Coggins 1986), which included investigations at Middle Hurth (Coggins and Fairless 1997). Work in this area has also recovered possibly Upper Palaeolithic and both Early and Later Mesolithic material at Towler Hill (Coggins *et al* 1989).

There has been less work outside the North Pennines and south Durham/Teesside. One significant collection was built up by Fritz Berthele, a forestry worker active in north Northumberland. He collected a large number of objects in

the course of his work from the mid 1960s to the mid 1990s (Hewitt 1995). On the Northumberland coast, as early as the 1920s, Francis Buckley collected flint in the area around Bamburgh, as well as inland on Lucker Moor and around Chatton and Belford (Gilks 1993, 1; Buckley 1922a; 1922b). More detailed overviews of the history of research of the early prehistory of the North-East can be found in papers by Young (2000b; 2002).

The period has continued to be one in which important work has been carried out by independent workers, such as John Davies (Davies 1983; 1995) and Norman Harbord (Harbord 1996), as much as by professional archaeologists. Until the Durham Archaeological Survey in the early 1980s there was relatively little wider institutional interest in the period (Haselgrove and Healey 1992). More recently, however, significant work has been carried out on the Mesolithic of the region, especially in Northumberland. This has examined both individual sites, such as unpublished work at Low Hauxley (Bonsall 1984), investigation at Howick (Waddington *et al* 2003) and at Nessend Quarry, Holy Island (Young and O'Sullivan 1993; Beavitt *et al* 1985; 1986; 1988; 1990), and at a wider landscape scale, in the Milfield Basin (Waddington 2000a) and Tynedale (Tolan-Smith 1997c).

Existing research frameworks

There are a number of existing research agendas for early prehistory written at the national level (e.g. Prehistoric Society 1999), as well as those for more specific regional issues (e.g. Adams 1996; ASUD 1993; Frodsham 2000; Harding *et al* 1996; Young 2002), although none cover the range of material presented in this Resource Assessment.

Factors influencing survival of resource

The early prehistoric archaeological resource is greatly affected by post-depositional factors. The sheer length of time between deposition and recording means that large-scale geomorphological factors, which are not significant for later periods in this region, play their part in the known distribution of Mesolithic sites (Figure 9). For example, only by understanding the patterns of coastal change can we appreciate just how 'coastal' the Mesolithic sites of the North-East might have been (Young 2000b, 184). During the 1930s and 1940s most early researchers did not recognise that there had been any significant coastal change, though it was clear from Trechmann's work on the submerged forest at Hartlepool that there had been important shifts in the coastline. In fact, there have been two main influences on the coastline of the North-East: global sea level rises and isostatic uplift following the retreat of the ice sheets. This has led to significant coastal erosion. In an early piece of research on this topic, it was suggested that in the south of the region, around Saltburn, up to three miles of coastline had been lost through erosion since c. 8,000 BC (Agar 1954). There is still the potential, however, for the survival of Mesolithic material in a submerged context in the North-East, as the recent discovery of subsurface Mesolithic remains near Tynemouth indicates.

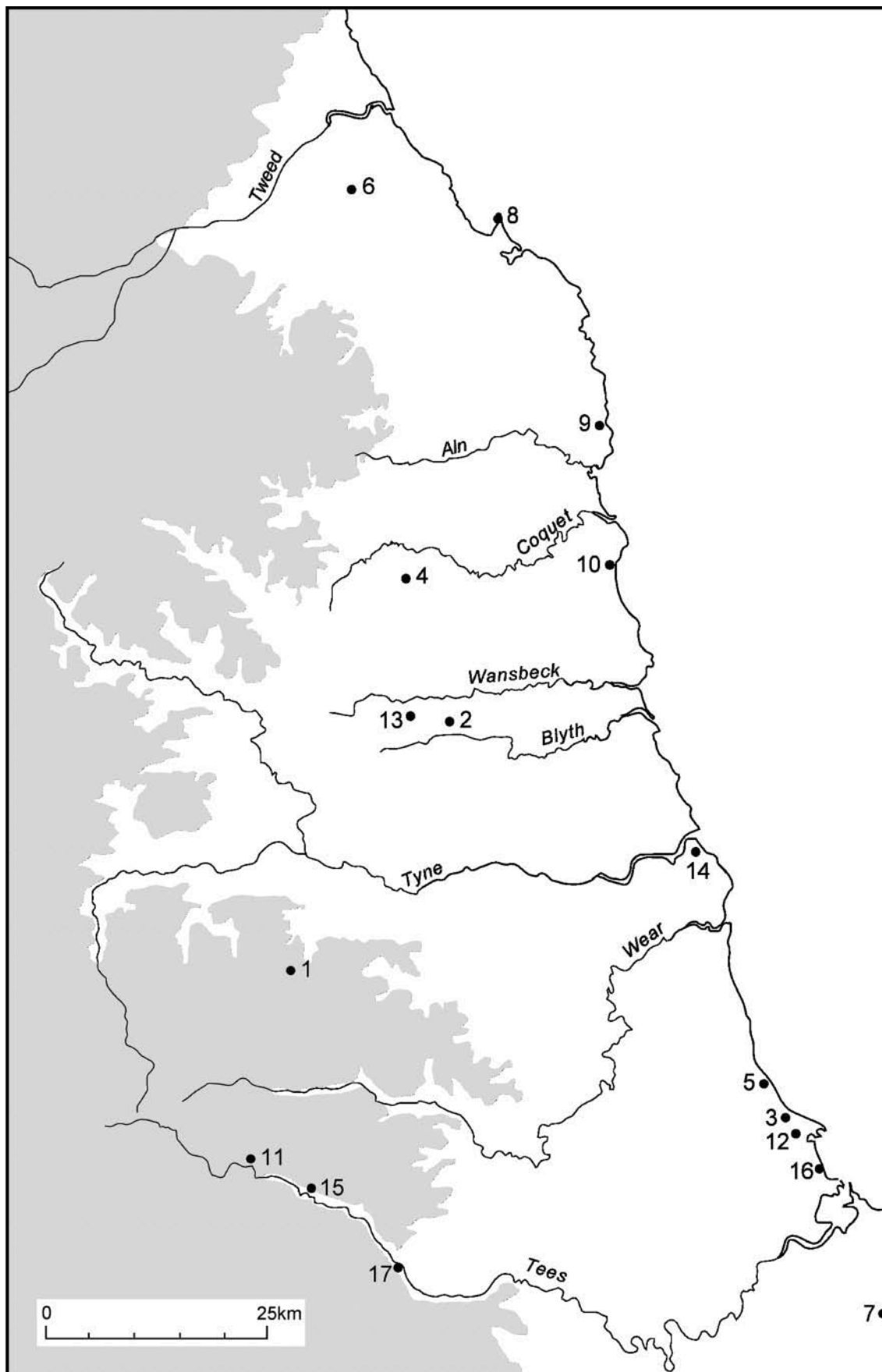


Figure 9 Key Upper Palaeolithic and Mesolithic sites mentioned in text: [1] Birkside Fell, [2] Bolam, [3] Crimdon Dene, [4] Dove Crag, [5] Fillpoke Beacon, [6] Goat's Crag, [7] Highcliffe Nab, [8] Holy Island, [9] Howick, [10] Low Hauxley, [11] Middle Hurth Edge, Teesdale, [12] Middle Warren, Hartlepool, [13] Shaftoe, [14] South Shields, [15] Staple Crag, Holwick, [16] Submerged Forest, Hartlepool, [17] Towler Hill (map drawn by Yvonne Beadnell)

It is only to the north of the 'hinge', which lies around Holy Island, that uplift has had a more dominant influence than sea-level rise, and there is potential for dry-land beach sites, such as the undated deposits around the Castle on Holy Island (Hogg 1972). Ultimately, any consideration of the changing coastline brings into sharper focus the position of the North-East in relation to the post-glacial land bridge between Britain and Europe. In her major recent survey of 'Doggerland', Coles has suggested that the final separation of the British mainland from Doggerland occurred around 5,800-3,800 cal BC (Coles 1998, 67). While the land bridge may have been inundated by the early Holocene, the presence of an inhabited landmass perhaps only 100km to the east must not be forgotten (Coles 1998, 72-75).

A more subtle problem in the recognition of coastal prehistoric sites is that caused by the large-scale, post-medieval practice of dumping ship's ballast (comprising stones and gravel from elsewhere in the country). For example, large ballast dumps are known from the mouth of the Wear and this practice may well have led to the re-deposition of Mesolithic objects from elsewhere in the country on to the North-East coast. To complicate matters further, seaweed was traditionally taken from the coast to use as a fertiliser, potentially moving this newly introduced material still further inland.

In lowland areas there is a range of threats to the archaeological resource. The region's gravel terraces, such as those in the Milfield Basin, from which much Mesolithic material has been recovered, are under significant threat from gravel extraction. There is also a more general threat to sites from ploughing, which is particularly destructive on light, sandy soils, and thinner soils on steep hillsides. Various flint scatters in Teesside have been tested by trial trenching through the development control process (e.g. Waughmann 1999; Carne 1997) but all have proven to be severely truncated by medieval and post-medieval ploughing. Another distorting factor is the 18th- and 19th-century practice of liming fields which introduced burnt flint onto the ploughsoil and this appears to be particularly problematic in the south of the region.

In the uplands, peat growth has had a major impact, with up to 4m of peat covering Mesolithic surfaces in some areas. This has clear implications for the visibility of early prehistoric activity. Nonetheless, in some locations peat is eroded through animal or human activity, or it may be subject to wider-scale degradation through longer-term processes, such as de-watering. This can lead to the higher visibility of Mesolithic remains, though these processes also threaten to destroy them.

Despite post-depositional factors and the inherently ephemeral nature of early prehistoric remains, there are still occasional discoveries of intact Mesolithic surfaces in unexpected locations. At Darlington Market Place, for example, an intact Mesolithic or Neolithic land surface with artefacts and possible structural remains was found to be preserved around 1m below the modern ground surface (ASUD 1994, 14-15). Elsewhere, Mesolithic tools and a possible Early Neolithic ditch were identified beneath the Roman fort at South Shields (Hodgson *et al* 2001).

As with other periods, the record is also significantly influenced by patterns of research. Historically, as was noted above, there have been more researchers in South Durham/Teesside and the North Pennines than to the north of the Tyne. In Northumberland, most work has focused on the coastal zone, with little progress in the Cheviots.

A serious problem is the relatively low profile of Mesolithic archaeology with members of the general public. Unlike remains from later periods, which can be distinctive and easily recognisable, early prehistoric remains can be fragmentary and difficult to recognise without training. The consequence of this is the relatively small number of early prehistoric chance finds reported by the public.

A final issue affecting known distributions is a potential bias in the identification of raw materials. Most fieldworkers can identify flint without difficulty, and this may have led to an over-representation of flint finds to the detriment of other raw materials exploited, such as quartzite and chert. Nonetheless, it must not be assumed that the absence of Mesolithic material is purely due to a lack of research in a particular area; despite extensive work by experienced archaeologists in the Wall Zone, for example, little Mesolithic material has so far been recorded there.

Environmental background

Geomorphology

Following the end of the last Devensian glaciation and the beginning of the Holocene interglacial, the landscape of the North-East was free of ice by c. 15,000 BP though the retreat of the ice sheets continued to have major impacts. In many areas great depths of till were dumped in the lower valley regions, with sand and gravel outwash terraces forming in areas of the South Tyne valley and eastern flank of the Cheviots. In parts of the Cheviots and the North Pennines meltwater torrents cut channels that are now preserved as dry valleys. In higher areas, high-energy flows cut deep into valley floors leaving relict river terraces. These rivers have often shifted their course across their valley floors and terrace surfaces, leaving palaeochannels, while in lower lying areas the decreasing energy of the rivers led to the deposition of large quantities of alluvium and other water-borne sediments. In the Milfield Basin, which has been the focus of much research, a series of interleaved layers of Holocene alluvial fills and valley floor peats have built up to a thickness of 4m (Tipping 1998). Evidence for the latest major phase of sediment deposition has been dated to c. 7,500 cal BP to c. 4,000-3,500 cal BP, earlier than elsewhere in the region (Tipping 1998).

Vegetational history

There is little palynological evidence for clear human impact on the region's vegetation cover in the early prehistoric period, though there have been detailed studies carried out both to the south, on the North York Moors, and to the north around Hawick in the Borders, where such activity has been identified (Simmons and Innes 1988; Innes and Shennan 1991). This may have much to do with the research interests of the region's palynologists, though there are other

problems with pollen cores in the region, and in many cases dating is either absent or inadequate. With the advent of Accelerated Mass Spectroscopy (AMS) dating and Bayesian techniques for calibration there is potential for much more accurate dating in the future.

In pollen diagrams, human activity is represented by changes in plant types and the regular presence of charcoal particles (rather than their occasional presence, which would be more typical of natural fires). There is some indication of woodland clearance, albeit on a small scale, and it has been suggested that the presence of heather pollen in the earliest layers in the sequence at Bloody Moss, Otterburn (Northumberland), may imply anthropogenic forest clearance at this time (Moores and Passmore 1999, 21). Work on a sequence from Akeld Steads (Northumberland) has shown that isolated peats began to form on the valley floor before 11,854-11,214 cal BP (Tipping 1996). Continuous peat accumulation came to an end at around 7,500 cal BP with a series of flood deposits. Pollen evidence indicates a corresponding decline in *Alnus* (alder) and a rise in wetland herbs.

A number of pollen samples were taken during work on the A66 road-widening scheme on Stainmore. These showed peat formation from 6,289-5,949 cal BC and, until the early 4th millennium BC, mixed woodlands, including *Betula* (birch), *Quercus* (oak), *Ulmus* (elm), and *Tilia* (lime) stood on well-drained slopes. The presence of charcoal suggests anthropogenic forest clearance, although this did not last long and the levels for *Betula*, *Quercus* and *Tilia* had returned to their earlier levels by 5,117±68 BP. The elm decline at this site appears to be dated to 4,728±52 BP (Gear and Turner 2001, 33; Figure 10).

A dated pollen sequence from organic, alluvial sediments from the Howick Burn (Northumberland) will provide an exceptionally important example of a sequence from a coastal context (Clive Waddington pers comm). Howick has also produced a rare example of Mesolithic plant macrofossils, and a large quantity of charred hazelnuts has been recovered from the Mesolithic structure there (Waddington *et al* 2003: Figure 10).

Faunal remains

Despite the scant and ambiguous evidence for Palaeolithic human occupation in the area, there are a number of isolated faunal finds, including a hippopotamus bone of Ipswichian date from Stockton-on-Tees, and a Devensian rhinoceros bone from Brierton (Teesside) (Stuart 1982; Trechmann 1939). A number of Late Glacial elk and deer finds include discoveries of elk at Neasham (Co. Durham), the River Skerne in Darlington (Co. Durham), and Giant Irish deer from South Shields and Seaton (Teesside) (Trechmann 1936; 1939; Huntley and Stallibrass 1995, 89).

Bos horn cores are known from a number of Mesolithic sites, such as from Moor House (Durham) (Johnson and Dunham 1963). A very deeply stratified, but undated auroch horn has been recorded from Hedgehope Hill (Northumberland) (Berthele Collection), and a red deer antler pick has been found at Hatfield House, North Bailey, Durham. An important assemblage of animal remains has

also been recovered from the occupation site at Howick, which produced burnt bone fragments, including identifiable remains of grey seal, wild pig, dog or wolf, bird and fox (Waddington *et al* 2003).

There are virtually no recorded suites of invertebrate remains. In fact, there is relatively little evidence from the prehistoric period as a whole in the region, though at Low Hauxley, Amble (Northumberland), a buried soil and peat, some of which may be of Mesolithic date, has been assessed for invertebrate remains (Issitt *et al* 1995). The sediments there were found to contain both aquatic and terrestrial species and mollusc shells (Huntley and Stallibrass 1995, 97; Bonsall 1984).

Palaeolithic activity?

Evidence for Palaeolithic activity in the North-East is sparse. Despite reports of Lower Palaeolithic hand-axes being found, they are likely to be re-deposited artefacts from ballast dumping on the coast, even if their identifications are legitimate. There are, however, a few hints of human presence of Upper Palaeolithic date. Recent work at Howick has produced Early Mesolithic tools re-chipped into heavily corticated cores, presumably of Upper Palaeolithic date. These cores clearly came from the beach, but their ultimate origin is unclear. They could derive from offshore deposits or from coastal boulder clay and they may have been washed back in-shore after being eroded from the cliffs (Clive Waddington pers comm).

A possible Upper Palaeolithic flint blade has been recorded from Eltringham Farm, near Prudhoe (Northumberland) (Tolan-Smith with Cousins 1995) (Figure 11), and further south in Teesdale, a number of probable Palaeolithic flints have been recovered at Towler Hill in Lartington, together with possible Creswellian points and blades (Coggin *et al* 1989). There is little other convincing Upper Palaeolithic material in the region.



Figure 10 The Mesolithic hut at Howick (Northumberland) after complete excavation. © Archaeological Research Services Ltd

Mesolithic activity

Scatters of Mesolithic lithics are found widely across the North-East. Unless excavated under modern conditions, however, it is very hard to characterise such sites and to

assess them in terms of the activities they may represent, or to discuss any seasonal aspects of their occupation. The dating of Mesolithic lithic assemblages is often hazy. One problem has been their categorisation on the basis of projectile point types, which may make them appear younger than they really are. It is also questionable as to what extent dating techniques based on the presence or absence of conventionally recognisable tool types can usefully date assemblages consisting of other material. At Nessend, Holy Island, for example, recognisable tool types make up less than 3% of the total assemblage, the rest being cores and material from knapping (Young 2000b). Elsewhere, it is still the case that significant groups of material in museum collections require further analysis, whereas lithics from development-driven fieldwork are rarely analysed fully or published.

Earlier Mesolithic activity is known from a number of sites. In the North Pennines, Towler Hill (Co. Durham) has produced objects, as well as possible Upper Palaeolithic items (Coggins *et al* 1989). Further up Teesdale an early assemblage has been found at Staple Crag, Holwick (Co. Durham) (Coggins 1986; Pickin 1991). A number of early sites are also recorded from the coast, including Hart and Hartlepool in the submerged forest. In Northumberland, Rob Young excavated at Nessend Quarry, collecting material which may be earlier Mesolithic (Young 2000b).

One of the earlier dates for a lithics assemblage of later Mesolithic character comes from Fillpoke Beacon (Co. Durham), which has a radiocarbon date of 6,810±120 uncal BC (Jacobi 1976). At Howick an assemblage of over 16,000 fragments has been found inside the hut, including many microliths (Waddington *et al* 2003). It is notable that some areas which have produced large amounts of later Mesolithic material, such as the Milfield Basin, have yielded only small quantities of earlier artefacts (Waddington 2000a, 170).

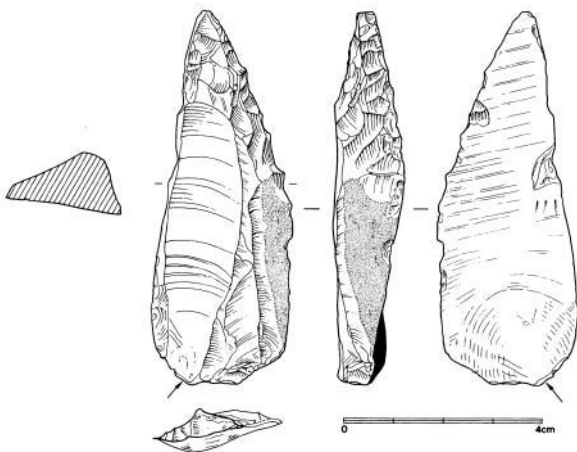


Figure 11 Probable Upper Palaeolithic blade from Eltringham (Northumberland). Image from Tolan-Smith with Cousins 1995

In general, Mesolithic stone tools in the region are made from raw materials available locally. Due to the lack of good quality local flint, a range of other rock types was exploited, including chert, agate and quartz. Flint may have been collected from coastal locations, where it was washed ashore from off-shore deposits, and secondary flint deposits are also known from the boulder clays of the North-East

coastal plain. Other sources of local flint include the gravel deposits from the major river basins, such as the Tyne and Till, in which agates could also be found. Another potential source of flint is the Wolds area of East Yorkshire. Quartz is widespread throughout much of the region. In addition, as we have seen, the evidence from Howick suggests reworking of some Upper Palaeolithic objects. There appears to be some regional variability in the use of these raw materials. For example, in the Milfield Basin over 50% of Mesolithic lithics are made from non-flint raw materials. This contrasts with the assemblage from Nessend, Holy Island, where around 78% of the lithics are made from flint, mainly locally derived (Young 2000b, 183).

A small number of Mesolithic sites have also provided structural remains, the most spectacular being those at Howick, discovered by John Davies and Jim Hutchinson, and excavated by Clive Waddington (Waddington *et al* 2003). This is one of the best-preserved Mesolithic sites in the British Isles, and dated by a sequence of over 20 radiocarbon dates. A sunken-floored hut, with rings of post-holes and stakeholes and a series of hearths indicating at least one rebuilding, has parallels with a similar hut excavated recently at Dunbar (Northumberland) (Waddington and Passmore 2004, 26). Evidence for more permanent occupation on the coast is also indicated by the remains of a midden found eroding out of a cliff at Low Hauxley, Amble (Northumberland) (Bonsall 1984). This contained evidence for the consumption of shellfish; further analysis will investigate any evidence for fish bones.

Other sites include a small 'windbreak' structure from excavations at Bollihope, Weardale (Co. Durham) (Manchester *et al* nd) and several hearths and a possible linear feature at Highcliff Nab, Guisborough (Teesside) (Waughman 1996; Harbord 1996). It is possible that other remains may have been discovered and gone unrecognised and a re-assessment of older reports and references would be constructive. A small structure of possible Mesolithic date has also been recorded by a palaeochannel at Hartlepool; though a wattle panel (c. 3m x 1m) of late Mesolithic or early Neolithic date, also from the submerged forest at Hartlepool, is more likely to be the remains of a fish trap (Waughman 2005; Figure 4).

A separate category of Mesolithic site is the small group of rock shelters probably used in this period, including Corby's Crag, Dore Crag, Bowden Doors, Cuthbert's Cave and Goat's Crag (Northumberland) (Beckensall 1976; Burgess 1972; Davies 1983; Waddington 1999). Goat's Crag, for example, produced a number of undated slots and gullies, which may be Mesolithic, and is also the site of a very rare example of rock art of probable Mesolithic date (van Hoek and Smith 1988; Figure 12).

Routeways and long-distance communication

Questions of access and long-distance communication are crucial in trying to understand the pattern of Mesolithic settlement in the area. The appearance of stone from Langdale (Cumbria) at Birkside Fell (Northumberland) suggests east-west connections, while the presence of flints from the Yorkshire Wolds implies communication

either along the coast or down the Vale of Mowbray to the chalk uplands of East Yorkshire. Similar flint has been found in the Milfield Basin, and may have travelled there via an inland route, probably via the Pennines (e.g. R. Young 1987). It is unlikely to have arrived via the coast as none of the other flint from the area is Northumberland flint derived from the coastal boulder clays. Thus, the pattern of raw material supply to the Milfield area implies complex communication networks, with local groups seemingly linked into long-distance, north-south networks, but not integrated into relatively short-distance lateral networks between the coast and inland north Northumberland. The presence of sites on the coast which have seemingly easy access inland is noticeable. Good examples include those close to the steep denes on the Durham coast like Crimdon Dene, or sites further north at Budle Bay, with easy access to the interior along the Waren Burn.

Other material culture

Although early prehistoric archaeology is dominated by the study of lithics, other types of material culture are also present. Antler picks of probable Mesolithic date have been found at Cowshill, Weardale (Co. Durham) (Wymer 1977, 85), and at Hatfield College in the North Bailey, Durham (Lowther *et al* 1993, gazetter no. 31). Possible bone harpoons include one washed ashore in the mid 19th century near Seaburn (Tyne and Wear) (Trechmann 1936), and a bilaterally barbed flat point harpoon from Whitburn (Co. Durham) (Mellars 1970).

Museum collections

Mesolithic lithics can be found in many of the region's museums. The largest collection is in the Museum of Antiquities, Newcastle, which holds material from Birtley, Corbridge, Bolam Lake, Bywell and Clive Waddington's work at both Howick and in the Milfield Basin. It particularly features the collection made by Cocks and Weyman as well as the Whitburn harpoon. A gazetteer of lithic collections of all ages from the museum has recently been published (Waddington 2004). Francis Buckley's collections of flints are also held there, though his notebooks and drawing books are held at the Tolson Museum, Huddersfield (West Yorkshire).

Other major collections include those held in the Bowes Museum in Barnard Castle (Co. Durham), which has material from Finchale (Co. Durham) and Hildyard's collections of flints from Teesdale. The Sunderland Museum holds assemblages from Old Durham, Finchale, Monk Hesledon, Crimdon Dene and Fillpoke Beacon. Much material collected by Raistrick is now held by the Craven Museum in Skipton (North Yorkshire) (Croucher and Richardson 2003).

Regional overviews

The North Pennines: a review

by Rob Young

The Palaeolithic

Possible Upper Palaeolithic material has been discovered by

Tim Laurie on the terraces of the Tees at Towler Hill near Lartington in Teesdale (Coggins *et al* 1989).

The Mesolithic: earlier Mesolithic evidence

The work of Denis Coggins and Tim Laurie at Staple Crag and Towler Hill in Teesdale (Co. Durham) has provided us with new information about an Early Mesolithic presence in the Pennine dales (Coggins *et al* 1989).

The Mesolithic: later Mesolithic evidence

Between 1910 and 1916 the Weardale historian and antiquarian William Morely Egglestone was actively involved in tracing previous discoveries of flint and stone tools in Weardale. He published papers on lithic material from Redburn Common at Rookhope, and on a range of stone axes and perforated stone tools found in the dale (Egglestone 1909-1910, 1911-1912a, 1911-1912b). He may have been prompted in this by the visit of Charles Trechmann to Rookhope. Trechmann's main area of interest was the coastal area of eastern Durham, but he was intrigued by a reference to finds around Allendale made by the Revd Howchin in 1880. The Allendale site was in an area of vegetational erosion caused by fumes from a nearby lead-smelting chimney. The finds he made here prompted him to seek out other upland areas with similar brick-built flues, or chimneys, used to take the poisonous fumes away from lead-smelting sites and thus producing similar scars of eroded vegetation (Trechmann 1905; 1912).

From Allendale, Trechmann explored the area around the Blackton smelt mill chimney in Teesdale, and in 1905 he discovered an amazing array of material. On the strength of these finds he progressed into Weardale and to the site above Rookhope from which he collected a barbed-and-tanged arrowhead.

Some 40 years later Edward Hildyard, who lived at Horsely Hall near Stanhope in Weardale, began to try and examine, and if possible, collect 'any past finds that could still be traced to individual hands and to secure them for posterity' (Fell and Hildyard 1953, 99). He also initiated the first proper programme of field-walking in Weardale in the late 1940s! These activities were the result of two accidental circumstances. In 1946 and 1947 he was engaged in the excavation of the medieval episcopal hunting lodge at Cambokeels (Co. Durham), and in the course of his work he was surprised by the large number of flints in the excavated area. This led him to examine the spoil heaps of the water pipeline then being laid down the dale from Burnhope Reservoir to Sunderland, and again the results showed the presence of flint in some quantity. As a result, he organised the first-ever systematic survey of ploughed fields in Weardale; when the results were finally published he had discovered some 36 new flint scatter sites from the river terrace system in Weardale (Fell and Hildyard 1953; 1956).

Hildyard's catalogue of sites formed the basis for my own fieldwork in the dale over 20 years later. My own involvement with Mesolithic material in County Durham stems from my PhD research in which I re-examined all of the extant material from the Wear Valley and carried out my own programme of field-walking in the area (Young 1984; 1987).

Coggins (1986) has produced an excellent summary of his own multi-period fieldwork in Teesdale; and Laurie has published a review of early post-glacial settlement data from the Tees and Swale Valleys (1985). Coggins, Laurie and Young also collaborated in a review of the late Upper Palaeolithic and Mesolithic of the North Pennine dales (1989). This was an attempt at a comprehensive review of what was known about the early prehistoric period in the North Pennine area, concentrating in particular on Weardale and Teesdale.

In 1997 Coggins and Fairless produced the report on their excavations at the multi-period site of Middle Hurth Edge in Teesdale (Coggins and Fairless 1997). The present writer documented a later Mesolithic flint assemblage from this site (Young 1997). Similarly, an assemblage of possibly Mesolithic flint was recorded from the earliest levels of excavation on the medieval castle at Barnard Castle (Young forthcoming). A further later Mesolithic assemblage consisting of over 200 pieces of flint and chert was recovered during excavations at the Iron Age/Romano-British site of Bollihope Common, near Stanhope (Co. Durham) in 1999 (Young and Webster in prep).

Mesolithic sites in the Bolam and Shaftoe area by John Davies

The area is upland and riverine, with sites varying in altitude between 110 and 190m. The landscape is dominated by the Shaftoe escarpment which has a maximum height of 219m.

Sites of a range of types have been discovered by the writer in various locations, from field searches to the recovery of material from rock shelters. These sites vary in lithic density from a few finds from campsites to more permanent or probably re-used locations. There are truncated blade forms, which are probably Early Mesolithic, from all types of locations. Most of the material recovered is flint, though there are also agate and chert samples. There are no radiocarbon dates from this area (Davies and Davidson 1990; Davies 1995; 2004).

The Shaftoe Ingoe Grit escarpment contains a series of sites which are mainly rock shelters running east-west along a valley. Rock shelters with Mesolithic forms face south (3), west (1) and north (2). There is only one east-facing shelter. Finds from these sites have been recovered from erosion scars and eroding rock shelter floors, and include a suite of diagnostic Mesolithic pieces mainly microliths or microburins, and to a lesser degree denticulates and scrapers.

Only one site has been partially excavated, this over three seasons involving volunteers and professional oversight (approximately four weeks in total). From an area of 29 square metres, 1,200 pieces were recovered. A preliminary assessment of the material has shown some Early and Late Mesolithic microliths and microburins, scrapers and burins as well as backed blades. There are also some later blades and scrapers which are probably Neolithic, a cup marked stone and a Late Neolithic/Bronze Age barb-and-tang arrowhead. The site also has evidence of use during the early 20th century. A small section 2m

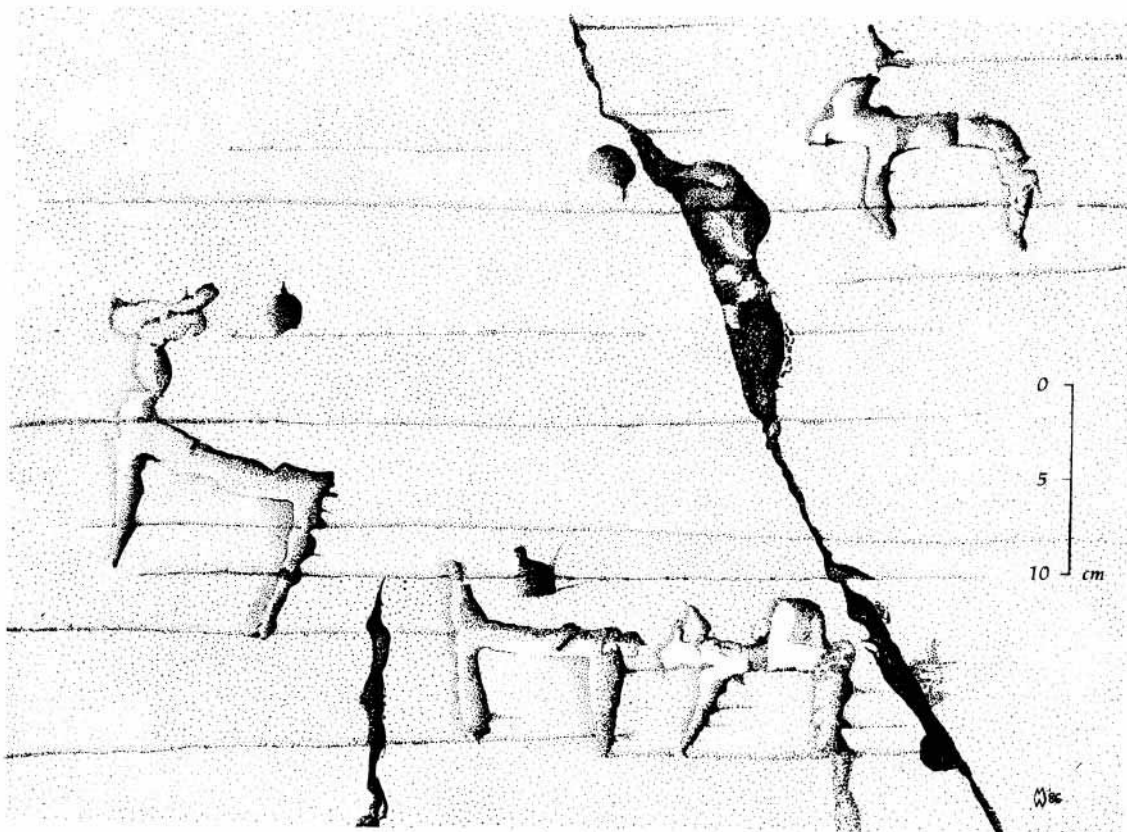


Figure 12 Possible prehistoric rock art from Goat's Crag, Ford (Northumberland). Not to scale. Image from Van Hoek and Smith 1988

square has not been examined and has been left for future study. Near this site lie several others, including an open area as well as the usual rock shelter types. Apart from the excavation none of the other sites has had any cleaning, material being collected over many years from erosions scars, etc.

Palaeolithic and Mesolithic in north Northumberland

by Clive Waddington

There are no certain dated sites belonging to the Palaeolithic in north Northumberland although the potential for re-worked Palaeolithic material in the gravel spreads of the Till and Tweed valleys provide one opportunity. Other potential Palaeolithic material may be found in cave settings, although few are known from this part of the county, as there is only a limited area of limestone and some shallow caves in the sandstone escarpment. The Early Mesolithic is hinted at by the presence of the occasional broad-blade microlith found at sites such as Howick, and during field-walking in areas such as the Milfield Basin. Although these artefact types have not been securely dated in the Borders area, it is likely that they do date to the early Holocene. An important priority is to establish the presence and timing of Palaeolithic and Early Mesolithic occupation in North-East England.

Apart from the unpublished date from Low Hauxley, the only radiocarbon-dated Mesolithic site in Northumberland, which is ironically the best-dated Mesolithic site in the country, is Howick (Waddington *et al* 2003). This site is located in central-north Northumberland in an estuarine setting on the coast (Figure 10). The evidence here reveals that the first dated evidence of human occupation in the region dates to c. 8,000 cal BC. This is the very beginning of the Late Mesolithic and, accordingly, the lithic assemblage from this site was based around a narrow-blade technology. The Howick site provides the most vivid evidence for a Mesolithic settlement structure so far discovered in England and provides insights into the duration of occupation as well as the economic basis of the hunter-gatherer occupants. The long period over which the site was used suggests that occupation may, in some cases, have been of a more permanent and territorial nature than previously assumed. The 33 radiocarbon dates from the hut sequence provide very close dating for the lithic assemblage of over 13,000 pieces found inside the hut.

Mesolithic coastal sites known in the region tend to be located close to fresh water stream and river courses that fall into the sea. Other examples include those at Crimdon Dean and the flint scatter sites known from around Budle Bay. Such sites are also routeways that penetrate inland along the valleys. Recent field-walking along the Lower Tweed valley has demonstrated the importance of such routeways for Mesolithic groups. Particularly high concentrations of Mesolithic knapping debris and tools have been found at river valley sites, usually on raised gravel terraces above the flood plain such as those found at Low Shilford (Tyne Valley) and those in the Tweed Valley at St Cuthbert's and Wark, as well as those on the gravel terraces in the Milfield Basin and further upstream around Bewick and Beanley.

Mesolithic occupation of the Cheviot Hills is poorly understood, primarily because of a lack of dedicated fieldwork but also because so little of this land is opened up by ploughing which would otherwise permit field-walking. Field-walking of the low Cheviot slopes (up to the 25m contour) on the west side of the Milfield Basin has demonstrated, however, that Mesolithic groups did indeed use these hills and particularly favoured sites close to spring heads, stream courses and areas of level ground. The sandstone uplands have been better studied with several escarpments producing evidence of rock shelter sites (e.g. Goat's Crag, Dove Crag, Corby's Crag, Kylee Crags, etc). Field-walking by Clive Waddington on the sandstone slopes around the Milfield Basin has also demonstrated Mesolithic activity on these fells. Most recently, a stubby end scraper, directly analogous to those found at Howick, was discovered during excavations around a cup-and-ring marked rock on Hunterheugh Crags, north of Alnwick (Northumberland).

The Mesolithic period in Teesside

by Peter Rowe

The Mesolithic period for the lower Tees Valley is principally registered on the Sites and Monuments Record as flint scatter sites and stray find spots.

Flint scatters indicate Mesolithic presence on the Durham Magnesium Limestone plateau. Flint collection from the North Hartlepool/Crimdon Dene area began in the 1920s. The scatters appear to show continuity into later prehistory with mixed period flint-work present (Raistrick *et al* 1935, 212; Weyman 1984, 44; Haselgrove and Healey 1992, 7). Excavation of a flint scatter site at Fillpoke Beacon (Co. Durham) in the late 1930s demonstrated remarkable preservation of organic deposits (Coupland 1948) with a sample later dated by radiocarbon to 6,810±140 BC (Jacobi 1976, 71). Recent archaeological evaluations at Middle Warren, Hartlepool, provide further mixed period lithic scatters with origins in the Mesolithic period (Archaeological Practice 1996).

The known Mesolithic resource in the lower Tees Valley again consists of surface scatters of lithic material, for example along the eastern bank of the Tees between Yarm and Thornaby (Spratt *et al* 1976, 26). Developer-funded work at Quarry Farm, Ingleby Barwick, has recently identified prolific concentrations of multi-period flint-work along the south bank of the Tees in this area (ASUD 1997).

The submerged forest at Hartlepool represents a multi-period prehistoric sequence from the Mesolithic onwards, with diagnostic flint-work and well-preserved flora and fauna in the peat deposits (Waughman 2005). Excavations in the 1990s demonstrated that parts of the former woodland here were burnt away in the 5th millennium BC. The earliest evidence of this burning was associated with a concentration of hoof prints of juvenile wild cattle. Other Mesolithic finds include a series of wooden stakes dated to the mid 4th millennium BC. These stakes were interpreted as part of a structure connected with fishing along the edge of a palaeochannel. A late 4th millennium BC red deer skeleton was also recovered; this animal may have died of natural causes but was butchered by humans.

The Tees Estuary has to date provided no confirmed Mesolithic deposits although stray finds consistent with an early post-glacial age are present (Agar 1954, 246). The East Cleveland Plain has produced little evidence of Mesolithic activity. That which is known is represented by lithic material from the excavations of later prehistoric ritual monuments at Boulby (Vyner 1984, 187; 1988b, 188). The east Cleveland coastline is more than likely to have been exploited during the Mesolithic period, echoing coastal use further north at Hartlepool. It is likely that post-glacial erosion along this stretch of coastline has destroyed much of the evidence of settlement or land use (Agar 1960).

Three large flint scatter sites are known along the north ridge of the Upleatham Hills (Spratt *et al* 1976; Rowe 1994). Study of the Upleatham material recovered by Spratt (Spratt *et al* 1976) demonstrates the level of inference available from surface scatters. In this instance the lithic material indicates that the occupants of the sites were undertaking a wide range of domestic activities such as food processing, flint knapping and tool production while maintaining hearths. The flint scatters might, therefore, be interpreted as base camps. Stray finds again demonstrate Mesolithic activity on the Eston Hills (Healey and Jelley 1988; Healey 1988, 40-41) although no significant concentrations are known.

Flint scatters are well documented on the Moor fringes (Spratt 1993). Rescue excavation of a flint scatter site at Highcliff Nab indicated the level of information that is potentially available from such surface sites (Waughman 1996) including, in this case, a sealed Mesolithic horizon associated with flint-working. Hearths thought to correspond to this layer were identified and produced further flint-work and calcined animal bone (Harbord 1996).

The Mesolithic in the Tyne Valley

by Chris Tolan-Smith

Two major projects have contributed to our knowledge of the Mesolithic in the Tyne Valley. The first consists of field-walking undertaken by Joan Weyman in the 1960s and 1970s, mainly in advance of work on the A68 and A69 routes, but also including visits to sites identified by other amateurs (e.g. Weyman 1995). This work extended from the

western outskirts of Newcastle (Dewley Hill at Throckley) to just beyond the confluence of the rivers North and South Tyne (Warden Hill). Much of this work has been summarised for the Mesolithic period (Weyman 1984).

The second project was undertaken by members of the Department of Archaeology at Newcastle University from 1985 onwards, and includes field-walking carried out by undergraduates, postgraduates and members of the Stone Age Tynedale Survey (SATS). This work included the western outskirts of Newcastle, but did not extend beyond Corbridge. Research on this material is ongoing but several summaries have been published (Tolan-Smith 1996; 1997a; 1997b; 1997c). In 1996 this project was extended into the catchment of the Devil's Water, a major south bank tributary of the River Tyne, in order to address issues relating to the relationship between activity in the valley and the surrounding uplands. This led to the discovery of the Birkside Fell Mesolithic site at about 380m in the North Pennines (Tolan-Smith 1997a; 1997b).

The results of these projects suggest that Mesolithic activity was widespread but varied in intensity between locations, and the definition of discrete 'sites' has proved difficult or even inappropriate. Analysis has made it possible to divide the material into that arising from extractive activities, such as hunting and raw material acquisition, and maintenance or processing activities. Particularly favoured situations for the latter include the bluffs overlooking the main valley while, although evidence for hunting is virtually ubiquitous, locations providing access to raw materials appear to be deeply incised side valleys and putative glacial features such as the mounds at Dewley Hill and Warden.

There are no radiocarbon dates for the Mesolithic in the Tyne Valley, but typological considerations imply that most of this activity should be dated to the Late Mesolithic, from about 7,000 BC onwards. Weyman, however, has reported some Early Mesolithic microlith forms from the site at Warden. Although such types also occur in Late Mesolithic assemblages, the discovery of a putative Late Upper Palaeolithic artefact from Prudhoe (Tolan-Smith with Cousins 1995) leaves open the possibility of a human presence in the Tyne Valley as early as the Pleistocene/Holocene Transition at c. 8,500 BC.

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4. Resource assessment: Neolithic and Early Bronze Age

The Neolithic and Early Bronze Age Specialist Group consisted of Stan Beckensall (*independent scholar*), Margarita Díaz-Andreu (*Dept of Archaeology, University of Durham*), Paul Frodsham (*Northumberland National Parks Authority*), Jan Harding (*Dept of Archaeology, University of Newcastle*), Steve Speak (*Tyne and Wear Museum Service*), Blaise Vyner (*Heritage and Arts consultant*), and Clive Waddington (*Archaeological Research Services*).

History of research

Upstanding prehistoric remains have long exerted a fascination on those wishing to understand the history of the North-East, but it was not until the 19th century that there was a concerted attempt to explore and excavate them. Amongst the more prolific of the early explorers was Canon William Greenwell, a Durham clergyman who carried out excavations on a large number of barrows in Durham, Northumberland, and Yorkshire (Kinnes and Longworth 1985). Most of the artefacts discovered by Greenwell are now in the British Museum, and his work is the subject of an important research project based in the Department of Archaeology, University of Durham (Graves and O'Connor 2003). Other early scholars mainly focused their work on Northumberland. George Tate excavated at Threestoneburn Stone Circle, Greaves Ash and Yeavering, and made a pioneering early study of rock art (Tate 1863a; 1863b; 1865). Henry MacLauchlan, an employee of the Duke of Northumberland, also made a series of important surveys on ducal estates in the 1860s (MacLauchlan 1852; 1864).

In the 20th century, despite the teaching of archaeology at both Durham and Newcastle (King's College, Durham, until 1963), little work on the prehistory of the region was carried out before World War II. For a long time the only university scholar to undertake significant fieldwork was George Jobey, and his work mainly focused on the Iron Age, although in the 1930s Nancy Newbigin did research rock art and other sites, excavating the long cairns at Bellshiel Law and the Devil's Lapful (Northumberland) (e.g. Newbigin 1933; 1935a; 1935b; 1936).

Since the 1970s more work has been undertaken in the region, emanating both from the universities and the independent sector, such as Basil Butcher, Beryl Charlton and the members of the Northumberland Archaeological Group in Northumberland, and Colin Burgess (e.g. Charlton 1982; Sellers *et al* 1986; Burgess 1980). In East Durham and Cleveland pre-War work was carried out by Charles Trechmann and Frank Elgee, but is not until the 1970s that efforts were directed to the North Pennines, with the work of Denis Coggins in Teesdale, and also of Arthur Raistrick; much of this early work primarily focused on Mesolithic material. In the lower lying areas the Durham Archaeological Survey was the first extensive archaeological survey to tackle the less immediately apparent remains of East Durham and Cleveland (Haselgrove *et al* 1988).

Today, the role of independent archaeologists continues to be of great significance; the work of Stan Beckensall on rock art, and Tim Gates on aerial photography has been fundamental (e.g. Beckensall 2001; Gates 2004). In the south of the region, Tim Laurie has also carried out major surveys of rock art and burnt mounds (Beckensall and Laurie 1998). Research based in universities, both local and further afield, is represented by the work of Clive Waddington and Anthony Harding in the Milfield Basin, and by Richard Bradley on the landscape context of rock art (Bradley 1996; Harding 1981; Waddington 1998a). Major fieldwork has also been undertaken under the auspices of other bodies, such as the Northumberland National Park (e.g. Frodsham and Waddington 2004).

Existing research frameworks

Several research agendas already exist for this period. The English Heritage Archaeology Division Research Agenda (English Heritage 1997) presents research priorities based on those in *Exploring our Past* (English Heritage 1991). The study of processes of change reflecting the change and diversification of farming communities (c. 3,000-2,000 BC) is highlighted as well as the shift from landscapes dominated by communal monuments to one of settlements and fields (c. 2,000-300 BC). Among the more specific topics considered to be national research priorities are prehistoric rock art and territories and tenure in the 4th and 3rd millennium BC. There are also more regionally nuanced lists. *Towards an agenda for Neolithic Studies* (Harding *et al* 1996) underlines seven main research themes: the dynamics of the Mesolithic to Neolithic transition, regional patterning, local patterns of settlement and their relationship to monuments, improving the chronological framework, rock art, the Neolithic to Bronze Age transition, and artefact characterisation. Elsewhere, a more recent paper by Paul Frodsham (2000) argues for a research framework to encompass 'Central Britain'. Also of relevance are the research questions listed by Don Spratt for the prehistoric and Roman archaeology of North Yorkshire (1993, 167-168).

Overview of the resource assessment

Impacts

One of the most important factors in understanding the Neolithic and Early Bronze Age archaeology of the region is the issue of site preservation. The complex pattern of known sites is as much related to the influence of post-depositional factors as to the original distribution of prehistoric activity (Young 1994a). The region can be divided into two broad areas: uplands, where sites are more likely to be upstanding monuments, and lowlands, where sites more often survive as cropmarks or artefact scatters (Figure 13). Within this broad, bi-partite division, there are more localised zones of destruction. Perhaps the most significant destructive factor is the huge spread of settlement in the region. The growth of Newcastle, Gateshead, Sunderland, Consett and the towns of Teesside have smothered large areas of the lowland landscape. In

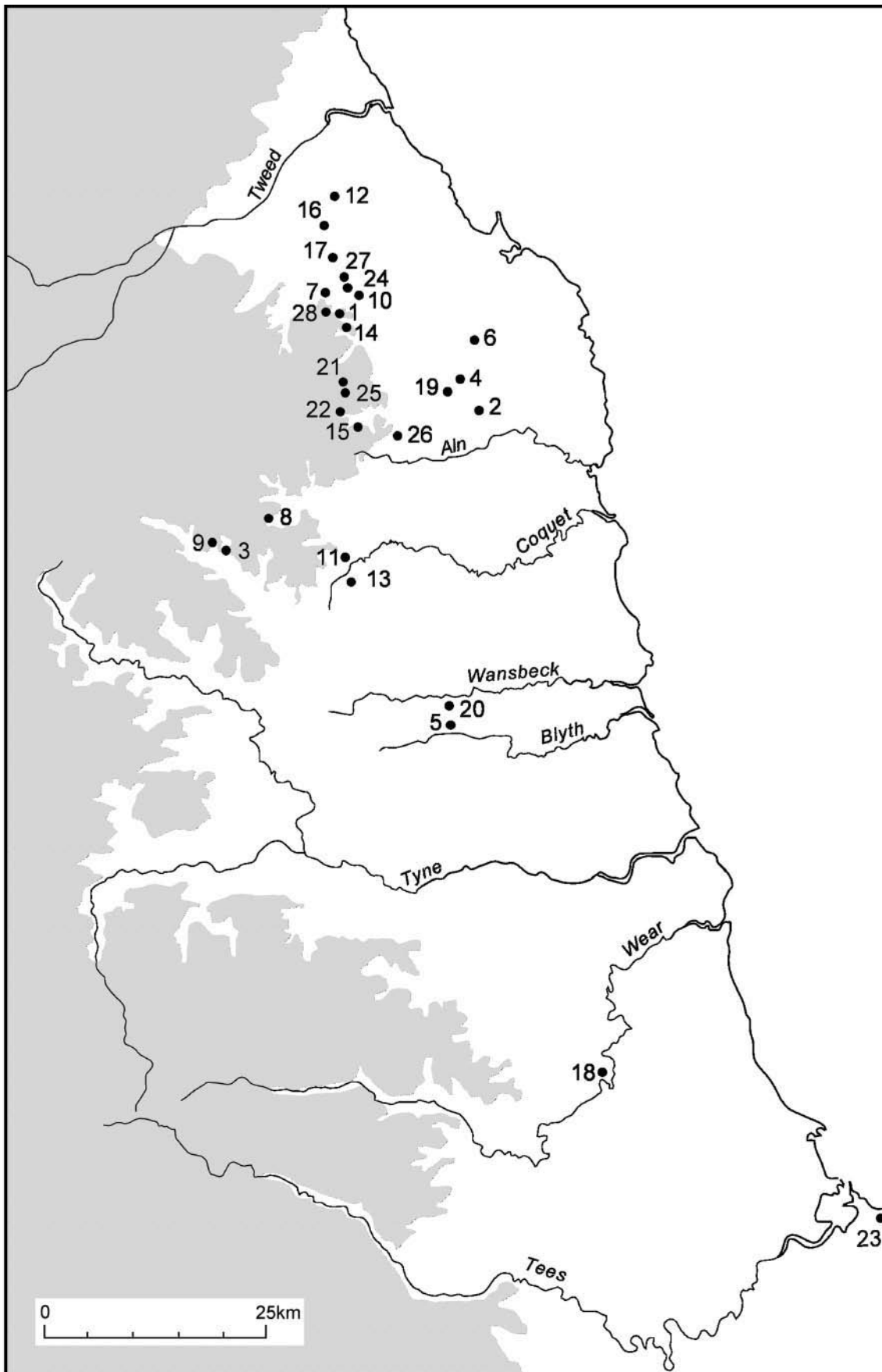


Figure 13 Key Neolithic and Early Bronze Age sites mentioned in text: (1) Akeld, (2) Beanley Moor, (3) Bellshiel Law, (4) Blaewearie, (5) Bolam Lake, (6) Chatton Sandyford, (7) Coupland Henge, (8) Crigdon Hill, (9) Dour Hill, (10) Ewart, (11) Five Kings, (12) Fourstones, Duddo, (13) Harehaugh Hill, (14) Houseledge, (15) Linhope Burn, (16) Lookout Plantation, (17) Milfield North, (18) Mountjoy, (19) New Bewick, (20) Poind and His Man, Belsay, (21) Scald Hill, (22) Standrop Rigg, (23) Street House, Loftus, (24) Thirlings, (25) Threestoneburn, (26) Wether Hill, (27) Woodbridge Farm, Milfield, (28) Yeavinger [map drawn by Yvonne Beadnell]

East Durham, the exploitation of coalfields has also had a dramatic impact, leading to large-scale landscape disturbance and poor site preservation. In both upland and lowland areas there has been quarrying, gravel extraction and opencast mining. Much of this work is taking place on long-term planning consents and is thus outside the protective framework provided by PPG16. It potentially threatens several areas of high archaeological importance, particularly the Milfield Basin in north Northumberland. Recent projects, such as the Milfield-Geoarchaeology project and the Till-Tweed project, have created a management guidance framework based on bringing together geomorphological mapping of landforms and their archaeological associations (Passmore *et al* 2002). This has served to highlight the threats from gravel extraction in specific areas, and will act as a management tool for archaeological curators in the region.

Also important has been the expansion of forestry. Afforestation is mainly found in the north of the region (c. 80% in Northumberland). In total around 99,500 ha (11%) of the area is covered by forest and woodland. The major increase in planting began in the early 1930s and reached a peak between 1950 and 1960 (DEFRA 2002). Apart from Kielder Forest, much of this woodland cover is scattered and divided into thousands of woodland blocks, and this affects not only the survival of archaeological deposits, but also their visibility and management.

A range of more localised destruction factors include increased agricultural drainage and the demand of water by the conurbations which has led to a lowering of water tables. In some areas this has had a significant impact on the cycle of creation and destruction of peat, and the dewatering and disappearance of peat deposits is now a major issue, which in turn may significantly degrade the environmental archaeological resource. Other problems include damage done to monuments by people and animals and also by ploughing, which can occur even on Scheduled sites.

Coastal erosion is another factor in site preservation. For example, recent sand dune erosion at Low Hauxley has led to the discovery of burials of probable Bronze Age date eroding out of the cliff face. The proposed North-East Coast Heritage Initiative aims to start monitoring the effect of coastal erosion on the finite historic environment resource and to quantify its threat.

Patterns of previous research

Site preservation, however, is not the only issue affecting the distribution of known sites. Our understanding of the archaeology is also fundamentally influenced by patterns of earlier research. Thus, one of the most extensively studied areas is the Milfield Basin in north Northumberland. Major excavation has been carried out there by a number of scholars, and the area has also been the subject of a PhD thesis and intensive fieldwork by Clive Waddington (Miket 1981; 1985b; Harding 1981; Waddington 1997a; 1997b; 1998a; 2000a). The combination of excellent crop mark evidence and an important range of monuments has led to the area becoming one of the best understood archaeological landscapes in the country.

To the immediate south, the Cheviots and the Northumberland uplands, with their extensive upstanding remains, have also been the focus for research. There has been extensive aerial photography coverage by Tim Gates, who has also surveyed Hadrian's Wall corridor, the Otterburn training area, and the College Valley (Gates 1997; 1999; 2000). Extensive fieldwork has been carried out by English Heritage, the Northern Archaeology Group, Peter Topping, and the Northumberland National Park. Work in Redesdale (Northumberland) includes the major survey by Beryl Charlton and John Day (which found few early remains) (Charlton and Day 1979), and the more recent excavation of the cairn at Dour Hill (Northumberland) (Waddington, Godfrey and Bell 1998).

The sandstone escarpment of the east flank of the Cheviots is home to most of the rock art in Northumberland. Although this has been subjected to extensive study by Stan Beckensall (2001), and a large number of flints has also been recovered from the area by Fritz Berthele, there has been little excavation here (Hewitt 1995).

The uplands of County Durham have seen less work, notably that of Rob Young in Weardale, though the main focus here is on earlier periods (e.g. Young 1987 and see Chapter 3). In Teesdale, there has been extensive survey by Denis Coggins and Tim Laurie (Coggins 1986; Laurie 2004). Little work has focused in the lowlands of Durham, although the Durham Archaeological Survey carried out extensive field-walking in the area (Haselgrove *et al* 1988). That survey also extended into Cleveland, where Blaise Vyner has worked on sites along the very southern edge of the region close to the North York Moors (e.g. Vyner 1988a; 1988b; 1991).

The advent of PPG16 and developer-funded archaeology has had a limited impact on the earlier prehistory in the region. Most upstanding prehistoric monuments are Scheduled and thus protected from development, whereas fieldwork has clearly followed the location of development in the region. The relatively small-scale interventions typical of evaluations and watching briefs are not conducive to recognising remains of this period, though large-scale field-walking is recovering flint assemblages (largely unanalysed and unpublished). That said, some important sites, such as the Late Neolithic/Early Bronze Age activity at Mountjoy, City of Durham, have been discovered as a consequence of planning-led investigations (TWM 2005).

Environmental background

The pollen record from Northumberland is varied. Some sequences, such as those from Fellend Moss and Steng Moss, show no evidence of human activity (Davies and Turner 1979, 801), while elsewhere crops were being grown (Tipping 1996, 27). At Swindon Hill, Drowning Flow and Bloody Moss there is early clearing of woodland and expansion of heathland (Moores 1998, 210; Young 2004b, 163). In valley bottoms and lowland areas, such as at Brownchesters Farm, Akeld Steads and Wooler, there is also evidence for forest clearance (Moores 1998, 210-211).

During the Bronze Age there was a continued expansion of heathland and commensurate forest clearance (Moores and

Passmore 1999, 24; Young 2004b, 165), along with increased crop production (Moore 1998, 245-247). The rate of clearance and use of cereals appears to increase through the prehistoric period, with later clearances on a larger scale.

Very few assemblages of plant macrofossils survive from the Neolithic. The most significant being Thirlings and Whitton Hill in north Northumberland, both of which are dominated by hazelnuts, though there were also a few grains of naked barley (van der Veen 1982a; 1982b), and from ritual sites in Milfield Basin, where emmer wheat was present in very small quantities.

By the Bronze Age sites, such as Eston Nab (Teesside), Hallhill (Northumberland), and Whitton Hill, site 2 (Northumberland), produced a range of cereals, including emmer wheat, barley and small amounts of spelt (van der Veen 1992; 1984). Hazelnuts continued to be an important part of the assemblage at Eston Nab (Vyner 1988a).

Assemblages of animal bone from Neolithic sites are rare, though tiny amounts of bone were found at Ewart (Northumberland) (Miket 1981). Spot finds of wild animals include a red deer from the shore at Seaton Carew (Teesside) and a horn sheath from Ireshopeburn Moor (Co. Durham) (Stallibrass 1993; Young 1987).

Bronze Age animal remains are known from the caves at Heathery Burn and Teesdale Cave (both Co. Durham), with a wide range of wild animals that includes boar, deer and possibly bear (Greenwell 1894; Simms 1974). Wild assemblages are also known from Jarrow Docks (Tyne and Wear), Wilton (Teesside), and Hartlepool submerged forest (Teesside) (Huntley and Stallibrass 1995, 118-119).

As with other bone assemblages, the preservation of human bone is regionally variable, with the acid soils of the upland areas of the Cheviots, the Northumbrian sandstone scarp, and the North Pennines being particularly adverse to the survival of bone. The earliest human skeletal material dates to funerary contexts of the Bronze Age. Although cremation was common, inhumations have been recovered from a number of sites, such as How Tallon, Barningham Moor (Co. Durham), Low Hauxley (Northumberland) and Windmill Hill, Ingleby Barwick (Teesside).

Occupation sites

Three categories of Neolithic occupation site may be recognised based on surviving archaeological evidence. First are simple lithic scatters, such as that from New Bewick (Northumberland) (Waddington 2005b; Figure 14). These may represent a permanent or semi-permanent occupation site or merely temporary activity. If recognised purely from surface collection, it is possible that more substantial remains may be found through excavation, though due to the ephemeral nature of many Neolithic structures, the lithics may be all that survive. Such sites are found widely across the region.

A second category of sites comprises clusters of pit features containing Neolithic objects. These pits do not appear to have a structural use, and at Coupland

(Northumberland) show signs of burning and contain charcoal, pot, burnt flints and hazelnut shells (Waddington 1999, 134-136). It is possible that they were used for cooking. Such sites are noticeably clustered in and around the Milfield Basin, and are known from Coupland, Brand's Hill, Yeavering, Thirlings, Ewart, Woodbridge Farm, Milfield, Akeld and New Bewick (Harding 1981; Hope-Taylor 1977, 348-349; Miket 1976; Waddington 2000b; Waddington and Davies 2002). The reason for this clustering is uncertain; it may be a real phenomenon or merely a reflection of the intensive research there. It is possible that these are the only surviving elements of more substantial settlements, though this does not explain the bias in their distribution.



Figure 14 Field-walking for evidence of prehistoric activity in the Tweed valley (Northumberland). © Archaeological Research Services Ltd

The final group of Neolithic occupation sites are those with definite evidence for some kind of structure, including Bolam Lake (Waddington and Davies 2002), Thirlings (Miket 1981), Milfield Village (Clive Waddington pers comm) and Marygate, Holy Island (Lees 1997). These sites have produced post- and stake-holes, some packed with stone, that at least imply some form of semi-permanent activity at the sites. The pottery from Thirlings included Grimston Ware and Grooved Ware.

The evidence for settlement in the Bronze Age is more extensive. A series of excavated sites are known, such as Houseledge, Linhope Burn, Lookout Plantation and Standrop Rigg (all in Northumberland) (Burgess 1980; Topping 1993; Monaghan 1994; Jobey 1983). Some of these settlements are unenclosed, others, such as Standrop Rigg, are situated within networks of small banks of field-clearance stones. A similar network of clearance cairns and enclosures is known at Houseledge.

Other probable Early Bronze Age sites are found widely distributed across the Cheviots and the sandstone fells of north Northumberland, though due to lack of excavation not all are easily datable. In addition, in some cases it is not easy to distinguish between hut circles and traces of ring ditches. Evidence from Standrop Rigg and Houseledge shows that Bronze Age huts could be constructed from wood, leaving a simple trench rather than any upstanding remains. An important group of sites are also known only

from lithic or pottery scatters, such as Ross Links and Matfen (Northumberland) (Brewis and Buckley 1928; Turner 1989).

Although there is Early Bronze Age activity on the site of later hillforts, such as Wether Hill and Harehaugh Hill (Northumberland) (Waddington, Blood and Crow 1998), there is little evidence to suggest a Neolithic or Early Bronze Age origin for any of the hilltop enclosures and hillforts found so widely spread in the Cheviots; perhaps this situation may change following further research. Outside the Cheviots some poorly understood Neolithic activity has recently been recognised at Mountjoy, Durham, the site of an Iron Age hillfort, though it is not yet possible to characterise this activity (TWM 2005).

A final, distinct, class of Bronze Age activity is the so-called 'burnt mound'. A small group has been excavated in Northumberland at Titlington, close to Beanley Moor (Topping 1998). These date to the 2nd millennium BC and are associated with hearths and troughs. Other burnt mounds have also been noted in Teesdale and Weardale, though they have not been subject to excavation.

Landscapes

Both prehistoric settlement sites and major monuments existed within a wider landscape - indeed the Neolithic saw a significant transformation in the nature of this landscape from one that was wild and frequented by groups of hunter-gatherers to one that was increasingly tamed by early agriculturalists. This long process of transformation continued well into the Bronze Age.

The two most readily identifiable elements of these earliest agricultural landscapes are cairnfields and field systems. Evidence for both in the region is now essentially limited to the uplands of the Cheviots and the North Pennines. Cairns are a common element of the upland landscapes, and may have many dates and functions, from massive Neolithic round cairns to modern cairns built by hikers. It appears, however, that the majority are related to episodes of field clearance during the Bronze Age; large stones being removed from rocky areas as the land was opened up for agriculture. These groups of cairns can vary in size and some of the largest, such as that at Chatton Sandyford (Northumberland), contain over 150 surviving examples (Jobey 1968). Crawley Edge, Stanhope (Co. Durham) is another site containing many surviving cairns (Young and Welfare 1992). The cairns themselves are generally relatively small in size but may be supplemented by stone banks seemingly made from cleared field stones which are also sometimes integrated into larger systems, as at Hindon Edge, Langleydale Common (Co. Durham). In other cases, individual cairns may be conjoined. The process of creating cairns could be complex, and did not involve simply piling up field stones. Excavation on a number of cairns surrounding the large cairn at Chatton Sandyford revealed evidence of pre-cairn activity, including burning and small pits. It is also clear that it is not possible to make a simple distinction between cairns used for burial and simple clearance cairns.

At some sites different stages in development can be recognised in the clearance patterns. At Houseledge the first phase of field clearance involved the clearance of random plots of ground with no overall plans (Burgess 1980), whereas elements of the second phase included a row of five cairns in a line, possibly respecting an earlier boundary.

Chronologically later than these groups of clearance cairns are the first field systems. Excavation at Standrop Rigg has shown a network of small, irregular fields surrounded by rubble walls containing six round houses (Jobey 1983). At Houseledge the settlement was situated within a landscape of clearance cairns, lynchets, fields and banks of clearance stone. There was also evidence for terracing, which was overlain by the latest phases of the houses and fields. This may imply a late Neolithic date for these earliest phases of terracing. Elsewhere, such as at Plantation Camp, Brough Law (Northumberland), excavation has indicated an early Bronze Age date for a stretch of revetted terrace (Jobey 1971). Wider evidence for the survival of prehistoric field systems is being revealed through aerial photography, such as Tim Gates' survey of Bronze Age field systems, which is producing evidence for field systems, boundaries and probable stock control features. Although these are clearly prehistoric, they lack firm dating evidence at present (Gates 1983).

Monumentality

Neolithic: death and burial

The archaeology of Neolithic burial monuments is characterised by a diversity of types of structure, including long cairns, chambered cairns, round cairns and mortuary enclosures (Masters 1984; Vyner 1986).

The long cairn at Bellshiel Law, high above Redesdale, is over 110m long, and despite excavation in the 1930s, it is still poorly understood (Newbigin 1936). A smaller chambered cairn in Tynedale, the Devil's Lapful, was also examined in the 1930s (Newbigin 1935a). Other long cairns include Dod Hill (Gates 1982) and the recently excavated Scald Hill (Aylett and Miket 2003). A further long cairn has been identified and excavated as part of the Coquetdale Community Archaeology project at Hare Haugh (Northumberland) (Figure 15).



Figure 15 Coquetdale community volunteers excavating a newly identified long cairn at Harehaugh (Northumberland).
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Although traditionally identified as a long cairn, recent investigation at Dour Hill has shown it to be a chambered tomb (Waddington, Godfrey and Bell 1998). A similar chambered cairn lies just outside the region on Great Ayton Moor (Hayes 1967). There are no confirmed Neolithic long barrows in County Durham.

Round cairns of certain Neolithic date include those at Broomridge (Northumberland) and Copt Hill (Tyne and Wear). It has also been suggested that the cairn at Chatton Sandyford (Northumberland) may be of a similar date, though it could be a later pile of stone over a spread of Neolithic burnt material. Some other substantial round mounds may also be Neolithic in date, for example, the Poind and His Man in Belsay, the Five Kings in Alwinton, and Crigdon Hill in Upper Coquetdale (all in Northumberland), though this remains speculation. Others are smaller, and often sit within large cairn fields, for example, Chatton Sandyford, Holystone, and High Knowes (Jobey 1968; Gibson 1978, 67, 87-88; Jobey and Tait 1966). Many cairns have been excavated, such as the Neolithic cairn at Street House, Loftus (Teesside) (Vyner 1984) but the precise nature of some sites is not clear; for example, the substantial mound at Dewley Hill, Throckley (Tyne and Wear), is surrounded by a concentric cropmark ditch. Vyner has also suggested that Round Hill in the lower Tees close to Ingleby Barwick may prove to have a Neolithic date (Vyner 2000, 103). The excavated mounds at Fourberry and Weetwood (Northumberland) have an established link with rock art, but no burials. Nevertheless, there is no dating evidence for these sites.

Although often interpreted as a mortuary enclosure, the excavator of the Street House 'wossit' (Cleveland), now sees this unusual site as a dry-land twin of Seahenge (Vyner 1988b; Blaise Vyner pers comm). Crop marks of similar sites, interpreted as mortuary enclosures, have been photographed at Ewart Park and Wark-on-Tweed (Northumberland). There is also evidence for a flat cremation cemetery associated with Grooved Ware at Yeavinger.

Neolithic: monuments

Only a few henges of Neolithic date are known, the most important being those located in the Milfield Basin (e.g. Harding 1981; Lee and Harding 1987). Waddington's excavations at Coupland suggest an early Neolithic date, though he has questioned whether it should be understood as a henge, preferring the more neutral term 'enclosure' (Waddington 1999, 134-143; 2001, 3-4). This unique site is connected to upland pastures by a ditched driveway. Other henges inorth of the Tyne are known at Tynemouth (Stevenson 1998) and Ewesley Station. In County Durham a possible henge is revealed as cropmarks at North Lodge, Chester-le-Street (Vyner 2000, 103), though geophysical survey suggests that it had fewer entrances than interpreted from the aerial photograph, thus the feature may be of later prehistoric date (ASUD 2000a).

The range of megalithic stone settings includes circles, rows, and individual standing stones. In Northumberland, several stone circles are known, including Threestoneburn, Hartheugh, Hethpool and Fourstones, and Duddo, though

none are comparable in size to the larger examples from Cumbria and elsewhere. Little work has been carried out on these sites. Threestoneburn is perhaps the best known, with an excavation by Tate in the 1850s and a more recent survey (Tate 1863b, 452; Waddington and Williams 2002). The circles at Hethpool and Threestoneburn may have been placed to ritualise access to the Cheviots along the College Valley (Topping 1997, 120). Fewer stone circles are recorded in County Durham. One stands on Barningham Moor at the head of Osmonds Gill, overlooking a number of rock art sites and on the same ridge line as several major burial cairns, including How Tallon to the east. A smaller stone circle also stands on the watershed between Lunedale and the Eden Valley. A circle was also recorded at Egglestone on the route between Teesdale and Weardale, and although the stones were removed in the 19th century, recent geophysical survey has identified its probable location (ASUD 2001).

There are relatively few stone rows from this period, the best example being the Five King's standing stones, near Holystone Grange, one of which was removed in the 19th century. Simple standing stones are more numerous; over 60 are recorded in Northumberland alone, and, notably, they have a mainly lowland distribution. Dating such monuments is not easy, especially since there has been little excavation. Several stones, however, do have simple rock art carved onto them, including the stones at Matfen, Ingoe, Swinburn, Chollerton and Lilburn.

In addition to cairns, henges and stone settings, other significant Neolithic monument types are enclosures and pit alignments. In a recent review of early Neolithic enclosures in northern Britain, Waddington outlined the diversity in their form, placing them in a nationwide context (Waddington 2001). Examples include Harehaugh Hill in Upper Coquetdale (Waddington, Blood and Crow 1998), where a Neolithic bank was found in addition to the later multivallate Iron Age defences (Figure 15). Charcoal from beneath the bank had a radiocarbon date of 3,360-2,920 cal BC. Two Neolithic flints were also recorded within the circuit of this early bank. In addition to the idiosyncratic Coupland 'henge', Waddington has also suggested that the enclosures on the promontory at Roughting Lynn, at Salter's Nick, Shaftoe Crags (Davies 1995, 63), the segmented enclosure beneath the Roman fort at South Shields (Hodgson *et al* 2001), Hasting Hill (Newman 1976), and an enclosure at Heddon-on-the-Wall are all Northumbrian examples of Neolithic enclosures (Waddington 1999, 136).

As well as segmented enclosures, discontinuous boundary features are known in another form: pit alignments. Although often thought to be predominantly Iron Age, there is increasing evidence that some may be of earlier, even Neolithic, origin. For example, the double pit alignment at Milfield North contained Grooved Ware sherds low down in its stratigraphy (Harding 1981), as did the single alignments at Ewart (Miket 1981). These early examples appear to be limited to the Milfield Basin.

The discovery of a new form of Neolithic ritual monument in the Cheviots is of great importance. The tri-radial cairn was

first recognised by Bill Ford and a team from the Border Archaeological Society, who excavated an example at Ray Sunnyside (Ford *et al* 2002). A radiocarbon date from a burnt area beneath one of the arms gave a date of 2,600 BC. It is possible, however, that this represents the construction of a later structure on a Neolithic land surface. Another example was excavated at Turf Knowe (see above), which unlike Ray Sunnyside, was associated with a burial of probable Neolithic date. In total, eight tri-radials have been identified at Lordenshaws, four at Hartheugh and three at Ray Sunnyside; other examples are known at Brands Hill, Heddon Hill and Turf Knowe. It is not clear whether tri-radials were primarily burial monuments or sites with other prime uses which were occasionally used for burial, or indeed whether this distinction is valid.

Bronze Age: death and burial

The mortuary behaviour of the Bronze Age in the North-East is also characterised by a diversity of monumental remains, particular within cairns. Prehistoric cairns were especially susceptible to damage by early antiquarians. While some workers at least documented which cairns and barrows they investigated, many more have been entered without any record. Some of the most important early archaeological work of this kind was carried out by William Greenwell (Kinnes and Longworth 1985).

Simple stone cairns are recorded in a variety of shapes, including round, sub-circular and pear-shaped. While many stone cairns are undoubtedly related to field clearance, a significant number appear to have been used for burial,

and there is evidence for more sophisticated architectural elaboration, such as the provision of kerbs.

Several cairns have been subject to substantial excavation. That at Blawearie (Northumberland) was first investigated by Canon Greenwell in 1865 and re-examined by Hewitt and Beckensall in the mid 1980s (Hewitt and Beckensall 1996). This later work revealed a kerb that had been missed by Greenwell, and showed that the cairn had been remodelled. The structure was probably not originally funerary, with burial cists for cremations and inhumations only being inserted during Phase 4. There were also a series of additional satellite cairns and an abutting semi-circular cairn which appeared to seal a pyre.

Recent excavations on two cairns at Turf Knowe (Northumberland) have also revealed a complex sequence (Frodsham and Waddington 2004, 173-177). Turf Knowe South, thought at first to be a field-clearance cairn, emerged as a Late Neolithic or Early Bronze Age tri-radial cairn. A large pit between two of the arms contained Late Neolithic and Early Bronze Age flints, and the cairn was built directly over the upcast. The pit had two cists set into it; one contained an iron spear suggesting an Iron Age or later date. A complete food vessel was found just outside the pit in a position that suggested that it had been removed from the pit, presumably when the cists were inserted. A second pit contained a crushed food vessel. Turf Knowe North is an Early Bronze Age burial cairn with a burial cist containing a food vessel, flint flakes and jet beads. A secondary cist containing at least three



Figure 16 Excavation of a rock art site at Hunterheugh Craggs (Northumberland) revealed evidence for two phases of carving separated by a quarrying episode. After the final phase of carving a Bronze Age cairn was erected over the top of the outcrop. © Archaeological Research Services Ltd

incomplete cremations was added, as well as a number of other later cremations (Frodsham and Waddington 2004, 175-176). George Jobey's excavations on a group of cairns at Chatton Sandyford also showed that there were a series of burials in the central cairn, and that the kerb was probably a later addition (Jobey 1968). At Cobden Sike, the large cairn was found to cover an earlier example; both had been edged with kerb stones (Gates 1979). At Dour Hill, a Bronze Age cist was built into the earlier Neolithic chambered long cairn (Waddington, Godfrey and Bell 1998). These excavated examples all illustrate the complexity of stone cairns, indicating that they are clearly multi-stage monuments undergoing alterations throughout their life.

A number of ring cairns are also known from the North-East, although these are not particularly common. There are several clusters, including one on Barningham Moor, another in the northern edge of the Cheviots, and a few between the Coquet and the A68. Ring cairns can be difficult to recognise and they may be mistaken for hut circles, stone circles and robbed-out stone cairns. Only a few have been adequately excavated. The ring cairn on Birkside Fell contained a pit with cremated bone and a large collared urn. The probable ring cairn at Chatley Crags contained a number of cremations and the structure of the cairn itself showed several separate periods of use (Frodsham 1995b).

The wider landscape context of many of these cairns is likely to be significant; the cairn at Wether Hill, Ingram, is located so that Simonside can be seen, and Hare Cairn is located so that Black Stichel is visible (Frodsham 2004, 35). The cairns at Lordenshaws may have been deliberately sited to be close to Neolithic rock art at the site, whereas cairns at Hunterheugh and Fowberry appear to have been built directly over a panel of rock art. Significantly, at Hunterheugh, broken up fragments of rock with cup-and-ring marks were incorporated into the body of the cairn (Waddington 2004) (Figure 16), while a slab with cup-and-ring marks was also used in a cist within a barrow at Witton Gilbert. The landscape context of flat burials is equally significant. At Goat's Crag and Corby's Crag cremations have been discovered at the foot of rock outcrops (Burgess 1972; Beckensall 1976). This diversity in burial rites is clearer in the upland areas where the superstructure of monuments survives better. In lowland areas, the main surviving site type is the ring ditch. Although many are known mainly through aerial photography, very few have been excavated.

In addition to burial sites associated with ring ditches, there are several flat cemeteries containing burials placed in cists. The best examples lie beneath the Roman fort at South Shields (Hodgson *et al* 2001) and at Howick (Waddington 2003 *et al*).

Standing stones

The different types of settings of standing stones in the region include four-posters, stone circles, and lone standing stones (for wider European background see Burl 1988). Sadly, when preservation of the site is poor and stones have been removed, it is not always clear into which category a particular site fits.

Bronze Age stone circles are limited to Northumberland. The most significant examples include the Five Stones at Duddo, the possible pair of rings at Hethpool in the College Valley, and the five remaining stones at Threestoneburn. A pair of four-posters is also known from Northumberland: the Goatstones in Bellingham, and the Three Kings in Kielder Forest. One of the stones at the Goatstones has sixteen well-preserved cup marks. A slight rise within the centre of the site may be the remains of a burial cairn. The Three Kings, excavated by Aubrey Burl in 1971, also contained a central burial cairn (Burl and Jones 1972). Linear settings of stones of probable Bronze Age date are known at the Five Kings in Northumberland. Other examples include the sites on Cartington Moor, Fontburn, Whinny Hill, Lucker Moor and Dod Law. In contrast to stone circles and four-posters, isolated standing stones have a much wider distribution and are also found in County Durham. Whereas south of the Tyne the stones have a notable upland location, in Northumberland they are mainly found in the lowlands.

Bronze Age henges are known from the North-East, all to the north of the Tyne. Examples include that at Bebside, and the classic Milfield henges, which are mainly Bronze Age, though some Neolithic pottery has been found at Milfield North. A probable henge is also known from aerial photographs at Blyth.

A final group of monuments of late Neolithic and early Bronze Age date are the cross-ridge boundaries of the Cleveland Hills (Vyner 1995b). These boundaries can be of continuous bank-and-ditch construction, or they can be broken by a series of causeways. There is no direct dating evidence from the boundaries themselves, but association with burial mounds has dated them to the Early Bronze Age.

Rock art

by Clive Waddington

There has been a renaissance in British rock art studies over the last fifteen years. Much of the current work has been focused around recording, cataloguing, identifying associations, with some limited interpretation. The work of Beckensall (e.g. 1992; 1999; 2001), Beckensall and Laurie (1998), Morris (1981), and van Hoek (1982) has been seminal with respect to the cataloguing and recording of sites. Their work has provided a large, and typically well-recorded, corpus of data that has created the basis for the latest research into interpreting these symbols. The work of Bradley has been particularly influential in this regard (e.g. Bradley 1997), and together with others (e.g. Waddington 1998b; van Hoek 2001), has anchored the study of rock art within landscape and contextual approaches.

As interest has grown and research papers have multiplied, key areas of debate have emerged. Perhaps the most crucial of these from the archaeological perspective is that of chronology. Without a sound grasp of the dating sequence of rock art, and the timing of changes in the circumstances and context of deployment, it is difficult to attempt meaningful interpretation as rock art sites must otherwise remain divorced from their contemporary context. It is just such a context which is required, however, if we are to reconstruct how these symbols were

deployed, experienced and construed. Furthermore, once a broad chronology has been established, then the search for regional sequences and the relationship with other rock art from Atlantic Europe can be attempted.

Understanding the associations between rock art and other aspects of material culture remains a tantalizing, and in some respects, contested area of study. For example, attention has been drawn to the relationship between the cup-and-ring repertoire and other forms of Neolithic material culture, such as arrowhead forms and ceramic styles, while the latest style of angular and geometric passage grave art has been related to Later Neolithic arrowhead forms and Grooved Ware pottery (Burgess 1990; Waddington 1998b; Bradley 1997).

Other important associations that require further research and debate include the linkage between quarried rock art panels from outcrop rock contexts and their re-use in later monuments of different forms and date. There is now clear evidence to show the use of cup-and-ring marked panels in monuments ranging from the 4th millennium cal BC to the beginning of the 2nd millennium cal BC. A general sequence that appears to hold true is that there is an early phase of rock art that occurs on natural outcrops of exposed rock; these carvings are then later incorporated into the full spectrum of Neolithic ceremonial monuments: from long cairns and stone circles to standing stones and henges. By the Early Bronze Age they are incorporated specifically within the burial monuments of the dead. The change in contextual associations through time was of course more complex than this, some outcrop rocks were clearly inscribed on more than one occasion, sometimes separated by long periods of time (see, for example, Waddington *et al* 2005), and some ceremonial monuments appear to have had carvings made on them only once the structure was in place. The overall sequence, however, remains secure and this throws out many questions relating to the issue of change in use, meaning, and significance through the period 4,000-2,000 cal BC. Understanding of symbols is largely formed through the context in which they are experienced, and it therefore follows that any changes in their context of deployment must be indicative of a deliberate change in significance, or in the message they were intended to convey (Figure 16). Changes in the context of rock art over time, therefore, provide a touchstone for identifying wider social change taking place throughout the Neolithic-Early Bronze Age periods.

Material culture

Lithics

Of the many lithics from the North-East, a proportion are from excavation, but many more come from field-walking and spot finds (Figure 17). With the increase of developer-funded archaeology, excavation is becoming increasingly important, although material derived from PPG16 sites are rarely adequately written up and published. Several individuals have made major surface collections: Joan Weyman in the Tyne Valley and Milfield Basin, William Cocks in the Lower Tyne Valley, and Francis Buckley along the Northumberland coast. These collections are all held in the Museum of Antiquities in

Newcastle. Another major collection made by Fritz Berthele on the sandstone escarpment east of the Cheviots is held at Chillingham Castle in Northumberland (Hewitt 1995).

In the Early Neolithic there are several innovations that serve to distinguish lithic technology from that of the preceding Mesolithic. There is a widespread adoption of grinding and polishing techniques, and polished stone axes replace Mesolithic flaked axe heads. There is also a more widespread use of pressure flaking, although there is a continued reliance on narrow blade technology. A number of new forms are introduced, including leaf-shaped and laurel-shaped arrowheads and invasively retouched sickles. The greatest changes appear to be among the most symbolically important tool types, such as axes, knives and arrowheads. The symbolic importance of axe heads is indicated by the likely votive cache found, probably in a ditch, at Heddon-on-the-Wall (Burgess 1984, 140; Sockett 1971).

Leaf-shaped arrowheads have often been found in association with late Mesolithic flint scatters, such as at Low Shilford (Weyman 1980) and Sandyford Quarry Field, Bolam (Waddington and Davies 2002). This suggests either an overlap of lithic technology or use of the same landscape areas in both periods. One of the most important assemblages of Early Neolithic date is the group of nearly 40 flints from Sandyford Quarry. This includes broken blades and flakes as well as a scraper, leaf-shaped arrowhead, core and retouched flakes and blades. It is assumed to be contemporary with the radiocarbon dates from the site of c. 3,700 cal BC (Waddington and Davies 2002). In the Late Neolithic and Early Bronze Age lithic technology shows an increased frequency of retouching and edge polishing, and there is a move towards irregular flakes rather than blade-based industries. This may be a reaction to a change in resource availability, with poor-quality local flint being replaced by high-quality imported flint. While the quality of many basic tools appears to decrease, high levels of workmanship continue to be found in items with a greater symbolic value, such as arrowheads, plano-convex and discoidal and polished knives, adze blades, maceheads, and polished stone and flint axes. The symbolic importance of objects such as barbed and tanged arrowheads is indicated by their frequent appearance in Beaker Burials, and the presence of five untouched arrowheads from Pit VI at Milfield North (Harding 1981). Cruder flint objects are also known from burial contexts, however, such as the roughly worked flints from the Sneep, Bellingham, and Haugh Head, Wooler (Waddington 2004, 65, 81).

Axes and axe hammers come from a variety of sources in this period, the majority from the Group VI Langdale sources of Cumbria. Others are derived from more local sources, such as Group XVIII Whinstone (stone type from Northumberland) (Clough and Cummins 1979) and Cheviot Andesite, probably from the Upper Ingram Valley (Waddington and Schofield 1999). Occasional, more surprising sources are also identified, such as the limestone axe from Milfield.



Figure 17 Worked flint from the burial cist excavated at Fulforth Farm, Witton Gilbert (Co. Durham). Not to scale. © Archaeological Services Durham University

Pottery

The earliest pottery in the region is Early Neolithic Grimston Ware. Vessels of this type are thick-walled and well-made with out-turned or rolled-over rims. There is usually no decoration but some evidence for burnishing and the fabric is usually tempered with crushed sandstone or quartz. Diatom analysis of the fabric of examples from Milfield suggests that the clay came from the River Till, indicating local production (Gibson 1986). In Northumberland there is a cluster of sites yielding Grimston Ware in the Milfield Basin (e.g. Waddington 2000b). Other findspots include Old Bewick, Bolam Lake, Harlow Hill and Hasting Hill. Dating for this ware comes from a series of radiocarbon dates from Coupland which place it in the early 4th millennium (Waddington 1999, 134-135, Appendix 8). Impressed Ware (sometimes known as Peterborough Ware) came into use in the North-East in the Middle Neolithic (c. 3,000 BC). Thicker than Grimston Ware, it often has impressed patterns made with the finger tips and twisted-cord decorations, and may be burnished. The main regional variant is Meldon Bridge Ware, which has its type-site in Peebleshire (Burgess 1976). This fabric contains large fragments of crushed stone and organic temper. Again, there is a focus in distribution around the Milfield Basin, but this pottery is also known from Allendale, Alnwick and the Ford-Crookham vicinity (Waddington 2000b, 9-10). In County Durham, four sherds of probable Meldon Bridge Ware have also recently been found at Mountjoy, Durham (Waddington 2005).

Manby (1999) listed eight sites from Northumberland which had produced Grooved Ware, but a recent reassessment by Alex Gibson has suggested that the pottery from Milfield North, Yeavinger Henge, Thirlings, and Whitton Hill is more likely to be of Bronze Age date, with the pottery from Milfield

North bearing decorations similar to that found on Bronze Age food vessels (Gibson 2002). He accepted, however, the Grooved Ware from Ewart and Old Yeavinger, and two more sites from the Milfield Basin area have now also been added to the corpus (Clive Waddington pers comm).

Beakers appear in the region around 2,500 BC, and include some of the earliest in the British Isles. A full range of Beakers are known including long-necked, short-necked, bell, and rusticated beakers, and all-over cord-decorated examples. These have zone decoration, a thin fabric, bulbous profile, and a flat base. Although widely found in the region, many vessels come from antiquarian excavations. There is only one radiocarbon date for a Beaker context, a pit from Wether Hill (Northumberland) which was later re-used to deposit Bronze Age food vessels (Topping 2004). The major overview of these vessels is Tait's *Beakers from Northumberland* (1965), although it is now out-dated.

Food vessels were introduced around 2,000 BC. They have a wide regional distribution; recent examples include fragments from the Howick cist cemetery, a site which had produced examples previously (Waddington *et al* 2003). Another recent example is that from Goatscrag, which contained cremated human remains (Burgess 1972). As mentioned above, a number of fragments were recovered from a pit at Wether Hill. It has been suggested by Alex Gibson that the similarity of two vessels at Bolton and Lowick implies they were made by the same potter (Gibson 2002). Cinerary urns are also widely distributed in the region. A broad overview of Bronze Age pottery in the region was published by Alex Gibson in 1978, though this is now in need of revision.

Metalwork

In the early Bronze Age, the first bronze objects were simple flat axes and occasional riveted axes, such as that found at Barrasford (Northumberland). The majority are casual spot finds though the improved recording of metal detector finds has led to an increase in the recovery of such objects (Philippa Walton pers comm).

In addition to bronze work there is a range of good quality gold objects from the region. Gold beads were found in a barrow burial at Corsenside in 1814 (Hodgson 1827, 167), and rings have been found at Alnwick (along with a vessel and a bronze axe) (Maryon 1937), Heathery Burn (Greenwell 1894), Stamfordham (Gray 1925). A gold basket earring was found in a barrow at Kirkhaugh in association with an all-over corded beaker (Cowen 1966; Figure 18).

In addition to lithics, ceramics and metalwork, other artefacts have been found in contexts suggesting they date to this period. Jet objects are known from a number of sites including Chatton Sandyford, Kyloe, Capheaton, Yeavinger, and Blawearie (Jobey 1968; Brewis 1928; Tait 1965, 15-16; Greenwell 1877, 418-420). Amber beads of probable Bronze Age date have been found at Old Bewick, Belsay, and Simonside. There is increased evidence for the funerary use of ochre, which has now been found on top of cist covers at Howick and at Hunterheugh (Waddington *et al* 2003; Clive Waddington pers comm). A small number

of the enigmatic carved stone balls found widely Scotland are also known from North-East England. Type 4a stone balls have been recorded from Hetton and Houghton-le-Side, and several other similar stone balls are in private hands (Speak and Aylett 1996).



Figure 18 Gold earring (magnified here) discovered in a barrow at Kirkhaugh (Northumberland). © Museum of Antiquities, Newcastle

Organic remains from this period are sparse. A few antler tools are held in the Berthele Collection, though their precise date and context is uncertain. A 2m stretch of Neolithic wattle hurdling found in the Hartlepool submerged forest is probably all that remains of a fish trap (Waughman 2005; Figure 4). A tree-trunk coffin radiocarbon-dated to c. 2,400-2,200 cal BC was found at Cartington, and other similar but undated coffins have been found at Wydon Eals, near Haltwhistle (Jobey 1984).

Major museum and archive collections

All of the regional museums hold some prehistoric material. On Teesside some important material is held by Tees

Archaeology, including the objects from Street House Farm and Ingleby Barwick. In Middlesbrough the Dorman Museum holds the artefacts from Frank Elgee's excavations at Eston Nab, and also material from excavations undertaken by William Hornby and John Laverick on Bronze Age burial mounds near Hinderwell Beacon and Loftus. Other holdings include material from Hinderwell Beacon and finds from Socket's excavations at Mount Pleasant in the Eston Hills. The finds from Harriet Elgee's excavations at Loose Howe are in the British Museum in London. In Durham the two collecting museums are the Bowes Museum and the Old Felling Museum, where collections are relatively small, though the Gilmonby Hoard is held at the Bowes.

The Museum of Antiquities in Newcastle holds a significant collection of over 170 Neolithic stone axes and a collection of pottery of a similar date, including Grimston Ware and Grooved Ware. The Bronze Age is also well represented with over 100 vessels (many intact) and 160 weapons and tools, including the Ewart Park Sword. The museum also holds the Bronze Age tree coffin from Cartington. A small number of prehistoric objects are held at the museums at Arbeia and Segedunum, mainly objects found on the sites themselves or in the immediate area. A larger collection is held by Sunderland Museum, including pots from Whickam and finds from Hasting Hill. A large quantity of flint found during excavations on the Roman villa at Old Durham is also held there, although it is not clear whether this is Mesolithic or Neolithic in date.

Alnwick Castle Museum holds a number of complete or nearly complete vessels from 19th-century barrow digging, all from Northumberland and mainly from sites on estates owned by the dukes of Northumberland, for example, from Rothbury and Longhoughton (Collingwood Bruce 1880). A number of stone hammers from similar areas could at one time also be found there, together with bronze objects, including axes, spearheads, swords from Great Tosson, Whittingham, Chatton and South Lyham, and shields from Inghoe and Aydon Castle. Another important private collection is the Fritz Berthele Collection of flints, now held at Chillingham Castle (Hewitt 1995). A small quantity of material is also held in the British Museum, including the Heathery Burn hoard, and vessels and objects from a number of burials, including Great Tosson, Copt Hill, Blawearie and Black Howe.

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5. Resource assessment: Later Bronze Age and Iron Age

The Late Bronze Age and Iron Age Specialist Group consisted of Colin Haselgrove (Dept of Archaeology, University of Leicester), Iain Hedley (Northumberland National Parks Authority), David Heslop (Tyne and Wear Museums Service), Rachel Pope (Dept of Archaeology, University of Leicester), and Rob Young (Northumberland National Parks Authority).

History of research

The study of later prehistoric period in North-East England has often seemed overshadowed by work on the preceding Neolithic and Early Bronze Age periods and the succeeding Roman era; both periods which left upstanding and often spectacular archaeological remains. Nonetheless, the archaeology of the Late Bronze Age and Iron Age in the region is well excavated and published, with a reasonable understanding of most areas (Haselgrove *et al* 2001, 24-25). In particular, the advent of PPG16 and the increase in development-led archaeology in the last decade has promoted the excavation of important settlement sites using open-area techniques, allowing them to be understood in their wider landscape context. Recent excavations at Ingleby Barwick (Teesside), Faverdale and Darlington (Co. Durham), and the Newcastle Great Park show there is no decline in the pace of investigation (Figure 19).

For much of the 19th and 20th centuries, archaeological research did not focus on later prehistory; the emphasis at the universities of Newcastle and Durham was traditionally on Roman military and Anglo-Saxon ecclesiastical archaeology. Although there was a small amount of 19th-century antiquarian work, such as the plans of hillforts drawn by the Duke of Northumberland's antiquarian, Henry MacLauchlan (MacLauchlan 1919-22, 469), there was little significant archaeological endeavour. Notable exceptions include the Berwickshire Naturalist's Club, which led to the pioneering work of George Tate in the 1860s (Tate 1863a; 1863b) and Revd George Rome Hall (in the 1880s) on native settlements in Northumberland (e.g. Hall 1879).

During the 1930s important work continued in Northumberland, including Thomas Wake's investigations at Witchy Neuk, and those of Howard Kilbride-Jones at the Roman Iron Age settlement at Milking Gap (Wake 1939; Kilbride-Jones 1938). The first major phase of research into this period, however, only commenced after World War II. The most important figure in establishing later prehistory as a significant field of study in the region was George Jobey, who was probably inspired by work carried out in the Scottish Borders by Peggy Piggot, Kenneth Steer and Richard Feachem in the 1940 and 50s (e.g. Piggot 1948; Steer 1949; Feachem 1956; 1960). Following his appointment as a tutor in the extramural department at King's College, Newcastle (later the University of Newcastle), Jobey excavated major sites at Huckhoe, West Brandon, High Knowes, Hartburn and Belling Law (Jobey 1959; 1962; 1968; 1973a; 1977). Following the establishment of the Department of Archaeology at Newcastle in the early 1970s he was appointed first to a Readership and then to a

personal Chair in Prehistoric Archaeology. The importance of Jobey's work centres on his systematic classification of the numerous, and previously largely ignored, native sites in the area, testing out hypotheses against excavation work and developing a chronology for the prehistoric period. Although best known for his work in the Cheviots, he also studied sites in lowland areas, such as Burradon, Hartburn and Marden (Haselgrove 2002, 57; Jobey 1963; 1970; 1973a).

To the south of the Tyne there was no equivalent to the work of Jobey in the 1950s to 1960s. In the following decade, however, the work of Denis Coggins in Teesdale culminated in an MA thesis at the University of Durham (published in 1986) which laid the groundwork for the study of the later prehistory of parts of the North Pennines. Coggins collaborated with Kenneth Fairless on several key sites, including Forcegarth Pastures (Fairless and Coggins 1980; 1986) and Bracken Rigg (Coggins and Fairless 1983), who was to write his PhD thesis on the Iron Age in the North-East (Fairless 1989). There has been little work on the North Pennines outside Teesdale, however, though Rob Young and Jane Webster are currently excavating on Bollilhope Common (Young and Webster in prep).

In the lowlands of Durham, the increased number of aerial photographs of the area in the 1970s began to enhance the knowledge of a poorly understood area (e.g. Harding 1979). A more detailed understanding of the archaeology of the region was provided by the Durham Archaeological Survey (1983-87), which took five study areas (c. 250 sq km) and field-walked around 5% (c. 10% of available arable land) (Haselgrove *et al* 1988). Only a small quantity of later prehistoric pottery was recovered, however, and Haselgrove has expressed scepticism about the use of field-walking in identifying settlements of this period (Haselgrove 2002, 54).

Overall, the contribution of aerial photography has been extremely significant in expanding our knowledge of later prehistory, with individual flyers focusing on specific regions, for example, Norman McCord (1991) and Tim Gates in Northumberland (2004); Raymond Selkirk (1983) and Denis Harding (1979) in County Durham; and Blaise Vyner and Leslie Still on Teesside (Still and Vyner 1986; Still *et al* 1989). In Central Durham and Teesside, for example, aerial photography has revealed the cropmarks of a series of rectilinear enclosures (Haselgrove and Allon 1982, 26-27, fig 1). Several of these have now been excavated, including Coxhoe, West Brandon and Thorpe Thewles (Haselgrove and Allon 1982; Jobey 1962; Heslop 1987). Whereas sites such as Coxhoe and Shadforth are situated on the boundary between the boulder clay deposits and the Magnesian Limestone, similar enclosures are largely absent from the Magnesian Limestone Plateau itself.

The advent of PPG16 has led directly to changes in the excavation strategies used to explore later prehistoric sites. The routine use of geophysical survey as a prospection tool in advance of green-field development is

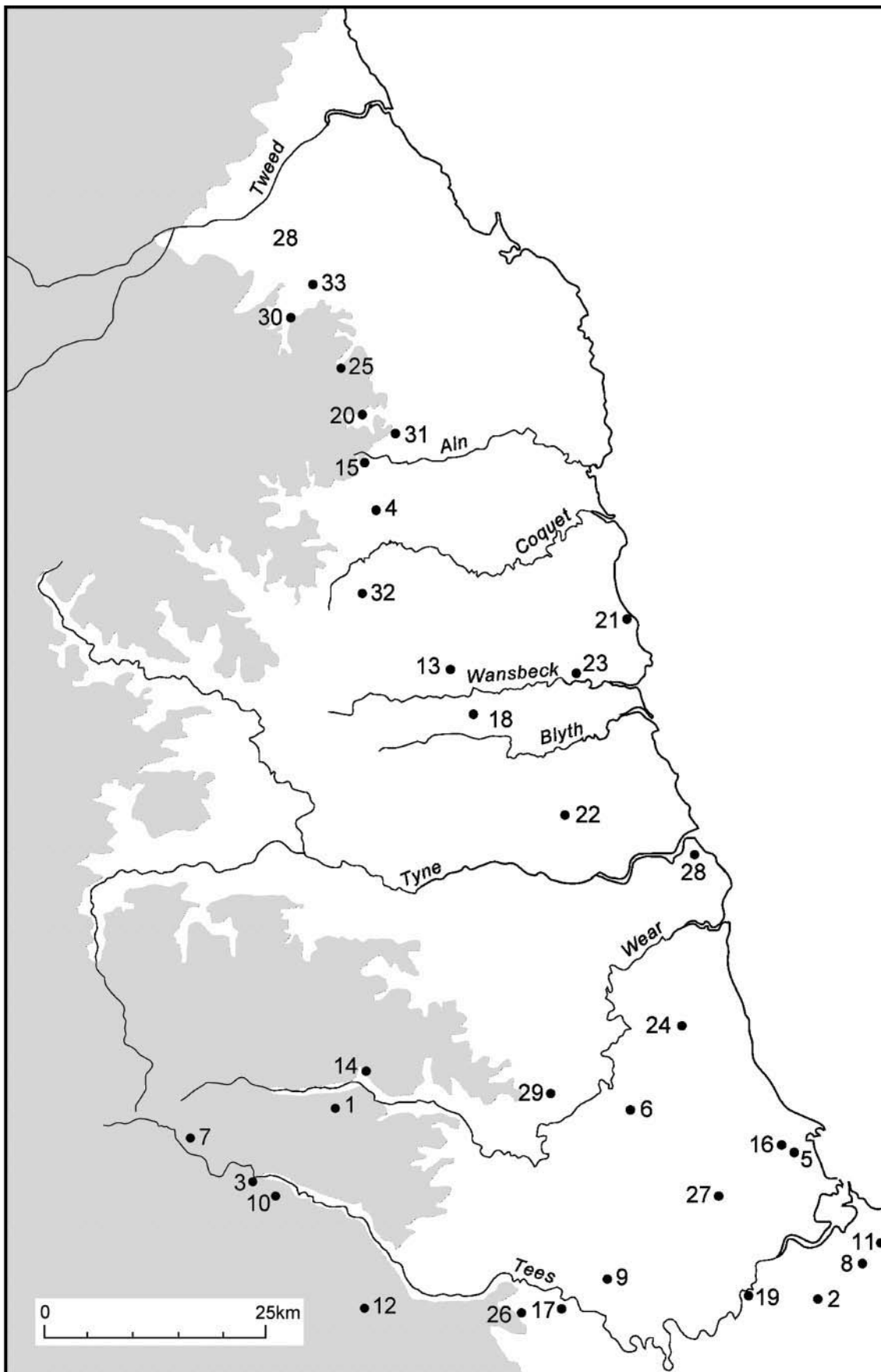


Figure 19 Key Late Bronze Age and Iron Age sites mentioned in text: (1) Bollihope Common, (2) Bonnygrove Farm / Dixon's Bank, (3) Bracken Rigg, (4) Burradon, (5) Catcote, (6) Coxhoe, (7) Dubby Sike, (8) Eston Nab, (9) Faverdale, (10) Forcegarth Pastures, (11) Foxrush Farm, (12) Gilmonby, (13) Hartburn, (14) Heathery Burn, (15) High Knowes, (16) High Throston, (17) Holme House, (18) Huckhoe, (19) Quarry Farm, Ingleby Barwick, (20) Linhope Burn, (21) Marden, (22) Newcastle Great Park, (23) Pegswood, (24) Pig Hill, Haswell, (25) Standrop Rigg, (26) Stanwick, (27) Thorpe Thewles, (28) Vaux Brewery, Sunderland, (29) West Brandon, (30) West Hill, Kirknewton, (31) Wether Hill, (32) Witchy Neuk, (33) Yeavinger Bell (map drawn by Yvonne Beadnell)

helping to find new sites, for example. In 2004 survey at Faverdale, near Darlington, revealed a Late Iron Age farmstead and field system which was not visible as a cropmark, despite aerial photographs showing enclosures to the immediate north. 'Strip and record' techniques have also been on the increase and reveal the complexity of late prehistoric landscapes in the lowlands. Such approaches, however, are reliant on large-scale development, and are intensive in terms of manpower and finances.

Existing research frameworks

A more detailed list of regional research topics is provided by Colin Haselgrove in his overview of Late Bronze Age and Iron Age lowland archaeology (Haselgrove 2002). The same volume also contained suggestions for further research on the uplands (Welfare 2002). Other topics were put forward by Frodsham when setting the agenda on the prehistory of 'Central Britain', whereas the Iron Age topics for research were written firmly in the context of the National Park's *Discovering Our Hillfort Heritage* project (Frodsham 2000). The Iron Age to Roman transition is addressed by Creighton (2001).

Subsistence practices

Environmental evidence for the later prehistoric period in the North-East is hugely varied. Patterns of clearance are known in the early 1st millennium AD, but due to the uncertainty inherent in radiocarbon dating it is not easy to distinguish between pre- and post-conquest clearances at a high degree of resolution. Work carried by Lisa Dumayne, however, has clarified changing patterns of vegetation along parts of Hadrian's Wall during the Roman period (Dumayne 1992; 1993a; 1993b; 1994). This work particularly attempted to address the impact of the Roman conquest on the environment. Work by Richard Tipping (1997) has suggested, on the other hand, that the increase in agriculture in the region dated to the Late Iron Age and was not related to the impact of Roman settlement, an opinion now echoed by McCarthy and Huntley (McCarthy 1995; 1997; Huntley 2002).

Evidence from plant macrofossils has also been of assistance in determining patterns in farming. Bronze Age sites such as Eston Nab (Teesside), Hallshill (Northumberland), and Whitton Hill site 2 (Northumberland) produced a range of cereals, including emmer wheat, barley and small amounts of spelt (Vyner 1988a; 1988b; van der Veen 1984; 1992). Hazelnuts continued to be an important part of the assemblage at Eston Nab. There are also a number of assemblages of Iron Age date, of which Thorpe Thewles (Cleveland) is the most extensively sampled; that site produced spelt wheat and 6-row barley (van der Veen 1987). At Eston Nab the assemblage varied so greatly from that of the Bronze Age that a lack of permanent occupation was suggested (van der Veen 1988a). Hillfort assemblages from Dod Law and Murton in Northumberland were dominated by hulled barley (Smith 1988-89; van der Veen 1985). There is also an increasing number of small Iron Age assemblages being recovered, especially in Tyne and Wear; these show a recurring pattern of spelt/6-row barley, with more barley to the north of the area (Pratt 1996; Huntley and Stallibrass 1995; van der Veen 1992; Jacqui Huntley pers comm).

Bone survival in the acidic soils of northern Britain is, in general, poor. The most important animal bone report for an Iron Age assemblage is that for the farmstead at Thorpe Thewles (Teesside), which suggests a shift of emphasis from cattle to sheep farming (Rackham 1987b). Full analysis of the assemblage from Catcote, also in the lowland area of Cleveland, will also be extremely significant once published. A small assemblage is also known from Coxhoe (Co. Durham) (Rackham 1982a), while assemblages of calcined bones have been found at Kennel Hall Knowe and Dod Law West (both in Northumberland) (Rackham 1977; Smith 1988-89). The wider picture appears to show a shift in cattle husbandry from a dairy regime to one focused on the production of beef. More recently, however, less work has been undertaken on animal bone from archaeological sites of this period, possibly in response to financial pressures to minimise post-excavation research on developer-funded sites (Hambleton 1999).

Agriculture and landscapes

There is a high degree of regional variation in the survival of later prehistoric field systems in the North-East. In lowland areas they are highly degraded and often known only through aerial photographs. This contrasts with better-preserved upland networks, though in neither case have field systems been recorded in detail.

In the lowlands, further systematic plotting of existing aerial photographs would undoubtedly reveal more systems. Geophysical work around some sites, such as Dinnington in County Durham (Biggins *et al* 1997), already shows evidence for the presence of linear pit alignments which may have served as some kind of land division. Large open-area excavation at a number of sites across the region, including Faverdale (Co. Durham), has also revealed networks of paddocks and small fields around some settlement sites, although there is no indication of how far these might spread.

In the uplands, particularly in Northumberland, aerial survey has been crucial (Gates 1997; 1999; 2000) and reveals some relative dating information. For example, at Greenlee Lough, cord rig is overlain by a Roman camp, and at Cawfield Shield a Roman aqueduct cuts through the cord rig (Gates 2004, 243, fig 16.3). Field systems also survive, often associated with hillforts, such as West Hill, Kirknewton (Oswald 2004b). Cord rig and lazy beds also appear to be associated with Wether Hill. There are also large areas of cord rig and terracing in Coquetdale and other parts of the National Park. These earthworks are of national importance, but remain frustratingly undated. Some field systems also survive in the North Pennines, for example, and close to Stanhope there are surviving coaxial field systems linked to hillside lynchets (Rob Young pers comm).

Settlement

Despite the increasing quantity of work on later prehistoric settlement archaeology in the North-East, the archaeological record is still heavily biased towards the later Iron Age (though for earlier periods see Pope 2003), and wider syntheses of settlement archaeology in the region tend to

focus on this later period (e.g. Ferrell 1992; Haselgrove 2002; van der Veen 1992).

Cleveland and east Durham

In the lowland areas in the south and east of the region later prehistoric settlements are known mainly through aerial photographic coverage (Selkirk 1983; Still and Vyner 1986; Still *et al* 1989). This evidence suggests a tendency towards rectilinear enclosed settlements, although this may simply reflect the relatively better visibility of such sites as cropmarks over simpler palisaded or unenclosed occupation sites. The use of aerial photographic evidence has also led to an emphasis on the morphological characteristics of the site, perhaps unduly so. Not only is it impossible to explore development over time of a site from cropmark evidence alone, but also cropmarks are only partial reflections of underlying features, and there may be hidden complexity which is only revealed after appropriate archaeological intervention.



Figure 20 Aerial photograph of excavation of Iron Age settlement features at Pig Hill, Haswell (Co. Durham). © Transco

The better-excavated sites are mainly found in Cleveland and the south of the region, the most significant being Thorpe Thewles, Catcote, Foxrush Farm (Redcar), Holme House (Piercebridge), Dixon's Bank and Bonnygrove Farm, and Ingleby Barwick (Heslop 1987; Long 1988; Vyner and Daniels 1989; Harding 1984; Annis 1996; ASUD 2000c). Slightly to the north, sites have been excavated at Coxhoe, West Brandon, and Pig Hill, Haswell (Haselgrove and Allon 1982; Jobey 1962; Figure 20), although very little evidence has been recorded between the Wear and the Tyne. This may reflect the destruction and disturbance caused by post-medieval development, particularly the coal industry.

Nonetheless, the recent excavation of an Iron Age settlement beneath the Roman fort at South Shields indicates that later prehistoric sites do survive, even in the heart of heavily built-up areas (Hodgson *et al* 2001). Notably, almost all the excavated sites mentioned above are of Late Iron Age date, with little excavated evidence for earlier occupation.

Several broad patterns emerge. Rectilinear enclosures (c. 0.25-1ha) appear to predominate, but unenclosed settlements are also known, such as at South Shields (Hodgson *et al* 2001). Clearly there is no simple dichotomy between enclosed and unenclosed settlements; sites can be traced through several stages. At Thorpe Thewles, the ditch surrounding the earlier settlement was filled in, leading to a period of open occupation (Heslop 1987). In contrast, West Brandon and Rock Castle both began as unenclosed settlements before being surrounded by palisades, and later ditched enclosures (Jobey 1962; Fitts *et al* 1994).

Later prehistoric settlements were often situated within a wider network of landscape features. At Dinnington, a geophysical survey showed a rectilinear Iron Age enclosure related to a pit alignment (Biggins *et al* 1997) that may date to the Iron Age, though the date of such features can vary widely (Waddington 1997a). In some cases these boundaries may predate settlement indicating that the sites were placed within a landscape which had already been opened up and divided for land use. Elsewhere small settlements seem to be related to more developed field systems, such as the ladder systems associated with dispersed Iron Age occupation at Faverdale, Darlington, or the small field systems near the settlements at Ingleby Barwick and Thorpe Thewles (Heslop 1987). At Dixon's Bank, geophysical survey shows a complex system of ditches and pits forming a series of enclosures and routeways (WYAS 2002).

There is no continuity into the Roman period in many cases; only some of the larger sites, including Catcote, Thorpe Thewles and Ingleby Barwick, seem still to be present in the 1st or 2nd centuries AD. This contrasts with the pattern in North Yorkshire, where continuity occurs on a wider range of sites. On Teesside nearly all known Roman sites appear to have had an Iron Age predecessor.

The evidence for a settlement hierarchy in the region is slight (Ferrell 1992; 1997) although a number of sites may be more than simple enclosed or unenclosed settlements. Where evidence exists, these sites appear to date to the beginning or end of the later prehistoric period. For example, although just outside this region, the oppidum at Stanwick clearly had a significant regional importance (Haselgrove, Fitts and Turnbull 1991; Haselgrove, Turnbull and Lowther 1991; Haselgrove forthcoming). Although settlement was long-lived, it appears to have flourished in the 1st century AD. By contrast, the earliest defences at the hillfort at Eston Nab were Late Bronze Age in date; there was also an Early Iron Age boulder wall and an early 5th century BC ditch and bank (Vyner 1988a). Evidence from sites like these suggests that, throughout most of later prehistory, the region was weakly centralised and may have been based on household groups,

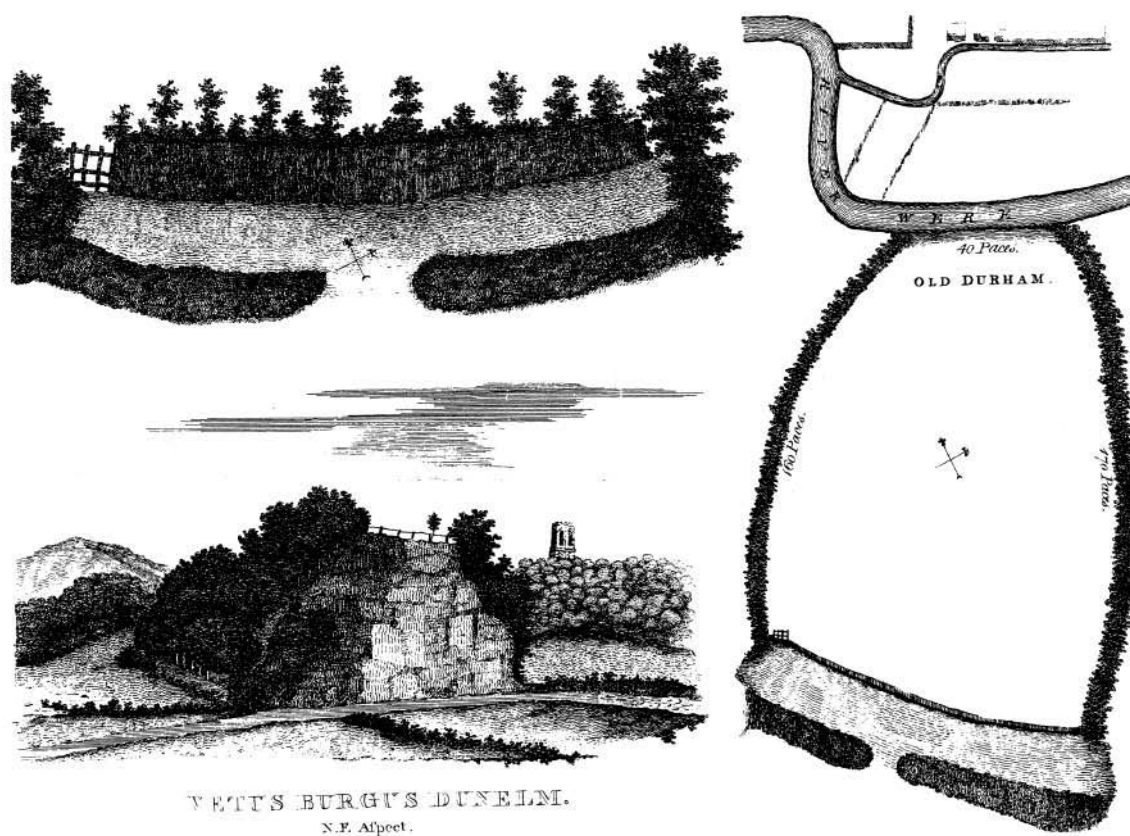


Figure 21 'Sketches of the defensive lines of Maiden Castle' (Co. Durham): An example of antiquarian interest in the late prehistoric archaeology of County Durham. From Surtees 1972, 90

interconnected by the loose ties of kinship and personal affiliation. A small number of other possible hillforts or 'central places' are known, such as Maiden Castle, Durham, Castle Levington and Shackleton Hill, Heighington, but these are very poorly understood (Figure 21).

North Pennines

The North Pennines form a distinct block of uplands to the west of Durham, between Stainmore and the Tyne valley. As with other upland areas, the surviving later prehistoric remains here have survived mainly as upstanding features in open moorland. In the south of the area, the archaeology of Teesdale has been dominated by the work of Denis Coggins, who identified and excavated a series of sites, including Dubby Sike (Gidney and Coggins 1988) and Forcegarth Pastures (Fairless and Coggins 1980; Coggins 1986). In Weardale, further late prehistoric sites are also known. Rob Young has identified a number of possible sites (e.g. Young 1993), and he is currently excavating a Late Iron Age/Romano-British site on Bollihope Common (Manchester *et al* nd) (Figure 22). Survey work has also been carried out in Stanhope Park (Nichol 2004). There has been much less investigation in the northern part of the North Pennines AONB, with Allendale being a particular lacuna.

The archaeological evidence has shown that simple settlements tended to be small in scale, with only a few houses, often surrounded by an enclosure. Excavation at Bollihope suggests that the enclosure was preceded by a shallow cobbled feature. In general there is a lack of obvious hut clusters. Despite the upland nature of the

landscape, and in notable contrast to the Cheviots, there appear to be no hillforts in this area, though there is an intriguing undated ditched-and-banked enclosure at High Northgate, near Rookhope.



Figure 22 Round house excavated on Bollihope Common (Co. Durham). © Rob Young

Coastal and south-east Northumberland

Most of the recent work on the later prehistoric archaeology of Northumberland has focused on the south-east of the region. Early work by Jobey at Burradon, Hartburn, Huckhoe and Marden (Jobey 1959; 1970; 1973a) has already been touched upon. Most of these sites were small enclosures, probably sufficient for only one household. The site at



Figure 23 Excavation of a post-hole from House 1 at West Brunton, Newcastle Great Park, (Tyne and Wear). It contains a beehive quern re-used for packing. © Tyne and Wear Museum

Burradon was larger in size, and contained several round houses, though it is not clear whether more than one was occupied at any one time. It was also distinguished by its double rectilinear enclosure, though it is likely that here, as elsewhere, the initial phases of settlement were unenclosed.

A further series of sites have been excavated recently, including Pegswood (Proctor 2002) and West Brunton Farm and Hawthorn Farm at Newcastle Great Park (Steve Speak pers comm; Figure 23). Modern, open-area techniques are revealing much of their landscape context. All were located within complex networks of enclosures, although there is less evidence for the incorporation of larger linear ditches into these field networks than at similar sites to the south of the Tyne. All three have also produced evidence for iron smithing. The excavation of these sites reflects the current phase of large-scale development in the south-east of the county.

Extensive geophysical work at Dinnington (Tyne and Wear) has revealed a complex site, with a series of round houses, and a rectilinear enclosure (Biggins *et al* 1997). Most of the houses are outside the enclosure, and there was clearly a long phase of replacement of houses. There appears to be a clear emphasis on post-hole construction with a separate drip gully, as at Coxhoe (Haselgrove and Allon 1982, 34).

All these examples show the importance of detailed investigation outside the boundaries of settlements. The excavation of larger areas has also led to improved understanding of the chronological complexity of such sites. Whereas rectangular enclosures often follow a

period of open settlement, the absolute chronology for such developments remains unclear. Most sites show a complex sequence of intercutting round houses, though it is possible that at some larger sites several houses could be in use at any one time. There appears to be a notable lack of datable material after the Antonine period, and it is not yet clear whether this implies site abandonment or a decreased access to Roman material culture.

Although most occupation appears to be on a domestic scale, there is some evidence for larger settlements. The round houses discovered at Tynemouth may be an indication of a coastal promontory fort, though they could be of Romano-British date (Jobey 1967). A recently excavated site at the Vaux Brewery, Sunderland, has revealed a Late Bronze Age enclosure overlooking the River Wear (PCA North 2004). There may also have been some form of larger fort or enclosure at Dunstanburgh, which has in the past produced late Iron Age metalwork (Bosanquet and Charlton 1936), and where recent survey work has recognised a bank outside the south curtain wall as probably pre-medieval (Oswald 2004a). In the north of the coastal zone, Dod Law West has mid 3rd century BC ramparts (Smith 1988-1989). There are, however, no equivalents of the large, fortified sites found in Scotland, such as Eildon Nab or Traprain Law.

Cheviots and Northumbrian uplands

In the uplands of the Cheviots extensive remains of presumed later prehistoric date can still be seen. Much of the groundwork for the study of the region was laid by the work of George Jobey, though he himself was advancing

earlier work carried out in the 19th century by George Tate and others. In more recent years, a series of related projects has been carried out under the auspices of the Northumberland National Park. In particular, the aerial photographic survey carried out by Tim Gates of the Hadrian's Wall corridor, the College Valley and the Otterburn training area has exposed the complexity of the relict landscapes of these upland areas, placing previously known sites within a dense landscape of other features (Gates 1997; 1999; 2000; 2004).

In the Early Iron Age some unenclosed settlements are known, such as the timber houses on the summit of Wether Hill (Topping 2004) and the settlement at Linhope Burn (Topping 1993). There appears to have been a later phase of small, enclosed settlements. In the south of the area enclosures were mainly rectangular, whereas north of the Coquet there are more curvilinear enclosures or simple scooped settlements. In some cases, however, more than one phase of enclosure is known, such as at Fawdon Dean, where an earlier 'egg-shaped' enclosure was replaced by one more rectilinear in form (Frodsham and Waddington 2004, 184-187). This shift may have occurred in the early Roman period. It is likely that there was similar broad continuity elsewhere, and later prehistoric sites have been found beneath Romano-British settlements at both Hetha Burn and Kennel Hall Knowe (Burgess 1984, 168; Jobey 1978).

As well as these smaller farmsteads, the Northumberland uplands are notable for the survival of a significant number of hillforts. Recent work by the Northumberland National Park's important *Discovering Our Hillfort Heritage* project has increased our knowledge of these monuments (Ainsworth *et al* 2002; Frodsham *et al* forthcoming; Oswald *et al* 2000; Oswald and McOmish 2002a; 2002b). Although there is a considerable local variation in the shape, situation and layout of the hillforts, there is enough consistency to suggest they are all drawing on the same broad tradition (with the exception of Yeavinger Bell). In some areas the distribution of sites seem relatively dense, such as along the valleys of the Cheviots; there are ten hillforts in both the Breamish and College valleys.

The chronological development of hillforts is complex. Some sites, such as High Knowes and West Hill, Kirknewton, appear to have been preceded by a palisade (Jobey and Tait 1966; Oswald 2004b). In some cases, as at Harden Quarry, Biddlestone, the site did not develop further (Frodsham 2004, 40). At others, palisades were succeeded by stone ramparts. Piggot's 'Hownam sequence' has been a very influential model in describing the development of hillfort activity (Piggot 1948), though few sites have detailed and well-understood chronologies; indeed, the only hillfort in the region with radiocarbon dates is Brough Law (Jobey 1971).

One hillfort which stands out due to its sheer size compared with the others is Yeavinger Bell. At over 5ha in area, it contains about 130 house platforms. This site has been the subject of a recent survey (Pearson 1998), while earlier work placed it in its wider landscape context (RCHME 1986). Excavations took place on the hillfort in the 1950s and the pottery was reassessed in 1990 (Ferrell 1990).

Once again, the aerial photographic work of Tim Gates and the various surveys related to the *Discovering Our Hillforts Heritage* have been particularly useful in helping to understand the contexts of hillforts. For example, West Hill can be seen to stand within a system of fields and linear features (Oswald 2004b, 206, fig 13.8).

Trade, transport and communications

There is some limited evidence for long-distance trade and exchange in the later prehistoric North-East, although it does focus on the later part of the period.

There may have been localised trade in dolerite-tempered and calcite-tempered pottery (Evans 1995; Willis 1999). Roman imports, including Samian, Gallo-Belgic amphora and wares, were reaching Stanwick in significant quantities in the Pre-Roman Late Iron Age, although little of this material reaches its hinterland, beyond occasional imported ceramics at Catcote and Thorpe Thewles (Evans 1995).

Ceramic evidence has also indirectly provided evidence for another traded good: salt. Briquetage has been found at Stanwick and Kilton Thorpe amongst other sites (Willis 1999; forthcoming). Kilton Thorpe has also produced coarse pottery pillars related to the process of salt production. This suggests a local salt industry, probably close to the later salt industries around the mouth of the Tees, perhaps at Coatham. Despite their weight, there is evidence that querns might also have been traded, and important sites such as Stanwick have produced a range of quern stones from different sources (Gwilt and Heslop 1995; Haselgrove 2002, 67-68), though in other areas, such as Teesdale, analysis has shown that most beehive querns were derived from local sources of stone.

It is difficult to reconstruct Iron Age routeways. On the edge of the North York Moors, around Percy Rigg and Kilburnthorpe for instance, they may have acted as corridors between the moors and the coast. It is also possible that some Roman roads may have followed pre-existing late prehistoric alignments, though this is speculation.

Religion and ritual

Unlike earlier prehistory, the later Bronze Age and Iron Age are notable for their lack of monumental religious sites. The focus should perhaps be on ritual activity rather than ritual sites. Even burial sites are rare. An unusual square barrow burial was excavated at Alnham by George Jobey (Jobey and Tate 1966), while possible Iron Age burials have been found at Catcote (Teesside) (Long 1988, 18), and a cave burial from Bishop Middleham is probably also of Iron Age date (Raistrick 1933b). Datable evidence for mortuary behaviour is slight, however. Some inhumations in barrows may be of late Bronze Age or Iron Age date, though it is most likely that the majority of bodies were disposed off in an archaeologically invisible way, such as excarnation or unurned cremation. The main form of ritualised activity appears to have been the placing of hoards. The best-known examples of this hoarding tradition are Late Bronze Age, such as Heathery Burn (Co. Durham) and Gilmonby (Co. Durham) (Greenwell 1894; Coggins and Tylecote 1983). The context of the hoards varies;

the Heathery Burn hoard was from a cave, but many were from more watery contexts. The hoards from Wallington, Whittingham and Corbridge (Northumberland) were all found in boggy land or during drainage works. The structure of these depositions could be complex, as was shown at High Throston (Teesside) where a range of bronze and jet objects were found with ash, burnt bone and a pot (Daniels 2003).

This practice of votive deposition continued into the Iron Age and on into the Roman period (Hunter 1997). For example, a sword was found in a probable riverine context at Sadberge (MacGregor 1976, 156). Other finds from a similar context are also known from the Tyne (Miket 1984b). Although the main form of deposited object seems to have been metalwork, other items have been recorded in a probable ritual context. For example, the *Yorkshire Quern Survey* notes the probable hoarding of querns from a number of places such as Hutton Rudby, though this practice seems more common to the south of the region in North Yorkshire (David Heslop pers comm). There is also evidence for the careful placing of objects in ditch terminals, pits and similar locations from Doubtstead, Coxhoe and Burradon (Jobey 1970, 1982; Haselgrove and Allon 1982), as well as for more subtle, structured, organising principles which may have possible ritual dimensions; excavations near Peg's House, Bollilhope Common, for example, have shown a range of possible special practices, including the structured laying of floors (Young and Webster in prep).

Material culture and technology

Pottery and ceramic evidence

Although pottery is not widespread, the North-East is not entirely aceramic and less than 10% of sites have no pottery at all (Willis 1999, 85-66). This is in contrast to areas west of the Pennines, where the absence of pottery seems more typical. Nevertheless, there are few substantial assemblages, and there has been relatively little synthetic work (though see Willis 1993; Evans 1995).

Dating is uncertain and is often based on assumptions about settlement morphology (Haselgrove 2002, 51). It is possible that excavation strategies, traditionally only examining within or immediately outside enclosures, may have influenced the size of assemblages. The recent trend towards large-scale, open-area excavation may well be rewarded with more substantial ceramic evidence.

The only site with significant Roman imports is Stanwick. While they do occasionally appear at a handful of nearby sites, such as Catcote and Thorpe Thewles, imports seem only rarely to have entered wider circulation (Evans 1995), although they do appear to have had a wider impact, stimulating local pottery manufacture and the diversification of forms (Steve Willis pers comm).

Flints and stone objects

Although a later prehistoric flint knapping tradition may have existed, by this date relatively few changes in the knapping process are chronologically diagnostic (Young and Humphrey 1999).

Stone querns, both saddle and rotary, are widely found in the region. Stone types included Millstone Grit, probably from the South Durham exposures, sandstone from the Coal Measures, and occasional glacial erratic and riverine boulders. Stone querns from the North Pennines could be traded up to 40km into the lowland areas. A survey of querns in Yorkshire, Teesside and South Durham is currently being undertaken by David Heslop.

Bronze objects

Late Bronze Age metalwork is not uncommon in the North-East, with several major hoards known as well as numerous single artefacts. Chronologically the pattern of distribution rises from the Wallington phase, reaching a peak in the Ewart Park phase. The 'type site' for both these phases lies within the region. The Wallington Hoard included fifteen axes, four spearheads, three swords and three armlets (Burgess 1968a), and was discovered at a poorly drained site close to the Middleton Burn. The Ewart Park finds comprised three swords discovered in the early 19th century (Colquhoun and Burgess 1988, 97).

Other major hoards from the region include the Eastgate Hoard (Cowen 1971), the Heathery Burn hoard (Greenwell 1894; Hawkes and Smith 1957) and the Gilmonby Hoard, which included over 27 bronze axes, 37 spearheads, 14 swords, tools, parts of a cauldron, ornaments, nine copper ingots and several pieces of iron (Coggins and Tylecote 1983). The Gilmonby find is just one of a distinct cluster of casual finds of prehistoric metalwork around Bowes (Pickin and Vyner 2001). An unusual hoard from High Throston, Hartlepool, contained ash, burnt bone, and a bronze spearhead on top of the ash, along with a number of bronze pins, fragments of a bronze vessel and a ring with a loop projecting from one edge; above this was a pot containing six wire rings, one tin-alloy bead, one circular spoked rouelle, four amber beads and two jet beads. Bronze rings, a large jet bracelet, strips of bronze and a rectangular jet spacer with two holes were also recovered at the same site (Daniels 2003). Research is taking place on both the High Throston and Gilmonby hoards by Brendan O'Connor. Several bronze swords have also been dredged from the Tyne around Newcastle (Cowen 1967, 444-445).

After the Late Bronze Age there was an apparent decline in the deposition of metal objects until the Late Iron Age, when there may have been a revival in the practice. Swords have been found at Sadberge (Co. Durham), Brough and Carham (Northumberland), and a hilt guard is recorded from Dunstanburgh (Northumberland) (Piggot 1950). MacGregor's catalogue of Celtic art in North Britain includes items of late La Tène style, such as chapes, horse fittings and other items, such as a beaded torc from Benwell (MacGregor 1976, no. 198; Simpson and Richmond 1941, 23-25, pl. ii). Many of these items are, however, from Roman forts and must be post-conquest in date.

Evidence for metal production and working is slight. Iron smithing is known from West Brandon, Catcote, Thorpe Thewles, Foxrush Farm, the Newcastle Great Park sites and Pegswood. Two bowl furnaces were found at West Brandon (Jobey 1962). Fragments of metalworking crucibles were recovered at Thorpe Thewles (McDonnell 1987). Parts of

moulds for making bronze objects are known in Northumberland from the Kaims, Adderstone and Lucker, and from Wallington Demesne. An unfinished bronze axe was found at Felton in the late 19th century and still retains mould marks (Hodgson 1904, 375).

Scientific analysis has provided insight into early metal technology. The metalwork of the Wallington tradition has been shown to have had a different composition to contemporary styles in the south of England, with the alloys lacking lead (Tylecote 1968). By the Ewart Park phase, however, northern traditions were identical to those further south (Northover 1988). The alloys used in the Iron Age continued to parallel those used in the south of England, with brass replacing bronze in the early 1st century AD (Dungworth 1995; 1996).

Iron objects

Relatively few iron objects are known. This may be a genuine reflection of a low level of use, or may instead be related to preservation factors, or even be a function of high levels of recycling. A number of iron spearheads are known (e.g. Broomlee Lough, Forden Dean, Turf Knowe, Rochester), though it is possible that they may be of later date. An oven, possibly used for the carburisation process has been excavated at Catcote, but the few iron objects recovered were of Roman date (Long 1988, 21, 28; Vyner and Daniels 1989, 19).

Other materials

Apart from the objects mentioned above there is relatively little other material culture - most items from sites are 1st century AD or later. Few items of personal dress survive and due to the nature of these materials they are often fragmentary and difficult to date. Isolated glass beads have been found at Bishop Middleham, Prickly Knowe and Dod Law (Raistrick 1933b; Smith 1988-89), and a Late Iron Age or Romano-British ring pin was recovered with a burial at Alnham (Jobey and Tait 1966). A worked bone toggle comes from Thorpe Thewles (Swain 1987). There is also a small number of shale or jet objects from local sites, including Harehaugh, Kilton Thorpe and Thorpe Thewles (Swain and Heslop 1987). Textile production and working is indicated by loom weights and spindle whorls which have been found at

Catcote, Thorpe Thewles and Forcegarth Pasture (Long 1988, 31; Vyner and Daniels 1989, 21; Swain and Heslop 1987; Fairless and Coggins 1986).

Museum holdings

Collections of Late Bronze Age and Iron Age material are held at a number of museums. Outside the region, the most important collection is that held by the British Museum, which contains the Heathery Burn hoard, the Iron Age swords from Sadberge (Co. Durham) and Carham (Northumberland), as well as a torc from Greenhill (Northumberland).

In the south of the region, the most important material can be found among the archaeological collections of Tees Archaeology, which includes items from Catcote and Thorpe Thewles, as well as the archives for a number of other sites, for example Eston Nab and Catcote. There are many querns amongst the collection of stone objects. The Dorman Museum also holds material from Eston Nab. In County Durham, the Bowes Museum holds the Gilmonby hoard, as well as finds related from PPG16-related archaeological sites in the region. This will include those from Ingleby Barwick and Faverdale. The Old Fulling Museum holds the finds from all PPG16-related archaeology within the City of Durham. Major collections include the Coxhoe archive and finds from the Durham Archaeological Survey. In Tyne and Wear, the Museum of Antiquities holds a major collection of Bronze Age finds, comprising over 150 weapons and tools, including the Ewart Park swords. The holdings of Iron Age material here are not as extensive, but include the finds from George Jobey's excavations at West Brandon. Tyne and Wear Museums meanwhile stores material from PPG16-based excavations in the Tyne and Wear area, including that from South Shields, and is the intended repository for the material from the Newcastle Great Parks excavations. Finally, Alnwick Castle Museum holds a range of Bronze Age tools and other items, including shields from Inghoe and Aydon Castle, swords from Great Tossion and Whittingham and a bronze axe from Corbridge (Collingwood Bruce 1880).

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6. Resource assessment: Roman

The Roman Specialist Group consisted of Lindsay Allason-Jones (Museum of Antiquities, Newcastle), Mike Collins (English Heritage), Jim Crow (Dept of Archaeology, University of Newcastle), Paul Frodsham (Northumberland National Parks Authority), Richard Hingley (Dept of Archaeology, University of Durham), Nick Hodgson (Tyne and Wear Museums Service), and Steve Willis (Dept of Classical and Archaeological Studies, University of Kent).

History of research

The advent of Roman control in the North-East of England had a profound qualitative and quantitative impact on the archaeological record. A suite of new site types appeared, particularly those related to the Roman military infrastructure, and in many areas there was a significant change in the availability of material culture. For the first time, written sources, both literary and epigraphic, become available so that from the 1st century AD there is evidence for the names of individuals, places and political and ethnic groups. This combination of written evidence and a significant body of highly diagnostic material culture (particularly ceramics and coins) allows the archaeology to be explored at a chronological resolution not practical for earlier periods.

The study of the remains of the Roman period has a long tradition in the region. Recent papers which explore the history of archaeological endeavour on Hadrian's Wall and the North-East include work by David Breeze (2003) on the role of John Collingwood Bruce, and a consideration of the development of Roman military studies in Britain by Simon James (2003).

The first important account of the Hadrian's Wall, and hence the Roman archaeology of the North-East, was by William Camden in his *Britannia* (Camden 1610). This remained the main antiquarian contribution on the Wall and associated antiquities until the early 18th century, when John Horsley's *Britannia Romana* (1732) was published. These volumes were supplemented by a series of publications recording tours and observations of the monument in which a number of other archaeological sites were mentioned, among them the Roman forts at Binchester and Lanchester (Figure 24).

Epigraphy and observations of standing remains form the backbone of this research which, while it does not compare to modern, more scientific, scholarship, frequently describes details that have since disappeared.

The first significant archaeological excavations on the Wall were carried out by the Revd John Hodgson, who started work at Housesteads in 1822. Hodgson was also the first to date the Wall to Hadrian; previously the *vallum* was believed to be the earliest defence, supplemented by a wall built during the reign of Septimius Severus. Anthony Hedley and John Clayton carried out other excavations at the same time. Hedley worked at Vindolanda in the early 1830s but died in 1835, before a report on his work could

be submitted to the Society of Antiquaries of Newcastle. Clayton bought up much land along the Wall and dug many sites including three milecastles, Chesters fort and bathhouse, and Coventina's Well. An important local patron was the Duke of Northumberland who, in 1852, funded excavation at High Rochester and subsequently commissioned the first accurate survey of the Wall, carried out by Henry MacLauchlan between 1852 and 1854. This had been preceded by a similar survey of Dere Street (then known as Watling Street) by MacLauchlan in 1850-51, which included plans of several forts, such as Lanchester, together with records of finds and associated earthworks. As well as excavation and survey there was also an increased focus on the epigraphy of the Wall. The most notable early scholar in this field was John Collingwood Bruce, who produced the *Lapidarium Septentrionale* in 1870-75, an overview of all the inscriptions known at the time (Collingwood Bruce 1875; Breeze 2003). He also wrote the *Roman Wall* (1851), the third edition (1867) of which was the first widespread popularisation of Hodgson's theory of a Hadrianic date for the Wall. In 1863 he published his *Handbook of the Roman Wall*, which continues to be updated (14th edition edited by David Breeze, forthcoming).

The major period of broadly scientific excavation began in the 1890s, including Robert Carr Bosanquet's excavations at Housesteads (Bosanquet 1904). Work by John Pattinson Gibson on Turret 44b led to a series of collaborations between the major figures of Roman archaeology in the region, including F. Gerald Simpson, Robin Collingwood and Ian Richmond.

In the late 1920s and early 1930s another burst of activity saw the foundation of the North of England Excavation Committee, founded by the Society of Antiquaries of Newcastle in 1924 to encourage 'under proper supervision the excavation of sites in the North'. Due to its Newcastle base it tended to focus on sites on the eastern half of the Wall. Also in the east, the improvement of the Military Road (B6318) resulted in a series of rescue excavations.

The importance of this work was recognised by Durham University who, in 1924, appointed F. G. Simpson as its director of excavation, a post he relinquished in 1931 to allow Eric Birley to be appointed as a lecturer. Birley was to stay at Durham for 40 years, directing his students to research on a wide range of aspects of the Wall and the Roman army (James 2003).

As this brief accounts demonstrates, the early phases of investigation into the Roman archaeology of the North-East were dominated by individuals, though in the later 19th and early 20th century the role of societies, particularly the Society of Antiquaries of Newcastle, became increasingly important. State intervention only began in the 1920s when parts of the Wall were taken into Guardianship. The work of the Ministry of Works, Department of Environment and latterly English Heritage,

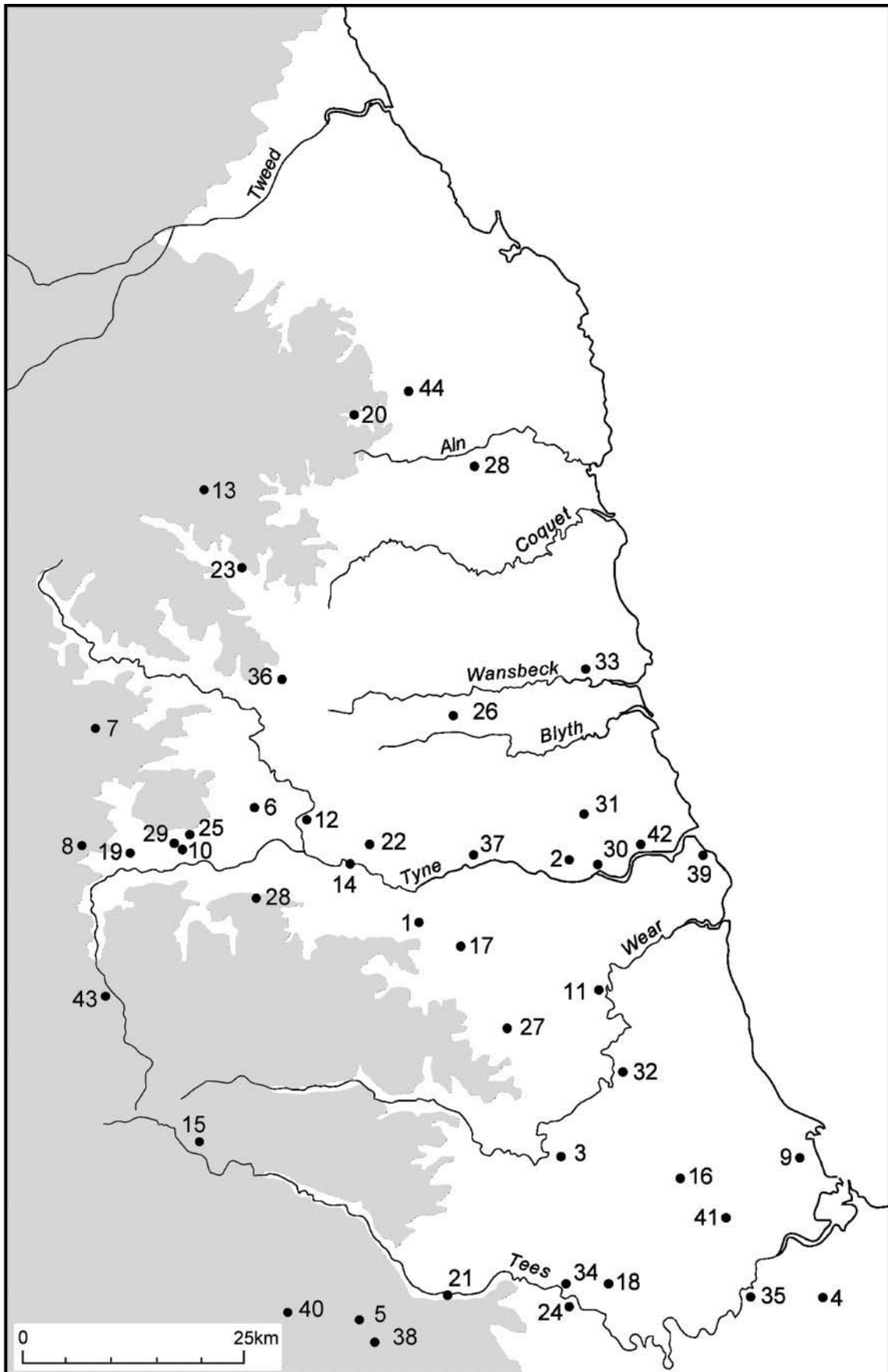


Figure 24 Key Roman sites mentioned in text: (1) Apperley Dene, (2) Benwell, (3) Binchester, (4) Bonnygrove Farm/ Dixon's Farm, (5) Bowes, (6) Carrawburgh, (7) Carry House Camp, (8) Carvoran, (9) Catcote, (10) Chesterholm, (11) Chester-le-Street, (12) Chesters, (13) Chew Green, (14) Corbridge, (15) Dubby Sike, (16) East Park, Sedgefield, (17) Ebchester, (18) Faverdale, (19) Great Chesters, (20) Greaves Ash, (21) Greta Bridge, (22) Halton Chesters, (23) High Rochester, (24) Holme House, (25) Housesteads, (26) Huckhoe, (27) Lanchester, (28) Learchild, (29) Milking Gap, (30) Newcastle, (31) Newcastle Great Park, (32) Old Durham, (33) Pegswood, (34) Piercebridge, (35) Quarry Farm, Ingleby Barwick, (36) Risingham, (37) Rudchester, (38) Scargill Moor, (39) South Shields, (40) Stainmore, (41) Thorpe Thewles, (42) Wallsend, (43) Whitley Castle, (44) Wooperton Quarry (map drawn by Yvonne Beadnell)

in the recording and conservation of the archaeological resource has carried state participation in the study of Roman archaeology in the area through to the present day. The presence of two departments of archaeology in the region, Durham and Newcastle, has also influenced scholarship, and scholars such as Eric Birley and Ian Richmond shaped their departments as centres for the study of this period. Major work has also been carried out by the Tyne and Wear Museums, particularly the excavation and curation of South Shields and Wallsend, as well as extensive exploration of the urban sections of the Wall. Work by independent scholars has also been significant; the long-term campaigns of excavation by the Birleys at Vindolanda have produced a number of internationally significant finds, such as the Vindolanda tablets.

Hadrian's Wall is the iconic Roman site in the North-East; its national and international importance being reflected in its World Heritage Site status. Due to the Wall's outstanding importance, the large-scale heritage management issues it raises, and the sheer quantity of material relating to it, as well as the fact that it crosses two regions (North-East and North-West), the North-East Regional Research Framework will not be tackling it in detail. The Wall is instead subject of its own separate research agenda, also funded by English Heritage.

From the 1960s there were a number of overviews of the Roman archaeology of the region. The first was Peter Salway's *The Frontier People of Roman Britain* (Salway 1965), one of the first major attempts to consider the evidence for the civilian as well as military settlement. The major work on Durham was Brian Dobson's paper published in 1970. The long history of research on the Wall has also been summarised in several publications, including the *Handbook to the Roman Wall* (Collingwood Bruce 1863; Breeze forthcoming), and for more recent research the guide for the latest Hadrian's Wall pilgrimage (Bidwell 1999). More general historical accounts of the Wall include Breeze and Dobson's *Hadrian's Wall* (2000). For an overview of the earlier work on the Wall, Birley's *Research on Hadrian's Wall* (1961) remains a standard text. Works that address the rural population have been less in evidence (but see Hingley 2004).

Since the introduction of PPG16 and associated planning guidance in 1991 there has been an increase in small-scale interventions into the Roman archaeology of the region. These have helped expand our knowledge of much of the frontier in areas such as Newcastle, where there are few standing remains, and led to an increasing number of observations and excavations on sites away from the Wall.

This overview has focused primarily on the military archaeology of the region, but there has been some significant work on the civilian settlements, particularly north of the Wall, where the work of George Jobey has dominated the study of Roman and Iron Age native settlement (see Chapter 5). Upland survey work, such as on the Otterburn training area and by Denis Coggins in the North Pennines, has also revealed many settlements, though without excavation it has proved difficult to distinguish them from Iron Age sites.

Existing research frameworks

A series of initiatives at both regional and national level provide research agendas from which to work. At a local level, an important on-going project is the *Research Framework for Hadrian's Wall*. This will provide a research structure for the study of the Wall in both the North-West and the North-East. Also at a regional level are the papers covering the Roman period in the *Past, Present and Future* volume which arose out of a conference held in Durham in 1996 (e.g. Crow 2002). Various approaches were adopted here. Mike McCarthy breaks his suggestions for further research into macro- and micro-approaches. The macro-approach involves further study of the wider Roman landscape and environment; for example, the relationship between settlements and the natural environment. The micro- (or site-specific) approach embraces a more rigorous and analytical approach to data, including site formation processes and the study of cultural assemblages (McCarthy 2002). In another paper in the same volume, Lindsay Allason-Jones called for further work on military equipment from the North-East, placing it in its national and international context. She also pointed out that little is known about funerary habits in the Roman North. Finally, she drew attention to the lack of excavation work carried out on *vici*, suggesting that a better understanding of these sites could help elucidate and broaden our understanding of their role and of the end of military occupation on the Wall (Allason-Jones 2002).

At the national level, the most influential recent contribution has been *Britons and Romans: advancing an archaeological agenda* (James and Millett 2001), a volume of collected papers which arose out of a session at the Roman Archaeology Conference sponsored by English Heritage (e.g. J. D. Hill 2001; James 2001; Allason-Jones 2001; Evans 2001). As well as highlighting particular research topics, there are suggestions here for structural initiatives, such as the training of finds specialists and improved publication of 'grey literature', issues that are also echoed in this document. Similar suggestions were made in *Town and country in England: frameworks for archaeological research* (Perring *et al* 2002) which laid out an agenda for work on urban archaeology. Although its Roman case study focused on Essex and Colchester, that volume presented a series of methodological recommendations that have relevance for the North-East. Finally, recommendations have been issued by the Study Group for Roman Pottery (SGRP), including a national research framework (Willis 2004) and a regional overview for the north of England (Evans and Willis 1997). The former highlighted a series of research themes, including trade, supply and distribution, chronology, continued work on Samian pottery, Roman/native interaction, pottery and the organisation of the Roman army, functional trends, site status, spatial patterning, social/cultural identity, ritual sites, Roman pottery production and the end of the Romano-British economy. The regional review highlighted similar themes and also identified a number of backlog sites as priorities for publication.

Environment and agriculture

Environmental evidence

The environmental evidence from the Roman period is

varied. Pollen evidence suggests patterns of clearance, though due to the uncertainty inherent in radiocarbon dating it is not easy to distinguish between pre- and post-conquest clearances at a high degree of resolution. Work carried out by Dumayne, however, has clarified changing patterns of vegetation along parts of Hadrian's Wall during the Roman period (Dumayne 1992; 1993a; 1993b; 1994). Richard Tipping (1997) has suggested, however, that the increase in agriculture in the region dated to the Late Iron Age and was not related to the impact of Roman settlement, an opinion which is echoed by Mike McCarthy (1995; 1997). The pollen evidence for the area between the Tyne and the Tees has been explored by Chris Fenton-Thomas (1992) using the evidence from thirteen pollen core sites. It is clear that forest clearance pre-dated the Roman period and moved out from a south-east core-zone throughout the period, only reaching a peak at some locations in the 5th century AD. Cores from the areas closest to the forts of north-west Durham also show clearance beginning in the Late pre-Roman Iron Age, indicating that it was not related to the presence of the Roman military.

There is limited survival of insect remains, probably due to the lack of deep, well-preserved deposits, such as those in York and Carlisle. A single insect assemblage from a pit at the Roman fort at South Shields (South Tyneside) was reported by Osborne (1994). There is also an excellently preserved assemblage from a fill of a Romano-British ditch terminal at the Flodden Hill rectilinear enclosure (Kenward 2001), where the assemblage indicated temperatures similar to those of present day Kent.

Plant macro-fossil evidence from non-military sites is represented by assemblages from Dubby Sike, Upper Teesdale (Co. Durham), which produced no evidence for cereals, suggesting possible seasonal occupation (van der Veen 1986). Other sites include Thornbrough Scar (Northumberland), which produced evidence for possible rye cultivation, and Catcote (Teesside), which produced barley and wheat (van der Veen 1983). A significant assemblage has also come from the Quarry Farm Roman villa site (Ingleby Barwick, Teesside) (Jacqui Huntley pers comm).

Despite the number of Roman military sites, surprisingly few significant assemblages exist, of which the burnt deposits from a granary at South Shields are one example (van der Veen 1988b). The assemblage from the Roman fort at Newcastle produced wheat, heather, barley, oats and arable weed seeds, as well as more exotic material such as coriander and fig seeds (Huntley and Daniell 2002). Some waterlogged remains are known from Peel Gap, which implied the presence of fen meadows, grassland and heathland (Huntley 1989a). Further and better evidence for such communities comes from recent work on the exceedingly well-preserved layers at Vindolanda. Here identification of sedges enabled some distinction between different areas used for grazing or hay production (Huntley 2002). These assemblages are primarily from forts associated directly with Hadrian's Wall, and there are no assemblages from military forts to the north or south of the frontier.

Military sites are better provided with faunal material, although the most important assemblages come from outside the region at sites such as Carlisle and Birdoswald (Cumbria). Significant amounts of bone have been recovered from Vindolanda, South Shields and Corbridge (Hodgson 1968; 1977; Stokes 1996; Younger 1994). It should be noted that the Vindolanda material has yet to be studied in detail, and although there are substantial amounts of material, there is some uncertainty about its stratigraphic context. The analysis of material from Corbridge failed to take into account stratigraphic and contextual information (Hodgson 1967, 68). Away from Hadrian's Wall, bone assemblages are known from Chester-le-Street, Binchester (not yet analysed) and Piercebridge (unpublished archive report). There are virtually no assemblages from civilian sites beyond the villa at Holme House, Piercebridge (Co. Durham) on the very southern border of the region, although the material from the recently excavated sites at Quarry Farm, Ingleby Barwick (Teesside) and East Park, Sedgefield (Co. Durham) may redress this imbalance a little.

Field systems

Although Roman archaeology in the North-East has traditionally been site centred, there is increasing evidence for the wider Roman landscape. Aerial photography illustrates the sheer quantity of surviving networks of fields, cord rigg and settlements (Frodsham 2004, 57-59; Gates 1997; 1999; 2000). This evidence is particularly important for the area around Hadrian's Wall, and has the potential to help unravel the effects of the creation of such a barrier on the pre-Wall landscape. English Heritage's *National Mapping Programme* is producing stimulating results for the North-West, and similar enhancements are to be expected for the North-East. On a smaller scale, the move towards larger, open-area excavations has helped to place settlements in their wider landscape. Excavations at Pegswood (Northumberland) and Newcastle Great Park (Tyne and Wear) show how settlements sit in networks of fields and paddocks; a similar pattern has also been recognised further south at the villa of Ingleby Barwick. There are also traces of native field systems beneath the fort at Wallsend (Hodgson 2003).

Transport and communication

Roads

The basic road network of the region consists of major north-south routes with occasional west-east routes forking off to cross the upland spine of the country and link with the North-West. Modern work has uncovered new sections of roadway, helped firm up speculative routes and discovered the possible alignments of subsidiary roads, but the basic layout of the Roman road network in the North-East remains that laid out in Margary's *Roman Roads in Britain* (1973).

The only road which runs the entire length of the region from the Tees to the Scottish border is Dere Street. The first major work on Dere Street was undertaken by Henry MacLauchlan (calling it Watling Street) who carried out a survey of the road in 1850 and 1851 (MacLauchlan 1852). This ran north from York through Aldbrough (8a-b; all road numbers are those provided by Margary 1967) before

entering County Durham at Piercebridge. It then ran north to Binchester (8c), Lanchester, and Ebchester (8d) until it reached the Tyne at Corbridge. It then headed roughly north-west through Redesdale passing by Risingham, High Rochester and up into the Cheviots. At Chew Green, at the head of Coquetdale, it drops down into Scotland heading towards Newstead and ultimately Lothian. It is notable that the main Roman road into Scotland takes this difficult route over the uplands rather than along the flatter coastal plain.

In County Durham, another road, often known as Cade's Road, crossed the Tees around Middleton St George (80a-b). It then headed north to Durham and then Chester-le-Street, where it continued north to Newcastle. A spur road, known as the Wrekendyke, ran in a north-eastern direction from Wrekenton to South Shields (809).

One of the main west-east routes over the Pennines came off Dere Street at Scotch Corner and ran westerly through Greta Bridge, Bowes and over Stainmore through Rey Cross before reaching Brough-under-Stainmore and the Eden Valley (82). There was also a link road running from Bowes through Barnard Castle joining up with Dere Street around Bishop Auckland (820). Just north of Binchester at Willington a road ran eastwards linking up with Cade's Street. A short stretch of Roman road is also known in the North Pennines running from Stanhope to Egglestone (821).

The Tyne-Solway gap was an obvious west-east communication route, and two Roman roads ran across it. The earliest was the Stanegate, starting at Corbridge and running west to Carlisle. The chronological relationship between the Stanegate forts and the road itself has recently been questioned (Poulter 1998), but even if the road itself was relatively late in the sequence, it is almost certain that the Roman used its basic course as a communications route. With the construction of Hadrian's Wall a second west-east route, the Military Way, was built running to the south of, and parallel with, the Wall from Wallsend to Carlisle.

North of the Wall the Devil's Causeway (87) forks out north-eastwards from Dere Street at Bewclay to Longframlington and Berwick-upon-Tweed. This route was surveyed by Henry MacLauchlan in the late 1850s (MacLauchlan 1864). The two roads are linked further north by a west-east route running from High Rochester to Whittingham (88).

Although the basic routes of all the main Roman roads are known, there are still stretches where the precise course remains conjectural. Most recent research on Roman roads has tended to be carried out by amateurs, searching for stretches of road in their locality. They have also often researched the course of the less well-understood local road networks. This work is usually a combination of ground observation and survey, aerial photography and a small amount of excavation.

Bridges

The sites of a number of Roman bridges are known in the region, some well studied (Bidwell and Holbrook 1989; Fitzpatrick and Scott 1999; see also Moorwood and Hodgson

1992). This is due to the need for the main north-south communication routes to cross the region's major west-east rivers. Traces of bridges are recorded at Greta Bridge, Corbridge, Chesters and Piercebridge. Excavation is currently taking place on the bridge at Corbridge. In addition to bridges it is likely that rivers were also often forded, for example, the Tees is fordable at Neasham and Barnard Castle.

Ports, harbours and maritime installations

Maritime transport was undoubtedly an important form of communication in the Roman period, and it is likely that most bulk cargo was carried by ship. In spite of this, there is relatively little evidence for port or harbour facilities, though considering South Shields role as a major supply base and the evidence from the *Notitia Dignitatum* for bargemen from what is today Iraq being stationed there, it seems likely that there was some form of port facility close by. Evidence for unsuccessful maritime voyages comes in the form of a few possible wreck sites. A number of Roman finds, including a *patera* from Herd Sand beach, South Shields may have originated from the wreck of a Roman ship (2nd century AD) (Bidwell 2001), and another possible wreck is known from Hartlepool Bay (Swain 1986). A collection of objects from the beach at Carr House Sands, Seaton Carew, is likely to be a domestic midden, although it could also be all that remains of a foundered Roman cargo ship (Swain 1986).

Signal stations

Systems of signal stations are known on the west coast of Cumbria and along the North Yorkshire coast but, surprisingly, there is no evidence for any such system in the North-East. This may be a real absence, or it may be related to the high degree of coastal erosion along the Durham coast. A very small amount of Roman pottery has been found on Holy Island, and it is possible that the island may have been the site of a signal station, though this remains speculation.

Systems of inland signal stations have also been suggested (Richmond 1951). A possible signal tower on the Stainmore Pass has been excavated (Annis 2001), though the extent to which any meaningful signals could have been passed is debateable, and the excavator prefers to call them simply 'towers'. Like the East Yorkshire examples they are late 4th century (though unlike the Yorkshire towers, not Theodosian) and seemingly only had a short period of use.

Military infrastructure

The Roman frontier: the Stanegate

The origin and nature of the Stanegate and its associated structures are debateable. The traditional interpretation was that this was a defensive frontier created following the withdrawal by the Roman army to the Tyne-Solway isthmus in AD 105. In the 1970s and 1980s, however, this interpretation was questioned (e.g. Daniels 1970; Dobson 1986) and alternative suggestions were made, such as that it was a defended communication route rather than a *limes*. More recently, the argument for the role of the Stanegate system as a border has been restated (Poulter 1998; Hodgson 2000). Poulter has pointed out that the road itself appears to be one of the latest elements of the

system, making it unlikely that the primary purpose of the forts was to defend the road.

The road itself ran from Corbridge to Carlisle, and a series of forts stand along its course, including Corbridge, Newbrough, Vindolanda, and Haltwhistle Burn (Stobbs 1997). It is possible that the small fort at Washingwells was also related to the Stanegate, though there is no road linking it to Corbridge and it has no firm dating evidence (Holbrook and Speak 1994). The earliest evidence for occupation at Corbridge (Corstopitum) is the Flavian fort at Red House (Hanson *et al* 1979), which contained timber structures and had a stone bathhouse. Two phases of building have been recognised. It was probably abandoned around AD 87/88 when the new fort was constructed to the east, where evidence for at least four superimposed forts has been found (Dore and Bishop 1988). The first large (5.3ha) fort was demolished and replaced around AD 103. The new fort was significantly smaller (2.8ha). Apart from the headquarters and defences this second fort was demolished and rebuilding took place, presumably when Hadrian's Wall was built, replacing the Stanegate as the frontier. The subsequent abandonment of the Wall under Antoninus Pius led to a further rebuilding around AD 139/140. A final phase of alteration took place, probably coinciding with the withdrawal to the Wall as the frontier in about AD 160. Occupation on the site continued into the 4th century. Two compounds lay to the south of the Stanegate and seem to have been used as workshops and barracks; activity appears to have gone on until the late 4th century. Relatively little is known about the fort at

Newbrough; a church now stands on the site, and some pottery and the traces of building have been discovered during the digging of graves (Wright 1958).

Vindolanda has been the site of a series of excavations, a number of antiquarian investigations, and, in the 20th century, work by Eric Birley (1930-36), Robin Birley (1949-69) and by the Vindolanda Trust from 1970 (Bidwell 1985; Birley 1977; 1995; 2000; 2002). At least eight phases of fort construction have been recognised varying in size from around 1.4ha in Period I (c. AD 85-90) to greater than 2.8ha during Period IV (AD 104/105-c. 120). The initial phases had timber and turf ramparts, but a stone wall was built in Period IV. In the early 3rd century the fort went through an unusual phase when, following demolition, a series of at least 300 small stone roundhouses were built across the site. They were replaced after a short time by another fort, and subsequent phases of building and demolition followed. An apsidal building was built over the eastern side of the commandant's house around AD 400; this may be a Christian church. There is some indication that the east wall was repaired in the early 5th century through the construction of an earth bank. Vindolanda was, of course, the site of the discovery of a series of internationally important well-preserved wooden writing tablets (Bowman and Thomas 1983; 1994; 1996).

Haltwhistle Burn is a small fortlet excavated in 1908, probably of Trajanic date. It appears to have been carefully demolished at some point, presumably when the Wall was constructed (Simpson 1974).



Figure 25 Excavation of a section of Hadrian's Wall preserved in a shallow valley in central Newcastle. © Archaeological Services Durham University

The Roman frontier: Hadrian's Wall

General work on the Wall and its construction includes several important publications by Peter Hill (1991; 1997); overviews of other investigations on the Wall itself (rather than related structures) can be found in articles by James Crow (1991a; 1991b). Although the course of the Wall is known for most of its length, the situation has traditionally been less clear in some of the more built-up areas around its eastern end. Recent excavations, however, have transformed our knowledge about Hadrian's Wall in urban Tyneside, including a true understanding of the course of the Wall for the first time and the location of a number of minor structures (e.g. McKelvey 2003) (Figure 25). Other significant excavations on the Wall itself have taken place at Denton (Tyne and Wear) (Bidwell and Watson 1996). Related research has also taken place on the *vallum* (Bidwell and Watson 1996; Bennett and Turner 1983; Bennett 1998; Wooliscroft 1999). Other advances include the recognition of defensive entanglements on the berm (M. Collins 2002), possibly an addition to the general anatomy of the Wall, and a well-preserved length of the Military Way at Pendower Hall, Benwell. There has also been some debate about the sequence of construction of stretches of the eastern end of the Wall (Hill 2001; Bidwell 2003).

There has been a degree of excavation or survey at most of the forts along the Wall, though some stand out as having been particularly extensively investigated. South Shields (Arbeia), although not technically part of the Wall itself, overlooked the mouth of the Tyne and overlies the site of a Late Iron Age farmstead. It was first excavated in 1875, leading to its preservation. Subsequent excavation took place in 1949-50 and again in 1966-67. A long campaign of work then commenced in 1975 and still continues; much of the fort has now been investigated and has been preserved as part of the museum on site (Allason-Jones and Miket 1984; Bidwell and Hodgson 1999; Bidwell and Speak 1994; Gillam and Dore 1979; Miket 1983; Snape 1994). There is evidence for a civilian settlement beneath the fort, possibly related to an earlier, as yet unlocated, fort. The known fort was probably built in the AD 160s, with an extension increasing its size in AD 205-207, and then substantially remodelled and expanded with the construction of a supply base over the northern areas of the fort. This was probably related to the Severan campaigns in the early 3rd century. Further granaries were added and in AD 222 a new water supply constructed, probably at the same time as the erection of a new headquarters and barrack. The fort appears to have been largely destroyed by a fire in around AD 300, following which there was major rebuilding, with granaries being converted into barrack blocks. Further alterations were made to the site into the early 5th century and a small church may have stood on the site of the headquarters building in the late 4th or early 5th centuries (Bidwell and Speak 1994, 105-106).

Wallsend (Segedunum) was the site of excavations in the 1920s, when the west gate was found, and later work in the 1970s (Hodgson 2003). The Hadrianic timber buildings, including a hospital and some barracks, were rebuilt in stone in the Antonine period. A large forehall of the 2nd century was built to the north of the headquarters buildings and

straddled the street. In the 3rd century the hospital was demolished and the barracks were reconstructed in a different form before the mid 3rd century. The new barracks were described as 'chalets' in the 1970s, but many would now see them as a new kind of barrack built as a response to military reorganisation in the first half of the 3rd century. A debate on the interpretation of late-Roman barracks in the region continues (Hodgson and Bidwell 2004). Coin and pottery evidence shows occupation at the site extending into the 4th century.



Figure 26 A view of excavations at Benwell in the 1930s.
© Museum of Antiquities, Newcastle

The fort at Newcastle (Pons Aelius) was probably built close to the bridge over the Tyne, though the location of the bridge is not known. Excavations took place on the site between 1976 and 1992 (Snape and Bidwell 2002), although its precise shape remains unclear, and it is possible that it may have been polygonal. Ceramic and coin assemblages suggest that the fort was not built until the late 2nd or early 3rd century.

Much of the fort at Benwell (Condercum) was built over in the 19th and 20th centuries, though the broad dimensions of the fort are known (Taylor 1997) (Figure 26). Despite the lack of stratigraphy the ceramic assemblage indicates continued use into the late 4th century. The basic plan of the central range of the fort is known, including the commander's house and the headquarters as well as nearby granaries (Holbrook 1991). It is important to emphasise that considerable archaeological deposits will survive over much of the site, as they did over other sites once covered in post-medieval building, such as South Shields and Wallsend.

There have been two phases of investigation at Rudchester (Vindovala), in 1921 and 1972, as well as field survey

(Bowden and Blood 1991; Newman *et al* 1973). The earliest excavation explored the gates and main buildings revealing the south and west gate as well as the commanding officer's house. Further excavation in 1972 revealed arched marks beneath the fort, and also showed a number of phases of building. Two structures were destroyed by fire in the last third of the 2nd century and replaced by another in stone. This appears to have been succeeded by a timber-framed structure in the late 4th century.

The fort at Halton Chesters (Onnum) has seen three major phases of excavation (1933-36, 1956-58 and 1960-61) as well as geophysical surveys in 1995 and 1999 (Simpson and Richmond 1935; Jarrett 1959; Berry and Taylor 1997; Taylor *et al* 2000). A large forehall was constructed in front of the headquarters building in the early 3rd century; a timber hospital may have been replaced in stone at the same time. This period also saw the expansion of the fort probably to accommodate the arrival of the *ala Sabiniana*, a cavalry unit. In the early 4th century part of the backing of the rampart was removed to open up building space. Although parts of the fort fell into disuse in the 4th century, the *ala Sabiniana* is recorded here in the *Notitia Dignitatum*, and there is evidence for the timber-framed buildings resting on stone sill-blocks of late-4th-century date. These excavations, however, still require full publication.

Most of the buildings currently to be seen at Chesters (Cilurnum) were exposed in the 19th century by John Clayton, whose family owned the land. Much of the subsequent work on this site has been related to the consolidation of the exposed structures. The fort was built later than the Wall. The foundations of the original course of the Wall have been found where it was straddled by the fort. Rebuilding took place in the AD 180s, including the construction of an aqueduct attested by epigraphy (Collingwood and Wright 1995, no. 1463). There is a further epigraphic record of rebuilding dating to AD 221 when the second *Ala II Asturum* restored a building 'which had collapsed through old age' (Collingwood and Wright 1995, no. 1465).

The site at Carrawburgh (Brocolitia) was one of the later forts to be built on the Wall and appears to have been constructed to fill the gap between Chesters and Housesteads. In addition to 19th-century exploration, excavation was carried out by Eric Birley in the 1930s and by David Breeze and Dorothy Charlesworth in the 1960s, focusing mainly on the defences and the headquarters building (Birley 1935a; 1961, 175-178; Breeze 1972; Charlesworth 1967). This work showed that the fort overlay an earlier work camp associated with the construction of the Wall. This was followed by the *vallum* which was filled in before the fort was built, though it caused subsidence to the headquarters building which overlay it. The headquarters went through several phases of modification and a hypocaust was inserted, probably in the 4th century. The south gate was probably blocked in the late 3rd or early 4th century. There is also epigraphic evidence for some construction work on the site in the early 3rd century (e.g. Collingwood and Wright 1965, no. 1553).

Housesteads (Vercovicium) has been the site of extensive excavation and is one of the best-preserved and

understood forts in the Roman Empire. The initial work was carried out by Robert Carr Bosanquet, who was responsible for creating a good understanding of the layout of the fort (Bosanquet 1899; 1904). Further work took place at the site in the 1930s (Birley 1937; Birley and Keeney 1935; Charlton and Birley 1934; Charlton *et al* 1933; Hedley *et al* 1933) and then long-term work took place from the 1960s (Charlesworth 1975; 1976; Crow 1989; 1988; Tait 1963; Wilkes 1960; Wilkes and Leach 1962). There was some pre-fort activity including the construction of a turret, which was subsequently demolished, and a cremation burial. Excavation inside the fort has revealed barracks and other structures. The peristyle commander's house had a hypocaust added in the mid 4th century and the hospital building remained in use until at least AD 330. The later barracks at Housesteads were built to a radically different plan to the earlier ones, and this has led to several differing suggestions about the size and character of the late-Roman unit. Later in the 4th century a hall or storehouse was converted into a small bathhouse, and an apsidal building, possibly a church, was built in the north-west corner of the fort. Finally in the late 4th or early 5th century an earthen defensive bank was constructed over the collapsed wall.

Great Chesters (Aesica) is a small fort erected on the site of an earlier milecastle. The fort saw excavation in the 1890s, which uncovered a significant part of the defences as well as barrack blocks and administrative buildings (Gibson 1903). The defences were re-examined in the 1920s (Hull 1927), with further work in the 1950s (Birley 1961, 191). The granary was seemingly rebuilt in AD 225, and the commanding officer's house also saw much rebuilding. Many of the finds have been published, including the important Aesica hoard (Allason-Jones 1996; Charlesworth 1973).

Carvoran (Magnis) is the most westerly fort on the Wall in the region. It stands at the point where the Stanegate and the Maiden Way join (Birley 1961, 144, 192). It is possible that an earlier fort stood here; aerial photographs appear to show the defences of an earlier, larger fort, and excavation beneath the museum has produced Trajanic pottery. Epigraphic evidence records that the fort was walled in stone in AD 136-138. There has recently been an extensive geophysical survey of the fort carried out for the Vindolanda Trust revealing extensive signs of Roman activity in areas previously regarded as sterile (Robin Birley *pers comm*). Work on the lesser defensive structures on the Wall (i.e. turrets and milecastles) has also been extensive, including both excavation and analysis of the wider system of defences (e.g. Bellhouse 1969; Brewis 1932; Charlesworth 1977; Crow 1991b; Dobson 1986; Hill and Dobson 1992; Hill 1997; 2001; Welfare 2000; Wilmott 1999).

Forts south of the Wall

The general distribution of forts in County Durham is, not surprisingly, closely linked to the road network. It is noticeable that there is no system of coastal signal stations equivalent to those on the Cumbrian coast and further, south in East Yorkshire. It is possible that this may partly be a factor of preservation, as the Durham coast has been subject to substantial erosion.

Although many of the county's forts have seen archaeological excavation, there has been little significant work since the 1970s, and this has been carried out in a development-control context. Some geophysical survey has also been undertaken (e.g. Binchester, Lanchester), but while useful for giving an indication of the extent and type of surviving sub-surface features, this technique does not provide any chronological information, and it is not easy to unpick multi-phase activity.

From the Flavian period to at least the Severan, marching camps were being built in the region. Although some are known from County Durham, particularly those on the Stainmore pass at Rey Cross, which are probably Flavian in date, they are far more common in Northumberland. Where modern excavation has taken place it has tended to be in a rescue rather than a research context, as at Rey Cross (Co. Durham) (Vyner 2001).

Heading south from Corbridge, a series of forts is situated along Dere Street. The fort at Ebchester (Vindomora) has mainly been built on, though some areas of the ramparts are visible. Excavation has indicated several phases of fort structure, including four in timber and three in stone (Harper *et al* 1964; Reed and Maxfield 1975). It probably had a Flavian origin. The fort at Lanchester (Longovicium) is better preserved, with well-preserved ramparts. Small-scale work was carried out here by Kenneth Steer (Steer 1938; 1939; Swinbank 1953) and more recently there has been geophysical survey and excavation of a related cemetery (Casey *et al* 1993; Turner 1990). The results, when combined with the epigraphic evidence (Collingwood and Wright 1995, nos 1083, 1093, 1091-92), suggest an Antonine date for the first phase of the fort, with restoration of the headquarters and *armamentarium* and construction of a bath and basilica in the mid 3rd century.

Binchester (Vinovium), standing on the Wear, was of Flavian origin. The first significant excavations here took place in the 19th century (Hoopell 1879), then between the wars, and later between the 1950s and 1980s (Dobson and Jarrett 1958; Jarrett 1960; Ferris and Jones 1980). This work uncovered the remains of both an intra-mural and extra-mural bathhouse. As well as excavation, there have been several recent geophysical surveys carried out at the site, the latest (in August 2004) showing exceptionally good preservation of the fort and the *vicus* (Geoquest 2004).

The final fort, Piercebridge, commanded the crossing of the Tees (Fitzpatrick and Scott 1999). Published evidence suggests a mid-3rd-century date, though there is evidence for earlier military activity of some form. A civilian settlement lay along the main road to the east of the fort, extending along both sides of the Tees. Small-scale excavations took place on the fort and civilian settlement between 1934 and 1964 (Richardson 1934-36; Harper 1965-68) and more extensive excavation was carried out from the early 1970s onwards by the late Peter R. Scott. Apart from work on the bridge, this has yet to be published. The University of Durham is also currently undertaking new work at the site. Substantial quantities of Roman finds, mainly coinage and metalwork, have been recovered from the river at Piercebridge, forming an assemblage of international

importance (Philippa Walton pers comm), and serious consideration should be given to the full publication of all this material (Figure 27).

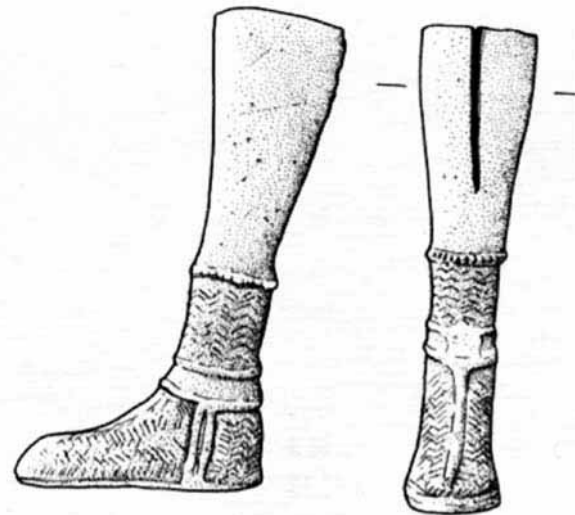


Figure 27 Fragment of a bronze statuette recovered from the River Tees at Piercebridge (Co. Durham). Not to scale. © Philippa Walton

Unlike Dere Street, there are far fewer forts sited on Cade's Road, the only example being Chester-le-Street (Concangis). Although currently under the modern town, there has been considerable archaeological work carried out here (Evans *et al* 1991; Bishop 1993). The first remains, a building with hypocaust, were reported in the mid 19th century (Featherstonehaugh 1855). Building work in the early 20th century increasingly revealed evidence of Roman occupation (Gillam and Tait 1968). Organised archaeological excavation commenced in 1958, with open-area excavation of the praetorium and parts of the *vicus*, though this has yet to be adequately published. Further excavations took place in the 1960s and 1970s around Park View School and Middle Chare, revealing a granary, parts of the fort wall, *vicus* buildings and a parade ground (Gillam and Tait 1968; Evans *et al* 1991). More open-area excavation took place in 1990-91 around the new Parish Centre, which revealed elements of the 2nd-century fort and 3rd/4th-century barrack blocks (Bishop 1991; 1993). This was followed by further excavation in Park View School (Turnbull 1994, 2; 2003, 2). These campaigns of excavation have more recently been supplemented by a series of watching briefs. Overall, the work has shown an initial timber fort of late-2nd- to 3rd-century date, probably built following the re-establishment of Hadrian's Wall in around AD 165. A stone fort was probably constructed in the later 3rd century.

Apart from the two main north-south roads, the other major axis of communication is west across the Pennines into Westmoreland. The route used by the Romans ran over the Stainmore Pass, and roughly followed the route of the modern A66. As well as the military activity on Stainmore itself, there were two forts on this route at Greta Bridge and Bowes. The fort at Greta Bridge, as the name suggests, was situated at a crossing point on the River Greta.

Apart from a small, recent evaluation excavation in the north-west corner of the fort (NAA 1996), there has been little work on the fort itself, though excavation has taken place on its

related *vicus* (Casey and Hoffman 1998). At Bowes (Lavatrae) a small 18ha Flavian fort was reoccupied again in the mid 2nd century AD, though only the western and southern ramparts are preserved (Wooler 1913). A section was cut through the rampart and a small amount of the interior investigated in the late 1960s (Anon 1968; 1971; Hartley 1967), and a small amount of evaluation work (including a geophysical survey) has occurred on the *vicus*.

Forts north of the Wall

As with the forts to the south of the Wall, the northern outpost forts are also closely related to the road system. The foundation for the study of these northern forts remains Ian Richmond's article 'The Romans in Redesdale' (1940). Most of the major forts are located along Dere Street, the main route taken by Roman forces into Scotland. Again, as in County Durham, there is a notable lack of known forts in the east of the county. For example, there are no coastal forts between South Shields and Inveresk.

Heading north from Corbridge, the first fort after crossing the Wall was Risingham (Habitancum), which has only seen small-scale excavation in the 1930s (Richmond 1936), although geophysical survey has been carried out more recently across the floodplain in an attempt to locate the course of Dere Street, producing inconclusive results (Anderson *et al* 1992). Further north, High Rochester (Bremenium) has seen more extensive survey and geophysical work as well as limited excavation (Crow 2004). The earliest excavation, ordered by the Duke of Northumberland, took place in the mid 19th century clearing substantial parts of the fort's interior and providing a plan of much of the fort's internal layout. Small-scale excavation was carried out by Richmond in 1935 (Richmond 1936; 1940). More recent survey work carried out to inform a conservation plan revealed details of the western annexe that had partly been seen in the earlier excavations. Importantly, it was shown that this annexe was underlain by an earlier enclosure of Late Iron Age date (Crow 2004, 215-216, fig 14.4). The work also revealed the notable absence of any significant civilian settlement related to the fort.

Amongst the earlier forts, Blakehope has seen no significant archaeological work. At Chew Green, high on the Cheviots, the complex earthworks of a series of related camps and forts still survive in excellent condition. The remote location of these remains, however, means that little excavation has taken place at this site beyond a small amount of work in the 1930s (Keeney and Richmond 1937).

There are fewer forts related to the Devil's Causeway. The only certain site is Learchild (Alauna), which may have a Flavian origin. Excavation by Richmond in the 1940s has been supplemented by more recent geophysical survey (Crawford and Richmond 1949; Anderson *et al* 1992) which suggests that the fort is significantly larger than Richmond originally estimated.

Another possible military site on this road has recently been located at Wooperton Quarry, where a series of pits containing a large quantity of early Roman pottery have been discovered, along with some possible structural

remains (Carter 1998; 1999). Further sites along this road may remain to be discovered.

There are also a number of northern marching camps relating to a range of military campaigns, including Agricola's northern campaign and the later campaigns by Severus (Welfare and Swan 1995). A number of Flavian marching camps has been recognised, including Bellshiel, Birdhope, Chew Green, Dargues and possibly Silloans (Welfare and Swan 1995). Many were along the path of Dere Street, such as Chew Green (Keeney and Richmond 1937), though some pre-Dere Street camps have been recognised on Otterburn. In general there has been relatively little excavation on Roman camps, and their dating is often uncertain.

Native settlement

Archaeological research across much of the North-East has been dominated by the military, civilian remains have not been studied in anything like the same detail (Hingley 2004) and significant variations in regional patterns are still to be accounted for.

South of the Wall

The Tees has traditionally been seen as the northern boundary of Roman villa landscapes, but there is increasing evidence for a thin scattering of villas in the Tees lowlands. For example, recent excavations at Ingleby Barwick, Stockton and Faverdale, Darlington, have found the remains of villa complexes (ASUD 2000c; PCA North forthcoming). Traces of other possible villa sites have been recorded at Old Durham and Holme House near Piercebridge, and Dalton-on-Tees (just outside the region in North Yorkshire) (Romans *et al* 1944; Harding 1984). Not only do these villa sites have lower levels of material culture than those found further south, they also have more ephemeral foundations, which may explain their lack of visibility on aerial photographs. Their slight archaeological fingerprint may mean that there are more examples yet to be discovered in the region.

Apart from these few villa sites, very few significant civilian settlements have been excavated between the Tees and the Tyne. One exception is Thorpe Thewles (Heslop 1987). This site showed continuity from the Iron Age into the 1st century AD, and saw an initial enclosure around a central house being filled in as the settlement expanded. At Catcote (Teesside) the Roman site also had an Iron Age predecessor. Excavations on the site revealed a rectangular stone building, possibly a grain store. Other similar sites include Dixon's Bank and Bonny Grove Farm, Middlesbrough (Cleveland), and Newton Bewley (Teesside), although these excavations have yet to be fully published (Annis 1996). It has been noted that there is a distinct lack of settlement in the South Tees Basin on the major alluvium deposits, possibly because these were marshy in the Roman period.

Currently there is little certain evidence for civilian settlement between the Wear and the Tyne, though there are cropmarks for sites of probable Late Iron Age or Roman date. There has also been a problem in recognising Romano-British sites; the settlement at Apperley Dene on

Dere Street was originally interpreted as a Roman fortlet, before a re-examination of the evidence suggested that it was more likely to be a native settlement (Green 1978). The only Romano-British settlement to be excavated in the immediate vicinity of the frontier is still Milking Gap (Kilbride-Jones 1938), which contained late-1st to 2nd-century Roman pottery. This site is located between the Wall and the *vallum* and may have gone out of use when the latter was constructed. Other similar sites in the area, such as Fold Hill, near Sewingshields, and Green Brae, Crindledykes (both discovered during the aerial photographic survey of the Hadrian's Wall corridor) may well be of the same date (Gates 2004, 238-239).

Equally, the upland areas of the North Pennines appear to be devoid of recognisable Roman occupation beyond the occasional small settlement, such as Forcegarth Pastures and Dubby Sike, high in Teesdale (Fairless and Coggins 1980; 1986; Gidney and Coggins 1988). The lack of recognised settlements may well reflect the lack of sustained research into the later prehistory and Roman period of this upland area.



Figure 28 Roman / Iron Age house cut through by a later enclosure ditch at Fawdon Dean (Northumberland). © Archaeological Services Durham University

North of the Wall

The apparent lack of native settlement south of the Wall is in stark contrast to the quantity of surviving evidence to the north of the frontier, where the majority of sites have been identified in upland areas (Figure 28). This may well reflect the particular research interests and fieldwork of one scholar, George Jobey, who was responsible for identifying and defining these enclosures (e.g. Jobey 1960; 1978). In recent years this work has been supplemented by aerial photography (Gates 1997; 1999; 2000; 2004), which has revealed extensive landscapes, but much of the dating of the newly discovered sites has been based on assumptions about settlement morphology and will need confirmation by excavation. There are also morphological variations within the region. Settlements close to the Hadrian's Wall, particularly in North Tynedale and Redesdale, tend to be rectilinear in shape, in contrast to the more irregular settlements found to the north. Some sites also show clear evidence for settlement expansion from the Iron Age into the Roman period. This can be seen at Hetha Burn, where a settlement with two round houses expanded

into a village with around ten houses (Burgess 1984). Aerial photographic surveys along with large-scale landscape projects are also beginning to help archaeologists place Romano-British settlement in its wider context. There is increasing evidence for the relationship between settlements and cord rig, which has also been found in recent large-scale landscape projects, such as the Breamish Valley project (Frodsham and Waddington 2004).

Within the wider pattern of settlement there is still a notable lack of datable sites to the north of the Coquet and along the coastal plain. One gap which is starting to be filled in, however, is south-east Northumberland, where until recently very few sites were known, the notable exception being Huckhoe (Jobey 1959), which had rectangular buildings and a pottery assemblage that appears to continue into the 5th century AD. Since the advent of PPG16 a number of significant development projects have led to the large-scale excavation of several Iron Age and Romano-British occupation sites. At Pegswood (Northumberland), settlement there shows continuity from the Iron Age into the Roman period, when there was a significant phase of settlement replanning (Proctor 2002). Excavation of a number of Late Iron Age sites at the Great Park, Newcastle, has revealed a little evidence for continuity into the Roman period. A small amount of Roman amphorae and tile have been found at East Brunton; the amphora is Pelichet 47 and is likely to have arrived in the 1st century, early in the Roman period. Both Great Parks sites appear to have been abandoned before any other Roman material could reach them.

As well as simple native settlements there is also evidence for some occupation on hillfort sites, including Yeavering Bell and West Hill (Frodsham 1999; Hope-Taylor 1977, 267; Oswald 2004b, 208-211). Interestingly, in these cases it appears that although the sites were re-used there is no indication of re-use or re-fortification of the defences. It is important to note, though, that there are cases where hillforts appear to have been slighted or abandoned in the early Roman period, such as Dod Law (Smith 1988-89).

Towns and *vici*

Unlike the south of Britain, the north never developed a civil urban landscape, although *vici* developed around most forts, including Vindolanda, South Shields, Binchester, Bowes, Greta Bridge, Wallsend, Lanchester, and Housesteads. Many, such as Bowes, have only seen small-scale evaluation work, whereas significant excavation has been undertaken at Binchester, Piercebridge and Corbridge (Dore and Bishop 1989; Ferris and Jones 1980). Some sites have also had geophysical surveys (e.g. Cousins 1993) which show that *vici* are larger than previously anticipated. The survey at Halton Chesters showed not only the presence of buildings outside the fort, but also between the Wall and the *vallum* (Taylor *et al* 2000). Unfortunately, this expanding information base is not complemented by any quantity of recent excavation or field survey.

A few sites stand out from the rest of the *vici* on the basis of their size and their relationship to military sites. For example, the settlement at Piercebridge may precede the

known Roman fort there, and may therefore have more in common with the smaller towns of North Yorkshire, such as Catterick and Aldbrough. Corbridge was larger than many of the other settlements, and it may have been the centre for a tribal group, although it obviously had a major military input. Further work on *vici* may allow more distinctions to be drawn. The substantial number of coins found in the fort at Newcastle (dating from 270s to 364-375), for example, suggests that this may have been a market site. Clearly not all commercial activity need be confined to the *vici*, forts could also be a centre for exchange, though not all *vici* may have been in existence by this late date (Brickstock 2002).

Recent excavation and survey at East Park, Sedgfield, has revealed a large and complex site. A number of roads and a complex of enclosures are spread along a shallow valley to the west of the current town of Sedgfield (Figure 29 and see front cover). Excavation has revealed evidence for industrial production, including pottery manufacture. Although yet to be fully analysed, the ceramic assemblage indicates activity at the site into the second half of the 4th century AD. This substantial site is one of the largest Roman sites in the region, but unlike other proto-urban sites from the North-East, such as Piercebridge and Corbridge, there is no evidence for any military presence in the area.

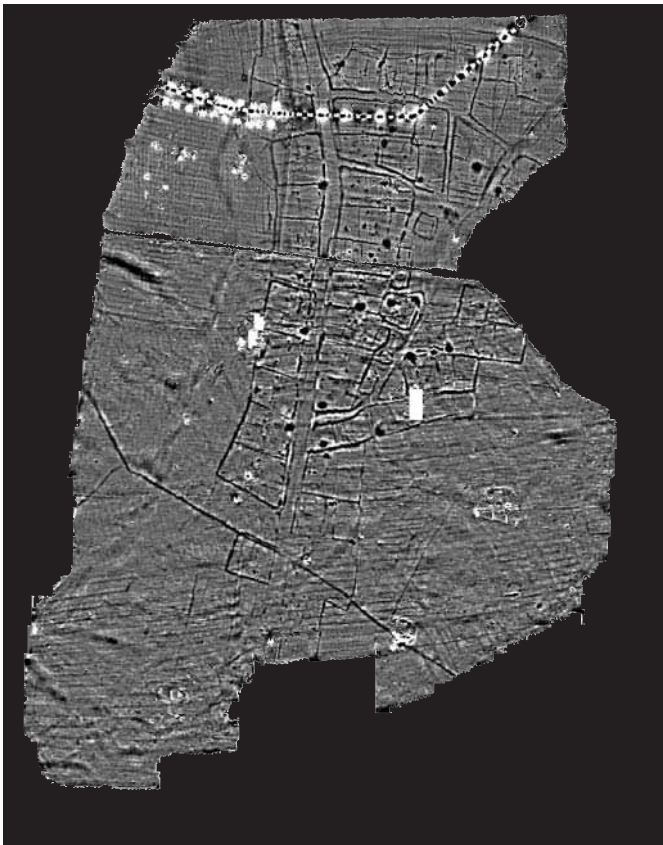


Figure 29 Geophysical survey of the Roman settlement at East Park, Sedgfield (Co. Durham). © Archaeological Services Durham University

The precise chronological trajectory of the *vici* is poorly understood due to the lack of extensive excavation, though it does appear that many contracted or were abandoned altogether by the 4th century, in contrast to small towns elsewhere in Britain.

Work is also required to assess the nature of the system of forts, roads and towns, and the relationship of these 'Roman' elements of the landscape to the native populations who continued, on the whole, to live in a variety of traditional settlement types.

Industry

There is widespread evidence for a range of Roman production, operating on different scales from domestic to industrial. Not surprisingly the biggest agent for production was the army. The environmental conditions from Vindolanda have led to excellent preservation of leather, giving a clear indication of the sheer scale and bulk of leather working required by a military installation, including both shoes, horse-gear and fittings (van Driel-Murray 1989; 2001).

A number of Roman military sites have produced evidence for non-ferrous metalworking, including the forts at Corbridge, Housesteads, Vindolanda, Carrawburgh, South Shields, Newcastle-upon-Tyne and Piercebridge, as well as at milecastles, such as Sewingshields, and even turrets (26a, 18B) (Allason-Jones and Dungworth 1997). Native sites, such as Huckhoe (Jobey 1959), undertook similar industrial activities.

Evidence for Roman metal extraction is, however, minimal. It is possible that there was some lead production in the North Pennines, but no direct evidence for lead mining has been discovered, though the location of the Roman fort at Whitley Castle, just north of Alston (Cumbria), is suggestive of an installation placed to oversee lead production, in the heart of what would later become a significant centre for mining. Lead sealings are also known from just outside the area at Brough-under-Stainmore (Cumbria). There may have been some ironstone mining at Skelly Braes, Birtley (Richmond 1955, 159), and iron smelting may have taken place at the native settlement at Tower Knowe (Jobey 1973b), though there are difficulties in distinguishing between smithing and smelting slags (Hedley 2004, 310). Coal mining, either using bell pits or open-cast methods, must have taken place as coal is known from a number of Roman sties, such as Housesteads, where it was used in iron smithing and working copper alloy (Starley 1996).

There is also significant evidence for quarrying. Most obvious are the Roman quarries associated with the construction of Hadrian's Wall. The discovery of a Roman coin hoard at Thorngrafton, near Barcombe Down quarry near Vindolanda, may indicate a Roman date for the commencement of quarrying at that site (Birley 1963), as does the discovery of a quarryman's inscription on a quarry face there (Wilson 2003). Epigraphic evidence from Haltwhistle Burn and Fallowfield Fell is also indicative of quarrying during the Roman period (Collingwood and Wright 1965, nos 1442, 1680). Without additional indicators of date like these it is difficult to evaluate the chronology of simple quarries, however, and much has probably been destroyed by later workings. Some limestone was clearly burnt for use in cement, and lime pits have been discovered at South Shields. A Roman limekiln was also found at the Knag Burn, near Housesteads (Simpson 1976, 152-156).

Stone was not only quarried for constructional purposes; its other major use was the manufacture of querns. Major survey work on the distribution of querns in the south of the region (the former county of Cleveland and the Durham districts of Darlington, Sedgfield and Teesdale) is being carried out by David Heslop on behalf of the Yorkshire Archaeological Society (Prehistoric Section). Significant numbers have been found at Quarry Farm, Ingleby Barwick and just outside the region at Stanwick (ASUD 2000c; Haselgrove 2002).

Pottery production is limited; military ceramics appear to have been mainly imported from outside the area, although there is some evidence for small-scale pottery production in a civilian context. Kilns producing grey coarsewares have been excavated at East Park, Sedgfield (Gallagher 2004), and unpublished kilns have also been recorded at Piercebridge (Swan 1984, 87), while tile kilns were also probably located at South Shields and Binchester (Gillam and Dore 1979, 29-32, figs 9-10).

Salt was also produced in the region, and is certainly documented around Coatham (Teesside). Briquetage fragments from Binchester of Flavianic and Trajanic date are indicators of some level of trade in salt.

There is a little evidence for Roman glass production in the North-East. Glass bangles may have been produced in the region or in adjacent areas to north and south. In general, evidence for production is limited to re-cycling of glass cullet (Price 2002), while evidence for secondary glass production (i.e. working pre-made glass into objects) in the North-East comes only from Binchester, where twelve fragments of glass-working waste were recovered, one with indications that it had been blown using an iron blowpipe. Although found in late and post-Roman contexts it is more likely that these fragments belong to the late 3rd or 4th century (Price 2002, 90).

Recent analytical work at Newcastle University has shown that there was industrial activity at South Shields working black rocks, including jet imported from Yorkshire, shales from Midlothian and Derbyshire, and cannel coals from the Northumberland Coal Measures north of Hadrian's Wall (Allason-Jones and Jones 1994; Allason-Jones 2003). There is also evidence for armet manufacture at Halton Chesters exploiting the Coal Measures available there (Allason-Jones 2002b, 116).

The sites of two watermills close to Hadrian's Wall were identified by F.G. Simpson at Haltwhistle Burn Head and possibly Willowsford Head (Simpson 1976, 32-43, 49-50).

Religion

Religious sites on the Wall

Despite the extensive surviving corpus of Roman altars surviving from the North-East, ritual and religion have been less studied. Existing work has tended to focus on epigraphic evidence, and almost exclusively on military religion (e.g. Zoll 1995; Irby-Massie 1999).

A number of temples are recorded from the line of the Wall itself, one of them to Antenociticus at Benwell (Tyne

and Wear). At Vindolanda the remains of a pre-Hadrianic temple have been excavated; this is the only example of a 'Romano-Celtic' temple (concentric cella and ambulatory) from the North-East. It was out of use by the mid 2nd century, and after demolition the site became a focus for burial instead.

At Carrawburgh a shrine to the water goddess Coventina included a possible stone structure or precinct and a masonry-lined well. This was the focus for extensive ritual deposition from the mid 2nd to the late 4th centuries. The votive deposits included over 13,000 coins, bronzes, stone altars, pottery, glass, leatherwork, jet and shale (Allason-Jones and Mackay 1985). Nearby, there was a shrine to the Nymphs and Genius Loci (Smith 1962).

Later Roman mystery cults are represented on the Wall, both epigraphically and architecturally. There is relatively extensive evidence for Mithraism. Mithraea are known from Housesteads (Daniels 1962), Rudchester and Carrawburgh (Northumberland) (Gillam and MacIvor 1954; Richmond *et al* 1951). All three sites have also produced related epigraphic and sculptural evidence, as has Lanchester (Collingwood and Wright 1995, no. 1082). Their distribution reflects the military nature of the cult. Although Christianity is traditionally not believed to have been strong in the army, there are a number of indications of its role in late Roman military life. Possible churches have been recognised at Vindolanda, Housesteads, and South Shields. Their exact date is not clear however, and they could potentially be post-Roman (Bidwell and Speak 1994, 44-46, 103-104; Crow 1989; Birley *et al* 1999, 22). Chi-rho symbols are also present on several of the silver vessels recovered from the Tyne (Petts 2003, 122).

Away from Roman forts a number of other smaller religious sites are known, though probably still military in nature. Two altars to Vinotonus have been recovered from a site on Scargill Moor (Co. Durham), together with the remains of two structures, presumably simple temples (Wright and Richmond 1948). North of the Wall a small carving of a naked horned god, probably Cocidius, has been found carved onto living rock at Yardhope, with some evidence for a simple associated structure (Charlton and Mitcheson 1983). A similar carving has also recently been discovered near Chesters fort.

There is a substantial surviving epigraphic record of religious activity. *Roman Inscriptions in Britain* lists 57 altars from County Durham, 189 from Northumberland, and 26 from Tyne and Wear (to which can be added more recent discoveries) (Collingwood and Wright 1995). With a few exceptions, most are from military sites, and this mode of religious expression does not appear to have been adopted by the native British. A range of gods is recorded on these altars and other sculptural fragments, including the imperial cult, traditional Roman gods (e.g. Jupiter, Mercury), eastern gods (e.g. sculpture relating to Jupiter Dolichenus from Corbridge, and altars to the same god at Chesters), 'Celtic' gods (such as Cocidius and Antenociticus), and gods of uncertain origin, such as Veteris.

As well as specific religious sites, there is also evidence for wider ritual activity. As the evidence from Coventina's Well suggests, ritual or votive deposition could be an important element of Roman religious activity. This reflects a wider Roman and indeed Iron Age practice found in Britain and northern Europe, often associated with watery contexts. A number of Roman metal objects has been recovered from the River Tees at Piercebridge (Co. Durham), in quantities large enough to suggest that they are not mere accidental losses (Casey 1989). The discovery of a series of Roman silver plate objects from the Tyne around Corbridge and Bywell, including the famous Corbridge *lanx* and several other silver cups and vessels, suggests that at least one silver plate hoard may have been placed in the river (Nicholson 1995; Petts 2003). Fraser Hunter has drawn attention to wider north-eastern context of the practice of ritual hoarding, including the deposition of *patera* (e.g. Capheaton) (Hunter 1997).

Death and burial

As with so many other aspects of Roman-period archaeology the best evidence for burial is from military sites. *Roman Inscriptions in Britain* lists 6 tombstones from County Durham, 59 from Northumberland and 8 for Tyne and Wear (there are also more recent additions to this total) (Collingwood and Wright 1995). These are exclusively from military forts or *vici*, though some do record the burial of civilians.

A mixture of inhumations and cremations has been found at Lanchester, dating from the mid 2nd to the late 3rd century. The excavators interpreted these as civilian rather than military burials (Turner 1990). A similar mix of cremations and inhumations has also been excavated at South Shields (Snape 1994) to which can be added a number of 5th-century burials from a small cemetery outside the south-west gate of the fort, and from inside, two individuals who had been executed and subsequently buried in the ruins of the late-Roman commanding officer's house (Bidwell and Speak 1994, 45-46, 143-144; Hodgson 1999, 82). Other cases of Roman burials re-using structures are known. Three skeletons were found placed in the apse of the Temple of Antenociticus when it was excavated in 1862 (Simpson and Richmond 1941, 38), and 33 human skeletons were found in the bathhouse at Chesters (MacDonald 1931).

North of the Wall a group of about sixteen burials in small barrows has been explored at Petty Knowes, High Rochester (Mitcheson and Charlton 1984). New light on Roman cist burial has also been shed by a recent re-evaluation of a stone-lined grave from a milecastle at Sewingshields (Crow and Jackson 1997) and a number of other cist burials is known from the Wall, all probably of Roman, rather than early medieval date (e.g. Turret 39a at Peel Crag, and Milecastle 9 at Chapel House; Simpson 1976, 100, 102-103, fig 22; Birley 1930, 154, Pl 48). One additional site from a military context that deserves to be mentioned is the massive mausoleum at Shorden Brae (Gillam and Daniels 1961). This monument was built at some point in the second quarter of the 2nd century AD and demolished in the later 4th century. It clearly belonged to an unknown high ranking officer.

There is far less evidence for civilian burial. Unlike the southern areas of England there appears to have been no widespread practice of the deposition of unaccompanied or accompanied cremations except at military sites (Philpott 1991, 221). A pair of burials is known from Hartlepool (Daniels et al 1987) and more graves are known at Newton Bewley (Robin Daniels pers comm) and Ingleby Barwick (Richard Annis pers comm). In the north of the region, there is an unusual group burial from Beadnell (Tait and Jobey 1971). Tait and Jobey also list nearly 20 cist burials from southern Scotland and Northern England of Iron Age or Roman date; while not enough examples have been found to indicate that this was ever a majority rite, it certainly indicates that this was part of the wider regional native burial tradition (Tait and Jobey 1971, 61, 66-69).

The lack of Roman human bone assemblages is perhaps more surprising considering the excellent cemeteries excavated elsewhere in the province, such as York. The cemeteries at South Shields, Petty Knowes, and Lanchester have all produced only cremated bone, despite the presence of inhumation burials, presumably due to acid subsoils.

Material culture

Ceramics

The great number of military sites in the North-East has, unsurprisingly, produced large amounts of Roman pottery. The quality of publication of these assemblages is, however, variable. Whereas more recent publications are strong, many of the older site reports are of limited use. A statement on the research priorities for Romano-British pottery studies in the north has been prepared by the Study Group for Roman Pottery, who also produced a research framework document for the national study of Roman pottery in Britain (Evans and Willis 1997; Willis 2004).

There is no doubt that the area was importing pottery from all over Roman Britain and beyond. The variation in the size and nature of assemblages is, however, immense. The *vici* consumed a wider range of pottery types than the forts. This may reflect the ability of civilians to obtain a wider range of ceramics than the army, who may have been limited by contracts and military bureaucracy. Military assemblages remain significant, and important assemblages have also come from the Tyneside forts, including South Shields, Wallsend and Newcastle, where there has been extensive modern excavation (see above 'The Roman frontier'). Other important assemblages include those from Vindolanda (Bidwell and Speak 1994), though there is still scope for further synthetic work on all these major groups of ceramics. Their distinct chronological horizons and often limited periods of occupation mean that forts can help provide important chronological information about Roman pottery, both within Britain and beyond. Outside military and *vici* sites there is less Roman pottery. Some smaller sites from Cleveland and Durham contain pottery from the Nene Valley, East Yorkshire, and Vale of Pickering pottery industries. In the later 1st and earlier 2nd century there was considerable local pottery production by the military and its contractors.

Roman pottery is also known from a growing number of native sites beyond the Wall, although not in large quantities. In general, there is very little evidence for native pottery production in this region. There appears to have been some continuity of native pottery-making traditions, for example the so-called Local Traditional Ware at Newcastle, which has also been found at Corbridge, South Shields, and Wallsend (Bidwell and Croom 2002, 169-70). One fabric group (LTW Group 1) may have been produced on the Northumbrian coastal plain between the Aln and the Wear; the other (LTW Group 2) probably came from near South Shields or just to the north of the Tyne.

Pottery may also facilitate the recognition of possible external ethnic groups; it has been suggested that 'Housesteads Ware' may have been made by Frisian units stationed on the Wall, and Vivien Swan has suggested that it may be possible to recognise African troops on the basis of locally made ceramics with North African affinities (Swan 1992; 1999).

Glass

with Jenny Price

Glass vessels (generally tablewares and containers) and objects (generally bangles, beads and counters or gaming pieces) have come from virtually all Romano-British sites in the region, and very large groups were found in excavations at Binchester, Piercebridge and just over the border at Catterick, though currently only the Catterick has been published (Cool, Price and Cottam 2002). The majority of the

vessels were produced in the north-west provinces or in Britain itself, but it is clear that more exotic pieces were also present in the region, such as the mould-blown cup with a Greek inscription from Binchester (RIB II2, no2419.38) and two polychrome mosaic plates from Piercebridge (Price, J. 2002) and Quarry Farm, Ingleby Barwick (unpublished), both of which may have come from Egypt.

Glass bangles have been found on a wide number of Roman and native sites. They appear to be made from recycled glass. Originally thought to have been Scottish items traded south, work by Jennifer Price on examples found in East Yorkshire shows that their distribution is wider than previously thought, and their place of manufacture is not certain (Price 1988). They appear to date primarily to the 1st and early 2nd century.

Small finds

The Roman forts and *vici* have produced large quantities of small finds (Allason-Jones and Milet 1984; Allason-Jones 1988; Allason-Jones and Bishop 1988; Allason-Jones and Mackay 1985; Birley *et al* 1993; van Driel-Murray *et al* 1993; Croom and Snape 1996; Snape 1993; Snape and Bidwell 2002). In addition to the published material, there are a number of completed reports awaiting publication (e.g. Halton Chesters, Wallsend, Housesteads, Piercebridge and Binchester). The substantial nature of this resource makes it a significant research area, the level of cataloguing allowing more complex, synthetic work to be carried out (Allason-Jones 1995; 2001a; 2001b; 2002a; 2004; Birley 2002). It is increasingly possible to recognise distinct



Figure 30 Pieces of a very unusual polychrome glass bowl of eastern Mediterranean origin found at the Quarry Farm, Roman villa, Ingleby Barwick, Stockton-on-Tees (Teesside). © Archaeological Services Durham University

distributions of artefact types, particularly with respect to buildings within forts. Quantitative and qualitative analysis of some of the more prosaic items is also starting to produce information which is having an impact on finds study throughout the Empire (Allason-Jones 1985; Allason-Jones and Dungworth 1997).

Only small assemblages of objects have been recovered from rural sites, with a clear distinction between sites south of the Wall (such as Thorpe Thewles; Heslop 1987) and north of the Wall (Allason-Jones 1991). The southern sites seem to contain slightly larger assemblages, while the inhabitants of northern sites appear to have utilised little material culture, although they may have been producing artefacts for the Roman military market.

Groups of silver vessels have been found in the region, although not as many as in other regions of Roman Britain. They include a group found in Capheaton in the 18th century, probably dating to the 2nd century AD, the Backworth hoard including a silver *patra* (found early 19th century), and Corbridge (including the Corbridge lanx) (Craster 1909; Haverfield 1914a). There are a large number of bronze vessel hoards, with examples known from Bishop Middleham, Rookhope (Co. Durham), Ingoe, Whitfield Moor and Prestwick Carr (Northumberland) (Egglestone 1917; Hodgkin 1891; Wright 1969).

Jewellery formed an important element of the Backworth hoard, while the jewellery hoard from Great Chesters included the gilt bronze Aesica brooch considered to be a masterpiece of Celtic design, and several intaglios (Charlesworth 1973). Intaglios found in the region prior to 1978 have all been published by Martin Henig (1978). It is likely that many of these deposits were related to the wider practice of ritual deposition, found in North-East England and elsewhere (see above; Hunter 1997).

A high percentage of the small finds in the region is made from copper alloy, some imported, some manufactured locally. Iron objects are less prevalent, although the catalogue produced by Manning remains an important reference work (Manning 1976). Lead artefacts tend to consist of building and plumbing fragments, although the lead shrine found during excavations at Wallsend is a remarkable survival and shows a more decorative use of lead for religious purposes (Allason-Jones 1984). It is interesting to note that at the recent excavations at Ingleby Barwick there were more stratified lead objects than iron ones (ASUD 2000c).

Bone and antler artefacts are more commonly found on military sites on the Wall itself rather than on the native sites or the forts north and south of the Wall, although this may be a consequence of the acid soils in the area. Organic material, such as leather, is rare, though particularly fine assemblages are found at Vindolanda (van Driel-Murray *et al* 1993).

Major museum collections

The long history of archaeological endeavour on Roman sites in the region, and the generally high level of material

culture from military sites of this period mean that there are substantial museum collections. Significantly, most of the important material has remained in the region; the only really important collection of finds not currently curated in the North-East is the archive of Vindolanda tablets which have been transferred to the British Museum by agreement with the Vindolanda Trust.

The two most important collections are those held by the Museum of Antiquities in Newcastle, and the English Heritage Hadrian's Wall Collections. The Museum of Antiquities holds finds from sites in Northumberland and Tyne and Wear, with Roman objects comprising around 40% of the total museum collection.

The epigraphic collection includes 200 altars, 65 tombstones, 200 other inscriptions, and 133 other sculptural items. Major items from the museum include the Aesica hoard of jewellery, the bear cameo from South Shields, Mithraic sculpture from Housesteads, Carrawburgh and Rudchester, and material from the Temple of Antenociticus at Benwell. It also holds domestic artefacts and one of the largest collections of Roman jewellery in the country. As well as objects the museum is also home to a major aerial photographic library and the Hadrian's Wall Photographic Archive, in addition to other extensive archives and the Cowen Library.

The English Heritage Hadrian's Wall Museum's Collection comprises three separate collections: the Clayton Collection, the Housesteads Collection and the collection from Corbridge. The Clayton collection, on display at Chesters, was formed by John Clayton between around 1840 and 1890. It incorporates a small amount of material acquired by his family at an earlier date, but also includes material acquired after John Clayton's death, mainly as a result of F. G. Simpson's excavations at Haltwhistle Burn and Housesteads (Wallis Budge 1903). This material all comes from the central sector of the Hadrian's Wall corridor (Halton Chesters to Carvoran) and was acquired either through Clayton's excavations, through his ownership of the land, inheritance or deliberate purchase. The greatest number of items is from Chesters fort itself, but the other main sites represented include Nether Denton, Carvoran, Great Chesters, Vindolanda, Housesteads and Carrawburgh. There are around 1,900 artefacts on display (almost all Roman). The 372 items of stone sculpture and inscriptions are of national importance and many items relate directly to the construction of Hadrian's Wall, while others are of importance for the history of the Wall, its units and religious cults. The wide range of small finds includes the Carvoran *modius* and the objects from Coventina's Well, as well as iron tools and weapons from Chesters. The remaining reserve collection is stored and includes 4,000 catalogued items and around 800-2,000 uncatalogued objects. It consists mainly of small finds and pottery. There are few coarsewares, but there are larger quantities of Samian and mortaria, one of the more interesting collections being the fragments of painted wall-plaster from the commanding officer's house.

The Housesteads Collection includes objects from the excavations in the 1930s on the *vicus* and the work by Charles Daniels in the 1970s and 1980s, as well as over 500

fragments of architectural stone. The Corbridge Roman Site Museum holds material from the 1906 excavations onwards comprising work done 1906-14 and from 1933 to c. 1972 and again in 1980. This all comes from the Corbridge Roman site or its immediate environs, the latter including the Shorden Brae mausoleum, the supply base at Beaufront Red House and the A69 bypass excavations.

The museum display includes material from Red House and other important assemblages, such as the Corbridge Hoard. The exhibited material comprises just 5% of the total collections, the rest being stored on site or at the Hadrian's Wall Museum stone store. About 30,000 items are catalogued (including around 6,500 coins) while an estimated 15-20,000 objects remain to be catalogued; the most important collection in this group is the Samian ware. Most items or groups of items are inventoried and accessible.

Two major collections relating to North and South Tyneside are held by Tyne and Wear Museums. For South Tyneside the majority of the collection consists of material and archives from excavations at Arbeia Roman Fort and its surroundings. Much of this comes from Victorian excavations at the site from 1875 onwards, excavations in 1949-53, and from the excavations carried out by Tyne and Wear Museums since 1977. This last constitutes the largest collection of securely stratified material from any site in the Hadrian's Wall World Heritage Site. The collection also includes the Bruce Library of antiquarian books, archival material and ephemera relating to Hadrian's Wall, and watercolours by Ronald Embleton. Material from archaeological fieldwork in the district also forms part of the collection. South Shields Museum and Art Gallery also has a small collection, dating back to the 19th century, of archaeological artefacts from a range of locations and periods. The bulk of the North Tyneside material is made up of material and archives from the excavations at Segedunum Roman Fort and its surroundings (Wallsend) from 1975-84 and 1988-2001. Material from archaeological fieldwork from the district is also kept at Segedunum.

The Vindolanda Trust owns a substantial and unique collection of site-specific artefacts excavated from Vindolanda during the last 34 years. The collection increases annually as a result of the on-going excavation programmes. The following gives an indication of the extent of the Vindolanda Trust's collection at the present time. It must, however, be noted that individual acquisition numbers, for leather, pottery and bone may refer to composite assemblages rather than a single object. Vindolanda's collections of textiles, leather, and wooden objects represent the largest single site collection anywhere from the Roman world. Each of these collections contains individual pieces of rare and outstanding quality. There are over 9,800 'small finds', 1,300 coins and 159 stone inscriptions and sculptural fragments, 5,870 leather fragments, 632 textile fragments, 1,580 wooden objects, two tons of bone and six tons of pottery.

Among the smaller museum collections in the region, Alnwick Castle Museum contains mainly objects from the Duke of Northumberland's lands (Collingwood Bruce 1880). The Roman collection is relatively small, but includes some pottery, a collection of small finds from High Rochester and a number of miscellaneous items, including bronze vessels from Newham Bog and a fragment of a military standard from Halton Chesters.

In County Durham the Bowes Museum acts as the principal collecting body for the county (except Durham City) and holds the finds from a number of excavations, including Binchester, Chester-le-Street sites, Ebchester, Greta Bridge and Piercebridge, as well as the Scargill shrine altars and the *paterae* from Bishop Middleham. The Old Fulling Mill Museum in Durham acts as the collecting body for Durham City, but also has significant collections relating to the work of Eric Birley when he was lecturer of archaeology in Durham, as well as the Oswald-Plique Samian collection, which is of international importance.

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7. Resource assessment: Early Medieval

The Early Medieval Specialist Group consisted of Gail Foreman (independent consultant), Paul Gething (Bamburgh Research Project), Colm O'Brien (School of Education and Lifelong Learning, University of Sunderland), David Petts (Durham County Council), Steve Sherlock (independent consultant), Laura Sole (Bede's World), and Sam Turner (Dept of Archaeology, University of Newcastle).

History of research

The literary output of Bede and the production of works of art, such as the Lindisfarne Gospel and the *Codex Amiatinus*, have ensured that the Golden Age of Northumbria has a high public profile. However, there is much more to the early medieval archaeology and history of the region than this short-lived flowering of ecclesiastical high culture. The surviving resource includes nationally important sites, such as Bamburgh, Lindisfarne, Yeaveering, Monkwearmouth and Jarrow, in addition to a fine corpus of stone sculpture and a number of surviving Anglo-Saxon churches of 8th to 11th century date (Figure 31).

The best studied of these remains are undoubtedly the widely distributed and highly visible fragments of carved stone sculpture, associated almost exclusively with ecclesiastical sites. Many of these were discovered during 19th-century church restoration, built into later medieval fabric. In addition, the latter half of the 19th century also saw the beginning of more synthetic discussions of Northumbrian sculptural traditions. The earliest were the works of G. Baldwin Brown, who was followed in the early 20th century by W. G. Collingwood. From the 1960s this field of study has been dominated by the work of Rosemary Cramp, who was responsible for the first volume of the *Corpus of Anglo-Saxon stone sculpture*, a project which comprehensively covered all the early medieval sculpture from the north-east region (Cramp 1984) and has since been rolled out nationally.

The rate of archaeological excavation on early medieval sites has increased since the 1980s. This has partly been due to some research excavations, such as the University of Leicester's work on Green Shiel at Lindisfarne (O'Sullivan and Young 1991), Anthony Harding's excavations at Milfield Henge (which produced several unexpected Anglo-Saxon burials) (Tinniswood and Harding 1991), and Colm O'Brien and Tim Gates' excavations at New Bewick (Gates and O'Brien 1988). From the 1990s there has also been an increase in the discovery of sites due to excavation carried out in a planning (PPG16) context: a further cemetery has been discovered in Norton recently, while excavations in the centre of Darlington have revealed Late Anglo-Saxon burials. Despite the rise of such developer-funded work, research work often continues as part of community projects, among them the campaign of excavations at Bamburgh and the Hartlepool Headland project.

Existing research frameworks

A number of research agendas and recommendations

have, at one time or another, been created for the early medieval period. The earliest was Martin Carver's list for pre-conquest Durham, which included an early demand for what amounted to deposit modelling, as well as the full publication of the late-18th-century excavations on the Chapter House (Carver 1980). Local issues were also addressed in the papers published in *Past, present and future: the archaeology of northern Britain* (Brooks *et al* 2002) which included an overview of the period of Roman to Anglo-Saxon transition by Chris Loveluck (2002). Research priorities highlighted there included the investigation of upland land-use through pollen cores, increased sampling of faunal remains, publication of Brian Hope-Taylor's excavations, and a wider awareness of the role of burial for the understanding of early medieval religion and social identity. The later part of the Anglo-Saxon period (c. 700-1100) was addressed by Rachel Newman (2002). Limiting herself to evidence for Christianity, she pointed to the need for more work on minsters, the economic power of the church, and the role of the church in early urbanism, emphasising the need to and integrate evidence from the north-west and north-east of England as well as southern Scotland.

While the evidence for early medieval urbanism in the region is slight, it is important to be aware of a series of overviews of urban archaeology published recently (e.g. Addyman 2003). The framework for urban/rural interaction based on the Urban Hinterland Project (Perring *et al* 2002) made a series of methodological recommendations which should be implemented when exploring the early medieval origins of north-eastern towns, such as Newcastle, Berwick, Durham, and Hartlepool. The notion of 'recovery levels' and better dissemination of existing archives seem especially relevant.

A series of agendas and recommendations have tackled the issue of rural settlement and landscape change. The policy on the research, survey and excavation of medieval rural settlements compiled by the Medieval Settlement Research Group (MSRG 1996) highlighted the need to understand regional distinctiveness and the process of settlement nucleation. It also recommended further interdisciplinary research which combines environmental, documentary and archaeological skills. A number of managerial issues were also put forward, including the need for research to feed into planning decisions, both as advice to development control archaeologists and as a strategic influence in District Local Plans, etc. Steve Rippon also echoed this need for academic input into development control in his personal comments on the future of medieval settlement (Rippon 2002). He made it clear that future landscape work should ignore traditional chronological divisions, and highlighted the need for more long-term, large-scale excavation and survey work.

Landscape and environment

Patterns of long-term landscape change, particularly the impact of the transition from the Roman to the early

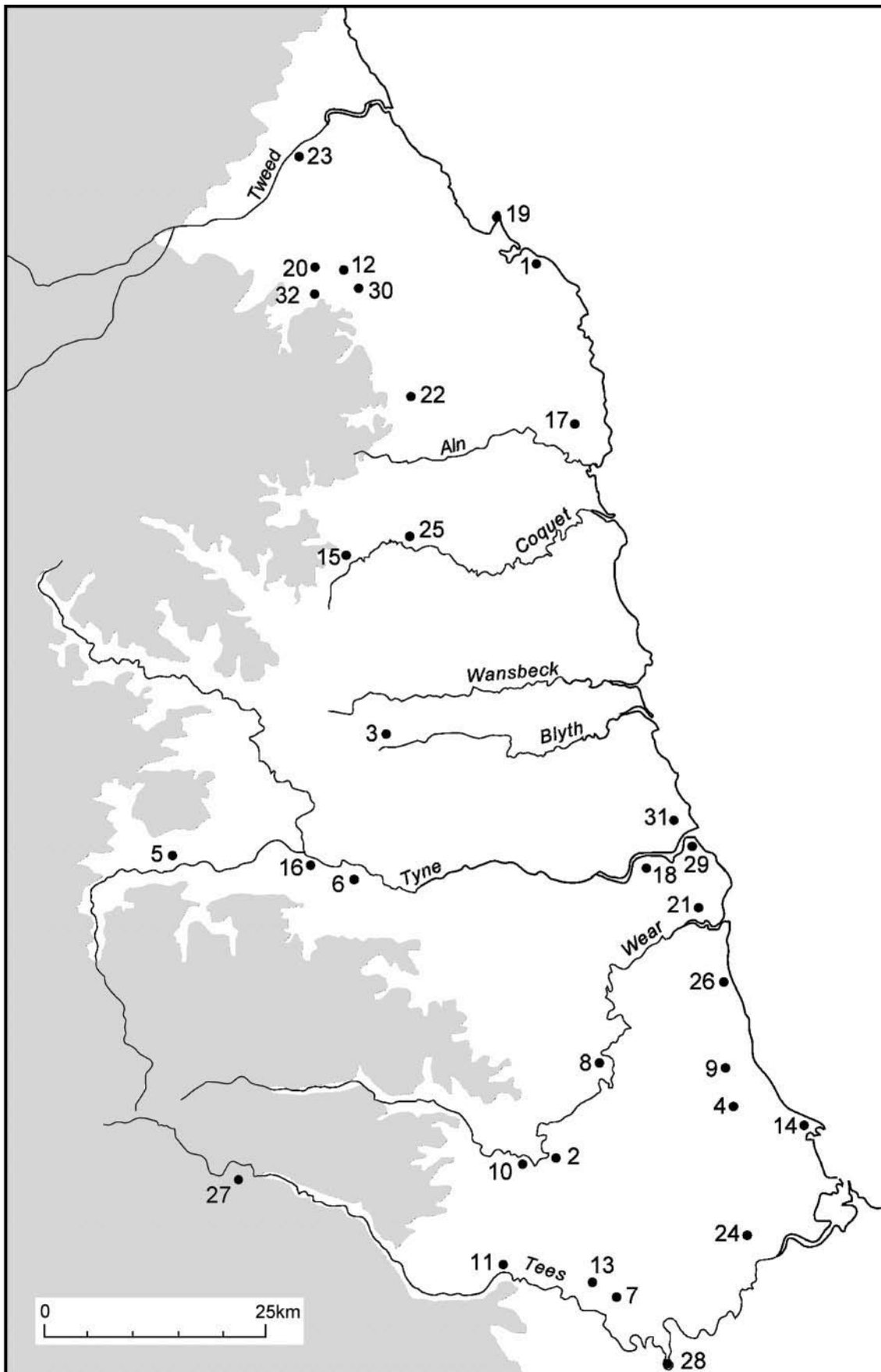


Figure 31 Key early medieval sites mentioned in text: (1) Bamburgh, (2) Binchester, (3) Capheaton, (4) Castle Eden, (5) Chesterholm, (6) Corbridge, (7) Darlington, (8) Durham, (9) Easington, (10) Escomb, (11) Gainford, (12) Gayle, (13) Green Bank, Darlington, (14) Hartlepool, (15) Heppple, (16) Hexham, (17) Howick Heugh, (18) Jarrow, (19) Lindisfarne, (20) Milfield, (21) Monkwearmouth, (22) New Bewick, (23) Norham, (24) Norton, (25) Rothbury, (26) Seaham, (27) Simy Folds, (28) Sockburn, (29) South Shields, (30) Thirlings, (31) Tynemouth, (32) Yeavering (map drawn by Yvonne Beadnell)

medieval period, are best addressed through palynological evidence. At Hallowell Moss (Co. Durham) clearance appears to continue throughout the Roman period until the later 6th century, and Fellend Moss (Northumberland) showed stability in its landscape until the 7th century AD (Davies and Turner 1979, 789). Further north, pollen from Broad Moss (Northumberland), close to Yeavinger, indicated landscape continuity and arable farming (Davies and Turner 1979, 796). Stability in open heathland, rather than arable landscapes, is indicated at Drowning Flow and Bloody Moss (Northumberland) (Moore 1998, 244). At Fozy Moss, however, there is clear evidence for the regeneration of woodland following the Roman withdrawal (Dumayne and Barber 1994). A similar pattern of regeneration (but commencing c. AD 500) was also found at Sells Burn and Steng Moss, where agriculture apparently only commenced in the later 9th century AD (Davies and Turner 1979, 794; Moore 1998, 245). The evidence from samples taken close to the mid-8th-century settlement at Simy Folds in Upper Teesdale shows the presence of cereal pollen at even this relatively remote site (Coggins *et al* 1983). Pollen studies on the Lough at Lindisfarne meanwhile have suggested that it may have been significantly altered or even created in the 7th century AD (O'Sullivan and Young 1995; Brown *et al* 1998).

Insufficient excavation on early medieval sites means that there is meagre environmental evidence from archaeological contexts. The quantity of surviving invertebrate remains is correspondingly small, with nothing to match the 10th/11th century and 11th/12th century deposits from 61-63 Saddler Street, Durham (Kenward 1979). This was one of the first urban deposits from the north to be explored for insect remains. There are also limited quantities of plant macrofossils, mostly from the ecclesiastical sites at Hartlepool, together with a small quantity of pollen evidence recovered at Monkwearmouth (Huntley 1987a; 1990; Huntley and Stallibrass 1995, 62-63).

A number of bone assemblages also survive. Despite the potentially poor burial environment, some animal bone was recovered from the palace site at Yeavinger (Hope-Taylor 1977, 325-327; Higgs and Jarman 1977); an assemblage dominated by head bones from young adult cattle. Some bone, all calcined, was also recovered from the henge monument there (Tinniswood and Harding 1991). Assemblages from ecclesiastical sites include those from Jarrow, Monkwearmouth and Hartlepool (Noddle 1987; 1992; Rackham 1988a) and fish bones were also recovered from excavations in Holy Island village (O'Sullivan 1985; Allison *et al* 1985). There are no major urban assemblages from Newcastle (except a small group from Blackgate), though there is an important collection from 61-63 Saddler Street, Durham, which contains bird (including capercaillie) and fish bones (Rackham 1979).

Apart from the environmental evidence, information on Anglo-Saxon agriculture is hard to come by. Although there are many relict field systems in most of the upland areas of the region, these are difficult to date, and where they have been, they mainly show either a prehistoric or medieval origin. An important question is when the

medieval shieling system developed, and it is unclear whether upland sites, such as Simy Folds, were shepherd's bothys or permanent farmsteads (Coggins *et al* 1983). There is some evidence for crop processing, the most important being the horizontal watermill excavated at Corbridge (Snape 2003). There is also information about crop processing on a household level; a fragment of a quern being found at Simy Folds (Coggins *et al* 1983).

Settlement

The evidence for early medieval settlement in the North-East is extremely variable. Some areas, particularly the Milfield Basin (Northumberland), have important surviving sites, but elsewhere, particularly in County Durham, very little has been found.

Better known for its important prehistoric landscapes, the Milfield Basin has evidence for early medieval occupation in a number of locations. The most significant site is the nationally important centre at Yeavinger, which has been the subject of extensive excavation (Hope-Taylor 1977). Although some of the excavator's conclusions have been questioned (Scull 1991), this remains an important and unusual site. Conventionally associated with Bede's *Ad Gefrin* (Ecclesiastical History II.15), it includes a complex of halls and an unusual palisaded enclosure and amphitheatre-like structure (known as the *cuneus*). More recent excavation on a neighbouring prehistoric henge monument also revealed evidence for early medieval metalworking (Tinniswood and Harding 1991). The site is now undergoing a major campaign of geophysical survey which aims to place the structures identified by Hope-Taylor and others into a wider landscape context.

Nearby, at Milfield, is another probable palace site, associated with Bede's *Maelmin* (Ecclesiastical History II.15). Aerial photography and geophysical surveys have shown a complex of halls, enclosures and grübenhäuser; a small amount of excavation has taken place on a timber post-hole structure (Gates and O'Brien 1988, 3). Crop marks have shown another similar site at Sprouston (Scotland), close to the Tweed (Loveluck 1990).

To the south-east of Maelmin is a further, smaller, settlement site, again identified through cropmarks, at Thirlings (O'Brien and Miket 1991). Structures here have a range of constructional techniques and, like the other excavated sites in the area, an insignificant quantity of material culture. Around 15km to the south-east of Thirlings a further site, New Bewick, was identified from cropmarks and later subjected to small-scale excavation (Gates and O'Brien 1988).

It is important to question how far this cluster of sites in North Northumberland is a real phenomenon reflecting intense early medieval activity in the region, or is simply due to the intense amount of aerial photography and academic research in the Milfield Basin by scholars of all periods. The area is also particularly conducive to the formation of cropmarks, in stark contrast to other parts of the region, such as Teesside, where even Roman villas are invisible from the air.

A second cluster of sites comprises Bamburgh and Lindisfarne (Northumberland). Unpublished excavations by Brian Hope-Taylor and current excavations by the Bamburgh Research Project have shown that Bamburgh is of exceptional importance, although until Hope-Taylor's work has been fully analysed and published it is difficult to get a real understanding of the site. On nearby Lindisfarne excavation has taken place at Green Shiel, possibly a farmstead dependant on the monastery there. A series of stone structures were uncovered there, together with coins, bone comb fragments and iron knives (O'Sullivan and Young 1991). Recent excavations, also on the island, at the Winery site on Lewin's Lane found a ditch containing a 9th-century bone comb and two possible cess pits (Williams 2000).

One unusual site is Huckhoe in the Wansbeck Valley. Though it began life as a Romano-British farmstead, excavations by Jobey suggested that the rectangular buildings which replaced the circular houses continued in use into the 5th or even 6th century AD (Jobey 1959, 247-250). The site also produced pottery identified as a post-Roman import from Ireland (Thomas 1959). Although early reports suggested that there might have been some Anglo-Saxon occupation at West Whelpington, subsequent excavation failed to produce structural or artefactual evidence to confirm this (Evans *et al* 1988). It was clearly a village, however, before the end of the 12th century.

Another important feature in the early medieval North-East is the frequent re-use of Roman military sites (Wilmott and Wilson 2000). There is on-going debate about the afterlife of forts along the Wall (Casey 1993; Dark 1992; Dark and Dark 1996; Wilmott 2000). Just outside the region, Birdoswald shows significant levels of early medieval activity, with late Roman granaries being converted into post-Roman hall houses (Wilmott 1997, 203-222). A number of sites in the region also show some level of post-Roman use, such as South Shields, which had a ditch cut across the outside of its south-west gate sometime in the early 5th century. This ditch was later filled in and the gate returned to use (Bidwell and Speak 1994, 48). At Binchester the evidence from excavations on the commandant's house suggests continued activity into the 5th century. Midden deposits here were overlain by a flagstone floor associated with fragments of sawn antler (Ferris and Jones 2000). Further probable 5th-century re-fortifications include the addition of earthen banks to support pre-existing walls at Housesteads and Chesterholm (Crow 1989; Bidwell 1985, 46). There are also both Anglo-Saxon and sub-Roman burials associated with forts (see below).

Of possible interest in this context is The Castles, Bedburn (Co. Durham), which is, unusually, quadrangular in form with stone ramparts. Although the subject of several investigations, the date of this site has never been ascertained, though it may be an early medieval attempt to imitate a Roman fort (Birley 1954; R. Collins 2002).

Very little evidence for occupation comes from the lowlands south of the Tyne. The partial remains of a single structure at Ferryhill Police Station were dated to the 10th

century by an associated bone mount (Batey 1990). Traces of a possible late Anglo-Saxon structure were also recorded during a watching brief at Seaton Holme, Easington (Daniels *et al* nd).

There is some evidence for occupation in the uplands. A radiocarbon date from charcoal found during excavations on a group of rectangular buildings at Simy Folds in Upper Teesdale placed them in the mid 8th century AD (Coggins *et al* 1983). The buildings, paired at right angles and placed around a small yard, were sited within an extensive field system of possible early medieval date. The small finds assemblage comprised a spindle whorl, an iron ring and a fragment of rotary quern. This site shows parallels with other upland farms elsewhere in the Pennines, such as Gauber High Pasture (King 2004). It is difficult to date, however, purely on the basis of morphology; rectangular buildings from the same area have been found to have a later medieval chronology (Coggins 1992).

There are also hints at some kind of activity or re-use on Northumbrian hillforts. Radiocarbon dates from Wether Hill suggest some kind of activity here in the 6th century AD, though its nature is unclear (Frodsham 2004, 65). Another hint of early medieval hillfort occupation comes from Brough Law, where an early medieval iron knife was found in the 19th century (Tate 1863a). It has also been suggested that there may have been some form of early medieval activity at the Iron Age enclosure at Ingram (Hogg 1942; 1956; Jobey 1971; Frodsham 2004, 73).

The origin of urbanism in the North-East is poorly understood, although Hartlepool, Newcastle, Durham, and Darlington all have pre-conquest origins. Notably, all are associated with ecclesiastical sites. At Durham, much of the earliest occupation is probably beneath the castle and cathedral, though the excavations at Saddler Street revealed much about the Saxo-Norman city (Carver 1979). Excavations further south, in the Market Place at Darlington, revealed a probable Late Anglo-Saxon cemetery, presumably associated with a minster church (ASUD 1994), and it is possible that the large ditch known to have lain near North Lodge Park may have been an Anglo-Saxon defensive structure, though elsewhere the evidence is more speculative. It has also been suggested that the large bank and ditch on Spade's Mire at Berwick-upon-Tweed may be of early medieval date (White 1962; Williams 2001). Excavations in Hartlepool have centred around the Headland and the monastery, while in Newcastle the early town of 'Monkchester' probably grew up around the castle. Although a 7th-century cemetery is known, it is not clear where the population lived. A few fragments of Anglo-Saxon pottery have also been found on the opposite bank of the Tyne at Bottle Bank, Gateshead (OAN 2003).

Trade, transport and communications

Coinage never appears to have been as widespread as elsewhere in the country. *The Early Medieval Corpus of Coin Finds* (EMCF 2005) lists 129 individual coin finds from the region; most are Northumbrian stycas and pennies. The vast majority come from Bamburgh (70), but also

from Jarrow, Lindisfarne and Monkwearmouth. The most important scholarship on the coinage of the region is that of the late Elizabeth Pirie (e.g. Pirie 2000).

Of the four known hoards, those from Gainford and Satley date to c. 875, but the Hexham group is earlier, dating to the 840s-50s (Pagan 1966; 1974; Sugden and Warhurst 1979). The Bamburgh hoard was found in the village, rather than in the castle area, and consists of about 400 stycas, a fragment of a coin balance and some nondescript iron work (Pirie 2004).

Although the presence of Tating Ware at Jarrow, Stamford Ware at Durham, and walrus ivory from Bamburgh is all indicative of widespread trading, evidence for substantial long-distance trading links in the region is elusive. There is nothing to compare with the range of imported ceramics found at York, and the northernmost distribution of Ipswich Ware is North Yorkshire (Paul Blinkhorn pers comm). No settlements appear to be equivalent to the emporia of Mercia, Wessex, and York. The large amount of coinage and the presence of the walrus ivory at Bamburgh do suggest, however, some kind of regional importance as a trading entrepôt, and here further analysis of Hope-Taylor's pottery assemblages will doubtless prove important. Perhaps at Bamburgh a landing place lay just to the north of the palace amongst the present day sand-dunes; this would be accessible to the main site via 'Oswald's Gate'. The presence of important monastic sites at major river mouths (e.g. Monkwearmouth, Jarrow, Hartlepool) must surely be indicative of the significance of maritime trade elsewhere (Stocker 2000), though coastal erosion may have destroyed potential beach markets.

Religion and burial

Anglo-Saxon burial

To the south of the region, in Teesside and south County Durham, several 6th-century cemeteries are known, including Andrew's Hill, Easington (Hamerow and Pickin 1995), Norton (Sherlock and Welch 1992a), Green Bank, Darlington (Miket and Pocock 1976) and Saltburn (Gallagher 1987). These date to the 6th century, though the artefactual assemblage from Green Bank suggests that this site started and finished slightly later than the other two. Other probable cemeteries can be identified at Ferryhill and Denton (Co. Durham), where recent metal detector finds suggest cemeteries of 6th-century date (Philippa Walton pers comm). It is also possible that there was a cemetery at or near the Roman villa site at Ingleby Barwick, where excavation has revealed a fragment of a square-headed brooch and fragments of cremation urns (ASUD 2000c).

Examples of isolated burials can also be found. A single cist grave containing the remains of a child and a single bead was recovered in the early 20th century at Blackhall Rocks (Co. Durham). A number of finds, including a pair of unusual bow brooches possibly of north-west German origin (found at Maltby) are likely to have come from a female inhumation, though excavation at the site found no sign of any other burials (Sherlock and Welch 1992b). A spearhead found in Thornaby may also come originally from a burial (Sherlock

1988). Perhaps the earliest Anglo-Saxon burial from this area comes from Castle Eden (Co. Durham), where in the late 18th century an inhumation accompanied by a unique late-5th-century Frankish green-blue claw beaker was discovered (Bruce-Mitford 1950).

Most burials in these cemeteries were inhumations, though from the south of the region a few cremations are known. Other than that from Ingleby Barwick mentioned above, over 20 were recorded at Saltburn and three from Norton (Gallagher 1987; Sherlock and Welch 1992a).

A number of early Anglian burials has also been recorded from Roman forts. At Binchester a crouched burial was found in Phase 10, accompanied by a reverse S-shaped brooch, glass and amber beads, ceramic vessels and two antler objects. This burial probably dates to the mid 6th century. Two other Anglian objects are known from residual contexts in the fort: a small-long brooch and an iron francisca, though the latter may be a late Roman axe (Ferris and Jones 1996, 10).

The evidence for burial from other sites is limited to chance finds of Anglo-Saxon metalwork. Two brooches of the late 5th century at Corbridge were accompanied by a string of beads and two fragments of a small urn (Knowles and Forster 1908, 342, 406-408). Two small, long brooches of uncertain provenance may also have been found nearby, though they may have come from Yorkshire (Miket 1985a). A small long brooch was also found in Hylton (Tyne and Wear) (Miket 1982).

A 7th-century annular brooch was found at Chesters and another, of 6th-century date, is known from Chesterholm (Miket 1978). A square-headed brooch, a cruciform brooch and a glass vessel (not fully recovered) were found to the east of the fort at Benwell (Jobey and Maxwell 1957). Whereas the Chesters and Chesterholm brooches could be simple losses, the assemblages from Corbridge and Benwell suggest an origin in a burial context. Square-headed brooches have also been recovered from the Tees at Piercebridge and the banks of the Tyne at Whitehill (Cramp and Miket 1982, 10).

A notable group of apparent sub-Roman burials has been found at South Shields; burials from a courtyard house within the fort and some from its approach have provided 5th-century radiocarbon dates (Bidwell and Speak 1994, 45-6, 265).

North of the Wall the evidence for early Anglo-Saxon burial is less extensive, and noticeably lacking between the Coquet and the Tyne, apart from the individual barrow burial at Barrasford, which included a shield-boss with six silver studs, a sword and a knife (Meaney 1964, 198). Even to the north of the Coquet there are no extensive cemeteries to compare with Norton or Easington. Instead burial sites tend to contain only a few graves and are distinguished by their relative lack of material culture. Known burial sites include the poorly recorded site at Gayle, near Thirlings (O'Brien and Miket 1991), which has a broad 6th-7th century date, as does a group of fifteen burials from Howick Heugh (Cramp and Miket 1982, 5-6). The cluster of graves associated with a

prehistoric henge at Milfield North probably belongs to the later 6th or early 7th century (Tinniswood and Harding 1991).

As well as burials which are clearly culturally Anglo-Saxon, there are others which show different affinities, and contain few, if any, grave-goods. The largest group of these are from Yeavinger, where two cemeteries were discovered (Hope-Taylor 1977, 67-78, 244-267). In total several hundred graves were excavated, though the final report gives them only limited space. Only four burials contained grave-goods: two from the western cemetery had knives, whereas in the eastern cemetery Grave AX contained a knife and an iron object identified as a *groma*, and Grave BZ56 iron belt fittings, a purse mount and a knife. Although an Anglo-Saxon rather than a British context for the settlement at Yeavinger has been asserted (Scull 1991), it is clear that these burials have closer affinities with the traditions of the early medieval British. Another cemetery with similar attributes is that recently rediscovered and excavated at Bowl Hole, Bamburgh. Only one of the burials excavated there so far have any grave-goods (no. 130, with a knife and buckle).

There are also a number of barrow burials, though these have no firm dating evidence. Secondary inhumations with iron spears are known from Sweethope Farm, Bavington and Turf Knowe, Ingram (Northumberland) (Hodgson 1897, 408). Secondary inhumation burials without any datable grave-goods are known from Hollinghill and Copt Hill. It is possible that these are 7th century or later, when the use of grave-goods became less common; alternatively they could belong to the 5th or 6th century and represent a form of the native British findless burial rite.

From the 7th century onwards the process of conversion to Christianity by Anglo-Saxon kingdoms began, with influences coming from both the Roman church via Augustine and Canterbury, and the Scottish church via Aidan and Lindisfarne. Many of the changes in Anglo-Saxon burial rites in this period seem to be related to shifts in religious belief. So-called 'final-phase' burials are believed to represent the last accompanied burials before the shift toward churchyard burial. They are characterised by a decline in the number of artefacts placed with the dead. Hepple, just to the south of the River Coquet had finds including beads, pendants, rings and a comb; a typical 7th-century 'final phase' assemblage (Cramp and Miket 1982, 4-5; Miket 1974). The more substantial Milfield South cemetery may have contained up to 100 graves, although only 41 were excavated. Just two graves here contained finds, which included iron knives, an iron buckle, a tag or strap end, and an unidentified perforated iron object (Scull and Harding 1990).

There are also some isolated burials from the 7th and 8th centuries. A barrow burial, probably inserted as a secondary burial into an earlier cairn, from Capheaton (Northumberland) was accompanied by a hanging bowl, a ring, and a few copper fragments; a bronze buckle with garnets was found in a rock-cut grave at East Boldon (Miket and Cramp 1982, 9-10).

The development of churchyard burial is poorly understood in the region. In some cases a 'final-phase' site

may have developed into a church; a small gold and garnet pendant was found in the churchyard in Stainton and there are reports of Anglo-Saxon metalwork being found near the churchyard at Seaham. Subsequent excavation at Seaham has revealed an extensive cemetery, which was dated by radiocarbon dating and coffin fittings to the 7th and 8th centuries AD (NAA 1999; Macdonald 2000).

By the 9th century churchyard burial was probably widespread. There may have been an early church at Binchester, where burials radiocarbon-dated to the late 8th to 10th century were found at Binchester Hall within the Roman fort (Connell and Roberts 1996; ASUD 2005). Likewise, burials found during excavations at the Market Place in Darlington are probably related to the foundation of St Cuthbert's church (ASUD 1994), which still retains some Anglo-Saxon stone sculpture. The cemetery at the castle at Newcastle also probably began in the 8th century AD and was presumably related to an ecclesiastical establishment.

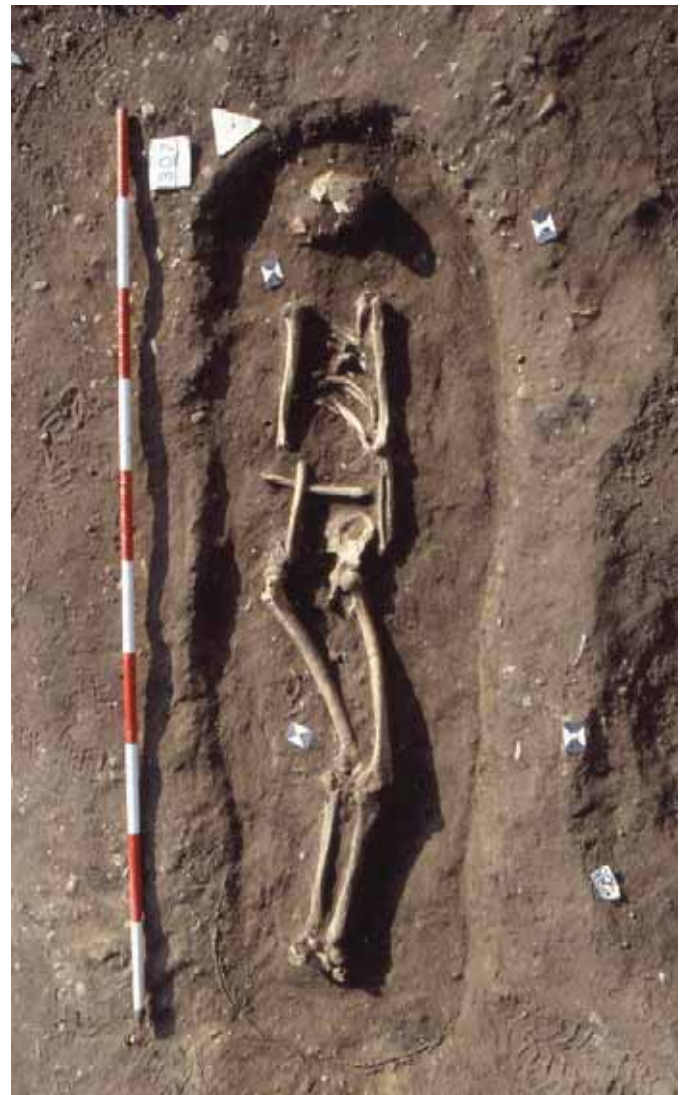


Figure 32 Burial from the Anglo-Saxon cemetery at Norton (Teesside). © Tees Archaeology

The early medieval period is notable for the number of well-preserved skeletal assemblages. The early Anglo-Saxon cemetery at Norton (Teesside), dating to c. AD 520-620, produced bone from 126 individuals (Birkett 1992; Marlow 1992). Recent excavation nearby at Bishopsmill School has produced a second, later, Anglo-Saxon

cemetery (7th to 9th century?), again with substantial amounts of well-preserved bone skeletal material (Higgins 2004) (Figure 32). Large quantities of skeletal material of early medieval and later date have also been recovered from Monkwearmouth and Jarrow (Tyne and Wear) (Cramp 2005). Early Anglo-Saxon burials with bone are also known from Binchester (Co. Durham), Blackgate (Newcastle) and Bowl Hole, Bamburgh (Northumberland) (Norton and Boylston 1997). This skeletal material has been used in a number of doctoral theses, such as Sarah Groves' on-going examination of activity-related stress and social status (which also uses material from Norton and Bowl Hole), Tina Jakob's consideration of the prevalence and patterns of disease in early medieval Britain (using material from Norton) and Pam Macpherson's work on Anglo-Saxon childhood diet (using material from Blackgate, Newcastle) (Jakob 2004). The assemblage from Bowl Hole is also being explored through isotope analysis (Budd *et al* 2004). This combination of good assemblages and wide ranging analysis means that skeletal material from this period is amongst the best studied and understood in the region.

Pagan religious activity

As for the rest of the country, evidence for pagan religious practice is sparse. Certain buildings at Thirlings (Building C) and Yeavinger (Building D2) may have had a sacred function (O'Brien 2000), something which has also been suggested for Hurworth in Upper Teesdale (Coggins and Fairless 1997). This poorly understood site, which also produced Mesolithic occupation and a Late Iron Age burial, was surrounded by an enclosure with a radiocarbon date of mid-5th to mid-8th century AD which the excavators suggested may have had a ritual function. The evidence is tenuous.

British Christianity

There is also historical and archaeological evidence for Christianity amongst the native British elements of society. Possible churches of late Roman or sub-Roman date have been identified at Chesterholm, South Shields and Housesteads (Birley *et al* 1999, 20-21; Bidwell and Speak 1994, 102-103; Crow 1995, 95-96). It is uncertain, however, how long these structures were in use. They may merely have been regimental chapels for a final phase of Roman military use or they could have had continued importance throughout the early medieval period.

Chesterholm also produced an unusual portable stone altar of probable early medieval date, a rare find with few parallels, to which must be added a 5th- or 6th-century inscribed memorial stone to an individual named Brigomaglos. Haverfield's attempts to link this with St Briog are unconvincing (Haverfield 1914b; Jackson 1982), though the stone is clearly part of an early medieval epigraphic tradition which is more common in Wales and south-western England, but also stretches into Northumberland and Lowland Scotland (Thomas 1992). Other stones in this tradition were clearly carved within a Christian cultural milieu and it is likely that the Brigomaglos stone is an indicator of Christianity.

Churches and ecclesiastical sites

The North-East is home to a series of major Anglo-Saxon

monasteries, several of which have been investigated. The best known are undoubtedly those at Monkwearmouth and Jarrow, which have been the focus of extensive excavation by Rosemary Cramp (Cramp 1969; 1970; 1994; 2005; Mills and Webster 1991). Founded in the 7th century by Benedict Biscop, the twin monastery was for nearly a century an internationally important centre for learning. Home to Bede (AD 673-735), whose writings on history, time, science and scripture were key texts, it was also a major production centre for books and produced the *Codex Amiatinus*, the oldest surviving single-volume bible in the world.

Lindisfarne, on the other hand, has been relatively little explored, with excavations only within the precinct of the medieval priory and on selected sites in the village. Just a few traces of early medieval activity have been found here, though a possible proto-grange has been excavated elsewhere on the island at Green Shiel (O'Sullivan and Young 1991). In Hexham excavation has concentrated on the church itself and little is known about the wider monastic enclosure of what was undoubtedly an important monastic site (Cambridge and Williams 1995; Harbottle 1978). There is also a lack of work on early medieval Tynemouth. Excavation by George Jobey revealed Iron Age or Roman round houses and a post-Conquest cemetery here, but no traces of the early medieval monastery were identified, although the site has produced Anglo-Saxon carved stone and an Urness-style mount (Jobey 1967; Miket and Cramp 1982, 10, catalogue no. 14). The same is true of Chester-le-Street, where the foundations of modern housing over the site of the monastery may have destroyed any surviving Anglo-Saxon stratigraphy, though the deeper layers relating to the Roman fort still survive. In Durham the Romanesque cathedral and its precinct probably lies over the site of the Anglo-Saxon monastery of which little has been recorded beyond some Late Anglo-Saxon burials on the site of the Chapter House (Carver 1980). Hartlepool, the site of the double foundation by Hild, has been the focus of extensive excavations, including the remains of structures and evidence for metalworking and other craft and industry (Daniels 1988; Daniels *et al* 1987; Daniels *et al* 1998).

In addition to its archaeology, the region possesses a range of standing Anglo-Saxon ecclesiastical architecture. The major overview of Anglo-Saxon church architecture in Britain is Taylor and Taylor's magisterial *Anglo-Saxon Architecture* (1965-78). They recognised pre-conquest fabric at several churches in the region: Aycliffe, Billingham, Bywell, Corbridge, Escomb, Hart, Hexham, Ingram, Jarrow, Monkwearmouth, Norton, Ovingham, Sockburn, Staindrop, Warden, Whittingham, and Woodhorn. Work by Peter Ryder on the churches of Durham over the last 20 years has amended this list, suggesting that the early fabric at Staindrop is more likely to be Norman, as is that at Hart, Pittington and St Mary, Seaham and possibly Norton. On the other hand, the evidence from Chester-le-Street is more convincing than previously thought and Anglo-Saxon fabric has also been recognised at St Brandon in Brancepeth, St Nicholas in West Boldon, Hamsterley, Gainford and possibly Church Kelloe (Ryder 1988; 1996; 2004a). An argument has also been made for Anglo-Saxon fabric at St Michael in

Heighington (Clack 1986; though Ryder remains unconvinced), while Eric Cambridge has suggested that the Anglo-Saxon tower at Billingham is, in fact, 12th century, though this remains contentious (Cambridge 1994). The best preserved crypt in the region is at Hexham; Anglo-Saxon crypts may be preserved at Bamburgh and Jarrow, but this has yet to be confirmed by fieldwork.

Carved stone

The major overview of the Anglo-Saxon stone sculpture is Rosemary Cramp's Durham and Northumberland volumes of the *Corpus of Anglo-Saxon Stone Sculpture in England* published in 1984. Those areas to the south of the region (i.e. Durham south of the Tees) not covered by this volume are treated in James Lang's volume in the same series, dedicated to North Yorkshire (Lang 2001). Cramp's volume has records for nearly 400 individual stones, fragments or groups of architectural stonework (e.g. balusters). A modest number of additional fragments have since come to light (e.g. Richardson 1994), although this has not significantly changed the overall distribution of early medieval sculpture in the region.



Figure 33 Seventh-century grave marker from St Hilda's, Hartlepool (Teesside). Not to scale. © English Heritage

Anglian material consists mainly of objects from Hartlepool, Hexham, Jarrow, Lindisfarne and Monkwearmouth, though finds are also known from Escomb, Norham and Rothbury. Crosses dominate the assemblage at Hexham and Norham, whereas grave markers are more common at Monkwearmouth and Hartlepool (Figure 33). Both Lindisfarne and Jarrow have significant groups of both types. This distribution appears to reflect that of the major

Northumbrian monastic establishments, though sculpture was also found at important minster sites. By the late 8th century there is an increased Mercian influence on the region's sculpture, which can be seen on fragments from Rothbury, Auckland St Andrew and Norham (Cramp 1984, 3).

The initial Viking raids of the late 8th and early 9th century appear to have had little impact on the output of the stone-carving workshops of Northumbria. The establishment of the Viking kingdom of York in the mid 9th century, however, was more significant. In the early 10th century, the great estates of the monasteries were being alienated by the Viking kings and redistributed to both Anglo-Saxon and Anglo-Scandinavian lords. The concentration of hogbacks along the Tees valley, on land formerly held by the community of St Cuthbert, probably reflects the establishment of new churches by these new lords. The style of these monuments shows an increasing Scandinavian sense of identity. It is noticeable that hogbacks are almost entirely absent from Northumberland, where a rump kingdom of Northumbria survived into the early 10th century.

Evidence for the use of runic epigraphy in the North-East is very rare. A runic inscription in Old English is carved on a house-shaped memorial at Hawkhope, Falstone (Northumberland), and, intriguingly also carries the same Old English inscription in insular majuscule. Inscriptions using runes and Anglo-Saxon capitals are also known from Chester-le-Street and Alnmouth (Cramp 1984, 54, 161). Three runes have also been found carved onto living rock adjacent to prehistoric cup-and-ring marks at Lemmington Wood, Northumberland (Beckensall 1983, 51, 186).

Of the Late Anglo-Saxon sundials from the region, the best known is that built into the south wall of the nave at Escomb, which, if it is contemporary with the construction of the church, dates to the 8th century. Other pre-conquest sundials are known at Pitlington, Staindrop, Middleton St George, Dalton-le-Dale, Darlington and Hart. Unlike examples elsewhere in England, none carry inscriptions.

Material culture

Ceramics

The best source for early Anglo-Saxon ceramic assemblages is the small group of cemeteries from the south of the region. Twelve pots were recovered from inhumations at Greenbank, Darlington, which have broad parallels with vessels from Sancton (East Yorkshire) (Miket and Pocock 1976). Three urned cremations were also recovered from Norton (Teesside) (Sherlock and Welch 1992), while an isolated urn came from the south bank of the Tees near Yarm (Myres 1977, fig 332.150). Several urns were also revealed during work on the mixed-rite cemetery at Hob Hill, Saltburn (Hornsby 1912; Myres 1977, figs 193.152, 273, 153, 344, 151; Gallagher 1987). Tiny fragments of pot have come from other burial sites, such as Andrew's Hill, Easington (Durham) (Hamerow and Pickin 1995, 44).

Pottery from non-burial contexts is rather less common, particularly towards the beginning of the early medieval period. Settlement sites have produced little; only five

fragments of Anglo-British pottery were recovered from Thirlings (O'Brien and Miket 1991, 87) despite extensive excavations, and New Bewick produced even fewer (Gates and O'Brien 1988). More substantial quantities have come from Bamburgh, but these have yet to be assessed (Paul Gething pers comm). Surprisingly little has been found at Monkwearmouth and Jarrow, though it does include some rare northern examples of Tating Ware. There is little pottery from urban sites, such as Newcastle and Hartlepool (Wrathmell 1990, 383); the only substantial collection are the very late Saxo-Norman assemblages from Saddler Street, Durham (Carver 1979), which include a Stamford Ware lamp (Clack 1980).

Alan Vince is currently working on a survey of Anglo-Saxon pottery from the Northumbrian kingdom, in order to generate a database and a series of ICPS (Inductively-Coupled Plasma Spectrometry) analyses and thin-sections which will be disseminated on-line via the Archaeological Data Service. The project involves examining as many collections of 5th-11th-century pottery as can be identified (Alan Vince pers comm).

Rough ceramic loom weights and spindlewhorls are also known, including chance finds from Wooler and excavated examples from Thirlings (Miket 1980, 295; O'Brien and Miket 1991, 87).

Glass

Glass vessels are rare in the North-East. Perhaps the best-preserved is the Frankish claw beaker (late 5th century)

from the barrow burial at Castle Eden. Some fragments of claw beaker were also recovered at Thirlings (O'Brien and Miket 1991, 87).

Window glass has been found in ecclesiastical contexts at Monkwearmouth, Jarrow and Escomb (Cramp 1976; Pocock and Wheeler 1971), but also, unusually, in a secular context at Bamburgh (Paul Gething pers comm).

Glass beads are known from a range of sites, including from burials at Norton (Teesside), Hepple and Howick Heugh (Northumberland), and Blackhall Rocks (Co. Durham) (Sherlock and Welch 1992a, 45; Cramp and Miket 1982, 4-5), and as chance finds, such as those from Ilderton and Dilston (Northumberland) (Anon 1951; Smith 1966).

Metal objects

Little is known about metalwork from sub-Roman contexts. Margaret Snape has identified a possible early-5th-century sub-variant of a Type D penannular brooch (Snape 1992), though a brooch of this type has been found in a secure late Roman context at Piercebridge (Fitzpatrick and Scott 1999, 114-115). The increasing evidence for sub-Roman continuity on Roman sites means there is a need for the late finds assemblages from such sites to be re-assessed.

The main source for early Anglo-Saxon metal objects in this region is burials. However, although there are a number of important Anglo-Saxon cemeteries in the south of the region, the wider Bernician burial rite is relatively low in material culture (Cramp 1988). The metalwork from



Figure 34 Anglo-Saxon gold pendant from Sacriston (Co. Durham). Not to scale. © Durham County Council

the southern cemeteries is typical of the assemblages found further south in Deiran contexts. For example, Norton, Easington and Greenbanks, Darlington, have all produced a range of personal items including cruciform brooches, small-long brooches, annular brooches, buckles and wrist clasps (Miket and Pocock 1976; Sherlock and Welch 1992a; Hamerow and Pickin 1995).



Figure 35 A high-status mid-7th-century pendant of garnet set in a gold filigree cell, found during monitoring work at Stainton Church, Middlesbrough (Teesside). Not to scale. © Archaeological Services Durham University

Industrial features of Anglo-Saxon date were associated with a Neolithic henge at Yeavinger, and included a number of crucible fragments, which produced evidence for copper and tin, implying bronze working at the site (Tinniswood and Harding 1991). Clay metalworking moulds have also been found at Hartlepool, including moulds for high-status objects such as a plaque showing a calf with a trumpet (presumably a symbol of an evangelist), and a small cross, either a mount or a pendant (Cramp and Daniels 1987; Daniels 1988, 187-190). The same site produced crucibles and slags which demonstrated copper-alloy and silver working (Daniels 1988, 184-187). The presence of several pins made from the same mould at Bamburgh is also suggestive of metal production on the site (Paul Gething pers comm). Iron smelting and smithing also took place at Simy Folds (Coggins *et al* 1983) and while there is no evidence for primary extraction, on the north side of Bollihope Burn, Stanhope (Co. Durham), charcoal from earthworks has produced a radiocarbon date of AD 880-1050 (90% probability). Analysis of

associated slag shows it to have a high lead content, suggesting it was either at an intermediate stage in processing or it was being refined for silver (Manchester 2001; Paynter 2001). Excavations at the same site have also revealed a probable early medieval iron-working furnace (Rob Young pers comm).

In general, the quality of middle and later Anglo-Saxon metalwork is low compared with other parts of Anglo-Saxon Britain. The end of the tradition of depositing grave-goods and the lack of excavated settlement sites means that most metalwork of this date are chance finds. Hanging-bowls are known from a burial at Capheaton (Northumberland) and a possible votive deposit at Newham Bog (Northumberland) (Collingwood Bruce 1880, 184; Cramp and Miket 1982, 10, no. 12), while a gilded 8th-century disc-headed pin was found on the monastic site at Hartlepool (Daniels *et al* 1998). The Portable Antiquities Scheme has recently recorded a gilded mount from the Bishop Auckland area (Philippa Walton pers comm), and a gold mount has been recovered at Bamburgh (Wood 2004). Among finds of rings are a late-8th-century silver ring with runic decorations from Whitley Hill and a pair of Saxo-Norman gold rings from Corbridge (Craster 1914, 103-104). Important pendants include the small gold example from Daisy Hill, Sacriston, dating to the 7th century AD, and a recently discovered gold and garnet pendant from the churchyard at Stainton, Middlesbrough (Figures 34-35). Strap-ends are known from Wooperton and Frosterley (Bailey 1993), and from the Green Shiel settlement on Holy Island (O'Sullivan and Young 1991). David Wilson suggests that an unusual strap-distributor in the British Museum, which has parallels with examples from Meols and the Viking burials at Cronk Moar and Ballateare on the Isle of Man, may have come from Goswick (Bersu and Wilson 1966, 55n). Ecclesiastical metalwork includes the pectoral cross from the shrine of St Cuthbert in Durham, and an Anglo-Saxon chalice from Hexham. A final important discovery is the hoard of Viking silver objects from Old Spital, Bowes, which included nineteen silver bars, a broken bracelet and a rough waste object (Edwards 1985).

Weapons occur as excavated and chance finds. Spears and shields were found at the cemetery at Greenbank, Darlington (Miket and Pocock 1976, 72), a spear fragment from a grave at Easington (Hamerow and Pickin 1995, 40), and twelve spears and spear fragments, shield bosses and a seax from Norton (Sherlock and Welch 1992a, 32-34). Hope-Taylor's excavations at Bamburgh recovered two swords and several spears (Paul Gething pers comm). Chance finds include a probable seax from Lowick (Northumberland), and a decorated spear of probable 9th-century date from Burradon (Spain 1923). Two swords and an axe, part of the Viking 'Hurbuck' hoard discovered at Lanchester, are now in the British Museum (Shetelig 1940, 74).

Fragmentary iron objects are known from cemeteries, including knives from Easington and a key from Greenbanks, Darlington. Iron objects were also found at Yeavinger, among them a curious 'standard' (Hope-Taylor 1977, 200-203). Iron tools, including four scythes and a pickaxe, were part of the 'Hurbuck' hoard (Shetelig 1940). Knives have also been found at Jarrow and Monkwearmouth.

Bone objects

The acid soils of the north mean that bone objects are under-represented. Combs are known in grave contexts from a burial at Hepple (7th century) (Cramp and Miket 1982, 4-5) and the Viking burial from Bedlington (Shetelig 1954, 77) as well as from occupation sites at Jarrow and Monkwearmouth, Green Shiel and The Winery in Holy Island, Saddler Street in Durham and Church Street in Hartlepool (O'Sullivan and Young 1991; Carver 1979; Daniels 1988, 195). A 10th-century decorative bone strip, probably some form of mount, was found during an excavation at Ferryhill (Batey 1990). Intriguingly, recent work at Bamburgh has also produced a fragment of walrus ivory with saw marks, suggesting both trade with northern Scandinavia and probably craft working on the site (Paul Gething pers comm). The wider context of bone combs in the north of Britain is currently being explored in his PhD thesis by Steven Ashby at the Department of Archaeology, University of York.

Other objects

Worked stone objects are relatively rare, though recently three stone bowls of early medieval date have been identified from sites in Sunderland, Dalden and Durham, one with an Anglo-Saxon inscription. Their function is uncertain, though it is possible they may have had a liturgical purpose (Hart and Okasha 2003). A range of limestone containers were also recovered from the monastic site at Hartlepool (Daniels 1988, 190).

Durham Cathedral has an important selection of well-preserved organic objects from the shrine of St Cuthbert. These include the unique carved wooden coffin, a portable altar (wooden encased in metal) and embroidered silk stoles. The shrine also contained his gold, cloisonné pectoral cross (Emery 2004).

Museums

In Teesside the Dorman Museum holds the finds from the cemeteries at Saltburn and Norton; the main early medieval collection held by Tees Archaeology being the 120 skeletons from the recent excavations on the cemetery at Norton. In County Durham, Bowes Museum holds the archives and finds from Denis Coggins' excavations at Simy Folds, and the cemeteries at Seaham, Binchester and Andrew's Hill, Easington. The Old Fulling Museum in the City of Durham holds little Anglo-Saxon material beyond some fragments of late sculpture. More significant collections of Anglo-Saxon sculpture are held at Durham Cathedral in the Monk's Dormitory. The Cathedral, of course, also holds the material from St Cuthbert's shrine. There is also a small collection of sculpture held in the Anker's House Museum in Chester-le-Street.

On Tyne and Wear the Museum of Antiquities holds a good collection of sculpture (32 objects or fragments), but fewer items of pottery or metal. Major items include the Capheaton hanging bowl and cross fragments from Rothbury and Nunnykirk. A full catalogue of early medieval items (from both within and outside the region) was published in 1982 (Cramp and Miket 1982). The material excavated by Rosemary Cramp at St Paul's, Jarrow, can be found in *Bede's World*; here are also the objects relating to the Anglo-Saxon cemeteries at Milfield North (on loan from the Museum of Antiquities), Andrew's Hill, Easington, and Norton on Tees (on loan from the Bowes Museum). In Northumberland, a small collection of material is held in the Alnwick Castle Museum, including an annular brooch from Coquet Island and the objects from the barrow at Barrasford (Collingwood Bruce 1880). Outside the region, the British Museum holds a small number of early medieval objects from the North-East, of which the Viking Hurbuck hoard is the most significant.

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8. Resource assessment: Later Medieval

The Later Medieval Specialist Group consisted of Robin Daniels (Tees Archaeology), Norman Emery (Durham Cathedral Dean and Chapter), Pam Graves (Dept of Archaeology, University of Durham), Peter Ryder (independent consultant), and Myra Tolan-Smith (English Heritage).

History of research

Later medieval studies in the North-East boast a long tradition of antiquarian and architectural recording, local topographical history (Austin 1990, 141), and research into aspects of the social and economic context of the Middle Ages (Page 1905). With one or two notable exceptions, however, it was not until the post-war period that significant campaigns of archaeological fieldwork were carried out, among them Honeyman's excavations at Mitford Castle (Honeyman 1955; Figure 36). Only in the late 1950s and 1960s were excavations undertaken at settlement sites in the Tees Valley, including the villages of West Hartburn (Still and Pallister 1964; 1967) and Swainston (Anon 1958), at the moated site at Belasis (Still and Southeran 1966), and the Prior of Durham's manor house at Low Grange (Still 1965). Investigations also took place further north on medieval villages in Northumberland, most notably in the long-running campaign of national importance at West Whelpington (Jarrett 1962). Mutual academic advantage, it might be stressed, was gained by a renewed emphasis on historical geography at this time which underlined several new themes being proposed by archaeologists, such as settlement origins and planning (Thorpe 1949; Conzen 1960). This was an early signal of a collaborative approach to later medieval studies which has characterised the best of so much research into this period and which unites the interests of archaeologists, architectural historians, historians, geographers and others.

From the 1960s the urgency was to record sites before they were destroyed entirely by development (e.g. at Durham, Hartlepool, Newcastle Quayside, Thrislington). Much of this work, which spawned major projects, took place before the implementation of PPG16 in the early 1990s which in turn led to a considerable rise in the number of excavations recovering features and artefacts of later medieval date. Many of these recent investigations have been small in scale and, inevitably, their focus has been on the larger towns, such as Newcastle and Hartlepool.

Existing research frameworks

The most important agendas have been those promoted by the Society for Medieval Archaeology and the Medieval Settlement Research Group (Hinton 1987; MSRG 1996; see also Rippon 2002), though the former is now considered by many practitioners to be a dated assessment. Also of relevance are the recommendations made by the English Heritage-funded review of medieval ceramics (Mellor 1994) and others on urban archaeology (e.g. Addyman 2003; Perring *et al* 2002; Graves 2002). Environmental specialists have produced a series of research priorities

for the period, focusing on human bone (Mays 1998) and plant remains (Hall and Huntley 2002).

Agriculture and environment

Together with the wealth of later medieval documents for the region, whose potential is not assessed in detail here, environmental evidence is clearly important for an understanding of later medieval agriculture and the wider landscape. Unfortunately, in common with many areas nationally, peat-cutting severely restricts palynological potential for this period, though evidence from Stainmore attests to the presence of rye in the 12th-13th centuries (Innes 2001). Plant macrofossils from Thrislington (Co. Durham) and Claxton Quarry (Teesside) also highlight the declining importance of spelt, though it was still present at Sadberge (Co. Durham) (Donaldson 1976; Huntley 1993; Huntley and Stokes 1994). Assemblages from urban sites such as Newcastle and Berwick (Huntley and Stallibrass 1995, 70-71; Donaldson 1977a; 1977b) show an increasingly diverse suite of remains, including figs, grapes, sloe/plum and hemp from Hartlepool (Huntley 1987a; 1987b; 1987c; 1988a; 1988b). Non-food crops in the form of flax have also been found in Durham, Newcastle, and Darlington (Donaldson 1979; Huntley and Stallibrass 1995, 71; Huntley 1994a).

The most important urban medieval faunal assemblages are from Newcastle (Castle Ditch; Blackgate; Town Wall and Ditch; Cloth Market; Quayside), though these have yet to be placed in the context of the wider development of the city (Allison 1987; 1988; Davis 1991; Dobney and Jaques 1993; Gidney 1987; 1989a; 1989b; 1989c; 1994; Nicholson 1988; 1989; Rackham 1980; 1988a; 1988b; Rackham and Allison 1981a; 1981b). Fish remains, for example, provide new evidence for a major medieval deep-sea fishing industry. In addition, there are important recent assemblages from the core of medieval Hartlepool (Allison 1990; Gidney 1991a; Locker 1990; Locker and Rackham 1987; Rackham 1990b), as well as from Durham, Darlington, Chester-le-Street, Yarm and Berwick-upon-Tweed (Gidney 1991b; 1995; Rackham 1980c; 1985).

This list excludes the faunal assemblages from the ecclesiastical sites at Jarrow and Monkwearmouth (Noddle 1987; 1992; Huntley and Stallibrass 1995, 179-182), and from castles and elite occupation sites, including the Fellow's Garden of Durham Castle, Barnard Castle, the Prior's residence at Beaurepaire, and Prudhoe Castle (Davis 1987; Donaldson *et al* 1980; Gidney 1995; Mulville 1993; Nicholson 1993). The collection of bones from the castle at Barnard Castle is especially significant for the region and indicates high-status exploitation of a range of wild resources, particularly deer, hare, plover, partridge and grouse (Jones *et al* 1985). Sadly, the assemblage from the large-scale excavations at the deserted medieval village at Thrislington (Co. Durham) was not well-preserved due to leaching in the soil (Rackham 1989) but the midden deposit from Jenny Bell's Well, Lindisfarne, does give an

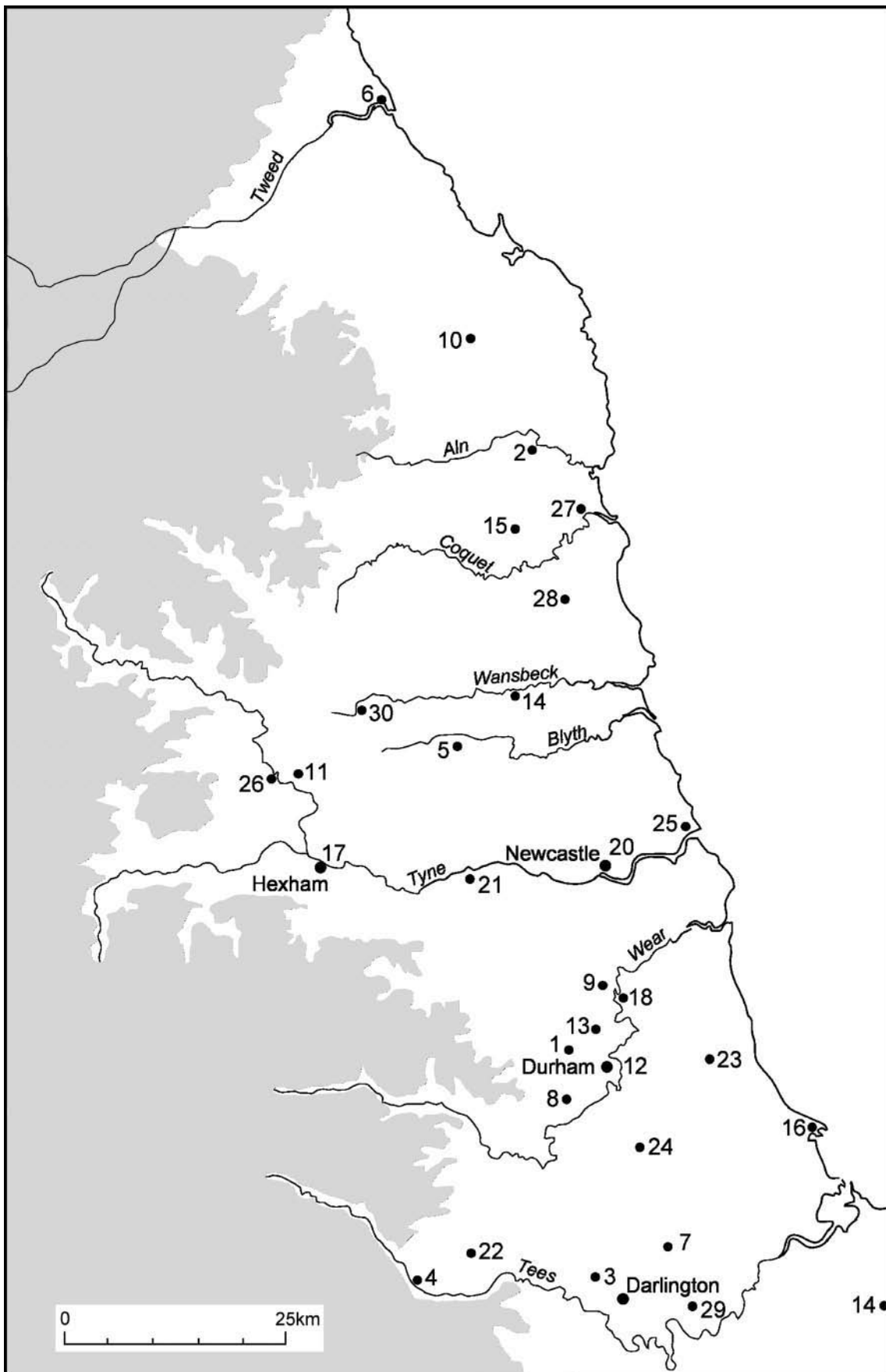


Figure 36 Key Later Medieval sites mentioned in text: (1) Aldin Grange, (2) Alnwick, (3) Archdeacon Newton, (4) Barnard Castle, (5) Belsay, (6) Berwick, (7) Bishopston, (8) Brancepeth, (9) Chester-le-Street, (10) Chillingham, (11) Chipchase, (12) Durham, (13) Finchale Abbey, (14) Gisborough Abbey, (15) Glantlees, (16) Hartlepool, (17) Hexham, (18) Lumley, (19) Mitford, (20) Newcastle, (21) Prudhoe, (22) Raby Castle, (23) Seaton Holme, (24) Thrislington, (25) Tynemouth, (26) Wark, (27) Warkworth, (28) West Chevington, (29) West Hartburn, (30) West Whelpington (map drawn by Yvonne Beadnell)

important insight into the medieval and post-medieval exploitation of maritime resources, including both fish and seabirds (Rackham 1985b).

The agriculture of the medieval North-East can be divided into two broad areas: the uplands in the north and west (in the North Pennines and Northumberland) where agriculture was dominated by cattle and sheep rearing with extensive common pasturing and the use of shielings (Winchester 2000), and the lowland areas which were dominated by an arable regime. The division between an arable lowland and pastoral upland is not a strict one, however. Crops were cultivated even in the uplands, and these have often left relict terraces, such as those to be seen around Ingram. Environmental evidence has demonstrated that barley and even rye were cultivated in these areas (Frodsham and Waddington 2004, 188). Equally, the rearing of sheep and cattle would have been intrinsic to lowland arable farming systems.

Large-scale upland surveys, such as the Otterburn Survey (Charlton and Day 1979) and the work of Denis Coggins in Teesdale (Coggins 1986), have identified many shieling sites in addition to those listed in Ramm's corpus (Ramm *et al* 1970). Coggins published a critique of the typology presented by Ramm and indicated some of the many difficulties with dating sites on morphological grounds alone (Coggins 1992). Weardale has been the focus of several surveys, including the work of Peter Bowes (1990) on the Bishop's deer park, and a detailed survey by local volunteers co-ordinated by Tom Gledhill and Roz Nicholl.

Fewer surveys have been carried out on the agricultural landscapes of the lowlands, though there are existing studies into the South Tyne area, Castle Eden and around Kilton (Teesside) (Tolan-Smith 1997c; Austin and O'Mahoney 1987; Daniels 1990a). Ridge and furrow is widely spread across east Durham, Cleveland and east Northumberland, although there has been no wider regional survey. It has, though, been mapped in Cleveland, as part of a project that included profiling and environmental sampling. The major North-East England History Institute (NEEHI) research project *Settlement and Waste in the Palatinate of Durham* will help elucidate the distribution of waste, moorland, rough pasture and woodland in much of the region, integrating archaeological, cartographic and documentary evidence (Dunsford and Harris 2003; Britnell 2004; Roberts *et al* 2005). The final results from this project are expected to emerge as a series of thematic articles over the next few years. In general, however, there has been little study of ancient woodland in the region (though see M. Tolan-Smith 1997).

Numerous deer parks have been recorded in the area, among them those belonging to the Bishop of Durham and the Earl of Westmoreland. Relatively little research has been carried out into the archaeology of these parks beyond survey work and historical research for Stanhope deer park (Drury 1966; Bowes 1990; Nichol 2004). The sites of a number of probable hunting lodges are known, including Kilton, Cambokeels and the Old Lodge at Raby (Hildyard 1947). Only at the latter are there standing remains. On a related theme, foresters are attested on a cross-slab from Durham Cathedral, which bears



Figure 37 Aerial photograph of the deserted medieval village of Sheraton (Co. Durham). © Durham County Council

a sword, bow, arrow and a possible hat, and similar stones are known from Blanchland and from Great Stainton (Co. Durham) where the grave marker carries a sword and a bow (Ryder 2000a, 55; 1985, 73, pl 17).

Settlement

The settlement pattern of the later medieval North-East was overwhelmingly rural. Several rural settlements have been excavated, notably Thrislington (Co. Durham), Castle Eden (Co. Durham), West Hartburn (Teesside), and West Whelpington (Northumberland) (Austin 1989; Austin and O'Mahoney 1987; Evans and Jarrett 1987; Pallister and Wrathmell 1990). Other excavations have been undertaken recently in the Tees Valley, including those at Elston and Claxton (Teesside) and Swainston (Co. Durham) (Daniels 1985).

These individual studies have tended not to consider the wider landscape context of settlement, though the publication of the *Atlas of Rural Settlement in England* has done much to rectify that situation by placing the pattern of rural settlement into a national context (Roberts and Wrathmell 2000). Other work by the geographer Brian Roberts remains central to our understanding of village morphology in the North-East (e.g. Roberts 1977), while the Northumberland National Park's *Historic Village Atlas* and a forthcoming survey of villages in Weardale for the Weardale Society should also provide further information about settlement development in these regions. In general the pattern of deserted medieval settlements is better known in Northumberland than it is for Durham or Cleveland; this being mainly due to two important PhD theses which examined the historical and archaeological evidence for the north and south of the county (Dixon 1984; Wrathmell 1975). As a result, far more possible sites are known north of the Tyne than in the south of the region (624 Northumberland; 110 Durham; 28 Tyne and Wear; 38 Cleveland). Many of these sites have left no visible trace though well-preserved earthworks do survive in County Durham and Teesside, among them Archdeacon Newton, Barforth, Sheraton (Figure 37) and Walworth (Co. Durham) and Kilton Thorpe, Low Throston, Marske and Stainsby (Teesside).

The stock of standing later medieval vernacular buildings, both domestic and agricultural, is very modest; the unsettled, political and social nature of the northern frontier was not conducive to the survival of much domestic architecture. A small number of medieval structures do remain, almost all of them in County Durham. A recent tree-ring survey produced late medieval dates for six agricultural structures on religious estates in Durham; fourteen other possible medieval agricultural or service buildings in the county have also been identified (Roberts *et al* 1999). Other rural medieval buildings include Rock Farm, Wheatley Hill (Durham), which contains the remains of a long house. Dendrochronology has shown that the ceiling beams and roof of the main house are contemporary and were constructed from trees felled in the spring of 1570 (Arnold *et al* 2004). Tree-ring dates have also been obtained from Hunwick Hall Farm, placing the construction of the east and north range there in the period 1501-26 (Arnold *et al* 2004). In County Durham good examples of mid-range houses can be seen at

Archdeacon Newton, Easington, and Hall Farm, High Coniscliffe, Butler House, Haughton-le-Skerne, Tunstall Hall and Unthank, Stanhope. One unusual property, Whessoe Grange, was converted from a 12th-century chapel (Ryder 1986). These early structures are often associated with Durham Priory. It may also be possible to identify a distinctive northern type of roof with truncated principal trusses, which only rise to a collar, such as Crook Hall, Durham (Peter Ryder pers comm). Undoubtedly there are other similar surviving medieval structures which have not been recognised due to the problem of dating and a more detailed consideration is overdue.



Figure 38 Excavation of drain features at Tuthill Stairs, Newcastle-upon-Tyne. These are characteristic of the site, which had been built on low-lying land reclaimed from the Tyne foreshore. © Tyne and Wear Museums

There is also a distinct category of defended houses in the North-East. These have traditionally been divided into two categories: the tower of the northern frontier zone, and the moated site of the County Durham and Cleveland, with the implicit assumption that the former were built for defence and the latter as a marker of status (English Heritage Monument Class Descriptions categorise tower houses as 'Defence' and moated sites as 'Domestic') (Ryder 1990). In practice the distinction is rarely as clear-cut. For example, it is debateable whether Ogle Castle (Northumberland) should be classified as a moated site, castle or fortified tower house, and probable Durham tower houses, such as Evenwood, were also provided with moats (for more on Durham moats see Emery 1999).

The urban hierarchy of the region was dominated by Newcastle and Durham. Newcastle has seen extensive excavation, especially around the castle and along the quayside (O'Brien 1991; O'Brien *et al* 1988; Fraser *et al* 1994; 1995) (Figure 38). The city owed its importance to its role as

a centre for North Sea trade and coastal sea-coal shipping. Durham, as seat of the Prince Bishops, was also a town of regional significance, and traded through Hartlepool. In the past significant excavation has taken place at a number of sites in the city (Carver 1979; Lowther *et al* 1993; Fraser *et al* 1995). Both Durham and Newcastle appear to have had an elite *enceinte* associated with the castle and, in Durham's case, the cathedral, with the urban settlement growing up adjacent to it. Similar patterns have been recognised elsewhere, at Hexham and Darlington, for example (Daniels 2002). As the main port for Durham, Hartlepool also developed early, and capitalised on the opportunity to supply English armies during the Anglo-Scottish wars. There has been significant excavation on the medieval waterfront and urban core there (Daniels 1991; forthcoming).

Medieval structures are likely to survive in towns such as Darlington, Durham and Newcastle, though detailed recording has not yet been carried out. In Newcastle, the Rigging Loft, Trinity House, The Cooperage and other nearby buildings are probably of late medieval date. Tree-ring dates from Trinity House have a chronological span of 1397-1524 (Anon 2003). Likely medieval structures in Durham include the Parsonage House, St Mary the Less, and Elvet Manor as well as some properties on Silver Street and Allergate (Martin Roberts pers comm). Survey work on 114-116 High Street, Yarm (Tom Brown's House) has revealed an earlier 16th-century property concealed behind an 18th-century street elevation (RCHME nd). Similar survivals also probably occur in the smaller towns, such as Barnard Castle, Darlington, Hartlepool and Morpeth.

As well as being foci for trade and production, towns, and especially the smaller boroughs and shire centres, were closely integrated with the agricultural productive economy (Daniels 2002). There have been important interventions at a number of smaller medieval towns, such as Darlington (ASUD 1994), Berwick (Griffiths 1999; Young 2001) and Yarm (Heslop and Evans 1985). The presence of a series of Extensive Urban Surveys for Northumberland and Tyne and Wear will help considerably with the understanding of many of these smaller urban areas.

Maritime

An important development in the later medieval period was the expansion of deep-water fishing. Beach-launched cobs were employed and these did not require an extensive quayside infrastructure. Much of the activity may have been seasonal with temporary shielings being used by fishermen, evidence for which may survive only as place-names, for example South Shields. Sites like these are most likely to have been used in the winter months when some fish species, such as cod and haddock, came inshore from deeper waters. Assemblages of fish bones have been recovered in urban sites, such as Hartlepool and Newcastle (Nicholson 1988; 1989; Jones and Rackham 1979), as well as from smaller coastal sites, such as Lindisfarne (Allison *et al* 1985), and ecclesiastical sites, such as Jarrow. Here there seems to have been a change in consumption from freshwater fish, including salmon, to deep-water species, such as cod, haddock and ling (Barrett *et al* 2004). The fish bone assemblage from

Church Close, Hartlepool, shows a similar shift from the early-medieval exploitation of mainly inshore fish resources to medieval deep-water 'white fish'. There is also evidence for herring processing (smoking or salting) from the 14th century (Looker 1991) while Hartlepool has produced a number of possible net weights (Daniels 1991).

Freshwater fish are likely to have been fished from the wild (the salmon fisheries of Berwick and the Tweed were particularly important), though there are also fish-ponds, such as those at Bradley Hall and Bishop Middleham (Co. Durham) (McCord 1971, 18-19). There has also been extensive work by the late Victor Watts on the place-name evidence for medieval riverine fishery sites (Watts 1982; 1983; 1986; 1988; 1997).

Archaeological evidence for ships themselves is elusive. Excavations at Southgate, Hartlepool, uncovered re-used strakes and ribs from ships and a fragment of two clinker-fastened planks (Young 1987). Similar fragments of re-used boat are also known from Newcastle Quayside, including planking and two wooden mast crutches (O'Brien *et al* 1988, 105) and fragments of caulking material have also been recovered (Walton 1988). A gravestone from Hartlepool carries an image of a medieval sailing vessel (Ryder 1985, 95, fig 36).

Castle and defensible structures

The proximity of the Scottish border led to the construction of many fortified structures. Of the simple motte and bailey defences among the best preserved are those at Gunnerton, Harbottle, Styford (Northumberland) and at Bishopton (Durham), though elements of similar defences can be seen incorporated into later remains at Mitford, Morpeth (Northumberland) and elsewhere. Ringworks are also well preserved at Elsdon, Mote Hills, Sewingshields Castle (Northumberland), Green Castle, Akeld (Northumberland) and Castle Levington (Teesside). Elsdon is particularly notable for its substantial embanked bailey. Other baileys were surrounded by later masonry defences, including Alnwick and Warkworth (Northumberland).

There is little evidence for keeps in the region before the mid 12th century. The earliest is at Durham, probably dating to c. 1100-1128 (Leyland 1994). Simple hall keeps, with the chamber next to the hall, also survive at Bamburgh and Norham, whereas tower keeps, with the chamber above the hall, can be seen at Newcastle and at Prudhoe. Work of national significance has been carried out on the expansion of the early-12th-century donjon at Norham, which shows parallels with towers from the bishops' palaces of the same period (Dixon and Marshall 1993). Shell-keeps are known broadly intact (though altered) at Harbottle and Mitford, and ruined at Wark-on-Tweed.

Norman gatehouses are known at Alnwick and Wark. The 14th century saw the strengthening of gatehouses, such as the provision of barbicans at Alnwick, Prudhoe and Tynemouth. Gatehouse keeps were also constructed. The best example is John of Gaunt's structure at Dunstanburgh; others are known at Bothal, Bywell, Hylton and Morpeth. In the 13th and early 14th century more substantial curtain

wall defences with towers were built around several castles, such as Warkworth and Alnwick.

Another 14th-century development was the introduction of the quadrangular castle. Some, such as those at Ford and Chillingham (Northumberland), had their main suites in corner towers. Others placed their accommodation in the ranges linking the towers, as at Lumley (Co. Durham) and Cartington (Northumberland). These new schemes often included earlier elements, as at Etal, where the existing upper-floor hall house was incorporated as a north-west tower. These were the precursors of a series of quadrangular 'palace-fortresses', best illustrated perhaps by Lumley Castle, which were mainly constructed by major magnate families who were extremely powerful in the border region where the writ of the king was weak. The Neville family built palace-fortresses at Raby (1367-90) and Brancepeth (1360-80), while the Percys carried out major phases of reconstruction at Alnwick and Warkworth, including the rebuilding of the keep there as a tower house in the 1390s.

In County Durham, in addition to the major fortification in Durham itself, the two other significant sites are Barnard Castle and Raby Castle. The former dominates a crossing of the Tees and has an extremely large enclosure; it was excavated by David Austin in the late 1970s (Austin 1979; 1980). At Raby, the present castle is of one period, dating to the latter part of the 14th century, though Bulmer's Tower is a 12th-century survival from an earlier fortified dwelling house. The castle has not been subject to archaeological investigation of any kind.

Another important sub-group of castles and high-status residences in this region are bishop's palaces. That at Bishop Auckland is perhaps the most significant. Despite a 17th- and 18th-century veneer, many of the surviving structures there are medieval in date, including a particularly fine 12th-century hall which was converted into a chapel in the late 17th century. The sites of other ecclesiastical residences are known at Bishop Middleham, where geophysical survey has been undertaken, and the former Manor House in Darlington.

In addition to these substantial residences, there is a separate category of smaller hall and tower-houses. For example, there was an initial phase of an unfortified seigneurial house at Seaton Holme (Durham) (ASUD 2000b). Other simple hall-houses were only lightly fortified. At Aydon, a late-13th-century first-floor hall and cross wing were only later supplied with a curtain wall and two towers. Cross wings are also known at other sites, such as Archdeacon Newton (Durham). Solar towers, were, however, more common than cross-wings. The ground-floor halls at Featherstone, Halton, and Low Hall, Corbridge, were all provided with solar towers in the 14th or 15th century, and the towers at Blackbird Inn, Ponteland, and Shield Hall (Northumberland) may be additional examples. Solar towers often had corbelled bartizans rather than full corner towers.

Peter Ryder has distinguished between solar towers and hall towers (Ryder 1992b, 62-63). Unlike solar towers, which were part of an ensemble of structures, hall towers stood

alone. They rarely had defended enclosures, though it is possible that some were provided with wooden pales. They mainly date to the 13th century and seem to have acted as distinctly northern, defensive, manor houses.

Accommodation was usually on the first or even second floor and they were often provided with substantial corner towers. Good examples of hall towers include Haughton, Taret and Bellister. Within the region, tower houses had a definite northern distribution (over 160 in Northumberland), with far fewer in Durham (Emery 1996). Although primarily a response to insecurity, the tower house style appears to have entered the wider vocabulary of architectural forms, and it is noticeable that in the broadly peaceful later 14th century a large number of such houses were being built, at Belsay (c. 1370-80), Fenwick (1378) and Chipchase (1380), to name three examples. A final class of tower worth distinguishing is the small group of vicar's peles of late-14th- or early-15th-century date. Although broadly contemporary with solar towers, these appear to have functioned quite differently and provided secure accommodation for priests immediately adjacent to their churches. Good examples can be found at Alnham, Corbridge and Ponteland.

Defences were also created for a range of other buildings: churches (see below), monastic precincts (e.g. Lindisfarne, Tynemouth, Hulme) and buildings with administrative functions, such as the Moot Hall and prison at Hexham (Ryder 1994). The bridge over the river at Warkworth is one of the country's few defended bridge structures. There are also several important town walls. Alnwick had a 15th-century defensive wall, though nothing of it survives except the main gate on Bondgate. Despite the construction of substantial later defences, parts of the medieval defensive circuit at Berwick can also still be seen, including the stretch between Meg's Mount and the Border Bridge. Substantial sections of the Newcastle city wall, of 13th-century date, are also visible; in fact more survives there than in any other medieval city in England, except Chester, Chichester, Southampton and York (Nolan *et al* 1989). In Durham, what remains of the medieval wall is now mainly confined to cellar basements; there are no free-standing remains. In Hartlepool only the Sandwell Gate survives of the 14th-century walls built to defend the town against Scottish raids (Daniels 1986).

Excavation on castle sites includes work at Newcastle (e.g. Harbottle 1966; 1981; forthcoming), Barnard Castle (Austin 1979; 1980), Edlingham (Fairclough 1984), Hylton (Morley and Speak 2003), Kilton (unpublished excavations by Alan Aberg), Mitford (Honeyman 1955), and Stockton (Aberg and Smith 1988). Smaller excavations have taken place at other sites, such as Etal (Harbottle and Ellison 2001) and Morpeth (Ryder 1992a). Additional work at Etal includes a geophysical survey while building recording and analysis was undertaken during the restoration of the gatehouse at Morpeth (Ryder 1992a) and dendrochronological dating of timbers in the kitchen range at Aydon (Northumberland) (Hillam 1991).

There has also been increased interest in the social role of castle, attempting to move beyond simply analysing them as defensible structures (e.g. Fairclough 1992; Johnson 2002a). Several fortifications in the region have been cited

in support of this argument. Norman castles in the north of England and their landscape context were the subject of a recent PhD thesis by Chris Constable (2003).

Trade, transport and communications

An important element in the archaeology of transport and trade in the region is the evidence for quayside development at both Newcastle and Hartlepool (Daniels 1991; Graves 2002, 180-181; O'Brien 1991; O'Brien *et al* 1988; G. A. B. Young 1987). They illustrate the growing role of the North Sea and coastal trade for the success of these two towns though less is known about the development of maritime infrastructure at smaller coastal sites (see above).

Our understanding of the road network is poor, even though a large number of local hollow-ways are associated with deserted medieval villages. The network of drove roads between Scotland and England are better understood; many of their routes have been mapped, and associated features, such as cross-dykes, planned (e.g. Charlton and Day 1979; Cowper 1970-71). Although the high point of long-distant droving was post-medieval, these routes are likely to have medieval, or even earlier, origins. New work on the post-Roman road system of the north of England is being carried out by postgraduate Gillian Keegan-Phipps in the Department of Archaeology, University of Durham. In contrast to the lack of archaeological research, the architectural record includes a substantial number of surviving medieval bridges, all of which are protected by Listing and many by Scheduling. A survey of historic bridges in Northumberland has been carried out by Peter Ryder and Robin Sermon (1993). For the rest of the region, however, there have been no major reviews since that of Jervoise in 1931.

Industrial production

Evidence for later medieval industrial production in the region is very limited. One recent national initiative is the *Database of medieval pottery production centres in England* (Gerrard and Marter 2003), which has provided the first major overview of kiln sites in the region: three are listed for County Durham (two at Bearpark/Aldin Grange, and one on Bowes Moor), one clamp kiln with potting waste and clay pits in Northumberland (Eshott) (Dixon and Crowdy 2001), and one at Dog Bank in Tyne and Wear (Newcastle), which is the earliest production in the region, being 12th-century in date. The most recent excavation has been on the Aldin Grange kiln, which produced evidence for white ware manufacture (NAA 1997). A kiln was also uncovered during works connected with the construction of the Gateshead flyover in 1968 (Manders 1973, 62) and appears to have produced Tyneside-type buff white ware. Some material from the site is in the reference collection at the Fulling Mill and at the store at the Department of Archaeology. Other material collected at the time has since gone missing. Other evidence for pottery production includes a small crucible discovered at Saddler Street, Durham (Carver 1979, 39) which seems to have been used in the preparation of lead glaze used on late-11th to mid-12th-century cooking pots found at the same site, suggesting these must have been

produced relatively locally. There is also some suggestive place-name evidence, for example Potter's Banks, Durham, where there are indents into the bottom of the bank which may be the signs of medieval clay digging (Norman Emery pers comm), and near Bowes where a 'potter' name is associated with an earthwork. Taken together, the evidence for pottery production is very modest, though contrasts can be made between rural and urban sites and between technologies and kiln types.

Evidence for a range of other medieval industries comes from several sites across the region. Excavations at Saddler Street, Durham, and in Hartlepool, for example, have produced evidence for shoe-making and bread ovens (Carver 1979, 16, 31-33; Daniels forthcoming). Cobbling waste has also been recorded in Newcastle (O'Brien *et al* 1989, 177-178) while stone mortars were shaped at Hartlepool (Daniels 1991, 366). There is also some indication of textile production, both in the form of the textiles themselves (e.g. Carver 1979, 36-39) and the presence of spindle whorls (Austin 1989). The presence of dye plants amongst the environmental evidence at the Crown Court site in Newcastle is indicative of textile processing (Huntley 1989c, 182).

Mineral extraction is less well understood. Apart from small-scale use in the Roman period (see Chapter 6) there is nothing to be said about the archaeology of coal mining until the 13th century. Although documentary evidence for medieval collieries does exist, there is little to be seen on the ground, most early workings presumably being destroyed by later mining. Nevertheless, a few possible early sites have been identified, such as at Moorhouses Woods and West Rainton (Co. Durham), where extensive documentary evidence for mining is reflected on the ground by surface earthworks (Guy and Cranstone 2001).

Lead working is also likely to have taken place in the North Pennines using simple 'bole' hill technology which comprised no more than a simple hearth of brushwood and crushed ore protected by a stone wall pierced by a wind tunnel which provided the necessary draught to elevate temperatures. Although a number of sites have been identified as medieval lead-working sites, among them sites near Rookhope and Stanhope in the 12th century and later shafts further up Weardale, there has been little archaeological investigation of them (Blanchard 1981, 80-81). Durham lead 'boles', however, are of greater than regional interest, it was here the miners experimented with new technologies in the 15th century allowing them to attain more efficient extraction which later spread to competitors in Derbyshire and Mendip. It is also likely that there was a medieval silver industry, linked to lead working, in the North Pennines, though there is, as yet, no archaeological evidence for this (Claughton 2003).

All medieval iron was produced in bloomeries and the North-East has a good range of evidence for metalworking of this kind. Possible medieval bellpits at Craghead (Co. Durham) appear to have been dug to recover ironstone rather than coal. They have also been seen at Whittonstall (Northumberland) during opencast mining. The most important site in County Durham, however, is the

'Byrkeknot' bloomery at Harthope Mill. Here a combination of extensive documentary evidence (15th-century account roll) and archaeological work has shed light on the way in which a late medieval iron-working site might have functioned (Tylecote 1960). Unpublished work on a bloomery site at Glantlees (Northumberland) is important. Bog-iron was also worked at High Bishopley (Co. Durham) (Atkinson 1974, 282). As well as work on specific manufacturing sites, research has also been carried out on the wider context of production. The survey of charcoal pits in Upper Teesdale by Tom Gledhill (2002) has greatly enhanced our understanding of the industry in that area, identifying over 340 charcoal pits and 34 bloomeries.

Quarrying certainly took place, both for standard building stone, and high-status materials, such as Frosterley marble, although there are few quarrying remains of confirmed medieval date from the region (for Egglestone Marble, see Blacker and Mitchell 1999). An overview of the stones of Durham Cathedral has identified a number of possible quarry sites, including those near Prebend's Bridge, St Margaret's allotments and Kepier (Johnson and Dunham 1982) though later quarrying has destroyed much of what remained.

Salt extraction was widespread on the Cleveland coast, and substantial remains of salt mounds can still be seen around Coatham. There is also evidence for salt production at South Shields, which has produced evidence for the early use of sea coal (Thornborrow 1988).

Religion and belief

Church architecture

Some parts of the region had a relatively dense network of pre-conquest parishes, as indicated by the distribution of Anglo-Scandinavian sculpture along the Tees Valley. Other areas, particularly the upland areas of Northumberland and North Pennines, had an under-developed parochial network, and contained some of the largest parishes in England.

The Saxo-Norman transition was an important period for church architecture, with a number of survivals such as the lower stages of the tower at Heighington, as well as Jarrow, Norton, Billingham, Bywell and Ovingham. In general, the 11th century was a period of great tower building, a phenomenon which appears to have straddled the Norman Conquest. There is the potential for other survivals of transitional architecture to be identified, though these are often hard to date. For example, although they may lack diagnostic features there is clearly pre-12th-century work at a number of churches, such as Ingram and Seaton Delaval, though whether this is pre- or post-conquest is impossible to tell. Romanesque work is known most obviously from Durham Cathedral but the chancel arch at Lanchester (Co. Durham), the central tower at Jarrow (Tyne and Wear) and the north arcade at Pitlington (Co. Durham) should not be omitted from any county list. In Northumberland the best examples include Lindisfarne Priory and Norham church while the rib-vaulted chancels at Heddon-on-the-Wall and Warkworth, and the chancel and sanctuary arches at Seaton Delaval are also impressive. There are only two carved tympana: at Croxdale (Co. Durham) and Houghton le Spring (Tyne and Wear).

The Gothic style arrived in the region in the late 12th century, perhaps under the influence of Hugh Le Puiset (Bishop of Durham, 1153-95), the earliest example possibly being the Collegiate church at Darlington (c. 1192). It was also adopted at other collegiate churches in the region, such as Lanchester, Hartlepool, Chester-le-Street, Ryton, Auckland St Andrew, and Staindrop. In Northumberland, Brinkburn and Hexham are good early examples of this style, though it was also used with effect at Finchale Priory (Co. Durham) and the Chapel of the Nine Altars in Durham Cathedral. Tynemouth also has late-12th- and early-13th-century work. An important contribution to study in the region is Jane Cunningham's PhD thesis on early Gothic architecture in the diocese of Durham (1995).

The Decorated style did not make a major impression, and no early- to mid-14th-century churches are known, though there was some remodelling, as at Wycliffe (Co. Durham). This is equally true of the Perpendicular; again few complete churches of this style are known, although Tynemouth Priory has an impressive chapel and Alnwick a late-15th-century church, both sites being strongly influenced by the patronage of the Percy family. The lack of later church elaboration from the 14th century is likely to be a reflection of the increased border conflict and unrest resulting from the Scottish wars, and it is no surprise that the one town which enjoyed economic success in this period, Newcastle, has an unusually high level of late Gothic architecture, at least in the context of the region.

An important sub-class of churches is the defensible church of the Anglo-Scottish border. A recent survey of the six historic border Marches found defensible features or elements at 96 churches or church sites (Brooke 2000). These show a high degree of local adaptation, with no evidence for broader campaigns of fortification and this probably reflects the lack of mainstream patronage in this unsettled area. Significant examples of defended churches include those at Bellingham, Elsdon and Kirk Newton. Defensive activity associated with churches also took place in County Durham, at Kirk Merrington for example, where a large defensive ditch was dug around it by William Cumyn c. 1143-44, although this is only attested in documentary evidence.

A number of hermitages are recorded in documents but only three survive today. The rock-cut hermitage at Warkworth dates to the later 14th century; carved into the living rock on the left bank of the River Coquet. Traces of a small rock-cut chapel also survive at Blackhall (Co. Durham).

At Chester-le-Street, the Anker's House, an anchorite's cell, is built onto the north side of the church of St Mary and St Cuthbert (Drury 1987). It dates mainly to the 14th century (though there are 17th-century alterations), and is one of the best-preserved anchorite cells in the country. There is also a possible anchorite's cell at Staindrop and there are documentary references to an anchorite at Durham Cathedral. Odd upper rooms are known at a number of churches, including Brancepeth, Corbridge, Gainford and Staindrop, and these may have had a similar function.

Church furniture

Little original stained-glass survives from the region, though important exceptions include the Jesse Window at St Mary's in Morpeth (Northumberland), the 14th-century glass at Ponteland and Bothal (Northumberland) and the 13th-century glass at Wycliffe (Co. Durham). Excavations at the Franciscan Priory in Hartlepool found evidence for the making of painted glass windows (Daniels 1986).

Preserved later-medieval wall paintings are also rare. In Northumberland traces of decorative schemes can be found at Bothal, Morpeth and Pitlington. The decorative scheme in the Galilee Chapel in Durham Cathedral is the most important survival in that county and includes a king and a bishop (Oswald and Cuthbert?). It dates to around 1175-85; later 13th/14th-century scenes include a crucifixion and the martyrdoms of the apostles. Other paintings associated with the Cathedral include a scene in the Refectory and a 15th-century 'Hymn to the Virgin' in the prior's chapel in the Deanery. A number of tiled floors also survive. When the original floor level in the Refectory at Durham Cathedral was discovered in 1961, a pavement of glazed tiles of the early 16th century was revealed. A 13th-century floor also survives in the Abbot's Chapel at Newminster Abbey (Northumberland), and an important collection of a similar date can be found at Gisborough Priory (Teesside) (Knight and Keen 1977).

The North-East has a number of surviving medieval church furnishings. The painted wooden rood screen dated to the late 15th/early 16th century at Hexham Abbey originally displayed a 14th-century painted Dance of Death, panels of which are now mounted on the lectern next to a wooden reredos bearing painted images of bishops. An important stone reredos (the Neville Screen) also survives in Durham Cathedral. Built in Caen stone, it was consecrated in the late 14th century. Wooden chancel stalls, mainly at collegiate churches, include 15th-century examples from Staindrop, Lanchester, Auckland St Andrew (Co. Durham) and Hexham (Northumberland), as well as early-16th-century examples from Jarrow (Tyne and Wear) and Bishop Auckland (now in Durham Castle). A large medieval pulpit of late-15th-century date is preserved at Heighington (Co. Durham).

Medieval fonts are not uncommon, even if few carry extensive decoration, though the late-15th-century font from Hart (Teesside) is decorated with eight carved male heads on the foot, and the bowl carries a Resurrection scene, with angels on the underside. Figurative decoration of an earlier (13th-century) date can also be found on the font from Hepple (Northumberland). A series of similar black marble fonts of the 15th century survive in churches in Newcastle, including St Nicholas', St John's and All Saints' (now in St Wilfred's, Kirkharle). These may all have come from the same workshop. The Egglestone marble font at Barnard Castle (dated to 1485) is decorated with a number of unusual merchant marks. The discovery of a font buried beneath a stone pillar during excavations on the chapel at West Chevington (Northumberland) gives an intriguing insight into the cultural biography of some of these important liturgical items (Goodrick and Williams 1998).

Religious houses

Although a range of religious houses was established, it is the power and influence of the Benedictines which is most evident in the region. Other than the Cathedral Priory in Durham itself, the Benedictines adopted an Augustinian foundation at nearby Finchale (Co. Durham) (Jessop 1996) as a recreational retreat away from the strictures of monastic rule. Like several other monastic houses in the region, this priory derived a proportion of its earnings from local coal mining. They also re-colonised priories at Tynemouth (Jobey 1967), which was fortified against Scottish raids, and Lindisfarne (Northumberland) and more briefly at Jarrow and Monkwearmouth (Co. Durham). There are remains of smaller Northumberland cells on Coquet and Farne islands, though nothing survives of a third at Warkworth. Holystone, Lambley (Northumberland), Neasham and Newcastle all had houses of Benedictine nuns.



Figure 39 Excavations on the gatehouse of Eggleston Abbey (Co. Durham). © Durham County Council

Other orders tended to establish houses outside the Palatinate. There is, for example, only one major Cistercian monastery, the partly excavated site at Newminster (Morpeth), a daughter house of Fountains Abbey in North Yorkshire which was also responsible for a pele-tower at Nunykirk and small bastles at Greenleighton and West Ritton (Bond 2004) and there was a Cistercian nunnery at Berwick where archaeological work has been undertaken including geophysical survey. The Augustinians had houses in Northumberland at Bamburgh, Brinkburn, Carham, Hexham and Ovingham, and further south at Baxterwood (Co. Durham) and Gisborough (Teesside) (Heslop 1995; Harrison and Heslop 1999). The Premonstratensians had abbeys at Alnwick (Hope 1936) and Blanchland and a small nunnery at Guyzance (Northumberland). Geophysical and topographical survey has been carried out at the Premonstratensian abbey at Eggleston, further south in County Durham (Figure 39). Some of the buildings of a Hospitaller preceptory (Knights of St John of Jerusalem) survive at Chibburn, including a chapel and a moat. This site is first mentioned in the 14th century, its future being threatened by coal mining until only recently.

Of the orders of friars, Knowles and Hadcock (1953) list Dominican houses at Bamburgh (slight remains), Hartlepool (masonry remains; Daniels 1986), Jarrow, Newcastle, and Yarm; Franciscans in Durham, Hartlepool and Newcastle (Daniels 1986b); Carmelites at Hulne and Newcastle. Austins at Barnard Castle and Newcastle (church survives) and, finally Trinitarians, also in Newcastle. Of these the extensive Carmelite remains at the rural site at Hulne (Reavell 1935) merit highlighting as do the



Figure 40 Kepier Hospital, Durham. © English Heritage

excavated remains of the Dominican house in Newcastle (Harbottle 1968; 1987; Harbottle and Fraser 1987).

In Northumberland the principal monastic buildings survive best at Lindisfarne and Tynemouth, the two best preserved monastic churches being at Hexham and Brinkburn, and there are fragmentary ruins elsewhere. There is nothing to be seen at Carham, Neasham, Newcastle (Benedictine nuns) or Warkworth. In County Durham, other than the cathedral buildings, there are legible monastic remains only at Eggleston and Finchale. The remains of a number of hospitals in the region also survive; the most extensive upstanding remains can still be seen at Kepier (Durham; Figure 40).

Excavation and investigation

Archaeological and building survey work by Norman Emery, the Cathedral Archaeologist, on Durham Cathedral is important and ensures that one of the region's two World Heritage Sites is constantly monitored. A number of other small-scale archaeological investigations have taken place at the cathedral (e.g. Carne 1996). The importance of the cathedral ensures that it remains the continual focus of on-going academic investigation and re-assessment (e.g. Jackson 1993; Jarrett and Mason 1995; Bosworth 1999). Work at other important churches has been limited, though a number of small-scale investigations at Hexham Priory have been recently published and synthesised (Cambridge and Williams 1995).

Little recent research work has been undertaken on parish churches, although Peter Ryder's archaeological

investigations and surveys on behalf of Durham Diocesan Advisory Committee are extremely valuable. Excavation on church sites is limited by the fact that many are still in use as places of worship, although occasionally circumstances have intervened to allow a more detailed exploration, such as the recording work carried out by Peter Ryder following the severe fire at St Brandon's in Brancepeth, or the dismantling of St Helen's church in Eston before its move to Beamish. In both cases the extent of re-use of earlier stone was greater than expected.

Some archaeological work has also taken place on churches which have fallen into disuse. The chapel of ease at West Chevington was excavated in 1992, uncovering the burials in the churchyard (Goodrick and Williams 1998). The on-going Bondington Project in Berwick-upon-Tweed investigated the probable site of the church of St Mary's, revealing a chancel, apse and substantial foundations (Cambridge *et al* 2001). Small-scale excavations have also taken place at the site of the chapel at Esp Green (Durham) (Clack 1979) and St Mary Magdalene in Warkworth (Pattinson 1981). The evidence for the lost church of St Nicholas in Durham Market Place has also been assembled, including evidence for its cemetery (Emery *et al* 1997).

Burial

Evidence for burial comes in two main forms: burial monuments and excavation of graves. Peter Ryder has carried out an extensive survey of medieval cross-slabs, covering most areas of the region. This forms an important

corpus, which should be used as a basis for further research (Ryder 1985; 1994; 2000a; 2002c; 2003a).

Around 60 effigies survive in Durham, mainly of 13th- and 14th-century date (Hunter Blair 1929). Most are carved in sandstone, though some are made from Frosterley marble, such as those at Pittington (Co. Durham). Alabaster was also used, and one of the best examples is the effigy of Ralph Neville (d. 1425) and his two wives at Staindrop church (Figure 41). Wooden effigies are known from South Church and Brancepeth (destroyed in the recent fire). In Northumberland an important group of effigies survive at Warkworth, Hexham (e.g. the effigy of Prior Leschman d. 1491) and most importantly at Chillingham, where the tomb chest carrying the effigies of Sir Ralph Gray (d. 1443) and his wife is particularly noteworthy for its sculpture (Heslop and Harbottle 1999; Hunter Blair 1930). In general, effigies are more common south of the Tyne than north, perhaps reflecting the greater relative wealth and stability in this region. A number of brasses also survive, again mostly south of the Tyne. In Newcastle, the brass to Roger Thornton (d. 1429) is important. Significant groups of brasses can also be found in Wycliffe and Sedgfield (Co. Durham).

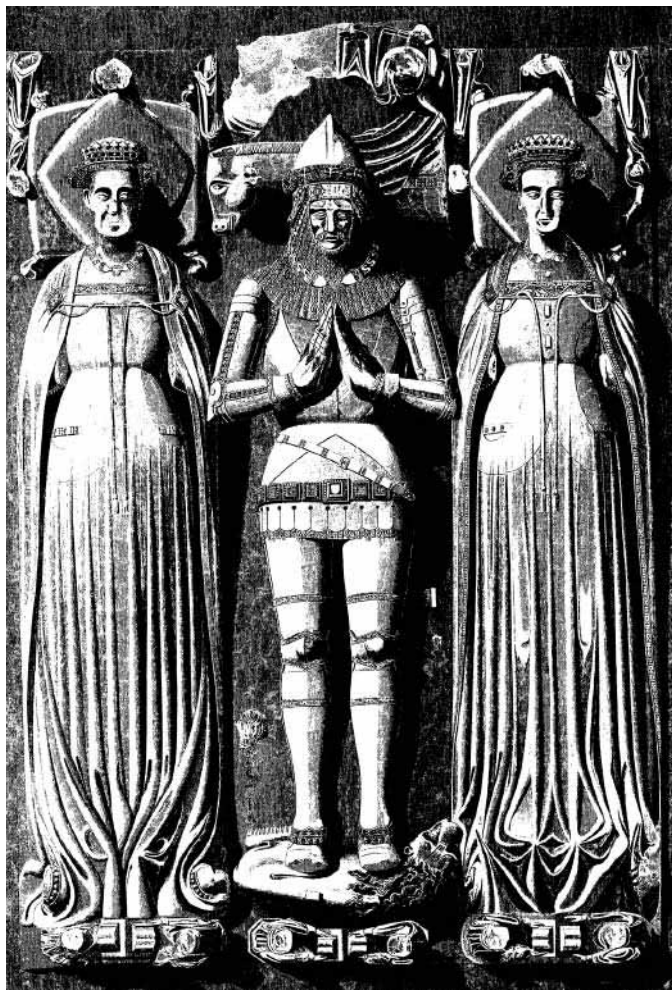


Figure 41 Effigies of Ralph Neville, Earl of Westmoreland, and his two countesses in Staindrop church (Co. Durham). From Surtees 1972, 130

Archaeological excavation of medieval burials is not uncommon. A number of relatively large cemeteries have been fairly extensively excavated, such as those at Monkwearmouth and Jarrow (Tyne and Wear), West

Chevington (Northumberland) and The Castle, Newcastle (Cramp 2005; Boylston *et al* 1998; Goodrick and Williams 1998; Nolan and Harbottle forthcoming). The cemetery at the church of the Franciscans in Hartlepool has also been investigated (Daniels 1986). More typical are the smaller-scale excavations in churchyards, often as a result of building work, such as at Bishop Middleham and Brancepeth (Co. Durham). In the 1930s a small cemetery was excavated at Mitford Castle, which may have been related to an early chapel (Honeyman 1955).

As well as churches and cemeteries there are also aspects of more popular religion to be considered. Although some wayside crosses are probably post-Reformation in date, several medieval crosses do survive. Some, such as the St Helena cross at Kelloe, are architecturally elaborate (Lang 1977), but most are relatively simple in design. A regional overview of these monuments in County Durham has recently been published (Rimington 1999).

Material culture and technology

The most common find on medieval sites is pottery, though the ceramic evidence from the region is relatively poorly understood. There is a lacuna in pottery studies in Northumberland, but the large assemblages from urban excavations from Durham, Hartlepool and Newcastle mean that these areas are better covered (e.g. Bown 1988; Cumberpatch 2001; Ellison 1983a; Fraser *et al* 1995; Jenner and Cooper 2001; Lowther *et al* 1993, 77-80; Carver 1979, 39-47; Wrathmell 1987; 1990). A major backlog project is underway to catalogue a large assemblage from the Castle; this is different in character from the Castle Ditch and contains large quantities of earlier material. However, even in areas where large amounts of ceramic material have been recovered there is a lack of synthetic overviews.

There are also assemblages of pottery from smaller towns, such as Yarm (Evans and Heslop 1985, 61-72) and Berwick (Moorhouse 1982; Jenner 1999). Material from the latter site emphasises the need to examine the pottery in a Scottish, as well as English, context (Hall *et al* 2000). Due to the general lack of excavation on rural sites, there are few ceramic assemblages from outside urban areas, though those from Thrislington and Castle Eden (Co. Durham), and West Whelpington (Northumberland) are significant. An important group from North Northumberland is that recovered from Holy Island, including material from excavations within the village, also recent work on the Palace site and excavation of a midden at Jenny Bell's Well (Bown 1985; Hardie 2001). Small but interesting assemblages from Ingram in the Breamish Valley (600 frags), Alnwick (980), and Chevington (950) in Northumberland are all now progressing to publication, while another from West Hartford is at the assessment stage (Jenny Vaughan pers comm). There are also small, but crucial, ceramic assemblages from a number of medieval rural settlements in the Tees Valley (High Worsall, North Yorkshire; Elston, Stockton-on-Tees; Claxton, Hartlepool; Swainston, Co. Durham). Unfortunately, these remain unpublished (Robin Daniels pers comm). Assemblages from castle sites include those from Prudhoe and Barnard Castle (both forthcoming). A series

of important analytical projects have been carried out by Alan Vince (e.g. Vince 1999; 2003).

Despite large-scale urban excavations in Hartlepool and Newcastle, the number of small finds has been relatively slight compared with assemblages from other major urban sites, such as London, Winchester, and York. Such assemblages have tended to be published with the relevant site reports and there has been no need for major synthetic finds publications such as those carried out elsewhere (e.g. Biddle, Goodall and Hinton 1990; Egan and Pritchard 1991; Ottaway, Rogers and Addyman 2002). There will be an overview of the small finds in the forthcoming synthesis of medieval Hartlepool (Daniels forthcoming).

Glass in the region has been covered by the work of Rachel Tyson (1996; 2000). The advent of the Portable Antiquities Scheme has meant an increase in the number of spot (66 since August 2003). Finds of this date are the most commonly reported, and although individually the objects are not significant, the project is extending significantly the range of certain object types known from the region, such as horse harnesses and seal matrices (Philippa Walton pers comm).

Museum and archive collections

Archival holdings

The archival holdings for the medieval period are, not surprisingly, substantial. The most important of these are those related to the Durham Palatinate and the Dean and Chapter estates. These are mainly lodged in the Archives and Special Collections of the University of Durham library. The University also holds the Durham Castle Buildings Archive, including plans, drawings, photographs and documentary material. Significant archives of other pictorial records are also held here, including a range of late-19th- and early-20th-century miscellaneous images in the North-East, many of medieval buildings.

The local records offices hold a range of useful material, both of medieval date and later. For purposes of landscape analysis, there is a wide range of tithe and enclosure maps, though those from Durham south of the Tees are mainly held at the North Yorkshire record office in Northallerton.

For churches, the main archives are those of the Diocese of Durham and Diocese of Ripon (for Durham south of the Tees). These include plans, quinquennial reports and documentation relating to faculties. This has now been

supplemented by the on-line publication of significant quantities of material from the archives of the Incorporated Church Building Society, which in some cases includes the only known pre-restoration plans of churches.

Other important on-line archives include the British Museum publication of Samuel Grimm's Northumberland sketchbook and *Pictures in Print*, a selection of early maps and topographical prints from the collections of Durham University Library, Durham County Council Arts, Libraries and Museums, and Durham Cathedral Library which are now viewable on the web at www.dur.ac.uk/Library/asc/pip/. Private archives, such as those belonging to Alnwick Castle and Raby Castle are undoubtedly important, but public access is less easily available.

Museum collections

There are a number of major collections of medieval objects in the region. The material from Alan Aberg's excavations at Kilton Castle, Skelton, is held by Tees Archaeology, who also hold important material from a series of small excavations in Yarm and at Gisborough Priory; Tees Archaeology also holds pottery reference collections for Hartlepool and Yarm. Items from Gisborough Priory and Skelton Castle are held by the Dorman Museum in Middlesbrough (Teesside). In the south of the region, Hartlepool Museum Service curates material from the urban excavations in Hartlepool.

In Newcastle the Museum of Antiquities mainly holds medieval material from more recent investigations, including assemblages from the excavations at the Castle in 1960-61 (published in 1966), but it only officially started accepting medieval material from 1978. The medieval pottery there acts as a significant reference collection.

The Bowes Museum in Barnard Castle holds finds and site archives for a number of excavations in County Durham, including Barnard Castle, Cambokeels, Darlington Market Place, Town Farm, Sadberge and Thrislington. The Old Fulling Mill Museum in Durham holds the finds and archives from Martin Carver's excavations at Saddler Street, as well as finds from the Prior's residence at Bearpark, and archives of medieval material from Claypath and Leazes Bowl.

There are also several collections of worked stone objects and architectural fragments, in addition to those at the major museums mentioned above; relevant material can be found at the Anker's House Museum in Chester-le-Street, Woodhorn Museum in Ashington (Northumberland) and the *lapidarium* at Durham Cathedral.

9. Resource assessment: Post-Medieval

The Post-Medieval Specialist Group consisted of Ian Ayris (Newcastle City Council), David Cranstone (Cranstone Consultants), John Gall (Beamish Museum), Fiona Green (independent historic gardens consultant), Iain Hedley (Northumberland National Parks Authority), Matthew Johnson (Dept of Archaeology, University of Southampton), John Nolan (Northern Counties Archaeological Services), and Jenny Vaughan (Northern Counties Archaeological Services).

History of research

The post-medieval (1540-1900) period in the North-East was one of radical and deep-rooted change, perhaps more so than any other period. It saw the transition from an agricultural economy to an industrial one; the shift from a primarily rural population to an urban one, the move from horsepower to, first, water, then steam, and finally internal combustion and the rise of consumerism; it encompasses both the Reformation and the rise of non-conformity.

Although the armature of today's urban and rural landscapes was mainly laid out in this period, aspects of the post-medieval historic environment are now under threat. For example, the colliery landscapes that once dominated much of east Durham and south-east Northumberland have completely disappeared following the dismantling of the coal industry; the total removal of not just pithead buildings, but even spoil heaps, has fundamentally altered the cultural landscape of the region. The economic and social changes associated with later-20th-century de-industrialisation has also had an impact on less iconic elements of landscape of the North-East: farm buildings and non-conformist chapels are converted to holiday homes or business units, railways are uprooted and swathes of industrial workers' housing have been cleared.

Four main constituencies within the heritage sector have been working on this period, each with differing interests and publication strategies. First are architectural historians; they have perhaps the longest tradition of researching this period. In the past much of their work has focused on higher-status, architect-designed structures, such as country houses and churches, though research has now widened to include vernacular and industrial buildings. Architectural amenity groups, such as the Georgian Group and the Victorian Society and the Society for the Protection of Ancient Buildings, have campaigned to protect historic buildings from destruction, with an increasing realisation that the most threatened structures are often the most recent. Another related group is the Garden History Society, founded in the early 1970s; although having an international interest it concentrates its efforts on England, Scotland and Wales.

The second main interest group comprises archaeologists. The Society for Post-Medieval Archaeology was founded in 1967, with the aim of promoting the archaeology of late-medieval to industrial society in Britain, Europe and those countries influenced by European colonialism. Initially

focusing on the early modern period alone, the 19th and even 20th century has now fallen within its remit. Most archaeologists no longer regard post-medieval deposits as an inconvenient overburden to be removed before reaching the 'more interesting' medieval layers. The implementation of PPG16 in the early 1990s has had its contribution to make here. Indeed, the presumption of preservation *in situ* and the use of mitigation strategies should, in theory, mean that it is often only the post-medieval layers on sites which are excavated. While it is true that post-medieval and medieval layers are sometimes being machined off to fast-track investigation of earlier stratigraphy, significant levels of archaeological work are now being carried out in urban contexts, where post-medieval material often constitutes the majority of the assemblage (Figure 42).

A third group, industrial archaeologists, has traditionally dominated the study of the later post-medieval period (Figure 43). Work on the surviving remains of the industrial revolution goes back to the pre-war period, though it really developed in the 1950s (Hudson 1981b, 155-182). Sometimes criticised for an over-emphasis on industrial process and technology, there is an increased interest in many of the wider, social elements of industrialisation, and therefore a welcome convergence of interests with other archaeologists (Cranstone 2004).

Finally, the role of special interest groups, mainly run by amateurs working outside the formal heritage sector, is of great value. Groups investigate a wide range of topics, ranging from mills to war memorials, non-conformist chapels to 19th-century gun emplacements. There is also a number of history projects and societies studying the history and heritage of localities (parish or village). In many areas of the North-East these tend to focus on the recent industrial heritage, particularly where these industries have now disappeared. Though they have been responsible for creating and recording large amounts of important data, there is often some hesitancy on the part of special interest groups to engage with formal channels of scholarly communication.

Existing research frameworks

The creation of research agendas is one most practitioners would associate with the archaeological community; it is not found widely elsewhere in the heritage sector. This may be partly for institutional and professional reasons. The first English Heritage research framework was produced in the early 1990s and the project design specification provided by MAP2 (English Heritage 1991) recommended that reference be made to existing research frameworks and agendas. Since then most of the main period groups and several more specialist bodies have gone on to compose frameworks and priorities for further research. For this period the main agenda was set by the *Research priorities for post-medieval archaeology* (SPMA 1988); work being currently underway by the period society to update its content (Paul Belford pers comm). There have also been a

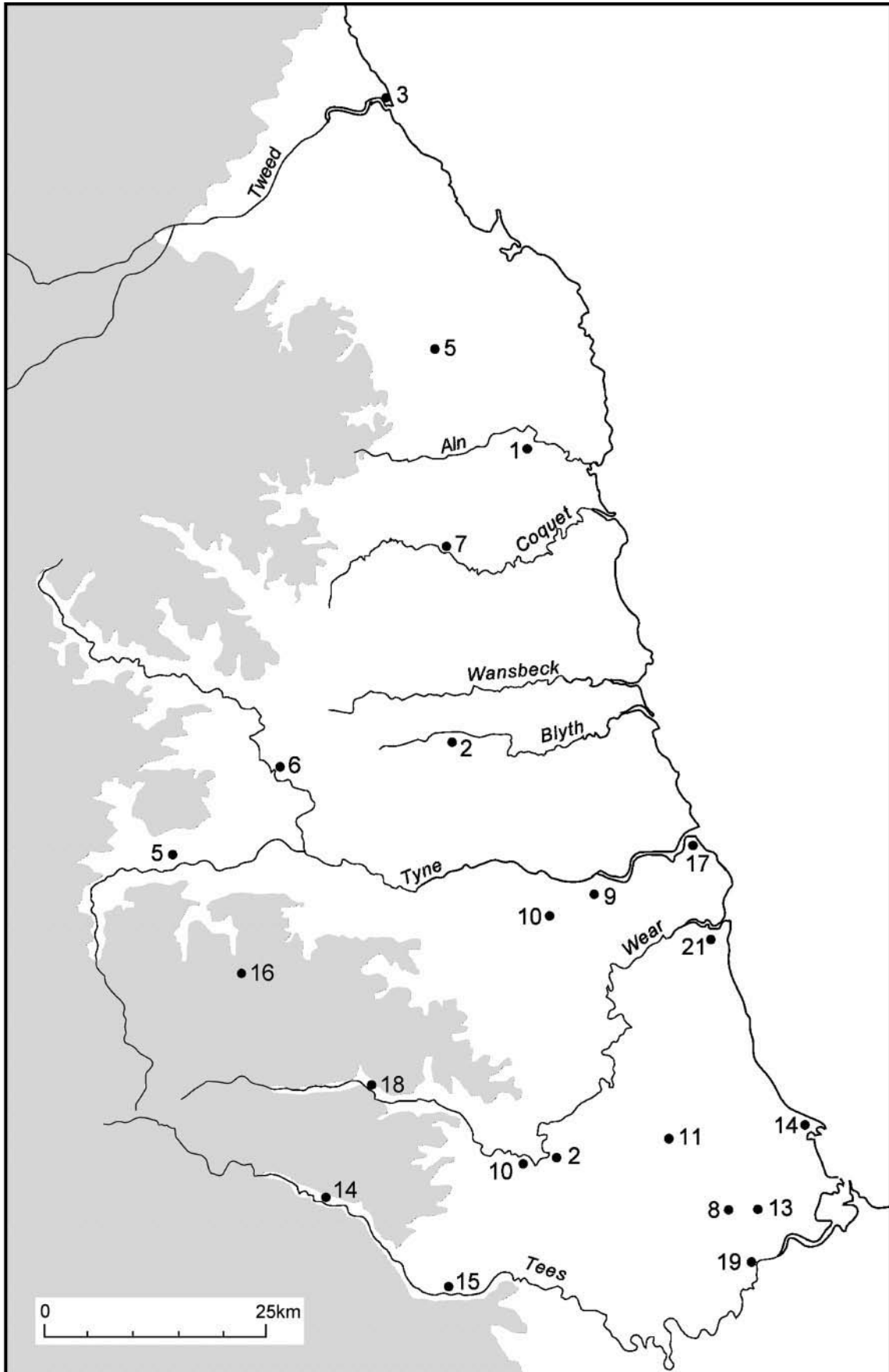


Figure 42 Key post-medieval sites mentioned in text (except industrial sites): [1] Alnwick Castle, [2] Belsay, [3] Berwick, [4] Bishop Auckland, [5] Chillingham, [6] Chipchase Castle, [7] Cragside, [8] Darlington, [9] Gateshead, [10] Gibside, [11] Hardwick Park, Sedgfield, [12] Hartlepool, [13] Middlesbrough, [14] Middleton-in-Teesdale, [15] Newcastle-upon-Tyne, [16] Rokeby Park, [17] Sinderhope Shield, [18] South Shields, [19] Stanhope, [20] Stockton, [21] Stokoe Crags, [22] Sunderland, [23] Wynyard Park (map drawn by Yvonne Beadnell)

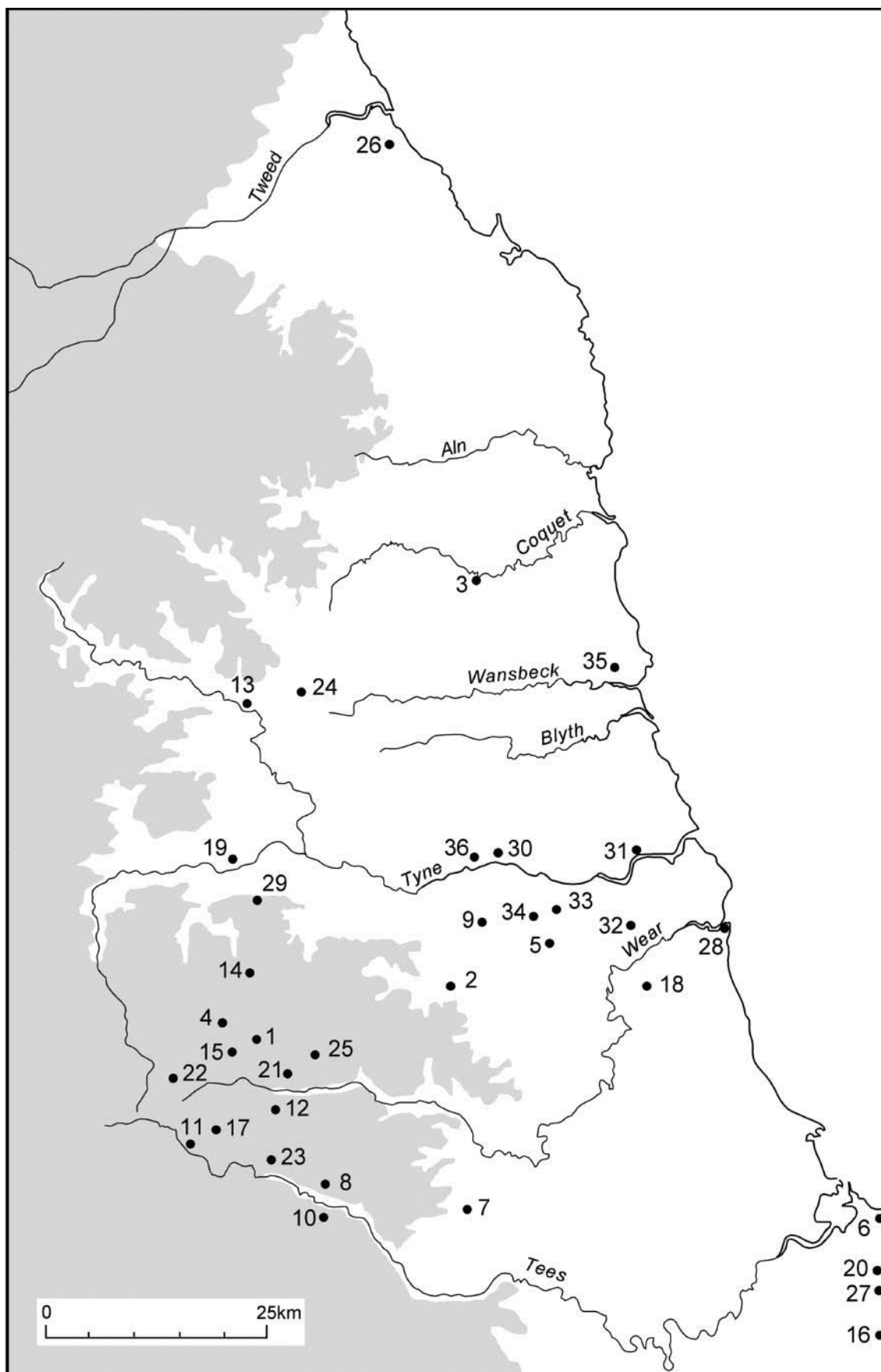


Figure 43 Key post-medieval industrial sites mentioned in text: (1) Allenheads, (2) Allensford Furnace, (3) Brinkburn, (4) Carrshields, (5) Causey Arch, (6) Coatham, (7) Cockfield Fell, (8) Coldberry Hush, (9) Derwentcote, (10) Greengates Quarry, (11) Greenhurth, (12) Greenlaws, (13) Hareshaw, (14) Holmes Linn, (15) Killhope, (16) Kilton Hill, (17) Lady's Rake, (18) Lambton 'D' Pit, (19) Langley Barony and Stonecroft, (20) Loftus, (21) Middlehope Slitt, (22) Mohopehead, (23) Pikelaw, (24) Ridsdale (West Woodburn), (25) Rookhope, (26) Scremerston, (27) Skelton Park, (28) South Shields, (29) Stublick, (30) Throckley, (31) Wallsend 'B' Pit Colliery, (32) Washington 'F' Pit, (33) Wickham, (34) Winlaton Mill, (35) Woodhorn, (36) Wylam (map drawn by Yvonne Beadnell)

number of individual suggestions for avenues of further research (e.g. Johnson 2002).

Specific aspects of this period, such as urbanism and agriculture, also have research agendas of their own, both formal (Perring *et al* 2002) and informal (Addyman 2003; Graves 2002; Newman 2005). A systematic agenda for church archaeology, for example, including the present period, has been published (Blair and Pyrah 1996), as have suggestions for approaches to burials (Harding 1998). Industrial archaeology also has a number of suggested programmes for research (e.g. Linsley 2002). The Historical Metallurgy Society has a formal research agenda (Blick *et al* 1991), currently being revised and extended (Ponting forthcoming); the Association of Industrial Archaeology has recently published a set of studies debating the current and future state of the discipline (Conlin-Cassella and Symonds 2005). The North-East Industrial Archaeology Panel has also produced a list of local priorities for research (Giles 1998).

Environmental background

In general, environmental archaeological work has tended to focus on earlier periods, and less so on the more recent past. The long tradition of using peat as a fuel across much of the region means that the upper layers of many peat deposits have been removed, truncating those layers which would retain post-medieval pollen.

There has also been relatively little investigation of post-medieval charred plant remains. Apart from a corn-drying kiln at Loaning Burn, Otterburn (Northumberland), which produced 80% oats and 20% barley, post-medieval assemblages are dominated by those from urban contexts (Donaldson 1982). These include material from the 17th-century bastion ditch at Newcastle, which was thought to include night soil. Analysis showed conifer fragments (Donaldson 1983). An assemblage from Westgate Road (Cannon Cinema), Newcastle also produced a small quantity of carbonised cereal grain, including oats, 6-row barley and wheat, as well as a single grain of rye; the waterlogged remains of figs, grapes, blackberries, elderberries and strawberries were also recovered (Huntley 1994). Interestingly, the assemblage from Old Durham Gardens may represent the medicinal or garden use of a range of plants, including pinks (*Dianthus*), St John's Wort (*Hypericum*), and woundwort (*Stachys*) (Allen and Roberts 1994).

Few suites of non-vertebrate remains have been analysed. There are two small groups of snails (17th-century) from Barnard Castle (Kenward forthcoming), and also from Queens Court 2, North Bailey, Durham, and the Cordwainer's site, Blackfriars, Newcastle (Rackham 1980a; 1987a). In practical terms, this lack of evidence for invertebrate remains partly reflects the lack of analytical work undertaken. It is rare for environmental samples obtained as part of PPG16-led excavation to be analysed due to the prohibitive costs (Jacqui Huntley pers comm).

Again, there are few substantial animal bone assemblages. The significant post-medieval assemblages tend to come

from the same sites as the main medieval assemblages: Newcastle and Durham, Jarrow and Monkwearmouth (e.g. Noddle 1987; 1992; Rackham 1987a). There are far fewer rural assemblages, and only one from an industrial site (Derwentcote, Co. Durham) (Gidney 1997).

Settlement

The surviving post-medieval building stock is extensive and this overview can do no more than introduce some of the more important strands. The most distinctive early-modern architectural form in the region was the bastle house and its derivative forms (Dixon 1979; Ramm *et al* 1970; Ryder 1993b; 2004b). Essentially defensive farmhouses with a number of distinctive characteristics (e.g. a stone vaulted ground floor used as a byre with living space above), and broadly dating to the 16th and 17th centuries, their construction appears to have been triggered by the instability and violence associated with Border reiving. They are mainly distributed within 30km of the Scottish border, particularly around the upper reaches of the North Tyne, Rede and Coquet, though recent work by Peter Ryder has shown that bastles are also found south of the Wall in Allendale and even as far south as upper Weardale (Ryder 1993b). The majority of known bastles are protected by Listing, but there is a significant minority not protected by legislation, particularly those which were later transformed into 18th/19th-century farmhouses. A survey carried out by Peter Ryder on behalf of Northumberland County Council has revisited all known bastles and similar defensive structures in the county (Ryder 2004b), but there has been only limited archaeological work (e.g. Newman and Harbottle 1973). There are also a number of post-medieval tower houses in the region. Elsdon Tower, although it probably contains earlier elements, is essentially a late tower house of mid- or late-16th-century date (Ryder 2004b, 262-263). There have been relatively few attempts to place bastles in their wider landscapes (though see Carlton and Rushworth 2004).

The advent of gunpowder warfare led to redundancy in the defensive function of castles. In some cases, leading families responded to this by allowing castles to fall out of use and building new houses instead. Many castles, however, continued to act as the core for later building. The 'afterlife' of castles was often of great significance. At Belsay (Northumberland) a range of 17th-century buildings was added to the existing 15th-century tower and Chillingham Castle (Northumberland) was remodelled in the early 17th century, opening up and elaborating the main entrances. In the mid 18th century Alnwick Castle (Northumberland) was heavily restored and subject to extensive Gothic alterations, this time under the supervision of Robert Adam and James Paine. In Durham, Raby Castle was heavily altered in the early 17th century and again in the 18th century, under the supervision of James Paine and John Carr, who were responsible for further Gothic remodelling. Walworth Castle was altered by its owner, Thomas Jennison, Auditor of Ireland, in the later 16th century, when a fine classical frontispiece was added.

Durham and Northumberland lack major 16th- and 17th-century showcase houses. In Northumberland bastles continue to dominate into the early 17th century; indeed most dated examples cluster in the first decade of the 17th

century (Ryder 2004b, 265). In the 18th and 19th centuries it was not uncommon for the front wall to be rebuilt providing a new façade, giving the external appearance of a more typical farmhouse (Ryder 2004b, 269). In the later 17th and 18th centuries bastles sometimes developed into typical linear farms as further structures were added. Examples include the bastles at Stokoe Crags in the North Tyne Valley, and Sinderhope Shield in Allendale (Ryder 2004b, 269; 1992b). Bastle-style architecture, however, continued to influence local architectural styles in the 18th century so that, in the Alston Moor area, 'bastle-derivative' houses continued to be used, complete with the tradition of first-floor living, whereas farmhouses such as Stobbs (Tarset) and Redheugh (Rochester), both of mid-18th-century date, included thick walls and boulder plinths (Ryder 2004b, 271).



Figure 44 Chipchase Castle, North Tyne (Northumberland). A Jacobean house added to a 14th-century tower. © English Heritage

Among the fine examples of altered tower-houses is that at Chipchase Castle, where a Jacobean house was added to a 14th-century tower (Figure 44). In Durham and Cleveland the most representative forms of 17th-century buildings are the stone manor houses, usually rectangular with a cross-passage. Good examples include Gainford Hall, Washington Hall, and Crook Hall. This tradition of manor houses and yeoman farmhouses continued into the 18th century, though there was an increase in Georgian classical symmetry (Harrison and Hutton 1984). Similar trends in cross-passage houses are also to be found in the North Pennines (Brunskill 1975), and in both areas the classical exteriors could mask a

more traditional internal spatial organisation (e.g. High Green, Mickleton). The issue of social change and its relation to architectural form in the North-East has recently been explored by Adrian Green (1998; 2000; 2003).

As elsewhere in the country, fashions in stately homes followed the broad path from Classicism to Gothic revival. Good examples of Classicism include St Helen's Hall, Bishop Auckland (Co. Durham), Belsay Hall (Northumberland) and Wynyard Park (Teesside), while major Gothic houses include both Ewart Park (Northumberland) and Ravensworth Castle (Tyne and Wear; though little survives here). Wider works on the Gothic revival in the North-East include James Macaulay's research on northern England and Scotland (Macaulay 1975), and the study of James Paine by Peter Leach (1988). The area is also home to some important late country houses, including Lord Armstrong's house at Craggside in a setting described by Pevsner as 'Wagnerian' (Grundy *et al* 1992, 244). The house is particularly important for Armstrong's innovative use of technology on the site, including hydroelectric power (Reed 2004).

Within the towns of the region, almost all the building stock is post-medieval. There is a number of important 16th- and early-17th-century houses, such as Bessie Surtees house, the Red Hill complex and Alderman Fenwicks' House in Newcastle. These share many architectural elements in common, including the use of elaborate timber framing and extensive use of long ranges of windows on the street frontages (Graves 2003). They also share many internal decorative features, such as plaster ceiling motifs (Heslop and McCombie 1996, 153). There were many changes in the 'townscape' of post-medieval towns, so that although in the medieval period high-status merchant houses were distributed right across the town, these elaborate 'glass-fronted' timber-framed buildings appear to have been concentrated along the river front and the lower town (Graves 2003, 38-42).

There were wider changes in the settlement patterns of the region in the post-medieval period. Most apparent was the massive expansion of urbanism; Gateshead, Hartlepool, Middlesbrough, Newcastle, Stockton and Sunderland were among the major towns to expand due to a massive increase in industrial production and the associated demand for labour. Going hand-in-hand with urban expansion there is continued evidence for rural settlement shrinkage and desertion. At West Whelpington, for example, there was a major phase of settlement reduction in the late 17th century, which was followed by forced depopulation in 1720 (Wrathmell and Jarrett 1977). Settlement depopulation often resulted from the conversion of open field townships into a series of severalty farm holdings (Wrathmell 1980).

Despite the decline in size of some agricultural villages there was a rapid expansion in specialist industrial villages. In east Durham and south-east Northumberland these were mainly colliery villages, but there was also an expansion and creation of lead-mining villages in the North Pennines, such as Blanchland, Middleton-in-Teesdale and St John's Chapel (Hunt 1970/84).

An important, and very early, specialist industrial village was Winlaton Mill, built around 1700 by the Crowley ironmasters as part of their massive ironworks complex. Although the old village was demolished for slum clearance in the 1930s, parts still survive as ruins and earthworks, and below-ground survival of most of the settlement, together with the artefact assemblages of its residents, is likely to be good (Cranstone 1991b).

Agriculture

The post-medieval period saw significant changes in farming and agriculture in the North-East. In upland regions, such as the North Pennines and the Cheviots, the practice of seasonal transhumance came to an end. Many shielings ceased to be used, though in some cases temporary shielings were transformed into farms, and there was a move towards more permanent settlement in the uplands. Post-medieval shieling grounds are recorded in Wark, North Tynedale, Redesdale, Kidland and upper Coquetdale in Northumberland (Winchester 2000, 85). These were in the heart of raiding country, and it is possible that the practice survived there because it provided a means of utilising upland pastures in areas too turbulent to settle permanently. Both in Northumberland and North Pennines the practice seems to have finally fallen out of use by the late 1600s. Survey at Davyshiel on the Otterburn Ranges indicated, however, that here a medieval landscape of ridge-and-furrow arable was bounded upwards by a head-dyke, with hamlet-type settlement along it, which was replaced (presumably in the 16th-17th centuries) by at least one bastle, associated with enclosed pasture which overlay the former arable fields (LUAU/NUAP 1997, 38-39).

One major challenge is to distinguish between medieval and post-medieval shielings, and between post-medieval shielings and more permanent farmsteads. Many such sites have been investigated by excavation or survey (e.g. Charlton and Day 1979; Coggins 1986, sites nos 30, 39, 42, 76, 79; Harbottle and Newman 1973; 1977; Hillelson 1983; Jobey 1977; Ramm *et al* 1970). This work has produced a range of artefactual evidence, but it has not proved possible to date structures on morphological grounds alone. Survey work on Otterburn suggests that the only datable agricultural structures are the dressed stone linear farmhouses of 18th- and 19th-century date (Charlton and Day 1979, 220)

The 17th and 18th centuries also saw changes in land tenure in upland areas, with a move from customary tenure to leasehold tenure. This led to the formation of larger farms and the division of common land, first by private agreement and later by Inclosure Award. The gradual encroachment of farming into areas which had previously been rough, open pasture led to packets of reclaimed land beyond the head-dyke being added to the traditional ploughlands and meadows (Winchester 2000, 68-73). This could take place as a result of lordly or community initiatives or through individual encroachments. For example, in Teesdale Lady Jane Bowes enclosed 200 acres in around 1590. The process of 'intaking', even when applying to communal land, was often undertaken by individual farms. In turn, this may have

stimulated land improvements, such as land drainage, liming and construction of stone walls. The Otterburn survey suggests that many of the stone walls and sod-cast dykes on the south side of the estate are probably of 18th-century date or later (Charlton and Day 1979, 217).

An important phenomenon on the Anglo-Scottish border was the practice of long-distance livestock (cattle and sheep) droving. The heyday for this was between the 17th and early 19th centuries. The courses of the major droving routes, such as Gammels Path, The Street, Clennel Street and the Carter Bar route are well known (Cowper 1970-71). Some archaeological evidence also survives in the form of a series of turf cross-dykes, which were probably used to confine stock to the path where it was unclear.

Less work has been carried out on lowland agricultural landscapes. As with most regions, the 16th and 17th centuries saw the progress of enclosure, with further Parliamentary enclosure in the mid 18th to mid 19th centuries (Hodgson 1979; Butlin 1964, 1967). The enclosure of former lowland wastes is responsible for the lowland 'moor' place-names. Little larger-scale landscape survey work has been undertaken, though retrogressive landscape analysis has been carried out in the South Tyne area and Sherburn and Shadforth (Tolan-Smith 1997c; Heppell and Clack 1991).

More work has been undertaken on the architecture of agricultural buildings. The North-East Vernacular Architectural Group has carried out an extensive survey of vernacular farmhouses and related structures. In much of the upland areas the typical form was the byre-house. In the North Pennines, these often retained elements of the older bastle tradition, particularly first-floor accommodation reached by external stairs above a ground floor byre, for example at Spartylee House (Co. Durham) (NEVAG 1997; see also Ryder 1993b). Other regional traditions include the use of heather thatch, particularly in the North Pennines, though few structures still retain the 'black thatch' (Emery 1986; Emery *et al* 1990). In general, more research has been carried out on the buildings of Weardale, Teesdale and the North Pennines than of Northumberland, but it would appear that in the 19th century the uplands also went through a period of 'improvement'. Although not as intense as in the lowland, there were significant alterations to many upland farmsteads, covered stock yards and sheds were added and networks of external enclosures for stock control (Barnwell 2000). Despite the widespread distribution of other upland stock control and sheltering features, such as bields, carricks and folds, there has been little systematic survey.

In lowland areas, particularly the Northumberland coastal plain and southern Durham, the pace of agricultural change was hastened by agriculturalists experimenting with new crops, animal breeding and other agricultural innovations. They were responsible for the construction of model farms (Wade-Martins 2002), a regional survey of which took place as part of the English Heritage MPP programme (Wade-Martins *et al* 1997). Northumberland has a particularly extensive range of surviving examples which may reflect the large number of landowners of over 3,000 acres, as well as its role as a centre of agricultural improvement. Forty-three

model farms are protected by Listing (all Grade II). Notable examples include Park Farm, Denwick, built by the Dukes of Northumberland with its fine classical façade; and the elaborate farm with covered yards at Ford Farm, Crookham Westfield. In County Durham only four model farms are listed (3 Grade II, 1 Grade II*), though there are notable early examples (c. 1750) on the Raby estate (Home Farm and Hill Farm). An important later example (not listed) is Ushaw Farm by Joseph Hansom (1850-51) built as part of Ushaw College, a Catholic seminary. A final phenomenon in farm design was the advent of machinery; both horse-driven gin-gangs and latterly steam-powered engines (Linsley 1985). This led to the construction of distinctive structures to accommodate the machinery. Photographic work by Stafford Linsley has recorded many such engine houses, a large number of which have subsequently disappeared.

Fishing also had an effect on the post-medieval landscape, both riverine and coastal. The use of fish traps must have been widespread, with late examples in the form of stone banks known at Budle Bay (Northumberland). The salmon fishing industry in the Tweed was important for the local economy and the sites of several fishing shielings are known. Fishing became increasingly important as a leisure activity with the rise in popularity of game fishing. An increased interest was taken in the welfare of fish in local rivers; for example, a fish-ladder was built at Nethererton to allow fish to avoid the weir created as part of Lord Armstrong's hydroelectric scheme at Craggside. Other fish-ladders are known at Bothal on the Wansbeck.

Designed landscape

with Fiona Green

There are no certain 16th-century formal gardens in the region, though it is possible that the earthworks of an ornamental garden with associated water features discovered at Hylton Castle, Sunderland, may date to this period (Morley and Speak 2003). There are a number of gardens in Durham City that date to after the Civil War, such as Bishop Cosin's garden on the castle motte; John Heath's Old Durham Gardens and Prebend's Walk were all laid out in the years following the Restoration. Of a similar date is Robert Trollope's garden at Capheaton dating to 1668, which is shown in a painting with an enclosed court to the south and side courts with fountains and formal planting (Harris 1979). A plan of 1698 also shows groups of trees planted in squares and circles at Croxdale Hall.

The 18th century was the prime period for gardens in the North-East. In the early 18th century the Millbank family landscaped the steep north-facing bank at Barningham with a series of curved terraces. These reflect the early-18th-century preoccupation with viewing the landscape as a painting or theatre set. The Raby Castle estate was reworked a number of times during the 18th century with proposals for buildings from Daniel Garrett, James Paine, Sir Thomas Robinson, John Carr and landscape advice from Canon Joseph Spence. An ambitious garden landscape was also created by Sir Walter Blackett at Wallington between 1728 and 1777. This includes parkland to the south with the remains of a little-known formal access and West Wood, which has now been subsumed by later plantations.

Armstrong's 1769 map of Northumberland and Durham shows a number of estates which were recently completed by the time it was published. North of the Tyne, Woolsington Hall, Gosforth House, Heaton Hall, Benton Hall and Fenham Hall are shown. South of the Tyne, in proximity to Gibside and Ravensworth, Axwell Hall, Stella Hall and Dunston Hall were all built by coal owners. Gibside (Tyne and Wear) is a 150ha park laid out in the early/mid 18th century; it has a series of intersecting axial avenues and is provided with a series of scenic buildings, including a chapel and a banqueting room (Desmond 1994; Wills 1995). Now under the guardianship of the National Trust, it has been the focus of a conservation plan and English Heritage survey. Of commensurate importance is the broadly contemporary Hardwick Park (Durham); parts of the layout and buildings here were designed by James Paine. Although much of the original park survived, its condition was deteriorating badly, and since 1997 it has been the centre of a major restoration project, involving archaeological and architectural recording (Desmond nd; Friends of Hardwick Park nd). Important park landscapes designed by 'Capability' Brown, a native Northumbrian, include Kirkharle Hall (c. 1770) and Alnwick Castle; he also undoubtedly influenced the gardens at Wallington Hall (Wallis 1980).

Rokeby Park was built by the distinguished amateur architect, Sir Thomas Robinson, between 1725 and 1730. Its famed 'picturesque' qualities drew visitors during the 19th century. Similar qualities were found at Castle Eden Dene and Durham Riverbanks. The quarry gardens at Belsay Hall created in the early 19th century are thought to be one of the best examples of a 'Picturesque' garden. Recently, archaeological survey has taken place on the gardens at Alnwick Castle, revealing Victorian parterres and earlier, 18th-century features. Standing building recording also took place there on mid-19th-century hothouses (Taylor-Wilson 2001).

The region continued to prosper during the 19th century, and this is reflected by the numerous smaller estates which sprang up around Newcastle and Gateshead. Many included denes as part of pleasure grounds, where woodland gardens were developed. Examples are found at Whinney House in Gateshead and Allen Banks in Northumberland. Some of these denes were even renamed 'glens', at the Valley Gardens, Saltburn and Jesmond Dene. Jesmond Dene was the forerunner to Lord Armstrong's monumental woodland garden at Craggside. An important, but unpublished, assessment of all designed landscapes in the old County of Northumberland was carried out by a group of volunteers from the Northumbria Gardens Trust, based on analysis of the first and second editions of the 6 inch Ordnance Survey sheets. It is hoped that this work will be fed into a national database being developed by the Association of Gardens Trust and others, and that the process of analysis can be extended to old County Durham in the future. It will provide a more comprehensive view of the development and extent of designed landscapes in the region.

Before the turn of the 19th century most parishioners, conformist or otherwise, were buried in churchyard or chapel cemeteries. But with overcrowding and the health

hazards that presented, larger privately owned sites now came into being as commercial ventures. An early example is the Westgate Hill Cemetery Company which was formed in 1829, only four years after the Liverpool Necropolis, and extended over 3 acres of unconsecrated ground. It was thought at the time to have been laid out in the style of Père-Lachaise, the widely admired Parisian cemetery laid out like a landscaped park with its avenues of tombs and eye-catching vistas. A prospectus for Newcastle General Cemetery was published in 1834, the design was by Dobson and influenced by the landscape gardener John Claudius Loudon. After the Burial Act of 1853 cemeteries were built in collaboration by local authorities and churches through the formation of burial boards. Cemeteries created at this time include All Saint's Cemetery in 1855 (Newcastle-upon-Tyne), Gateshead East Cemetery (1862) and Harton Cemetery, South Shields (1890).

The Forth was a square outside Newcastle city walls and was used communally. Celia Fiennes mentions the Forth in the journal of her travels between 1685-1712: 'There is a very pleasant bowling green a little walke out of town with a large gravel walke round it with two rows of trees on each side making it very shady; there is a fine entertaining house which makes up the fourth side before which is a pretty paved walke under pyasoes [piazzas] of brick...' (Morris 1995, 177). In the early 19th century the orchards and gardens were still there.

The North-East was slow to develop public parks in comparison with other parts of the country. The first public park was at Darlington, when Bellasis Park, later called South Park, was in operation by 1853. Mowbray Park in Sunderland was opened in the 1850s, but it was not until 1876 that Saltwell Park in Gateshead was laid out by Edward Kemp partly in the grounds of Slatwell Towers, a mansion built by stained-glass manufacturer William Wailes. In 1884 Lord Armstrong donated the Armstrong Park, which included Jesmond Dene, to Newcastle-upon-Tyne (Green 1995). Public parks also provided suitable contexts for an increased number of public monuments in the 19th century, particularly statues of local dignitaries and national heroes. A recent survey has been undertaken to record the public monuments of the North-East (Usherwood *et al* 2000).

In the post-medieval period parkland became more than a mere economic resource, and there was a greater emphasis on its symbolic and aesthetic dimensions. Although deer-parks survived into the 18th century, there was increased investment in their appearance, as reflected by the Gothic deer house built in 1760 in Auckland Park. Other deer parks which went through a process of landscaping include Raby Castle and Brancepeth Castle. Both Auckland Park and Brancepeth Park have been the subject of Durham County Council conservation plans.

An important and understudied aspect of landscapes of leisure is the material remains of the rural landscape that were developed for field sports. In upland areas, particularly the Cheviots and the North Pennines, monuments relating to grouse shooting, including shooting butts and other shooting stands and bothies, are common. Although some

appear on the relevant Site and Monument Records there has been little coherent survey of these sites, though some were recorded as part of the Otterburn Survey (Charlton and Day 1979). The intentional planting of trees as coverts for pheasants and foxes was certainly carried out. Game cover was planted at Raby Castle, early in the 19th century by reinforcing old clumps with thorn, rowan, white-beam and lilac. Game shooting even led to the construction of the occasional architectural oddity. When Sir Frederick Mailbank moved his shoot from Wemmergill Moor to Barningham Moor he took with him a pink granite obelisk commemorating him shooting 190 grouse during a 20-minute drive in August 1872.

Tree and plant nurseries also became increasingly important in the 18th and 19th centuries. There was an 18th-century nursery at Cottingwood, Morpeth, for the Earl of Carlisle's estate, and some elements of the nursery landscape survive.

Industry and technology

with David Cranstone

The post-medieval period saw a massive increase in industry, reflecting and causing technological changes, new patterns in social organisations and an increased demand for consumer goods, both within Britain and in its burgeoning empire. In an attempt to impose some structure on the vast array of data this review of industrial archaeology will be structured around the topic-based grouping of industry used by the English Heritage Monuments Protection Programme (Cranstone 1995).

Extractive industries: coal mining

By the end of the medieval period the coal industry was already important both to the region and nationally. From its initial centres around the lower Tyne and middle Wear, it had spread by the early 19th century to dominate most of lowland County Durham and south Northumberland. The development of technology both within the coal industry itself and in its associated infrastructure (most notably waggonways and railways) was fundamental to the industrial and social development of the North-East. The level of urbanisation and development in the former core areas of the coalfield, coupled with the recent focus on regeneration, and active political hostility to preservation or recording during the final phases of closure, has resulted however in the virtually complete destruction of the above-ground remains of the 19th- and 20th-century heyday of the industry. Even the once-dominant spoilheaps have been removed from the landscape. Consequently the surviving visible features of the industry are dominated by the earlier phases of our period, and by peripheral areas, at least in terms of the 19th/20th-century peak of the industry.

Earthwork field remains include the important early mining landscapes at Mallygill Wood and Cockfield Fell (Co. Durham) (the former probably including late medieval elements), fragments of the Tyneside core area at Whickham and Lands Wood (Tyne and Wear), and the relatively late shaft-mound landscape at Alnwick Moor

(Northumberland). The transition from this 'extensive' mining to the later nucleated colliery is illustrated by the early 'coal-mill' (water-powered pumping station) at Ravensworth, the semi-nucleated Dewley Pits mining landscape (both Tyne and Wear), and the water-powered Bob Ginns Pit (Northumberland). Remains of the late-18th to 20th-century nucleated collieries survive more often as standing buildings; the early-19th-century pithead complex at Stublick Colliery is outstanding, and substantial remains can also be found at Scremerston and Ford collieries (Northumberland), Springwell Colliery and Philadelphia colliery workshops (Tyne and Wear), and New Copley Colliery (Durham). The Friar's Goose engine house (Tyne and Wear) is important for its relatively early date, and its role as a centralised pumping station for much of the lower Tyne coalfield area. In addition to the collieries themselves, the region was important for its coke ovens. Several examples survive, of which East Hedleyhope is perhaps the most important. The major preserved sites of Woodhorn Colliery (Figure 45) and Washington F Pit are primarily 20th century.



Figure 45 Woodhorn Colliery (Northumberland). © David Cranstone

Relatively little excavation has taken place on the remains of the industry, the most notable being Wallsend Colliery B Pit (Oram *et al* 1998) and Lambton D Pit (Ayris *et al* 1998). It is important to note that at Wallsend B the focus was on clearing the site for conservation of the remains; this meant that the work was mainly the removal of demolition debris. A basic structural sequence was nonetheless delineated. At Lambton, the excavation area focused on the wagonway system, but included part of the pithead complex, including the important remains of a boiler house and rail-head platform. The results from these two excavations emphasise the likely widespread nature, and potential importance, of below-ground remains throughout the former coalfield areas. Despite the prevalence of recent opencasting, it is likely that important underground colliery workings will also survive, most notably in the core late-medieval to early post-medieval centres of the coalfield.

A final resource, which is only now beginning to be exploited, is oral history. The relatively recent demise of the industry means that there are still many individuals with first-hand experience and memories of the industry. This rich seam is beginning to be worked by projects such as the Durham Miner Project, run by Durham County Council.

Extractive industries: lead mining

If the culture and economy of much of the lowland North-East in the 19th century was molded by the coal industry, then that of the North Pennines was heavily influenced by the rise of the lead mining industry. The peak of this industry was the late 18th and 19th centuries; rapid decline set in the 1880s, and the last major lead mine (Boltsburn, Co. Durham) closed in the 1930s. Unlike the coalfields, the lack of pressure on land in the uplands means that most of the lead-mining areas have returned to rough pasture. This has led to the survival of significant number of field monuments and the landscapes related to the industry (Figure 46). It is possible to divide the archaeology of the lead industry into four related categories: mining, ore dressing, smelting and lead processing.



Figure 46 Lead mining landscape at Ash Gill Head, Teesdale (Co. Durham). © David Petts

The remains of the mining are perhaps the most extensive. Many shafts and hushes are visible, though there has been little overall attempt to map these features. Whereas some of these sites are very obvious, it is not always easy to distinguish sinkholes from shafts and hushed streams from naturally eroded features. There is also a significant number of well-preserved complexes of mine buildings and associated structures, tending to be of later date than the earthwork and landscape remains. In general, early mining was dominated by closely spaced small shafts along the vein, with ore and water being wound by hand windlasses or horse gins. This mode of extraction was broadly succeeded in the 18th century by the use of long levels or adits (horizontal tunnels) for drainage and access,

driven from valley sides to access the vein at depth. Drainage below adit level was typically by water-powered pumps, though hydraulic engines were also used, notably in the Allendale mines. From the end of the 18th century, large shaft mines drained by steam engines were also employed, though (unlike many orefields) they never came to dominate the North Pennine lead industry; adit mines remained common, and shaft mines were generally drained and pumped by water-power rather than steam.

Ore dressing (the process of concentrating run-of-mine 'bouse', holding only a few percent of lead, into a concentrate suitable for smelting) was normally performed at the mine. In principle, the process involved manual 'picking' to separate out clean ore and waste, then breaking to a uniform size, followed by gravity separation of the heavy lead ore from the lighter waste, either in the hotching tub/jigger (relying on vertical separation of gravel-size material, agitated in a sieve) or in the buddle (relying on the horizontal separation of sand-size material in a flow of water). From the 16th to the 18th centuries, breaking was normally by manual hammering or crushing, using 'buckers' beating ore on a stone base; separation was mainly in the hotching tub (a tub containing a manually shaken sieve). In the 19th century, processes were increasingly mechanised (largely using water- rather than steam-power), and became more sophisticated and complex (though 'clean' ore was still separated by manual means until late in the century, as witnessed by the 1870s complex at Killhope, where the bulk of production was from the unpowered dressing floor, with only the 'middlings' that did not separate cleanly being passed to the mechanised mill which dominates the site). Mechanised crushing was largely by the roller crusher, and by mid century the hotching was increasingly mechanised as the jigger. Buddling was increasingly used to reprocess fine-grained material that could not be processed in the jiggers, and buddles were in their turn mechanised to produce the 'round buddle', a prominent feature of many later-19th-century sites. Other late developments included the jaw crusher, and the Brunton buddle (an endless-loop conveyor belt, used for processing very fine residues). Settling tanks also became increasingly extensive and were used to retain the finer-grained tailings from the dressing process (both for reprocessing and, by the end of the century, for pollution control).

As well as the technology, the field form of mining and ore-dressing remains reflects the social and economic structures within which the industry operated. Blackburn sees the mining landscapes of Weardale as reflecting four distinct technological, social, and economic phases from the 16th to the early 20th centuries (with a fifth phase, of closure and destruction, during the 20th century) (Blackburn 2004).

With the exception of hushes (Cranstone 1992), field evidence of 16th- to early-18th-century mining and ore-dressing has not yet been clearly characterised within the region, though it is likely to be extensive within the upland mining landscapes of the orefield. The Pikelaw mines, hushes, and dressing area form an extensive and impressive mining landscape in Teesdale, while Burntshieldhaugh hush

and crushing mill (Northumberland) form a well-preserved example from the final phase of extensive mining. The Coldberry Gutter forms a particularly dramatic hush, in association with a later adit mine and dressing floors. The early phases of mechanisation are illustrated by the remains at Beldon and Shildon, Northumberland (both with Boulton and Watt engine houses, forming relatively unusual, and short-lived, examples of steam power in North Pennine lead mining), and also by elements of the Derwent Mines complex (an extensive and multi-phase mining landscape, including smelt-mills as well as mines and dressing floors). Well-preserved mid- to late-19th-century mines and dressing floors include those at Greenhurth, Greenlaws, Killhope, and Middlehope/Slitt (all Co. Durham), and Allenheads, Carrshields, Holmes Linn, and Mohopehead (Northumberland). The late phases of North Pennine mining are illustrated by Lady's Rake (Co. Durham), and Langley Barony and Stonecroft (Northumberland). The only extensive excavation has been at Killhope (Cranstone 1989; see also Cranstone and Hedley 1994), where both the unmechanised dressing floor and the contemporaneous mechanised dressing mill (comprised of crusher, jigger house, and buddle house, all powered by a single large iron waterwheel) have been conserved and displayed.

It is presumed that the lead ore was still smelted in boles ('bales' in North Pennine dialect) in the 16th century. Sites are known from place-name evidence, but little surface field evidence is visible, and no excavation has been carried out. The slags from bales were probably crushed and re-smelted in slag hearths or 'smeltings', some at least probably water-powered, but again no investigation has yet been undertaken. The ore-hearth smelt-mill probably replaced the bale in the late 16th century (by analogy with Derbyshire; Kiernan 1989). This was a small open hearth blown by water-powered bellows, and fuelled initially with charcoal (though by the 18th century peat and poor-quality coal were used). The slags were broken up (often by use of a stamping mill, the main use of this technology in the Pennine lead industry), and re-smelted in coke-fuelled slag hearths, normally within the same smelt-mill. Earthwork remains of early ore-hearth smelt-mills survive at Rookhope and Stanhope (the former recently damaged, despite its Scheduled status). The coal-fuelled reverberatory smelting furnace was introduced in the early 18th century, and largely replaced the ore hearth within the region. By the 19th century, smelt-mills were large building complexes, with roasting, smelting, and cupellation furnaces, slag hearths, flue systems, and remote chimneys. Interesting examples within the region include Feldon, Gaunless (chimney), and Stanhope (flue system) mills in County Durham, and Allen, Dukesfield, and Langley smelt-mills in Northumberland.

North Pennine lead ores normally contained traces of silver. This passed into the lead on smelting, and was recovered (if in economic quantities) by cupellation (in which the lead metal was oxidised to litharge in a reverberatory furnace with additional air blast, leaving the molten silver behind). Developments in the 19th century included the Pattinson process (in which molten lead was crystallised in a series of pans, concentrating the silver into a single pan of 'rich lead' for cupellation), and the

Parkes process (in which zinc was used to extract the silver from the lead). The house for the Pattinson pans survives at Allen smelt-mill.

The final element of the lead industry was the actual processing of the lead, which was sent from the smelt-mill in the form of pigs. The processing of this lead often left little archaeological evidence. Sheet lead was cast on a smooth bed of sand; the presence of sand found associated with the site of a lead smelt-mill at Woodland (Durham) might be an indicator of lead sheet manufacture. Other lead products include red lead (lead oxide) made by re-melting lead in a reverberatory furnace in an oxidising atmosphere. There is little distinctive about such furnaces, although they may be slightly smaller than smelt furnaces. There is the potential for recognising such sites through residue analysis. White lead (lead carbonate), used as a pigment in paint, was made by exposing thin lead sheets to vinegar fumes in a warm damp atmosphere; the sheets were suspended over vinegar in pots within brick 'stacks', and warmed by the decomposition of horse dung on the floor of the stack. The most distinctive lead-working process was the manufacture of shot, which was made by dropping molten lead from a great height into water. Although a tower survived at Elswick in Newcastle until the late 1960s, there are none now in the region. In some cases specially converted mineshafts were used; this was known at Cockfield Fell in County Durham where a coal shaft was used in this manner. Leadworks, often using all the above processes, tended to be located in urban areas rather than on the orefield. Excavation has been undertaken at the Ouseburn and Gallowgate works in Newcastle, and is commencing at the Elswick leadworks (Jennifer Morrison pers comm).

Extractive industries: other vein minerals

In the 19th century there was diversification in the minerals being mined in the North Pennines; zinc was extracted from the early 19th century onwards, and mining of non-metallic minerals such as barytes, witherite, and fluorspar began later in the century, becoming the last surviving element of the North Pennine mining industry in the later 20th century. This was a reaction both to the declining value of lead as other European and American sources were opened up and to the increasing importance of the chemical industry, which demanded such substances as fluorspar, witherite and barytes. Much of the 19th-century production was as a by-product from what were primarily lead mines, the vein mineral production tending to replace lead in the 20th century. Field remains are therefore very much intermixed with those of lead production.

Zinc mining and smelting were centred in the Cumbrian side of the orefield, but within the North-East zinc was smelted in the early 19th century at Langley smelt-mill (where no above-ground remains can be distinguished from the lead smelting features, though below-ground survival is probable), and an early-20th-century zinc dressing floor survives at Willyhole mine (Co. Durham). Settlingstones and Fallowfield (both Northumberland) were the major world producers of witherite at the end of the 19th century, and Grove Rake (Co. Durham) remained active as a fluorspar producer until the 1990s.

Extractive industries: iron mining

Iron ores occur in the North Pennines (as replacements of bedded limestones alongside some lead veins), and as sedimentary deposits (often of nodules rather than continuous seams) in the Coal Measures of Durham and Northumberland, the Lower Carboniferous beds of Redesdale and North Tynedale, and in the Jurassic sequence of the North York Moors (about half of this orefield lying within the Cleveland boundary, and therefore within the region). North Pennine mines include Ore Pit Holes (probably medieval), West Rigg (19th century), and Groove Heads (late 19th century), together with very extensive ironstone quarries in the Rookhope Valley, combining with lead and fluorspar mining, and a branch of the Stanhope and Tyne Railway, to form a major mining landscape. The Redesdale quarries (notably Chesterhope Moor) also form an impressive landscape. Although iron mining on the coalfield is attested historically from the medieval period until the 19th century, few upstanding remains have been identified. Bellpit mining (in the correct usage of the term), however, has been recorded archaeologically at Craghead. The industrial landscape of Haltwistle Burn (Northumberland) should also be mentioned here; this includes ironstone quarries, collieries, ironworks sites, brickworks, and transport (mainly rail) links.

The Cleveland orefield was developed massively in the mid 19th century, when the development of smelting and transport technology made extraction of the very extensive, but low-grade and phosphoric, ores economic. Extraction was primarily by shaft mining, and the technology reflected that used in the Durham coalfield (including the extensive use of fan ventilation). Consequently the Cleveland iron mines contain much of the surviving evidence for 19th-century colliery-style ventilation, in addition to their importance as iron mines. The Skelton Park, Kilton Hill, and Loftus mines are particularly important survivals (Tuffs 1975; Daniels 1993).

Extractive industries: stone quarrying

The diverse geology of the region has meant that quarrying has taken a range of forms and shows chronological variation. Small quarries clearly utilised for building stone are found widely spread across the region, but are particularly common along the Whin Sill, the Cheviots, the North Pennines and the Magnesian limestone areas of County Durham. These all used simple technology, and it is difficult to date their use. Stone was not only used for building, but also a range of other products including millstones, creeling troughs, water troughs and mortars. Many millstone quarries are known, often only through map or documentary evidence, though at some sites, such as Beanley Moor and Harbottle Crag (Northumberland), a few semi-completed millstones are still visible. The industry was particularly common to the south-east of Newcastle around the outcrops of Newcastle Grindstone, such as Springwell, near Gateshead (Tyne and Wear). The stone was also used for grindstones, and there was a large export trade. Limestone was also often burnt for field lime, and it is common to find small quarries associated with limekilns (see below).

In the 19th century the expansion of towns led to a huge increase in demand for building and road stone. This was met primarily from quarries in the North Pennines, which produced whinstone, limestone and some millstone grit. Many of these quarries were large enterprises and were often linked to the railway system or had their own light railway, such as the Greengates quarry in Lunedale (Co. Durham). The Whin Sill was also extensively quarried along its outcrops in coastal Northumberland. Many of these quarries ceased to be worked in the later 19th century, and much of the infrastructure was removed. Nevertheless, they have been subject to relatively little detailed survey work.

Another minor, but interesting, quarrying industry was associated with the pencil mill at Cronkley, which produced shale, which was ground and then moulded into pencils for use on writing slates (Atkinson 1968; 1974). Frosterley marble also continued to be used throughout the post-medieval period, particularly for ecclesiastical fittings, though little work has been done on the quarry itself.

Peat was used both as a domestic fuel and for industrial purposes, particularly lead smelting. A peat house still stands at the smelt-mill at Allenheads. Field evidence for peat cutting is unclear; it is possible that many of the sites recorded as stack-stands in the North Pennines and Cheviots may have been used for drying peat. One such possible platform was surveyed during part of the A66 road-widening scheme (Vyner 2001, 133). Some peat cutting has also been recognised on aerial photographs around Kirknewton (Northumberland).

Lime, cement and plaster

Most early and small-scale limestone burning is likely to have taken place in small clamps, rather than specially constructed kilns; these will survive as earthworks and below-ground deposits, but have not been studied within the region. The structural remains of limekilns are probably mainly related to commercial manufacture of lime for agricultural and constructional purposes.

Limekilns are widely spread across areas with limestone outcrops, such as in the North Pennines and on the Magnesian limestone measures of County Durham. They vary in scale from small individual kilns, possibly worked seasonally, such as the small kilns in the West Allen valley at Black Cleugh and Smallburn, to large complexes of limekilns, often linked into the transport network. In the early 19th century the only practical way of moving bulk amounts of lime was by sea, and the banks of limekilns at Seahouses and Beadnell and on Holy Island are indicators of this trade. Later, with the advent of the railways, bulk transport became easier, and the kilns at Rennington, Humshaugh (Northumberland), Ferryhill and Stanhope (Co. Durham), amongst others, were linked into the railway system.

An extensive survey of limekilns was undertaken for Northumberland and the North Pennines Area of Outstanding Natural Beauty. As a consequence limekilns are a well-protected class of monument. Around 60 sites in the region are protected by listing and a further nine are parts of Scheduled Ancient Monuments. Other areas with

a density of limekilns, such as the Magnesian limestone measures still require further survey. Although there have been surveys of limekilns, these did not actively cover associated limestone quarrying. Recording work on a limekiln at Ouston, Allendale (Northumberland), also included landscape survey of its environs, indicating its proximity to a quarry, and its situation within a busy lead-mining area (A. Williams 2001).

Extractive industries: salt

The post-medieval coastal salt industry, using direct boiling with coal fuel to extract salt from seawater, was centred on South Shields, Tynemouth, and the south Northumberland coast (as far north as Alnmouth). There are documentary descriptions of these industries, which were particularly significant in the 17th century and earlier 18th century, and at their height consumed over 250,000 tons of coal. There are records of a waggonway between the colliery at Cowpen and the saltworks at Blyth, though no remains can now be seen. One reason for the growth of the industry was the abundance of virtually free small coal (pan coal), effectively a by-product of collieries and coal transport since it had no market in the coastwise export trade for housecoal. The coastal industry declined to extinction in the later 18th and 19th centuries, due largely to competition from the Cheshire rock-salt-based industry (though another factor was the loss of free pan-coal, as steam engines and other industrial uses produced commercial markets for small coal). Some field evidence appears to be visible at Seaton Sluice and Amble, but no systematic survey has been undertaken, and no excavations are known to have taken place. 'Pan' place-names often indicate the locations of direct-boiling saltworks (e.g. Howden Pans, Panns Bank, Monkwearmouth; Saltpan How, Ancroft).

A separate salt industry developed on Teesside in the late 19th century, with the discovery of rock-salt beds at depth. These were exploited by brine wells, down which water was pumped to dissolve the rock-salt, the brine then being boiled to extract the salt. Some remains of brine wells, and of a saltworks at Haverton Hill, survive (Rowe 1999, 20-21; Tomlin 1982, 73-90)

Inorganic manufactures: iron and steel

One of the most significant manufacturing industries in the North-East was iron and steel working. The creation of iron from iron ore goes through two basic stages: pre-heating of non-oxide ores in a calcining kiln to create iron oxides, and the reduction of the oxides in a blast furnace, which uses carbon monoxide from burning charcoal or coke. Impurities are removed by the addition of a flux, usually limestone to create a slag. The pig (cast) iron produced could be used directly for producing castings (at the blast furnace or in a separate foundry), or converted into wrought iron by oxidising-out its carbon content in a forge to produce bar iron.

An excavated calcining kiln from around 1700 survives at Allensford Furnace, the only known pre-19th-century survival nationally (Linsley and Hetherington 1978), and 19th-century calcining kilns survive at Brinkburn, Hareshaw, and Ridsdale ironworks.

Water-powered bloomeries probably survived into the 16th or even 17th centuries, but have not been studied within the region. The earliest known blast furnace was at Wheelbirks (Northumberland), first discovered in the 1840s and partially excavated. At that time heaps of iron ore and slag, charcoal and limestone were evident around the furnace, and lumps of smelted iron were seen inside. The structure was re-examined in the 1980s and magnetic dating of the surrounding slag produced a date for the last firing of between 1550 and 1590. This date ties in with documentary references which first appear in 1566. The furnace probably only operated for a very short period, and may have been the earliest blast furnace north of the River Tees and is of great significance in the study of the spread of technology. A further early furnace may have existed west of Chester-le-Street, but has yet to be relocated (Riden 1993, 128). The Allensford furnace was in use between c. 1670 and 1730. The excavated remains include a square stone-built furnace and a calciner (Brown and Linsley 1979).

Coke smelting was developed in the early 18th century, though initially coke pig was only suitable for foundry (rather than forge) use. The Whitehill furnace near Chester-le-Street was part of this nationally important developmental phase, and a slightly later furnace, operating on both coke and charcoal, also existed at Bedlington (Riden 1993, 126-128 and 124-125 respectively). Major iron-smelting industries developed in the 19th century on the Durham coalfield and around Middlesbrough (Riden and Owen 1995, 152-178 contains a comprehensive list). Above-ground remains are very limited, but include slight remains of Tudhoe ironworks and a probable experimental 'pilot plant' at Blue Heaps (Consett) in County Durham, and appreciable remains of the Newport ironworks on Teesside. There are more substantial remains of the outlying ironworks at Stanhope in County Durham, and at Hareshaw (Bellingham), Ridsdale (West Woodburn) and Brinkburn in Northumberland; these form a substantial part of the national stock of surviving sites for their period. Recent survey work has recorded the dam and associated water management system associated with the Hareshaw Ironwork, which provided the water to drive the blowing engines for the blast furnace at the site (Annis 2001a).

The iron foundry, as a separate works to the blast furnace, did not become widespread until the early 18th century, when the Cookson family set up foundries in Newcastle and Gateshead using coke pig (initially from their furnace at Clifton in Cumbria, later from Whitehill). The sites have not been investigated, but are potentially important. Foundries often worked with both iron and brass, and by the 19th century were common in urban areas and in some rural towns, both as stand-alone foundries and as components of broader engineering works. The archaeology of the foundry trade has received little attention nationally, and virtually none within the region; most sites remain to be located in terms of modern topography.

The forge, for converting cast iron to wrought iron, went through three major technological phases during the period. The finery-chafery forge was universal until the

early 18th century; it was not common in the region (reflecting the rarity of charcoal blast furnaces). Known sites include Allensford and Derwentcote. The 18th century saw a phase of experimentation and variability, as the finery was adapted to cope with coke pig, and attempts were made to develop a cheaper and larger-scale alternative process. The most successful of these attempts was the stamping and potting process. There is documentary evidence that Derwentcote Forge participated in this process, and below-ground evidence is likely to survive. An enigmatic site at Lee Hall, near Bellingham, is claimed by a later-18th-century source to have been used for experimental ironmaking earlier in the century, perhaps involving attempts to smelt wrought-iron direct from the ore (Riden 1993, 125-126); if so, the site and its process residues are of considerable national importance. At the end of the century, however, the puddling and rolling process rapidly replaced all earlier technologies, remaining dominant (with some modifications) until the replacement of wrought iron by mild (Bessemer) steel in the later 19th century. Puddling forges have received little archaeological attention nationally, and no work is known within the region; in practice, many formed part of broader engineering works.

Until the end of the 17th century, the bar iron produced by the forge was normally worked-up into finished artefacts in smithies and domestic-scale workshops (of which nailmakers' workshops are the best known). These smithies and workshops, of any period, have received very little attention, and most sites are probably not recorded on SMRs. In the 1680s Ambrose Crowley (a Midlands nailmaster turned naval contractor) set up a nailmaking works at Sunderland, rapidly replaced by major fabrication ironworks at Winlaton Mill, Swalwell, and (slightly later) Teams (all Tyne and Wear) (Flinn 1962). These works had their own finery/chafery forges, but used primarily imported bar iron, for mechanised rolling and slitting, cementation steelmaking, and artefact production (including anchor forging, and very extensive nailers' workshops). Some fieldwork has been undertaken at Winlaton Mill, demonstrating good below-ground preservation (Cranstone 1991). These works, with their own housing, 'laws', and social security system, form a highly significant stage in the development of industrial society and economy nationally, with an influence on the development of British naval (and therefore colonial) power internationally. They can be seen as seminal stage in the development of the region's industrial tradition of heavy industry, engineering, and military supplies.

A later, though, smaller scale, stage in the development of the fabrication ironworks was the Coquet Mill ironworks, Acklington (Northumberland), a rolling-mill and tinplate works operating from 1776 to 1793; one (heavily converted) ironworks building survives above ground, together with the important horizontal-arch dam designed by Smeaton.

The later development of the engineering works, often incorporating both forging and foundry elements, has received little archaeological study either regionally or nationally, though it was of prime importance to 19th-century Tyneside. One site that has been recorded is

Stephenson's South Street locomotive-building works in Newcastle.

Until the advent of the Bessemer process in the 1850s, steel (iron with a controlled carbon content of 0.7-1.5%) was an expensive specialist product. The process of cementation steelmaking, developed in the early 17th century, involved heating high-grade wrought iron with charcoal dust, in sealed stone chests built into a cementation furnace fuelled with coal. The process was introduced into the region at Blackhall Mill in 1687, and until around 1750 Newcastle and the Derwent valley were the centre of British steel production. The 1730s steel furnace at Derwentcote survives and has been excavated and conserved (Cranstone 1997), and below-ground remains are likely at Winlaton Mill. Most other sites remain to be precisely located and investigated. One reason for the development of the industry in the Derwent valley was the presence of the Hollow Blade Sword company at Shotley Bridge; the archaeology of the swordmakers' workshops has not yet been investigated however.

Inorganic manufactures: ceramics

A number of important pottery industries existed in the North-East in the post-medieval period. Over one hundred firms are documented as having produced pottery in the Tyneside region alone between 1730 and the mid 20th century (Bell and Gill 1973). Amongst the best known are the substantial Maling pottery in Newcastle, and Canney Hill pottery near Coundon (Co. Durham) (Tyne and Wear Museum 1981). Pottery was also produced at other sites, such as Corbridge and Bardon Mill, and the short-lived Linthorpe pottery in Middlesbrough (Hart 1988).

The earliest known pottery in Wearside was established in about 1720 at Newbottle and was manufacturing brown wares (Baker 1984). Most fineware production, such as transfer-printed whiteware and lustreware, had ceased by about 1900; for example Scott's Southwick pottery closed in 1897. The exception was the Sunderland Pottery Company (later the Wearside Pottery Company) which existed from 1913 to 1957. Initially it produced a range of brown wares from local clay, but later specialised in fireproof cooking ware, ornamental ware and mixing bowls.

Brown wares were made on Tyneside and Wearside: coarsewares from local brown clay included jugs, storage jars, bowls and baking dishes. Baking dishes often had trailed slip decoration, and bowls were usually white-slipped on the interior. The Tyne Pottery at South Shields (1830-before 1900) was the largest producer of this in the North-East apart from Harwoods at Stockton (Bell and Gill 1973). White clay for the refined cream and white earthenwares was imported from Devon and Cornwall, arriving as ballast on coal ships. A wide range of products were produced, including creamwares, transfer-printed wares, and painted wares. Pink/purple lustreware was usually transfer-printed with rhymes, mottos, as well as a range of other designs, the Wear Bridge being the most popular. Lustrewares were also made on Tyneside and Teesside.

The Linthorpe pottery was only in existence in 1879-89, but produced over 2,000 different object types. A large

collection is held in the Dorman Museum, Middlesbrough. Recent archaeological work by Archaeological Services Durham University, in Middlesbrough in and around the site, has discovered wasters and probable remains of the pottery site itself (Richard Annis pers comm). Maling Ware had a much longer production life; the factory was established in 1762 and continued until 1963. In the late 19th century it produced nearly 90% of all jam and marmalade pots in Britain, including those for Keiller and Frank Cooper. Some of the original buildings are now believed to be incorporated into farm buildings at the first site in North Hylton. The Maling Ford B workshop in Byker also still stands.

As well as producing pottery for local and national needs much of the region's ceramic output was exported abroad. Large quantities of brown ware were shipped to the Continent. Many companies produced mainly for an export market, such as the Sheriff Hill Pottery for Norway, the Ouseburn Bridge Pottery for Holland, and John Carr's Low Light pottery to India and Egypt. A large dump of waste material from the latter pottery was recently found at Clifford's Fort, North Shields (John Nolan pers comm).

Canney Hill operated from 1844 until 1913 producing a range of pots and vessels as well as ornaments, bottles, flowerpots and chimney pots. No remains of the pottery now survive; a watching brief on the site during the construction of the bypass recovered no wasters and no structures that could be related to the pottery. Another significant manufacturer was the Errington Reay works at Bardon Mill, which produced pipes and salt-glazed sanitary ware and pipeworks. The company still operates from the original site (a converted woollen mill) and the stationary steam engine bed, the water wheel and some kilns are still preserved.

Although many brick and tile works are marked on the 1st, 2nd and 3rd edition Ordnance Survey maps very few survive, though ponds flooding pits formed by clay digging are known. Kilns at Ewart Park (Northumberland) can still be seen (Grade II Listed) and there is also a poorly preserved pair of kilns at Shilbottle (Northumberland). At Corbridge there are more extensive remains of a works which produced chimney pots and roof tiles; the remains of a bottle kiln and a Newcastle horizontal kiln can still be found at the site. Significant remains can also be seen at the Capheaton tiler (Scheduled Ancient Monument) and the kilns at Belsay tiler are Grade II Listed.

Inorganic manufactures: glass

Crown glass manufacture was an important trade along the Tyne, though the industry had declined by the mid 19th century. At around the same period it was replaced by the Sunderland glass industry making sheet glass using the rolled-plate method. There are, however, no upstanding remains of either industry. At one point there were also over 40 bottle works in the region. The remains of only two can now be seen, the cone-shaped kiln at Lemington is a significant industrial monument (Grade II* Listed) though it has now been converted into a showroom. A number of tunnels survive at the Royal Hartley bottleworks at Seaton Delaval. As well as providing access to the kilns they also linked the works with the quayside allowing the easy movement of raw materials and finished products.

Inorganic manufactures: chemical industry

The North-East had two major centres of chemical production: Tyneside and Teesside. The Tyneside industry developed in tandem with the glass-making industry for which alkali was a key ingredient (along with sand brought to the area as ballast by returning colliers). Alkali was also used in soap making. Some alkalis were manufactured from brine, which required the use of copperas (iron sulphate). This was made by roasting weathered iron pyrites (a common by-product of the coal industry). A range of other chemicals, particularly dyes, was also produced. In general the chemical works were concentrated in areas with good transport links, mainly Gateshead, between South Shore and Bill Quay, but also Jarrow, Walker, Wallsend, and Washington. There is very little left to be seen above ground of this industry, which had declined by the mid 19th century. Waste tips from the alkali industry survive in the Felling area, and the site of the 19th-century Pattinson works at Washington has recently had an archaeological assessment. Many of the early chemical processing sites were destroyed by the later construction of shipyards.

In the south of the region the earliest chemical industry was the alum industry, developed from around 1600 and centred on the north-west scarp and north coast of the North York Moors; Boulby, Loftus, Newgate Bank, and Belman Bank works lie within the regional boundary. This industry, and its associated coastal and maritime archaeology, have been recently surveyed and synthesised (Miller 2002). On Teesside the chemical industry grew up in the mid 19th century capitalising on new techniques that did not require the presence of cheap coal allowing more economic use of the underground salt deposits around Billingham.

In addition to these two major centres of the chemical industry, remains are known elsewhere. For example, the extensive remains of a 19th-century chemical works still stand at Spittal, Berwick-upon-Tweed.

Organic manufacturers

Unlike Yorkshire or Lancashire, the North-East was not home to major textile industries, although there were plenty of small-scale and localised industries. For example, worsted was woven at Thorngate Mill in Barnard Castle (Grade II Listed) and the town was also home to a thriving carpet industry. Darlington also had a weaving and spinning industry and produced linen and worsteds, though little survives to be seen.

The Errington Reay pottery at Bardon Mill started life as a woollen mill, and the Acklington ironworks building was converted into a blanket mill in 1791. Other similar surviving structures include Oliver's Mill, Morpeth, Haltwhistle Mill and the Otterburn Mill.

Rope was an important product in the 19th century, encouraged by the thriving shipping industry. The region saw the use of the first machinery for continuous manufacture at Webster's ropery in Sunderland in 1797, although rope walks continued to be used for their manufacture well into the 20th century. Most have now disappeared, but the ropery at Hexham is a Grade II Listed Building.

Power and utilities

For much of the post-medieval period the main sources of power were animals, wind and water. At one point Newcastle is recorded as having more windmills than anywhere else in the country. Good examples of surviving windmills include Fulwell Windmill, Sunderland (Tyne and Wear), Whitburn Windmill (Tyne and Wear) and Woodhorn Mill (Northumberland). An unusual example of a surviving windmill is the 18th-century mill on Shackleton Beacon, Heighington (Durham), which was converted into a folly in the 19th century. A number of substantial watermills survive including Plessey Mill, Blyth (Northumberland), Waren Mill, Easington (Northumberland). There are also the more extensive remains of a large number of mill leats and related watercourses. The North-East Mills Group has carried out important work on locating and recording such remains.

The advent of steam power in the late 18th century and the steam engine replaced many of these other forms of power, but waterpower was still used in many areas into the later 19th century, for example, in the lead crushing mill at Killhope. Stationary steam engines were used on farms, often replacing earlier gin-gangs. A good example of a stationary farm engine is now in the Beamish Open-Air Museum (originally from West Auckland). Cavil Head Farm, Acklington, is still dominated by the chimney from the engine shed. Stafford Linsley has recorded photographically many such rural engine sheds and boiler houses. The remains of engine houses can also be seen on a number of North Pennine lead mining sites, for example, Beldon and Shildon (Blanchland) and Healeyfield (Consett). Steam engines also provided power to coal mines; sadly there are few well-preserved examples surviving, such as Stublick Colliery, Haydon (Northumberland), Washington F Pit and Woodhorn Colliery (Northumberland) (the latter two retaining their engines; Figure 45)

Gas was another important source of power, though there has been no systematic survey of the surviving infrastructure. Two buildings related to the private gas works at Rokeby House still stand, as does a building related to the private supply of gas to Raby Castle. Electrical power began to be generated in the later 19th century, though on a small-scale and for private use. Notable early uses include Lord Armstrong's hydroelectric power supply at Craggside, Rothbury (Northumberland). Recent survey here has recorded remains of the connecting cables (Reed 2004). The powerhouse itself is a Grade II* Listed Building. The earthworks of another early hydroelectric supply also survive at Hethpool House, Kirknewton (Northumberland). English Heritage has carried out an MPP survey on the remains of the gas and electricity industries. Other non-hydraulic electrical generating sites include Swarland Hall Cottage, Swarland (Northumberland), which is now a Grade II Listed cottage. An early power house built by Drake and Gorman in about 1890 also survives at Calally Castle.

Until the 19th century most water was supplied through wells or pumps. In Northumberland the village 'pant' could often be quite elaborate, and several are listed. There are also a number of listed pumps in County Durham, such as the example which stands in The College, Durham.

In the 19th century the provision of pumps increasingly became a field for public benefaction; the site of a series of pumps provided by the London Lead Company can still be seen in Masterman Place, Middleton-in-Teesdale (Figure 47).



Figure 47 Entrance to Masterman Place, Middleton-in-Teesdale (Co. Durham), an area of housing constructed by the London Lead Company for their workers. © David Petts

The massive increase in population and the increasing demand for water by industry led to a series of massive infrastructure projects to ensure that demand from the new urban centres of the region was provided for. Major reservoirs were built, including Catcleugh (Northumberland), where work was begun in 1899, and Whittle Dene, Horsley (Northumberland), in the mid 19th century. Traces of the navy camp at Catcleugh survive and the remains of the construction railway can still be seen at Fontburn (Northumberland). As well as the reservoirs themselves some elements of the associated service buildings, such as the Grade II Listed late-19th-century water sulphurisation building at Whittle Dene, and the Grade II Listed overflow bridge and valve house at Catcleugh (1899-1904). Several important pumping stations survive. The best is probably Ryhope (Tyne and Wear) (Grade II* Listed), which still retains two 100-horsepower beam engines. Another important site is the Tees Cottage Pumping Station in Darlington, which is part of a Victorian water works dating to 1847-1901. It is a Scheduled Ancient Monument and still retains its original pumping engines.

Transport and communications

Although the basic network of main roads in the region is

already recognisable by the medieval period, the increased number of maps of the region allows the road network to be plotted in detail. As well as the improved recording of existing routes, there was an expansion of the number of roads in this period. The expansion of settlements in industrial areas led to a commensurate increase in local streets and roads. The mid 18th century also saw the construction of toll roads. These roads often transformed pre-existing informal routes into formal roads, for example, the roads built by the London Lead Company in Teesdale and Weardale replaced pack-horse routes into the upper ends of the dales, and for the first time formed permanent links over the watersheds into Cumberland (Blackburn 1992; Linsley 1992; Elliot 1994; Fennell 1996). These turnpikes provided the infrastructure for much of the major routes across the upland areas of the North-East, although in places there have been minor changes in route required to accommodate motor vehicles. As well as the construction of the roads themselves, there are many original bridges still surviving, though these tend to be small in scale (bridging small sykes and becks) and little studied. In addition to these upland turnpikes, many other turnpikes were created across the region. These have been less studied, though the forthcoming PhD on post-Roman road networks in the north by Gillian Keegan-Phipps (University of Durham) may help rectify this. Milestones and posts are well recorded (e.g. over 80 in Northumberland), but seem to survive better in upland areas (such as along the Teesdale and Lunedale turnpikes). These are mainly of stone, but there is a small number of cast iron examples. Over 90 milestones or posts in the region are protected as Listed Buildings (Figure 47). A number of tollhouses also still stand, several of which are listed, such as Farnley Gate Cottage, Corbridge and Bridgend tollhouse, Bellingham (Northumberland). A tollhouse on the Stainmore Pass turnpike has been excavated (Vyner 2001, 148-150).

There is a substantial body of post-medieval bridges in the North-East reflecting the pattern of major east-west rivers and mainly north-south communication routes. Many of these are protected by Listing or Scheduling. Although the region had many substantial medieval stone bridges, major floods in the 18th century, particularly 1771, destroyed many, requiring rebuilding (Rennison 2001). Most of the new bridges are single or multiple-arched bridges, but there are also early suspension bridges; the earliest European suspension bridge built in 1741 stood at Wynch Bridge, Holwick (Co. Durham), although the current suspension bridge at the site is not the original. The first suspension bridge designed for vehicular use still crosses the Tweed at Horncliffe (built 1819-20). Another early (1831) suspension bridge survives at Whorlton (Co. Durham).

Railways

The North-East is celebrated as the home of the railway, which grew out of the demands of the coal trade to move bulk goods quickly and cheaply. Horse-drawn waggonways developed from the early 17th century until the early 19th century. There has been extensive documentary research (e.g. Lewis 1993; Bennett *et al* 1990; Guy and Rees 1988), but very little field archaeological research on such aspects as the development of formations, grading of

track-beds, and civil engineering (the Causey Arch being a notable bridge from the later phases of waggonway development). There is, however, increasing archaeological evidence for the later phases of waggonway development. The remains of a late-18th- and early-19th-century wooden waggonway have been recovered close to Lambton D pit (Ayris *et al* 1998). A stretch of waggonway has also been recently excavated at Wylam (Northumberland) (Brogan 2003). Other archaeological interventions on waggonway include sections dug at Throckley, Rainton Bridge (work by Pre-Construct Archaeology) and Walkergate, Newcastle (work by Northern Archaeological Associates).

The region was also important for the development of the incline and the rope-hauled railway. The rope-hauled Bowes railway has been preserved and is still in operation. The railway and associated buildings is now a Scheduled Ancient Monument. There are also considerable, but largely unsurveyed, remains of the Stanhope and Tyne railway, including engine houses on the hauled inclines. The Stockton and Darlington Railway, although normally considered as a locomotive railway, initially included rope-hauled inclines. There are several important collections of illustrations of waggonways and rope-hauled railways and their sites, including amongst the special collections at the Robinson Library, Newcastle, the Thomas Harrison Hair collection and the photographs taken by Stafford Linsley (some now available on the *Structures in the North East* website).

Despite the importance of the North-East in the development of locomotive-hauled railways, relatively little archaeological or building recording work has been carried out on the remains. Of most importance are the extensive photographic records of railway buildings, to be found in the Rokeby Collection (held at the National Monument Record) and the collection of Stafford Linsley. The Greenesfield Locomotive Works (including the remains of the former station) at Gateshead were recorded in some detail by plan, elevation and photography by Northern Counties Archaeology Services prior to redevelopment (NCAS 2003). Some work has taken place on the architectural development of railway station architecture (e.g. Hoole 1985; Fawcett 2001). The neo-Classical Monkwearmouth Station is now a museum, and its original 1867 booking office has been restored. Two important protected railway buildings are the early locomotive factories in Newcastle and Shildon. The Stephenson engine works in Forth Street, Newcastle, are preserved. Parts of the 1823 works survive subsumed among later buildings; the structures at 20 South Street are a later addition, dating to around 1850. Also preserved is Timothy Hackworth's house, and the adjacent Soho Engine Works in Shildon are now part of the Timothy Hackworth Victorian Railway museum.

Although some of the building stock, including stations (such as Berwick and Norham, Northumberland), railwaymen's cottages (e.g. Greenhead, Northumberland) and associated infrastructure (e.g. water-tank building and water columns at Haltwhistle, Northumberland), have been protected by listing, there has been less effort applied to preserving the track and related civil

engineering works themselves. A notable exception is the Scheduling of two inclines on the Stockton and Darlington railway at High Etherley and Brusselton (Co. Durham). A related category of protected sites is railway viaducts. The most important is the Causey Arch built in 1727 to carry a waggonway over the Causey Burn; it is the oldest single-arch railway bridge in the world and a Scheduled Monument. The Grade II* Listed Skerne Bridge carried the Stockton and Darlington railway over the Skerne in Darlington. Other listed railway viaducts include the Belmont Viaduct (Durham), the Durham viaduct (Durham) the viaducts at Carham (Northumberland) and the main East Coast rail line over the Coquet at Acklington (Northumberland). Important early iron bridges were also built in the North-East including Stockton, Gateshead and Darlington (Rennison 1998).

Although much of the rail network is still in use, substantial stretches were closed following the 1963 *Beeching Report*. Long stretches of these unused lines are not protected in any way, though the North-East is home to a number of railway preservation societies, which are looking after lengths of track. The South Tynedale has a track running from Alston (Cumbria) to Kirkhaugh (Northumberland); although narrow gauge, it runs on the former standard gauge Alston-Haltwhistle line. There are plans to extend it to Slaggyford. The Bowes railway still has a rope-hauled system, and other lines in operation include the Tanfield Railway and the Weardale Railway.

Ports and harbours

Ports and harbours were an important element of the economic life of the North-East. Before the advent of the railways, the bulk of the region's industrial production was transported by ship. Major ports existed at Newcastle and Hartlepool, and by the 19th century much of the mouths of the Tweed, Tyne, Wear and Tees were dominated by docks and quays (Rennison 1991; 1994). The quays at Newcastle have their origin in the medieval period and were formed by successive phases of reclamation, which were largely complete by the 14th century, though excavation at Queen Street has produced post-medieval stratigraphies (O'Brien *et al* 1988). Docks, however, developed downstream throughout the 18th and 19th centuries. The vast expansion of the coal industry necessitated the creation of dedicated coal staithes. For example the North Dock (1850) and South Dock (1837) in Sunderland were primarily for coal export. In Hartlepool, the decline of the port was only reversed in the 19th century with the building of docks for the coal trade (Daniels 1991). Smaller coal ports, such as Amble and Blyth also developed in this period.

As well as the major docks, a series of coastal harbours developed in the 18th century. Alnmouth (Northumberland) was an important grain port until 1806, when the course of the River Aln was shifted by a huge storm. Several of the grain warehouses are still standing, but have been converted into houses, a good example being the Marine House Private Hotel. Major imports included wood from the Baltic and guano; a recent report has been written on the surviving Guano Shed at High Buston (Williams 2003; Burgess 2004). In Berwick, the New Quay was developed through land

reclamation in the later 18th and 19th centuries, supplementing the medieval Old Quay (Griffiths 1999).

A number of smaller harbours, such as Beadnell, Seaton Sluice (Northumberland) and Seaham (Co. Durham) were also purpose-built. Seaton Sluice was the earliest of these, being built in the mid 17th century. It was large enough to take fourteen ships, and was built to ship coal from the developing coalmines in the area. Altered and enlarged in the mid 18th century when the 'New Cut' was built, it became the centre for many industries including a glassworks, saltworks, a brewery, brickworks and a quarry until it finally fell out of use in the mid 19th century. Beadnell Harbour exported lime to Scotland from the nearby kilns and like many of the Northumberland harbours, such as Seahouses and Craster, became a centre for the processing and export of kippers. Seaham Harbour was built in the 1820s as a point from which the Marquis of Londonderry could export coal from his mines. Other related facilities grew up in the 18th century; the Newcastle Custom's House was built in 1766, though subsequently remodelled in the 19th century. The Custom House at Berwick (Grade II Listed) is of later-18th-century date.

The advent of increased shipping led to a need for a fuller network of lighthouses and associated navigational and life-saving infrastructure. The first lighthouses date to the later 18th century: High and Low Light, North Shields (1727), the Longstone lighthouse in the Farne Islands (1776) and the base of Blyth High Light (1788). The light on Coquet Island and Low Light on the Farne Islands are early 19th century and in 1871 the Souter Lighthouse became the first ever light to be powered by AC electric current. An organised coastguard was formed in the early 19th century; coastguard cottages still stand at Hawthorne Hythe and Low Newton (Northumberland). The Royal National Lifeboat Institute was founded in 1824; the earliest operational lifeboat house (1851) stands at Newbiggin. An unlisted and derelict lifeboat house stands below the church on Holy Island still bearing a pair of brown-glazed ceramic decorative roundels dating to 1884 (Figure 48).



Figure 48 Plaque on former lifeboat house, Holy Island (Northumberland). © David Petts

Entertainment

The post-medieval period has produced a wide range of evidence for what might be broadly called entertainment. This broad heading covers a range of licit and illicit activities, many of which have left surviving material remains.

Alcohol consumption and production has been an important element of social life in the North-East. There were a large number of local and regional brewing industries, and a number of important brewery buildings still survive. The 19th-century Castle Eden brewery still stands (Grade II Listed), but is no longer used for brewing; the large maltings and brewery in Berwick and the brewery in Alnwick are also Grade II Listed. The Bruce Building, the former Newcastle Brewery, has been taken over by the University of Newcastle; the well-preserved monumental interior is of particular interest. The remains of a small private brewery belonging to the demolished Lambton Hall are also Grade II Listed.

Although brewing was a widespread industry, there were much stricter controls on the production and import of spirits. This had two consequences: smuggling liquor from abroad and illicit production within the region. Both activities peaked in the late 18th and early 19th centuries, a period of high tariffs due to the Napoleonic war (Phillipson 1961). The sites of several hidden distilleries are known (three in Durham and six in Northumberland). Archaeological work has been carried out on some of the Northumbrian examples, including excavation at Wholehope, Alwinton (Phillipson and Child 1960).

Despite the widespread distribution of public houses less work has been carried out on consumption than distribution of alcohol. Although over 100 pubs are protected by listing there is no overview of the development of public house architecture in the region. Little is known from archaeology; the remains of the Chew Green Inn (Alwinton, Northumberland) are Scheduled as part of the complex of remains relating to the nearby Roman fort and deserted medieval village.

New forms of public space reflect changing patterns of social networking. Of the assembly rooms in the region, the finest example is undoubtedly the Classical Newcastle Assembly Rooms (1774-76) designed by William Newton. Smaller assembly rooms also exist in Alnwick (1826), Berwick (in The King's Arms Hotel) and Durham (c. 1800, now the Salvation Army Citadel). Newcastle is home to a number of historic theatres: the Theatre Royal (Grade I Listed, 1837) is a significant element of the Grey Street streetscape, and like the Tyne Theatre (1867) (now The Opera House), it is still used as a theatre.

Entertainment of a less refined type was also available. An iron-ring used for tethering a bull for baiting is preserved in Barnard Castle. Another from Sandhill, Newcastle, is in the Castle Keep. Cock-fighting was a popular sporting pastime, and a number of cockpits are recorded (Jobey 1992).

Amongst the sporting sites in North-East, the remains of 18th/19th-century racecourses can still be seen at Morpeth

and on the Town Moor, Newcastle, though many rural racecourses, such as Byerhope, Allendale, have left no obvious material traces. A number of 19th-century buildings survive at some of the bigger courses, such as Hexham and Gosforth. Other sporting sites include the unusual ball courts at Ushaw College, Durham.

On a more cultured level the North-East is home to a number of important, purpose-built museum buildings. Sunderland was home to the first local authority museum outside London, and the museum, library and winter garden were opened in 1879. Although the Winter Garden was destroyed during World War II (and recently rebuilt) the rest of the original building is still used as a museum. The Grade II* Listed Hancock Museum, Newcastle, is also a purpose-built museum. In Barnard Castle, the Bowes Museum (opened 1892) is a Grade I Listed structure. In Darlington, the former museum was a 19th century conversion of an 18th-century house.

The 19th century also saw the development of coastal holiday resorts, including Whitley Bay (Tyne and Wear), Saltburn and Redcar (Teesside). The Saltburn Cliff Railway was built in 1884 and was the third such system built in Britain, and the earliest surviving example. The hoist worked by pumping water into the top carriage, which descended when heavy enough, hauling the second carriage up the cliff at the same time. Although Coatham and Redcar Piers have now been lost, Saltburn Pier still stands (Figure 49).



Figure 49 Saltburn Pier, Saltburn, Cleveland. © English Heritage

Religion and ritual

The transition from the medieval to post-medieval period broadly coincided with the Reformation in England. This had a fundamental impact on almost all aspects of religious

behaviour (Gaimster and Gilchrist 2003). The biggest change was the Dissolution of the monasteries, yet while the religious communities themselves disappeared or were transformed, the monastic buildings often survived. At Black Friars, Newcastle, the church only survived a few years, but most of the remaining precinct and claustral range was taken over in 1552 by nine craft companies. Later the open space and closes around the claustral range became infilled with 18th-century light industry and tenements (Harbottle and Fraser 1987). In Durham, on the other hand, the monastery was re-established, the first dean and prebendaries all being former monks (Roberts 1994, 17). The former outer court of the monastery (The College) became the accommodation for the dean and prebends.

Blanchland Abbey suffered a very different fate. Its land fell into private hands and eventually came to be owned by Lord Crewe, Bishop of Durham. On his death the estate was left as part of a charitable trust. Much of the original infrastructure was converted into a model village, the Abbot's lodging, guesthouse and kitchen becoming the manor house. The remains of Finchale Priory were also taken over for agricultural use, while the claustral range at Egglestone Abbey was converted into a private house, which was finally abandoned in the mid 19th century. The landscape had been re-ordered in the mid 18th century when the Morrill family bought the abbey and made use of the remains of the medieval buildings as an ornamental feature in their estate. Many of the associated landscape and garden features were recorded in a recent English Heritage survey (Dunn and Lax 2001).

Despite the end of monastic life, parish churches and secular foundations continued in use. Although the Shrine of St Cuthbert at Durham Cathedral was ransacked there was continued development. The Laudian reforms led to refurbishment in the hands of Dean Hunt and Bishop Cosin (1595-1672), although many of these additions were destroyed during the Civil War when 3,000 prisoners were held in the cathedral over the winter of 1650-51. Cosin returned following the Restoration and commenced further work, including the font canopy and the choir stalls. The cathedral saw attempts at restoration in the 18th century, leading to the demolition of some medieval fabric, such as the 13th-century revestry. Ignatius Bonomi, Anthony Salvin and George Gilbert Scott were all involved in various campaigns of renovation and repair.

In County Durham the biggest influence over parish churches was again Bishop Cosin. He was responsible for the internal reordering of several churches, and is best known for the quality of the wooden fittings he commissioned, of which the screen, pulpit and reading desk at Brancepeth (now destroyed) were perhaps the best examples. Significant features can also be seen at Auckland Castle chapel (Figure 50), Darlington, Durham Cathedral, Egglecliffe, Haughton le Skerne, Houghton le Spring and Sedgfield, among others. In the 17th century there was almost no church building in Northumberland, with the notable exception of Holy Trinity, Berwick-upon-Tweed, one of the few churches in England to be built during the Commonwealth. Lesser 17th-century work includes the chancel at Edlingham.



Figure 50 Cosin's woodwork, Auckland Castle (Co. Durham).
© English Heritage

In the 18th century there was little church building in Durham, though Stockton parish church (1710-20) belongs to this period, as does the church at St John's Chapel (1752). In Tyne and Wear, James Paine's Palladian Gibside chapel is the most important structure, though work was carried out on the medieval towers of St Mary's Gateshead and St Hilda, South Shields. The construction of new churches in and around Newcastle (All Saints, St Ann's, Gosforth and North Shields) reflects population growth there.

Church building continued into the 19th century following the Church Building Act of 1818, with architects such as John Green (Earsdon, North Shields, Sugley) and John Dobson (St Thomas, Newcastle) providing new structures. Commissioners' churches south of the Tyne include Holy Trinity, Seaton Carew (Teesside), though most of the commissions were for colliery villages and of a relatively simple Gothic design. There was a particular increase in the creation of new parishes and consequently church construction from the 1860s following the passing of the Ecclesiastical Commissioners Act (1860), which freed up the powers of the Durham diocese to increase provision in mining areas, thereby combating the increasing influence of non-conformity (Emery 1990, 59). Often these mission churches were constructed from very simple materials such as brick, wood or corrugated iron (Emery 1990) North of the Tyne, despite continued church building in the later 19th century, there were few architecturally significant structures, except Pugin's Roman Catholic cathedral in Newcastle.

In addition to parish churches there are also a number of Anglican chapels, both chapels-of-ease and private

chapels. For example, a now-roofless chapel dating to the 18th century lies in the grounds of Egglestone Hall (Co. Durham). Another 18th-century chapel stands opposite Chipchase Castle (Northumberland) As well as separate external chapels, some houses retained internal chapels, such as that at Raby, which although medieval in origin was heavily modified in 1847.

Another major trend in religious life in the post-medieval period was the rise of non-Conformity. Two broad traditions are recognised: Old Dissent (mainly the Society of Friends and Baptists) which developed in the 17th century, and the New Dissent (Methodists) which grew out of John Wesley's 18th-century Anglican reform movement (Figure 51). The Methodists themselves experienced a reform movement, when the Primitive Methodists split from the Congregationalists in 1810. The large numbers of physically and socially marginalized population groups in the North-East created by the demand for new labour by the rise of industry were fertile ground for all forms of non-conformity. The Quakers were influential in the North Pennines, where the Quaker London Lead Company was a significant player in the 18th- and 19th-century lead industry. Other less successful groups include the Presbyterians, United Reform Church and tiny groups such as the Bochimites. Although non-conformity tended to be a broadly working class phenomenon it spread to all strata of society. There were a number of important Quaker industrialist families, particularly around Darlington. Early Quaker meeting houses in the area include Coanwood, which is of exceptional importance as it has not had a major 19th century refitting (Ryder 1998a). In the towns there are important meeting houses in Darlington and Stockton (Butler 1999). There have been a series of important surveys of non-conformist places of worship carried out by Peter Ryder, which go far beyond the work by Stell (1994) and Butler (1999). His work has mainly covered the North Pennines (Ryder 1998b; 2003b; 2003c), but he has recently carried out a survey of non-conformist chapels in Darlington (Ryder 2004c).



Figure 51 Love Feast cup from Stanhope Wesleyan Methodists Chapel (Co. Durham). © Peter Ryder

Catholicism was another important non-Anglican current in the religious life of the North-East. The area retained a high level of recusancy, and the Jacobite cause was strong, reflected in the role of several local families such as the Radcliffes of Dilston and the Forsters in the 1715 rising. There is little 17th-century ecclesiastical evidence for Catholicism due to the need for concealment, though it is likely that the village cross at Esh erected in 1687 was commissioned by the recusant Smyth family, who may have taken advantage of the short respite from persecution under James II to express their belief.

By the late 18th century it was safe enough for Catholicism to be practised in the open, as long as it was kept discreet. For example, the church of St Michael (c. 1799-1800) and its presbytery and outbuildings at Esh Laude are arranged around a courtyard to make it appear like a model farm, rather than a place of worship. Small chapels were attached to Thropton Old Hall (Northumberland) in the late 18th or early 19th century, at Ancroft (Northumberland) for the use of the Haggerston family in the late 18th century, and at Hutton Henry (1824-25), where a small chapel was built by the last Roman Catholic chaplain of Hardwick Hall, though it was rebuilt in the late 19th century. An outbuilding at Tudhoe Hall was also used as a Catholic chapel by students who went on to form Ushaw College in Durham.

Following the Roman Catholic Relief Act of 1829 there was a surge in the construction of Catholic churches to accommodate existing congregations and an expanding demand from Irish immigrants. New churches in Northumberland include Alnwick (1836), Bellingham (1839), Hexham (1830), Morpeth (1850) and Wooler (1856), while those in County Durham include Consett (1854), Crook (1853), Darlington (1827), St Cuthbert's in Durham (1829), St Godric's in Durham (1864), Spennymoor (1870), Wolsingham (1854), and Wycliffe (1848). The College of St Cuthbert, Ushaw, was both a school and seminary; work started 1804, and later additions include work by Pugin and Joseph Hansom. Also of interest is the Catholic mortuary chapel (1877) of Monsignor William Witham in a private cemetery at Lartington Hall.

In the post-medieval period, although internal funerary monuments continued to be used in churches, the practice of placing gravestones over burials becomes increasingly common. Churchyards with particularly important or unusual collections include Holy Trinity, Berwick (although many have been destroyed, there are photographic records in Berwick Record Office), Holy Island, Staindrop (Co. Durham) and Ryton (Tyne and Wear).

The most significant post-medieval cemetery site is the Newcastle Infirmary Site, which was cleared in 1997. Archaeological work recovered 210 articulated skeletons as well as charnel deposits containing disarticulated remains from a minimum of 400 further individuals (including c. 200 amputated limbs) (Chamberlain 1999; Boulter *et al* 1998). Many of these skeletons showed evidence of post-mortem medical intervention, including 60 craniotomies and other dissection (Boulter *et al* 1998). Bones from this site were used in trials to diagnose ancient tuberculosis using chemical methods (Gernaey *et al* 1998). By the mid 19th

century increased pressure on parish churchyards saw municipal cemeteries being laid out (see above). The rise of non-Conformity also saw the growth of separate burial sites for the various dissenting congregations. In some cases these have now been lost, and are occasionally found unexpectedly during modern construction work (John Nolan pers comm). Their archaeological importance, however, seems not to have been generally recognised.

Christian activity was also imprinted in the wider landscape. Esh Cross has already been mentioned and several crosses, although of medieval date, continued in use as landmarks despite new Protestant attitudes to such monuments; this seems particularly true in upland areas, where they could serve to mark routeways and corpse roads (Coggins and Fairless 1999). A few crosses were actually erected in the post-Reformation period, such as the cross on the boundary between Cumberland and Durham at Kilhope, and the Market Cross in Stanhope. The crosses of Durham and Tyne and Wear have been surveyed as part of the English Heritage MPP programme (Rimington 1999). Another element of the wider religious landscape is holy wells, whose use may reflect a vernacular resistance to institutional Anglicanism (Rattue 1995). Their recording is variable, for example, they are listed on the Northumberland Sites and Monuments Record but not on the County Durham Sites and Monuments Records.

As well as Christianity, Judaism played a part in the religious landscape of the post-medieval North-East with important communities in Newcastle, South Shields and Sunderland. There are Jewish cemeteries or sections in larger cemeteries at Hartlepool (Hartlepool Jewish Cemetery), Middlesbrough (Middlesbrough New Cemetery Jewish section), Newcastle (Thornton Street Jews Burial Ground; Newcastle City Cemetery Jewish section), North Shields (Preston Road Cemetery, Jewish section), South Shields (Harton Cemetery, Jewish section), Stockton-on-Tees (Stockton Old Cemetery, Jewish section) and Sunderland (Ayes Quay Jews Burial Ground; Bishopwearmouth Cemetery, Jewish Section). There is also a Grade II Listed synagogue on Leazes Park Road, Newcastle.

Intriguingly, there are one or two survivals of poorly understood folk traditions in the region. A child's clog and a pewter spoon placed in the heather thatch at Causeway House (Northumberland) appear to reflect a wider national pattern of such small, ritual deposits (Emery *et al* 1990, 137). Other possible ritual deposits include the chicken bones in a blocked alcove at Rowley Gillet (Co. Durham). A number of 'head and hooves' burials are known from Teesdale, including Chapel House (Laithkirk) and Lonton (Holwick). Prehistoric stone axes appear to also have been of particular importance; one was found buried beneath the floor of a farmhouse at Bowes Close, Langdon Beck, another built into the wall of an 18th-century barn in Cotherstone (Pickin 1982).

Social provision

With the disappearance of monastic houses following the Reformation there was a shift in patterns of social provision.

Whereas in the 16th-18th centuries private benefaction and charity was the main provider of social housing, medical care and education, in the 19th century the state increasingly assumed responsibility for social support.

Almshouses are common throughout the region. Many have been demolished, but a series of important examples still survive, such as the Holy Jesus Hospital (1681) and Keelman's Hospital (1701) in Newcastle. The Bede Houses in Barnard Castle were founded by Bishop Cosin. Many were built anew, such as Bishop Cosin's almshouses on Palace Green, Durham, but in Newcastle the buildings of Black Friars were converted into almshouses. Almshouses continued to be constructed into the 19th and even early 20th century; late examples include the Grade II Listed Armstrong Cottages in Rothbury.

Many hospitals were built in the mid/late Victorian period, though the earliest purpose-built 'hospital' in the region was the Newcastle Infirmary at the Forth, built in 1753 for the sick and lame poor of Northumberland, Durham and Newcastle. It was paid for by subscription and also treated outsiders admitted from ships docking at Newcastle. It became the Royal Victoria Infirmary in 1887 and moved to its present site in 1906. Other important Newcastle hospitals include the Fever Hospital, Bath Lane, built outside the town walls in 1804 and the Lying-In Hospital (1826).

The mid 19th century also saw the construction of a series of asylums for 'lunatics'. The best surviving is the Northumberland Pauper Lunatic Asylum, now St George's Hospital, Morpeth. Built from brick it has a central block with wings on either side, with wards for male and female patients. Many hospitals or medical facilities often had several sites; the Newcastle Dispensary initially re-used a Masonic Hall built thirteen years earlier before moving to Nelson Street and then, in 1928, to 115 New Bridge Street. Workhouses were another important post-medieval social institution. Some of the earlier examples, such as the Grade II Listed Bellingham Union Workhouse (1839), were similar in plan to traditional farmhouses. Other surviving workhouses include Glendale Poor Union, Wooler (1839), Hexham (1839, 1883), Berwick (early 19th century), Durham (1837, 1870, 1875) and South Shields (1877-80). Many of the surviving examples have been preserved due to their later history as hospitals.

Defences

The great period of cross-border warfare came to an end by the mid 17th century, although issues of defence remained important. Defences of the 17th and 18th centuries were mainly predicated on the fact that the threat would come from the North, and a number of border castles, such as Wark-on-Tweed and Norham, were altered to take into account the changes in warfare caused by the widespread use of gunpowder (Kenyon 1977; 1981). Although little survives of the castle at Wark (Northumberland), the 16th-century artillery platform can still be seen; a recent English Heritage survey at Norham has also revealed a series of earthworks, probably used to house canon. Excavation and survey at Harbottle Castle in Upper Coquetdale recorded a Tudor gun battery on the

motte equipped with two distinctive 'letter box' gun ports of a type paralleled in Scotland (Crow 2004, 246-261). This is the only residence defended with gunports set back from the line of the Border.

A number of 16th- and 17th-century defences are recorded at Holy Island. The now largely disappeared Fort on the Heugh was built in 1671 to defend a small harbour at The Ouse. It complemented the small fort built under Henry VIII on Beblowe (now Lindisfarne Castle). Recent excavation on the site known as The Palace suggests that it may have been used as a victualling station for military forces on the island (Hardie 2001). The most extensive artillery defences of this period are those surrounding the border town of Berwick (MacIvor 1965). Begun by Mary Tudor in 1555, they are of Italian design; the extensive earth-banked walls can still be seen, and the Cumberland Bastion, Brass Bastion and Meg's Mount are well-preserved bastions of international importance.

By the mid 17th century the direction of perceived threats was changing. The Civil War led to the need to defend against enemies from the south as well as the north. A fortification was built at North Shields to protect the river mouth and Charles I re-defended much of Newcastle's town walls, including artillery bastions and a sconce, Shieldfield Fort (mound extant) (Ellison and Harbottle 1993). A Scottish garrison at Hartlepool also augmented the town's existing medieval defences. There are also some possible Civil War earthworks at Barnard Castle and Bothal Castle. An increasing threat of plundering raids from the Dutch in the 1670s led to the construction of Clifford's Fort, North Shields, as well as Osborne's Fort on the Heugh, Holy Island, and the construction of batteries at Hartlepool (Lilburn 1986; Kear 1986).

In the 18th century Scotland was once more seen as a potential military threat, particularly following the 1715 Rebellion. One response was the construction of the barracks at Berwick-upon-Tweed (MacIvor 1976). These are some of the earliest barracks in England, predating others by around 80 years. Until the 18th century most soldiers had traditionally been billeted rather than provided with accommodation and these early barracks were designed in a traditional 'college' form with ranges of buildings arranged around a central court, whereas later barracks were more open and arranged around a parade ground and had subsidiary buildings. The later 18th century saw the construction of a series of new barracks at Berwick in response to the perceived threat of internal disorder stimulated by the French revolution (Breihan 1990). As well as their architectural recording in the English Heritage volume on barracks (Douet 1998), there has also been a small amount of archaeological work on the site (TWM 1998). These formal responses to the Jacobite threat, were complemented by a series of more informal, individual attempts at defence, such as Codger Fort at Rothley, built in 1769.

In the 19th century there was an increased threat of invasion from France and Germany. A number of defensive batteries were built, such as those at Blyth and the Old Battery at Alnmouth (Northumberland) and the Heugh Battery,

Hartlepool (Teesside). Some, such as those at Goswick, Alnmouth and Trow Rock near South Shields, were primarily intended for the training of volunteers. An example of the new military technologies is the conversion of Clifford's Fort to a Submarine Mining Depot (c. 1888) for electrically fired sea mines; some associated buildings still survive.

There is also good number of rifle ranges dating to the surge in volunteer activity in the second half of the 19th century. These were usually within easy travelling of centres of population, for example, Trow Quarry at South Shields, or where local landowners themselves encouraged the formation of local rifle volunteers, as at Chillingham Park.

Material culture

Substantial ceramic assemblages have come from urban excavation in Newcastle (e.g. Ellison 1983a; Ellison *et al* 1993; Nolan 1990; Vaughan 1993; 1994a; Vaughan *et al* 1987). Post-medieval wares identified here include, in the 16th century, Cistercian ware, redwares imported from the Low Countries and German stonewares; and in the 17th century large quantities of English redwares (including metropolitan slipwares from Essex), lesser quantities of tin glazed wares and continuing continental imports. An analysis of an assemblage from part of the later 17th century defences at the Castle (Newcastle) has been undertaken by Andrew Sage, as part of his MA at the University of Durham (Sage 2002). This explored an assemblage (excavated in 1992) from the same Bastion ditch as that published in 1983, and is thus directly comparable with those published earlier (Ellison 1983).

Outside Newcastle, two small but important assemblages have been recovered in Gateshead (Oakwellgate and Bottle Bank) (Nolan and Vaughan 2002; OAN 2003). These have yet to be published, but are important as they are backland pit groups, which will allow a greater refinement in dating than the large Newcastle assemblages, which are likely to be derived from large-scale communal dumping, and are often re-deposited. Important assemblages have also been recovered from Durham (Lowther *et al* 1993) and Berwick (Ellison 1992). In general, a wide range of local wares, regional imports and some foreign imports (e.g. Low Countries redwares and German stonewares) are represented.

Despite the relatively large number of post-medieval assemblages, reports have tended to focus on the earlier groups (i.e. 16th-18th centuries) rather than 19th-century assemblages. A large assemblage of 19th-century ceramics was recovered and retained from the Old Rectory at Oakwellgate, Gateshead, but has yet to be analysed. A small assemblage of later post-medieval wares was also excavated at Alnwick Castle Gardens (PCA North 2003). Other biases are notable, particularly the emphasis on urban contexts; few come from rural sites, though an important early-18th-century group has been recovered from Dalden Tower (Durham), which contained a large number of Lower Rhine slipware vessels (Anon 1986).

Glass is also found on most urban sites of this period, though not in large quantities. The most extensive

assemblages derive from Newcastle (Ellison 1979; 1981; 1983b; Vaughan 1994b), but significant collections also come from Durham (Ellison 1983), Monkwearmouth and Jarrow (Willmott forthcoming), and smaller collections from Hartlepool (Young 1987, 32-34). Glass from these assemblages is included in a recent overview of early modern vessel glass from England (Willmott 2002). As with pottery, most research has focused on the earlier assemblages, rather than 19th-century groups.

The arrival of tobacco brought an important new artefact type, the clay tobacco pipe (Cessford 2001). These have wide date range, from the 16th to the late 19th or even early 20th century, and are common finds in post-medieval contexts (e.g. Nolan 1993, 145; Ellison 1993b; Edwards 1987). Pipes are important as diagnostic dating artefacts due to their short use life, but also provide an important insight into patterns of commodity consumption. The major producers of such pipes in the region were centred on Tyneside (Edwards 1988), although some were imported from elsewhere in Britain, and also from overseas, like the Dutch pipes found in Berwick (Ellison 1992). These are a relatively well-studied category of material culture, both within the North-East, and across Britain generally. The standard typology for Tyneside pipes was created by Edwards (1987; 1988), superseding earlier work by Parsons (1964). The excavations in Gateshead in 1999 (Oakwellgate) and 2000 (Bottle Bank) recovered waste material from clay-pipe making kilns for the first time (Nolan and Vaughan 2002; Oxford Archaeology North 2003).

Large and interesting assemblages of 16th- and 17th-century leather, mainly shoe leather, were found in excavations at the Castle (Vaughan 1981; 1983). In general, a wide range of other small finds has also been found on post-medieval excavations. For example, those from Black Friars, Newcastle, include sewing equipment, dress items, cutlery, musket shot, keys, textiles and shoes (Harbottle and Fraser 1987). There have been few attempts, however, to bring together this material and allow comparisons to be made with other sites within the region or beyond, nor have many cross-disciplinary studies been undertaken. That by Gwendolyn Heley on Newcastle probate inventories is one exception (Heley forthcoming).

Museum and archive collections

Museum collections

There are huge collections of post-medieval material held in the region's museums. The vast majority is contained in social history and art collections, with a relatively small proportion belonging to archaeological collections. The sheer quantity and diversity of this material makes it nearly impossible to characterise, though there have been isolated attempts to assess individual categories of museum objects, such as material related to maritime themes or the colliery industry (Gale 1992; 1994). The outstanding collection is that at Beamish, which holds a huge social history collection dating from the 1600s to the early 20th century, including an important folk art and crafts section. In total there are over 300,000 objects here.

The Discovery Museum, Newcastle, is another museum with a nationally important collection, relating particularly to scientific and technical subjects, as well as maritime history, social history, regimental militaria and costume. Hartlepool Museum also holds major collections of material for the town's maritime and social history.

Other museums in the region curate collections of regional importance. The Dorman Museum holds a major collection of Linthorpe Pottery, including around 465 of the 2,350 known different designs. The Old Fulling Museum, Durham, holds important archaeological collections relating to excavations on post-medieval sites in the city of Durham, including the archives of the Durham Archaeological Survey, one of the largest collections of glass bottles from the country (from Claypath) and the Eric Parson's collection of clay pipes.

Finally, some museums house material culture related to the colliery industry. The most important is Beamish, which holds large quantities relating to work and society in the north-east coalfields. There is also material at the Woodhorn Colliery Museum (currently being refurbished), including a nationally important selection of trade union banners. A small collection of material related to the Wallsend B Pit is held by Tyne and Wear Museums.

Archive holdings

If the museum collections have proved difficult to characterise, the archival resources are intractable. The post-medieval saw a massive explosion in the use of texts for administrative and technical purposes, with the rapid expansion in literacy and the increased formalisation of administrative and technical institutions. Of potential use to those researching the post-medieval historic environment are maps, plans, topographic prints, photographs, wills, leases, probate records, and much more besides.

The regional record offices are the major repositories for much of this material, and some of their indices are now

available online, but other archives and collections should also be highlighted. Most important are the collections held by Beamish, which include a nationally important holding of trade catalogues, mainly dating between 1860 and 1960, major collections of advertising ephemera, topographic prints, agricultural and industrial books, plus over 300,000 photographs. The museum has developed a Regional Resource Centre, allowing easy access to its collections.

Further important material is held in the Durham University Archives and Special Collections, including the Durham Castle Buildings Archive and deposits by the Durham Dean and Chapter Estates. Major public libraries in the North-East also include significant local study collections comprising amongst much other material, topographic photographs, maps and plans.

Thematic collections include the Ken Hoole Study Centre at Darlington Railway Museum, which is a major resource for the study of the railways of North-East England. The North of England Institute of Mining and Mechanical Engineers in Newcastle has a well stocked library, including most major mining-related works pre-1920, as well as a wide range of pamphlets, articles, religious tracts and other material. Its collections also include important London Lead Company documents, John Buddle's papers, the Watson collection and the Bell collection, all of which are now housed in the Northumberland Record Office.

An increasing number of important on-line initiatives disseminate significant archive material. The *Structures in the North-East* collection includes digitised images from major collections, such as the Stafford Linsley Collection which comprises some 20,000 colour transparencies and 600 black-and-white prints of industrial subjects, in addition to a large collection of maps, plans and large-scale aerial photographs. It also holds images from the Norman McCord collection (c. 1,500 colour transparencies of aerial images, mainly of industrial developments and associated housing developments).

10. Resource assessment: 20th Century

The Twentieth Century Specialist Group consisted of Chris Burgess (Northumberland County Council), Rutter Carroll (independent consultant), David Lovie (independent consultant), John Nolan (Northern Counties Archaeological Services), and Alan Rudd (Fortress Study Group).

History of research

Any attempt to characterise the 20th-century historic environment represents a challenge. The sheer scale of building and redevelopment over the last hundred years makes it difficult to summarise concisely and the task is made no easier by the lack of policies for listing or scheduling 20th-century sites and monuments which would otherwise separate what is seen as long-lasting and of socio-cultural significance from the more transient elements of the historic environment. With these provisos in mind, the resource can be examined using the main thematic headings used elsewhere in the NERRF resource assessment (Figure 52).

Still seen by many as essentially 'current affairs', the historic environment of this period, particular post-World War II, is often not deemed worthy of study or preservation. Over the last decade, however, there has been increased recognition that closer investigation is valid and this tendency has particularly been motivated in the North-East by the rapid destruction of many elements of the mid-20th-century landscape. For example, the colliery landscapes that once characterised much of east Durham and south-east Northumberland have completely disappeared and the total removal of pithead buildings and spoil heaps has fundamentally altered the cultural landscape of the region. Many more mundane but equally important aspects of the historic environment are also threatened, such as post-war council houses, offices and industrial architecture, concrete pillboxes, and telephone boxes. The decline in heavy industry has run parallel with a rise in light industry and manufacture, which are not merely post-war phenomena, as the mid-1930s industrial estate at Team Valley (Tyne and Wear) illustrates (Hudson 1981a). Some new, heavier, industries have also developed, such as the petrochemical industries on Teesside. Imperial Chemical Industries, for example, was established in 1926 and their base at Billingham became a major employer, providing c. 50,000 jobs by 1945 (McCord and Thompson 1998, 367).

Four main constituencies within the heritage sector have been working on this period, each with differing research and publication strategies. First, architectural historians; they have perhaps the longest tradition of exploring the heritage of the 20th century. The Thirties Society was founded in 1979 as a result of the increased threat to inter-war architecture through demolition, redevelopment and neglect; in the mid 1990s it was transformed into the Twentieth Century Society as interest in post-war architecture grew. As well as acting as a pressure group fighting to protect 20th-century architecture, the society's

journal and conference provide a forum for research and publication, though relatively little of this work has focused on the North-East. Much of the emphasis has been upon architect-designed buildings and schemes, with less interest in more mundane architecture (though there are some exceptions e.g. Stratton 1999). English Heritage has also been responsible for recording 20th-century sites, including military remains, hospitals, prisons and law courts (e.g. Cocroft and Thomas 2003; Dobinson 2000; 2001; 2003; Richardson 1995; Brodie *et al* 2002; 2003). There are also more site-based projects, such as the 2002 Gateshead Project (Taylor and Giles 2004).

The second main interest group comprises archaeologists. Though the prisoner-of-war camp at Low Harperley is a rare example of a 20th-century Scheduled Ancient Monument, the notion that broadly contemporary material culture might qualify for archaeological study has been gaining ground recently (e.g. Buchli and Lucas 2001; Smith 2001; CHAT 2003). In part, the advent of PPG16 in 1990 has led to increased levels of small-scale archaeological investigation, much of which has cut through 20th-century deposits. Generally, however, 20th-century material is still considered incidental and within the region it is still rare for PPG16 conditions to require the specific recording of modern remains. Work elsewhere, however, has shown what is possible (Gould 2001). At present there is little appetite for research on the portable material culture of the 20th century, which has tended to remain the domain of social and design historians. As a consequence, unlike 20th-century historical archaeologists in the United States, British archaeologists lack usable typologies of modern artefacts, such as ring pulls.

A third group, industrial archaeologists, also undertake research mainly on the origins and rise of industrialisation, but there is an increasing realisation that it is also important to make a record of 20th-century industrial sites and processes (Barker and Cranstone 2004). Locally, the work of Stafford Linsley has been crucial in this respect, although the 20th century has been covered in some recent surveys (e.g. Ayriss and Linsley 1994), and many of the English Heritage Step 1 and 3 reports on industrial archaeology also deal with relatively recent sites (e.g. the coal industry coverage: Gould and Cranstone 1993; Instone and Cranstone 1994; Gould and Ayriss 1995; Thornes 1994).

Finally, there is the role of special interest groups, mainly run by amateurs working outside the formal heritage sector. These groups investigate topics ranging from mills to World War II defences, historic cinemas and war memorials. A leading example was the Defence of Britain project, which used many amateurs co-ordinated through the Council for British Archaeology. There is also a large number of history projects and societies studying the history and heritage of localities (parish or village). In many areas of the North-East these tend to focus on recent industrial heritage, particularly when these industries have now disappeared. Special interest groups have been

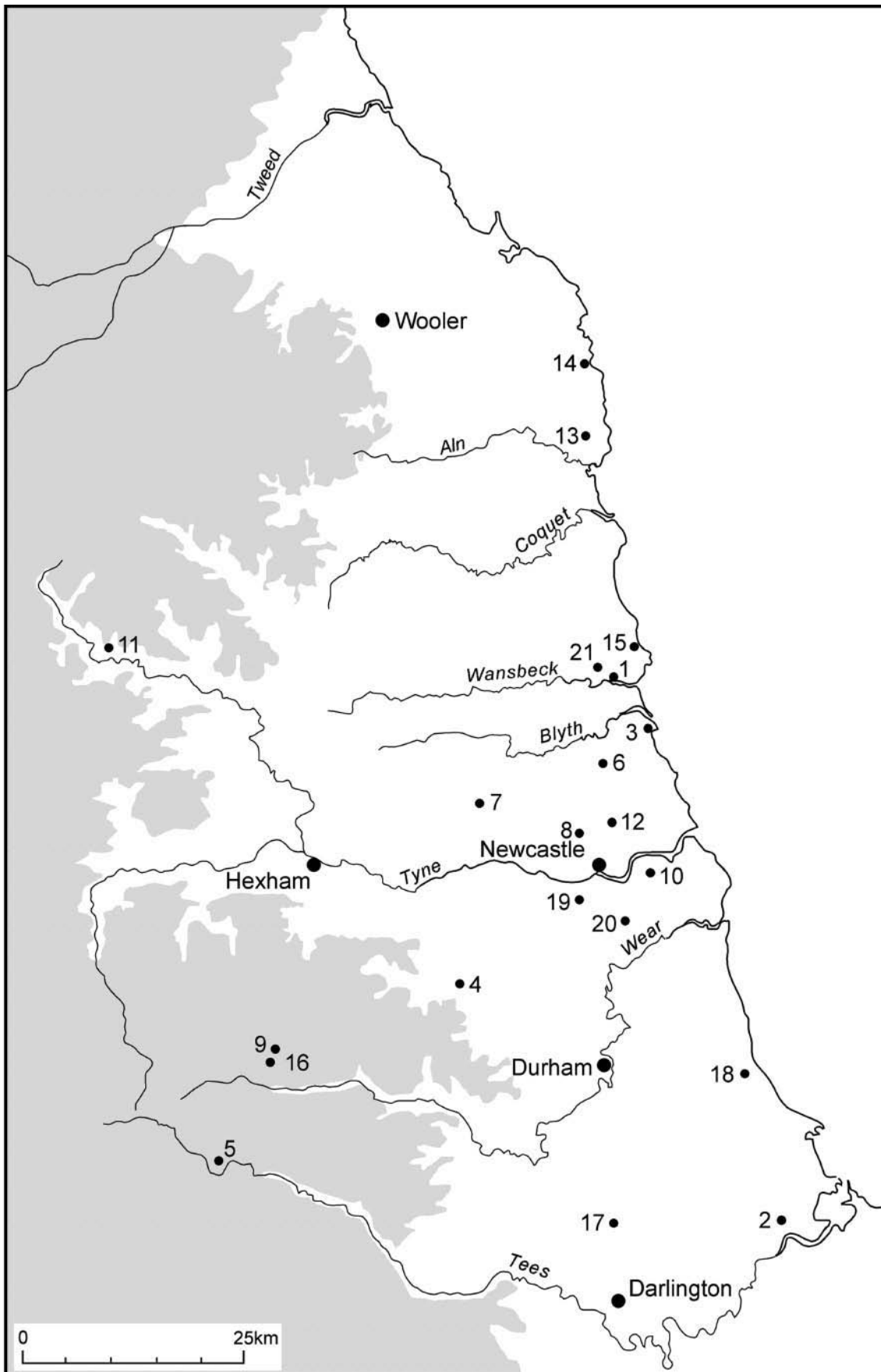


Figure 52 Key to 20th-century sites mentioned in text: (1) Ashington, (2) Billingham, (3) Blyth, (4) Consett, (5) Cow Green, (6) Cramlington, (7) Darras Hall, (8) Gosforth Garden City, (9) Grove Rake Mine, (10) Jarrow, (11) Kielder Water, (12) Killingworth, (13) Longhoughton, (14) Low Newton, (15) Lynemouth, (16) Middlehope Old Mine, (17) Newton Aycliffe, (18) Peterlee, (19) Team Valley, (20) Washington, (21) Woodhorn (map drawn by Yvonne Beadnell)

responsible for creating and recording large amounts of important data, though there is often a problem with disseminating information outside the core group.

Existing research frameworks

In the heritage sector for this period the main agenda has been the *Research Priorities for Post-Medieval Archaeology* (SPMA 1988), currently being updated by the Society (Paul Belford pers comm). A national research framework for the archaeology of the industrial period is also being developed by the Association of Industrial Archaeology, while English Heritage has established a research framework for the study of military sites and a more general one for the 20th century (Schofield 2004).

Settlement

The North-East has seen comparatively recent shifts in settlement patterns. Within Newcastle and the surrounding urban areas, the 1960s saw major phases of clearance of traditional terraced streets (deemed 'slums') and their replacement with new developments, mainly tower blocks, such as at Cruddas Park. Schemes like these were particularly promoted by T. Dan Smith, first as leader of Newcastle City Council and later as chairman of the Northern Economic Development Council. These and other re-developments which took place in Middlesbrough and other major urban centres, have long been seen as poorly designed and detrimental to the communities who live in them, although recent attempts have tried to revive these areas by renovating many of the tower blocks. The wider architectural and social importance of some of the more successful housing schemes has also been recognised; most obviously with the proposal to list Ralph Erskine's Byker Wall development (Figure 53).



Figure 53 Byker Wall, Newcastle upon Tyne (Tyne and Wear). © English Heritage

The sheer scale of expansion in settlement in the 20th century must not be overlooked. This growth was not simply due to population increase; the major period of growth had been during the 19th century, and between 1931 and 1951 the population of Durham actually declined (McCord and Thompson 1998, 377). Instead, it was the distribution of the existing population which was dramatically altered, as slums were cleared and new developments built. At the same time, there was a move from multiple occupancy of properties to occupancy by individual families. For example, in 1934-36 Sunderland re-housed 445 families. Originally occupying 881 rooms, they now occupied 1,671 (McCord and Thompson 1998, 379). The expansion of housing continued after World War II; over 40,000 new houses were built on Teesside alone (Thompson and McCord 1998, 400-401).

Major alterations also occurred in smaller settlements. In 1951 Durham County Council published its development plan tackling the problems of c. 350 small mining villages, which had grown up around uneconomic coal mines, and were now threatened with closure. Many of these villages were categorised as 'Category D', a recommendation that they should be allowed to die with no further economic assistance. By contrast, a series of new towns were developed to house those who were fleeing the colliery villages and seeking employment elsewhere: Peterlee was founded in 1955 (designed by Victor Passmore), and followed in the early 1960s by Cramlington New Town, Killingworth, Newton Aycliffe and Washington. Although much research on 'new towns' has been carried out nationally, little has been focused on these north-eastern examples.

As well as these 'new towns' there are also a number of important planned suburbs and dormitory villages, such as Darras Hall on the edge of Ponteland (Northumberland) and Gosforth Garden Village (Tyne and Wear), created with different philosophies in mind. At Darras Hall, for example, there was a focus on exclusivity and an isolation from neighbours, which contrasts strongly with Gosforth Garden Village's community-based ethos.

In addition to such conspicuous examples of major alterations in settlement patterns, towns and villages have clearly undergone a slow metamorphosis over the 20th century. This has been in reaction to the advent of the car, the decline in the industrial base, changes in patterns in consumerism and much else.

A significant factor in changing attitudes to townscapes has been the tension between a demand for economic growth leading to wholesale clearance of blocks of urban landscapes with an aim to comprehensively redevelop them, and regeneration, which aims to reform existing built landscapes and to conserve and improve them, with an emphasis on economic and social sustainability. The latter approach is closely linked to the growing post-war conservation movement, and has often worked hand-in-hand with local grass-roots and community movements. A good example of this regeneration-centred approach to urban transformation is the recent Sunderland ARC Initiative (<http://www.sunderlandarc.co.uk>).

Both the Tyne and Wear Historic Town Survey and the Northumberland Extensive Urban Survey have charted the changing patterns of urban development. The Northumberland survey is particularly important as it focuses primarily on the understudied small towns of the region. Despite their importance in the history of the region little work has been carried out on the colliery villages (though see Brown 1995). The Market Towns Initiative, a Countryside Agency project to bring new life to market towns, also has an inevitable conservation element, and includes thirteen small towns in the North-East.

Many individual elements of the urban landscape, particularly architecture, have been explored and in some cases listed, such as the Civic Centre, Newcastle (a rare example of a post-War Grade II* Listed building) and Jesmond Branch Library (Grade II). Records have also been made of important monuments and sculpture, notably through the Public Monuments and Sculpture Association's National Recording Project (Usherwood *et al* 2000) and the Imperial War Museums War Memorial Recording Project. Wider surveys taking in all aspects of the urban historic environment have been more rare, though the English Heritage Gateshead Project and the Grainger Town Regeneration Project are two important exceptions (Cullen and Lovie 2003; Taylor and Giles 2004).

Industry

Whereas the late 18th and 19th centuries have traditionally been seen as the great period of industrialisation, the 20th century has more often been characterised as a time of decline for industry (Stratton and Trinder 2003). The first major phase of industrial decline in the region came with the Depression of the 1930s, symbolised most strongly in the North-East, and perhaps throughout the country, by the Jarrow Crusade (Figure 54). Although temporary respite came with the increase of manufacturing caused by World War II, the post-war period saw a long-term decline in the major industries in the region with many of the flag-ship industries, such as ship-building and coal mining, more or less completely disappearing.

Despite this long-term pattern of decline, for most of the 20th century heavy industry has dominated life in much of the region, particularly in Tyne and Wear, south-east Northumberland, east Durham and Teesside. In some areas, such as Teesside, the former heavy industries, such as shipbuilding, have been replaced by new ones, such as chemical production or car manufacture. Equally, there has been a widespread increase in lighter manufacturing, including hi-tech industries.

In the North-East the most important extractive industry has long been coal. Collieries were constructed across the coal measures of east Durham and south-east Northumberland, the industry reaching its peak in the early 1920s when over 170,000 men were employed as miners in County Durham alone. Much of the infrastructure for this industry was created in the 19th century, though technological advances led to the continual updating of machinery throughout the 20th century, particularly following nationalisation in 1947. The decline of the industry, however, has meant the removal

or demolition of almost all pithead installations, as well as associated remains such as spoil heaps. The ironic consequence is that far less field evidence survives of the 20th-century industry than it does for earlier periods. There are now no remaining deep-cast coalmines in County Durham or Northumberland. The only significantly preserved colliery is at Woodhorn and that is now a museum (Figure 45). Built in 1899 with production starting in 1901, the site is a Scheduled Ancient Monument with buildings which are Grade II and II* Listed. A winding house with winding engines and headgear is also preserved at Washington 'F' Pit, but sadly little else on any scale survives, though in some cases machinery has been moved. The friction winding engine at Murton Colliery (installed 1922) was moved in 1992, when the tower in which it was housed was demolished (despite being Grade II Listed). Smaller-scale remains do survive, especially in more rural areas of the coalfield, but these have not been systematically investigated.



Figure 54 Monument to Jarrow Crusade, Jarrow (Tyne and Wear). © David Petts

Of course, the collieries did not exist in social vacuums, they had a complex infrastructure of housing and social facilities associated with them, and the absence of surviving features from the collieries closed in the late 20th century or its detailed preservation by record, is itself a vivid illustration of political attitudes to the coal industry in the 1990s. After 1945 opencast coal mining became increasingly important in County Durham (over 120 sq km of opencasted land). These areas too have now been restored to agriculture and forestry, though all previous features in the area have been totally destroyed. Coal-related transport features also survive, the most notable being the Dunston staithes. Ironically the most significant remains associated with the coal industry today are now the monuments which stand to commemorate those who died in mining disasters (such as the Ashington Colliery

Disaster Memorial, 1923; the two Easington Colliery Disaster Memorials, 1952) or to commemorate the passing of an industry (e.g. The Putter outside the Durham Miner's Association offices at Durham) (Usherwood *et al* 2000). Few of these monuments are listed.

In the west of County Durham and in small areas of south-west Northumberland lead mining dominated. Although this industry was in a serious decline by the late 19th century, in contrast to coal mining, the material remains of the industry are much more visible. The majority of these remains are 19th century, though a small number of lead mines continued to be worked into the early 20th century. There was also an increase in mining for minerals associated with lead veins, such as fluorspar and barytes (both used in the chemical industries) (Cranstone 1993). These mineral mines mainly thrived until the early 1920s, though a number were re-opened during the war. None are worked today though there are still traces of 20th-century pithead structures, such as at Middlehope Old Mine and Grove Rake Mine, Rookhope, where the pithead winder can still be seen (Figure 55). Unlike the remains of the lead industry, few of these later mines are listed or scheduled.



Figure 55 Winding gear at Grove Rake Mine, Weardale (Co. Durham). © Durham County Council

Another important extractive industry found in the 20th century is quarrying. Small-scale quarrying for immediate local use was found across the entire region in the post-medieval period, and large-scale industrial quarrying, mainly for roadstone, lime and refractory products was centred on the North Pennines. Several quarries are still worked. Major 20th-century quarries have also been

worked on the Magnesian limestone of east Durham, and the Whin Sill of Northumberland. Although many smaller quarries were worked in the 20th century it is difficult to date them without further map-based work. Many quarries still contain traces of processing and loading installations often linking to the wider rail network, but little work has been carried out on these remains. Coastal quarries sometimes retain small piers, harbours, and/or shipboard loading facilities, for example that west of Budle Point, Bamburgh.

In the glacial clays of the lowlands and the brick shales of the coal measures, brick-making was widely spread, and brick was an important architectural material into the 20th century in many colliery villages. No 20th-century brick or tileworks are protected.

The final major extractive industry was ironstone mining in Cleveland. This continued into the mid 20th century. Traces of the mining industry can still be seen, though it is not always clear which remains are of 20th century date. The most significant remains of ironstone extraction lie just south of the border of this region in Rosedale (North Yorkshire) (Hayes and Rutter 1974).

Associated with the coal and ironstone industries, iron and steel making has flourished at the interface between the Coal Measures and the Pennines at locations such as Consett, Tow Law and Wolsingham, as well as the major Teesside industry, due to the availability of coal, local ironstones and limestone (used as a flux). Some remains of the late-19th/early-20th-century Newport Ironworks (Middlesbrough) survive, and the Redcar steelworks with its associated slag tips forms an impressive working industrial landscape, whose recording in the event of closure would be of prime importance. Limited work has been carried out on the 18th- and 19th-century wrought-iron industries, and even less on the 20th-century industries. As with coal, much of the recent evidence has been destroyed by landscaping and regeneration.

The North-East has also been home to many manufacturing industries, though these have been less studied from the heritage perspective. There are two listed post-war factory buildings in the region: the Wills Tobacco Factory in Newcastle (Grade II) and the Cummins Engine Factory in Darlington (Grade II*) (Figure 56).

Another major industry, traditionally associated with the North-East, is shipbuilding, with major shipyards on the Tyne, Wear and Tees, as well as other yards at sites such as Blyth. Although relatively little shipbuilding is carried out today, infrastructure does still survive, including dry-docks. Many associated office buildings have been converted to other uses (such as the Swan Hunter buildings that now comprise elements of the Segedunum Museum at Wallsend); others, though, are threatened with demolition.

Evidence for the production of electricity and gas includes a range of surviving material; some major power-stations, such as Blyth, have been demolished, even if with some recording by English Heritage (Rushton 2004). Others, such as Lynemouth power-station (Northumberland), are



Figure 56 Cummins Engine Factory, Darlington (Co. Durham). © English Heritage

listed on the relevant Sites and Monuments Records as being part of the local historic environment. There are also some smaller scale elements of infrastructure surviving, such as the late Arts and Craft's electrical substation at Chatton (Northumberland) or the Grade II Listed gas house built for the Raby Estate in 1910.

As well as the advent of a power infrastructure, the late 19th and early 20th century saw the creation of a planned and large-scale system of water provision, for both drinking and sewage disposal. In upland areas, the most apparent aspect of this new development is the creation of a series of large reservoirs, such as Kielder Water (Northumberland), Cow Green and Selset (Co. Durham). These major landscape features have become important parts of the upland landscape of the North-East, and contribute significant wildlife and amenity value. They are also associated with a series of related standing remains, such as the valve tower at Selset, or the visible traces of the work camp for labourers who built Catcleugh reservoir.

Transport and communications

The railways were of fundamental importance in the development of the North-East, though like many of the other industries their main period of expansion was the 19th century. The 20th century has been a period of slow decline in the extent of the railway network, particularly after the 'Beeching Axe' in 1963. Much of the trackside infrastructure of the old lines was removed, though associated engineering works, such as cuttings, embankments, bridges and viaducts

still remain (but mostly of 19th-century date). The end of steam power also saw the disappearance of many other trackside features, such as water towers. There are however several important archives which hold significant pictorial records of early- and mid-20th-century railways, particularly the Ken Hoole Study Centre in Darlington and the National Rail Museum in York. The Rokeby Collection in the National Monument Record is also a major source for photographic images of railways in the 20th century (mainly 1940s-60s).

Bridges are an iconic element of the local 20th-century transport infrastructure, among them the Middlesbrough Transporter Bridge (1907) and the Tyne bridges between Newcastle and Gateshead, including the King Edward VII Bridge (1906), Tyne Bridge (1928), Metro Bridge (1981), Redheugh Road Bridge (1983), and Millennium Bridge (2000). As well as these major road and rail bridges, the North-East also has one Grade II Listed footbridge, the Kingsgate Footbridge, New Elvet, in Durham (designed by Ove Arup in 1965).

Although the wider road network in the North-East has been radically altered in the 20th century with the advent of the internal combustion engine, there has been no significant attempt to explore the material aspects of this important transformation in the environment, though occasional peripheral elements of the road network have been protected (for work elsewhere in the country see Merriman 2005; Polley and Turnbull 2005). There is a Grade II Listed pre-war garage at Rothbury (Northumberland) (and the conversion of 18th- and 19th-century stable blocks into

garages is common) and there are two Grade II Listed bus shelters at Stannington (Northumberland). There is an important ferro-concrete bus depot at Portland Terrace, Jesmond (Tyne and Wear) and a ferro-concrete bus station (Grade II Listed) at Seaton Carew. Beyond these rare exceptions little attempt has been made to record or protect surviving bus stations, shelters, garages, etc.

Agriculture

Parts of the rural landscape are protected from development because they lie within the Northumberland National Park, the North Pennines Area of Outstanding Natural Beauty and individual Countryside Stewardship schemes. Equally, many farm buildings are listed and while most are of 18th- or 19th-century date many do preserve 20th-century modifications. The increased use of tractors in the 20th century saw the end of use of gin-gangs and stationary engines and many farm buildings show signs of conversion for other uses. The only survey to have systematically covered farm buildings is the MPP *Thematic survey of model and planned farms* (Wade-Martins *et al* 1997). Although mainly focusing on the 18th and 19th century, this survey and its associated academic publication do consider briefly the early 20th century (Wade-Martins 2002). The Northumberland National Park's *Historic Village Atlas* project has recorded important elements of the surviving rural 20th-century building stock within the boundaries of the park. Recording work on farms has also been carried out by Stafford Linsley, though much of this has focused on pre-20th-century remains. The lack of substantial recording work on agricultural sites is disturbing in light of the current popularity of farm conversion schemes.

An important 20th-century development has been the widespread expansion of forestry in the region. Afforestation is mainly found in the north of the region (c. 80% in Northumberland). In total some 99,500ha (11%) of the area is covered by forest and woodland. The major increase in planting began in the early 1930s and reached a peak between 1950-60 (DEFRA 2002) and while afforestation is undoubtedly responsible for destroying many elements of the earlier historical environment, it must also be recognised as an important element of 20th-century rural heritage. Apart from Kielder Forest, much of this woodland cover is scattered and divided into thousands of woodland blocks. Beyond the trees themselves, however, little tangible infrastructure survives. Unfortunately, the site of the 1933 training camp in Kielder, which was used as a base for Canadian lumberjacks during World War II and later became a Forestry Commission depot, now lies under the waters of the Kielder Reservoir. As well as commercial forestry, a more recent development is the Great North Forest, an initiative which has seen over 800ha of trees planted in north-east Durham, and Tyne and Wear. This project aims to revitalise countryside in the urban fringe, with an emphasis on amenity and community value rather than the direct economic value of forestry.

The fishing industry was also important to the coastal towns and villages of the region, with (for example)

considerable remains of 20th-century fish-processing works (many currently derelict and under threat) around North Shields Fish Quay. Traditional smokehouses also survive at Craster and Seahouses, and there are working fishing ports at Amble, Blyth, Hartlepool, North Shields and Sunderland, along with formerly fishing-related harbour installations at numerous coastal villages.

Military

In terms of recorded heritage (e.g. listed on the region's Sites and Monuments Records) 20th-century military remains are relatively well represented, thanks to a combination of initiatives by the Council of British Archaeology (i.e. *Defence of Britain* project), English Heritage, and large-scale survey work by independent researchers.

There are relatively few World War I remains, though some can still be seen, including coastal defences such as Hartlepool Heugh Battery and Robert's Battery at Hartley. There has, however, been no systematic survey. For example, the evidence for damage from enemy action at sites such as Hartlepool has yet to be assessed. There is, however, growing wider community interest in such sites and a significant locally based community initiative is aiming to restore the Heugh Gun battery. There are also 20th-century defences around the mouth of the Tyne and some remains of relevant industrial sites, such as the early aircraft factory on Town Moor, Newcastle (Tyne and Wear).

The *Defence of Britain* project was established to record all 20th-century military remains, but it has focused on World War II anti-invasion defences (components of stop lines, area defence, roadblocks, beach and bridge defences, etc). The relatively broad flat beaches of Northumberland were seen to be a potential landing site for a German invasion and were defended accordingly with a thin 'crust' of coastal defences, which aimed to hold off landing forces long enough for reserves to be mobilised (Alexander 1999). These were supplemented by a series of 'stop lines' to slow down and channel enemy advances. Areas around river mouths were also often defended, such as around Hartlepool and the Blyth Coastal Defence Battery. Many of these coastal defences are still visible and have been systematically recorded, though independent researchers retain much information which was not submitted to the *Defence of Britain* project and thus may not be held on the local Sites and Monuments Records. In addition, the *Defence of Britain* project ended in 2002 and any later discoveries will not have been recorded via the scheme. Much of this work is unpublished, but 20th-century defence features along the Northumberland coast are included in a recent guidebook (Hardie and Rushton 2000, 84-95).

English Heritage have also carried out three surveys on aspects of World War II military defences, including AA defences, radar stations and bombing decoys (e.g. Longhoughton and Widdrington, Northumberland) (Dobinson 2000; 2001; 2003). These have again been supplemented by other English Heritage projects, such as the recent work at Dunstanburgh, which recorded the Chain Home Low radar station at Craster in more detail.

As well as these formal surveys, a number of other military remains have been recorded. Good examples include a number of air-raid shelters by Northern Counties Archaeology Services (e.g. NCAS 2001), the preservation of a concrete turning-circle for tanks at Swarland (Northumberland), and the preserved carved stone eagles outside Milfield airfield. One final group of World War II remains worth mentioning are prisoner-of-war camps. Low Harperley in Weardale recently became the first such camp to be protected by Scheduling and the remains of other camps are known, such as the concrete hut bases at Featherstone Castle and the recently surveyed Mediterranean-style terraced gardens built by Italian prisoners of war at Dunstanburgh. Ordnance factories are known at Spennymore, Birtley and Aycliffe, though much here has been redeveloped and little of the original infrastructure remains.



Figure 57 Exterior of the RAF navigation beacon at Low Newton (Northumberland). © David Cranstone

Finally, English Heritage has carried out work on sites related to the Cold War, although most relevant sites were located further south. Middleton St George was designated as a V-bomber dispersal airfield, however, and elements of the radar screen were based at RAF Boulmer, Cold Hesleden, Seaton Snook, Danby Beacon and Goldsborough (Cocroft and Thomas 2003, 115-116, 126). The designated headquarters for regional government in time of nuclear war was at Hexham, in a converted World War II cold store (Cocroft and Thomas 2003, 209). Sadly, this has now been demolished, with little recording beyond a small number of photographs taken by English Heritage (Roger Thomas pers comm). As well as the work of English Heritage, the Cold War air navigation beacon at Low Newton (Northumberland) has also been recorded in advance of its conversion to other uses (Figure 57).

Religion

Despite the general secularisation of society over the course of the 20th century there have still been significant developments in religion and associated practices. Although the great Victorian period of Anglican Church restoration and renovation was over, there continued to be small scale alterations to church structures throughout the period. The early 20th century also saw some new church building, such as St Andrew's in Roker, and the important

extensions to St Michael's in Bishopwearmouth. A second phase of church building, both Anglican and Catholic, occurred in the 1960s following the creation of new towns at Aycliffe, Cramlington, Killingworth, Peterlee and Washington. Although post-war churches have been listed elsewhere in the country, there are no such protected buildings in the North-East.

Non-conformist chapels date mainly to the 19th century, though, like other churches they have undergone constant small-scale alteration, and the laying out of new towns sometimes led to the construction of new examples. The 20th century has also seen the expansion of several, previously small, groups, such as Mormons (Church of the Latter Day Saints) who have been responsible for the construction of several new churches in the region in recent years.

Information about these building campaigns can be found in a variety of locations, including the *Church Plans On-Line* website, the minutes of the Diocesan Advisory Committees (both Anglican and Catholic) and the associated diocesan archives, which hold information about all the relevant Faculties. The non-conformist chapels for Darlington and the North Pennines Area of Outstanding Natural Beauty are fully covered by surveys carried out by Peter Ryder, which supplement the less comprehensive survey by Christopher Stell (Ryder 2003b; 2003c; 2004c; Stell 1994).

The 19th-century move away from churchyard burial to larger municipal cemeteries has continued. As well as the continued use of the great Victorian cemeteries, many new cemeteries have opened. This has not only happened in towns; many villages have now opened overflow cemeteries following the cessation of interment in the churchyard. Little work has been carried out on changing trends in 20th-century gravestones and related memorialisation. The advent of cremation as a popular burial rite has led to the introduction of a new architectural form, the crematorium, and there are important national archives for cremation in the Palace Green library at Durham University.

In addition to Christian places of worship, the increasingly multi-cultural nature of 20th-century society is reflected in the presence of places of worship and burial of other religions. The most comprehensively catalogued are those belonging to the North-East's Jewish communities. The *Survey of the Jewish Built Heritage in the United Kingdom and Ireland* has recorded a range of surviving 20th-century Jewish sites, including nine synagogues (one, the Ryhope Road Synagogue, Sunderland, is Grade II Listed), a Jewish school and a mikveh in the area. There are also a number of synagogues of earlier date, and also several Jewish cemeteries, some incorporated into larger municipal cemeteries.

The distribution of Sikh gurdwaras in the region reflects that of South Asian immigrant communities (two in Cleveland, one in Darlington, one in Newcastle and two in South Shields). There are also four Hindu temples in Newcastle and one in Cleveland as well as nine mosques in Newcastle, one in County Durham, three in

Middlesbrough and one in Stockton. Most of these buildings are converted pre-existing structures, the mosque at Grainger Grammar School, for example, was converted from its original use by the Newcastle Turkish Community Association. There are also some purpose-built structures, such as the Laygate Mosque in South Shields, built in 1973. Many of these communities have separate burial areas, such as the Muslim section of Gateshead cemetery. Very little work has been carried out on the historic environment of these aspects of society in the North-East, though the South Tyneside Library Local Studies section holds some useful photographs in its Ethnic Communities collection.

Museums and archives

Archival holdings

Coverage of 20th-century features on Sites and Monuments Records is generally poor. This is mainly due to their low perceived importance, but also to the inconsistent inclusion of 20th-century Listed Buildings. There are, however some areas in which Sites and Monuments Record coverage is better. Most obviously, the inclusion of the *Defence of Britain* project data ensures that military remains, particularly World War II, maintain a relatively high profile.

Photographic collections are extremely important for understanding the 20th-century historic environment and the North-East is not short of major archival collections. The largest and most accessible collection is that held at Beamish, which contains over 20,000 images, many of which have been scanned-in digitally and are available through a comprehensive catalogue. Most local record offices also hold important collections in a range of formats, including prints, 35mm slides, glass transparencies and postcards. Major collections of photographs can also be found in a number of local studies libraries (South Tyneside and Newcastle being the most important). Collections in museums include Hartlepool Museum and the Dorman Museum, both of which are strong on local industrial sites. Important collections related to the railways can be found in Ken Hoole Study Centre, Darlington Railway Museum, the National Railway Museum at York and the Rokeby Collection at the National Monument Record, Swindon.

Although valuable, these resources are often poorly catalogued and it often proves difficult to find specific images. Some are available through on-line resources,

such as *Tomorrow's History* and *Northumberland Communities*, which act as useful, but limited search tools. One important on-line resource is the *Structures in the North-East Project* (SINE) website, which includes several important photographic collections, particularly the Stafford Linsley Collection, an archive of some 20,000 colour images of industrial archaeology taken for teaching purposes and the Norman McCord Collection, which includes many aerial images taken between the 1950s and mid 1970s, mainly depicting industrial and urban sites, many subsequently destroyed by re-development. Both Durham and Newcastle University libraries also hold important collections of photographs.

Although focusing primarily on people rather than the environment, the archive held by Amber Films, an important Newcastle-based film and photographic collective is of considerable interest. It includes many realist documentary projects of working-class life in the North-East from the 1960s to the present day. The Northern Region Film and Television Archive is also central, holding film stock from Tyne Tees, three decades of *Look North* (BBC), as well as a range of specialist industrial, educational and training films.

The volume of other archive material is immense, though it is possible to do no more here than highlight the obvious sources. The county record offices are important, though the caveat raised above on cataloguing still applies. The various local and regional newspapers also hold archives, though public access is not always easy. Other bodies holding material include the North of England Institute of Mining and Mechanical Engineers (coal and lead mining) and the Anglican and Catholic Diocesan archives.

Museum collections

This project has not attempted to collect information about 20th-century museum holdings. It was not felt practical to distinguish between fine art, social history and archaeological collections. However, there are a number of museum collections which do deserve to be highlighted, the most significant being that held by Beamish. This huge archive includes a number of nationally important collections, particularly for the period 1800-1920, among them major assemblages of coal-mining artefacts relating to the Great Northern Coalfield, a rare collection of printing presses, advertising art up to the 1970s and folk art collections. The Woodhorn Colliery museum also holds an important collection of mining related material, particularly a nationally significant collection of trade union banners.

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11. Research agenda and strategy: introduction

The following 18 chapters include the Agenda and the Strategy, in which the key research priorities are presented, and practical ways in which this research may be implemented are proposed.

The period-based agendas consist of several elements. They highlight the strengths and weaknesses of the historic environment resource, drawing directly on the material presented in the assessments. The core of the agendas, however, is the key research themes and priorities. The period groups developed the initial lists of priorities; these have been presented in tabular form, highlighting their potential in terms of a number of key headings: academic, strategic, education and infrastructure. The priorities are also linked to other existing regional and national research agendas.

The lists of period-based key research priorities can be quite extensive. Each period group was encouraged to put forward a smaller number of key research themes, which they felt had the most potential for advancing our knowledge of the historic environment. The reasons for putting forward these themes varied widely, in some cases it reflects the need to fill in weaknesses in our knowledge, in other cases they aim to build on existing strengths. Following these detailed period-based research themes and priorities, there are a series of further, thematic, research agendas. These cover a range of recommendations for topics, ranging from maritime and coastal archaeology to industry and technology.



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12. Palaeolithic and Mesolithic research agenda

The state of our knowledge about the Palaeolithic and Mesolithic archaeology of the North-East is best described as modest (see Chapter 3). Despite the presence of at least one Mesolithic site of international importance (Howick; Waddington *et al* 2003), other aspects of the archaeology of the region are poorly understood.

Three main themes arise out of the evidence presented in the Resource Assessment. The first is a need to gain a better understanding of the agencies, geological, environmental and academic, that have influenced our understanding of the spatial distribution of material remains of this period. Second, the potential of the material which has already been excavated must be maximised; this requires additional analysis or publication. Lastly, the changing Mesolithic landscape needs further research, both in terms of the natural environment and the way in which Mesolithic communities operated within it. This Research Agenda aims to highlight specific issues and projects which may go some way to rising to these challenges. It focuses primarily on the Mesolithic period, reflecting the paucity of Palaeolithic remains from the region, much of which is very late and currently of limited interpretative value. This lack of early material is primarily due to the cloaking of the North-East in ice sheets during the last glaciation.

Gaps in knowledge

A review of known early prehistoric sites reveals immediately that there is immense regional variation in their distribution (e.g. Young 1994a; 2002). This is largely a product of the pattern of fieldwork over the last century. On the one hand particular concentrations of sites can be seen along the coastline, particularly the south Durham/Cleveland coast and along the Northumberland coast, though there is a lack of material between the Tyne and the AIn. On the other hand, the upper reaches of the major west-east river valleys in Durham have also seen a higher level of fieldwork, for example in Upper Weardale and Upper Teesdale. Mesolithic finds are generally under-represented over much of south-east Northumberland, the Cheviots, and the east Durham plateau, and though material has been recovered during PPG16-driven development work, this has yet to be adequately analysed, synthesised and published.

There are clear chronological gaps in what survives. The lack of Palaeolithic material has been mentioned above, but there is also very little Early Mesolithic material in the region. Whether this is a genuine pattern or a reflection of the difficulty in dating Mesolithic sites is unclear. There are also relatively few radiocarbon dates from the North-East, and very real challenges in understanding the lithic assemblages. Despite the relatively large numbers of flints available in the region's museums, these collections have often not been adequately assessed. Among those which would benefit from further analysis are the Cocks Collection and the Weyman Collection (Waddington 2004).

In particular the raw materials used for stone tools would repay further study. Sources of flint in the North-East are limited in both quantity and quality and a wide range of other materials are known to have been used, including quartz, chert and agate, but we still know relatively little about the distribution of these resources.

A final gap lies in our understanding of Mesolithic landscapes. Whereas some parts of the uplands in the North-East are relatively well provided with pollen cores, the coverage of the pollen record is far from complete. Areas which should be targeted include upland areas, such as the Allendales and Weardale, and lowland areas, such as the Tees Estuary carrlands, south-east Northumberland and the coastal zone, where there is no evidence at present, except for Howick, and even there the vital layers are missing due to erosion. Many existing cores are also inadequately dated. The wider landscape of Mesolithic occupation is known largely through surface scatters of lithics. The occupation site at Howick and the midden at Low Hauxley have shown, however, the potential for the survival of more substantial remains. At present, most such evidence has been found in the coastal zone (Young 2000b); less structural evidence has been recovered inland, but it is not clear whether this is a real phenomenon or, once again, a reflection of the intensity of fieldwork. It is still the case that much work is overly 'site'-focused, little is known about wider background patterns of activity across landscapes except in a few areas, such as the Tyne valley (Tolan-Smith 1997c) and the Milfield Basin (Waddington 1999) where extensive fieldwalking has taken place.

Potential of the resource

Despite concerns about the survival of resource, there is extensive potential for significant further research into the Mesolithic of the North-East. In practical terms there are extensive collections of flints in the region's museums, including the Museum of Antiquities, the Bowes Museum, Sunderland Museum and the Tyne and Wear Museums. Many of these collections have yet to be catalogued and further information on Mesolithic lithic technology could still be derived from their study.

Mesolithic activity is ephemeral by nature, but there is the potential for its survival in the most unpromising urban contexts, as has been shown by the discovery of Mesolithic tools and an early Neolithic ditch at South Shields (Hodgson *et al* 2001), and a possible Mesolithic land surface at Darlington (ASUD 1994, 14-15). Most Mesolithic sites have no evidence for structures, but the spectacular discoveries at Howick make it clear that in the right circumstances it is possible that substantial structures may be found. The understanding of this site has been helped by judicious use of new dating techniques including AMS dating and the application of Bayesian statistics, both of which could be used on other Mesolithic sites where appropriate. Finally, the recent discovery of early Mesolithic tools offshore (6-8m below

modern sea level) close to Tynemouth challenges us to consider the extent of possible survival of early remains in the most inaccessible locations.

Research agenda

Drawing on these gaps in our knowledge, a series of main research themes can now be linked to specific recommendations for further work and research. These range in scale from very specific site-based suggestions to more overarching requirements for research and strategic suggestions which relate to the organisation of the archaeological sector in the region as a whole.

Key research themes

M1. Archaeology of the early post-glacial coastline: hunter-gatherers and the North Sea littoral

The early Holocene coastline was a dynamic environment providing a rich source of foodstuffs and other materials throughout much of the year. There have been substantial changes, however, to the shape and extent of the coast including the drowning of the land bridge between Britain and the Continent. A more detailed understanding of the migration of the coastline and the taphonomic processes relating to the preservation of the archaeological record must be achieved in the locality and there is a need to address the ongoing process of coastal erosion and its impact upon post-glacial archaeology. The forthcoming English Heritage rapid coastal zone assessment will provide a baseline for further research and identify key areas at risk.

M2. Dating and chronology

Many basic issues relate to the chronology of Mesolithic occupation in the North-East, including the process of post-glacial recolonisation, the extent of early Mesolithic activity and the Mesolithic and Neolithic transition.

Progress could be made through a programme of radiocarbon dating, but this can only be achieved if more Mesolithic sites are found with deposits still *in situ* which contain material suitable for dating. The discovery of such sites through the development control process is rare, although the site at East Barns near Dunbar shows this is possible (Selkirk 2003).

M3. Lithics

Lithics are the most common surviving component in the Mesolithic archaeological record. There are excellent collections of lithics in the region, obtained from both research excavation and development-control fieldwork, but there is still much research to be carried out. To aid this process, a code for best practice for the analysis of Mesolithic flint could usefully be established.

One prime requirement is a basic re-assessment of the region's lithic assemblages. There is a need to move away from typo-chronologies derived from elsewhere in the country, and for regional lithic chronologies to be established (Kay and Young 1988). This re-appraisal would comprise an examination of the main lithic types as well as knapping strategies and further research into the raw

materials used for Mesolithic stone tools. This should include provenance studies, research to locate stone sources, and an evaluation of the extent to which earlier lithics of Early Mesolithic and Upper Palaeolithic date might have been re-used.

These research topics would be best explored through a combination of commercially funded, commissioned projects and post-doctoral fellowships. The new AHRC collaborative studentships offer the potential for joint projects between the region's universities and museums, though much of the re-assessment involved in this research would have to be carried out by experienced specialists because of the distinctive regional nature of the artefact assemblage.

Training of flint specialists remains a priority and it is essential that the results of the re-assessments of the region's flints are widely disseminated.

M4. New approaches to field archaeology

New approaches to the field archaeology of the Upper Palaeolithic and Mesolithic periods must be developed. An essential prerequisite for this would be a re-assessment of current approaches to lithic scatter sites. Further work on the characterisation of lithic scatters should be a priority, and a project is needed to identify those scatters which might overlie surviving sub-surface deposits. The potential of geophysical survey and aerial photographs for this purpose should be re-assessed. For example, the use of aerial photography to identify upland erosion scars in blanket peat may reveal previously masked early prehistoric land surfaces.

Landscape features with potential for the preservation of Mesolithic deposits must be targeted. Kettleholes, rock shelters and middens are all topographic locations for which the North-East can make a distinctive contribution. Finally, a reconsideration of the conservation and management of lithic scatters would be welcome. Because they are not permanent structures it is not possible to schedule them; alternative ways of protecting these important elements of Mesolithic archaeology need to be sought, including the establishment of sympathetic management regimes.

M5. Early colonisation and re-colonisation of the North-East

Very little is known about the early colonisation/re-colonisation of the North-East following the retreat of the ice sheets. Any attempt to understand this process must take a supra-regional approach; such processes are likely to be linked to patterns elsewhere in Europe, particularly Scandinavia and the Low Countries. An improved understanding of the offshore Mesolithic archaeology of the North Sea will also help resolve the extent to which the re-colonisation took place through displacement of populations from the North Sea lowlands.

M6. Continuity of hunter-gatherer lifestyles into later periods

The chronology of the Mesolithic-Neolithic transition is still poorly understood, and the process is likely to have shown

significant chronological variation across the region. At the same time, it is now clear that the move to agricultural economies did not exclude the continuation of hunter-gatherer strategies. The extent to which these two approaches to subsistence might have co-existed should be explored (Figure 58).



Figure 58 Mesolithic harpoon from Whitburn (Tyne and Wear). Not to scale. © Museum of Antiquities, Newcastle

Key research priorities

Mi. Understanding coastal environmental change, in particular the drowning of the North-Sea basin and its links with patterns of early human settlement

Academic

Research would increase our understanding of known patterns of early prehistoric activity in the coastal zone, as well as the wider context of coastal and off-shore sites (e.g. Howick, Low Hauxley, Hartlepool submerged forest, Tynemouth off-shore flint scatters). This would link into on-going research on submerged prehistoric landscapes of the North Sea and the wider exploration of Holocene landscapes.

Strategic

Refinement of existing coastal conservation measures would be achieved.

Education

Associated conservation measures can be linked to interpretation and education material, and related to existing projects relating to the region's historic coasts (for example, the Durham Heritage Coast scheme; Berwickshire and North Northumberland Coast European marine site, Northumberland Coast AONB).

Infrastructure

This topic would cross existing local authority boundaries

and so encourage the development of professional networks. Provision of information in appropriate digital format would add significant added value to the HERs/SMRs of the region.

Links to other agendas

The importance of a better understanding of coastal processes within the early prehistoric period has been highlighted elsewhere (Flemming 2004; Young 2002, 26-27). Associated conservation measures link to previous recommendations (Hardie 1992; ASUD 1998).

Mii. Relationships between local geomorphological processes and site formation/preservation patterns

Academic

The distribution of the known Mesolithic archaeological resource is profoundly influenced by geomorphological processes at both a micro- and macro-level. For example, erosion scars in peat beds in the North Pennines and Cheviots could be identified using aerial photography and other remote sensing techniques. Any new sites should be visited on foot.

Strategic

An improved understanding of the dynamics of site formation processes would feed directly into conservation practices. Identifying areas of threat will allow problems to be anticipated and appropriate measures to be put in place before damage can occur. For example, the identification of erosion of the archaeological resource feeds into increased monitoring of upland archaeological remains required in the wake of the Countryside and Rights of Way Act (2000).

Education

There is potential for an educational element to conservation measures, supplying general information through leaflets and visitors centres, and specific conservation advice to landowners via DEFRA Environmental Stewardship Schemes.

Infrastructure

The provision of information in appropriate digital format would add value to the HERs/SMRs of the region. Wider cross-border initiatives (i.e. Cumbria, Scotland) would bring together traditionally disparate research communities.

Links to other agendas

This research links into recommendation for the study of archaeological formation processes suggested by Young (2002, 27).

Miii. The apparent lack of Upper Palaeolithic and Early Mesolithic sites. Is the lacuna real?

Academic

The majority of the archaeological evidence for the Mesolithic period in the North-East is thought to date to the Late Mesolithic, with notably little earlier material. This may be a genuine pattern, or a function of post-depositional factors, biases in fieldwork or lack of effective typological schemes. If the absence is real, then the

reasons for this late colonisation of the region must be explored. If there are surviving earlier Mesolithic sites, their locations should be characterised to create a predictive model that may help locate further sites.

Strategic

The creation of a predictive model for early Mesolithic sites should feed directly into the development control process, ensuring that sites of possible early activity are investigated. Once early sites have been located, appropriate conservation and management regimes should be implemented.

Education

The discovery of new Early Mesolithic sites is central to our understanding of early prehistory in the region. It is important that this feeds through into available interpretative material.

Infrastructure

One element of this research would be comparative work, examining evidence for Early Mesolithic sites elsewhere in the North, including Cumbria and southern Scotland.

Links to other agendas

n/a.

Miv. The Mesolithic/Neolithic transition

Academic

It is essential to develop a better understanding of the transition from the Mesolithic to the Neolithic. Further refinement in chronology is a vital prerequisite. The nature of so-called 'mixed lithic assemblages' is one specific topic for further research. Do these assemblages represent successive phases of activity, or are they products of this transitional period?

One of the major features of this period is the shift from hunting and gathering to agriculture. Environmental archaeology has a significant input into this topic. It is important to get more, well-dated pollen samples, particularly from lowland contexts close to areas attractive for settlement.

Strategic

Is it possible to build up a predictive model of the type of sites most likely to produce material dating to the transition? If so, this should feed back into the development control process.

Education

The discovery of new Mesolithic/Neolithic sites is crucial for our understanding of early prehistory in the region. It is important that this feeds through into the available interpretative material.

Infrastructure

Any work on the nature of 'mixed assemblages' should be rapidly disseminated to the region's lithic specialists to ensure that their understanding is kept up-to-date. Prompt publication of relevant assemblages is essential. A key element of this research would be comparative work, looking at evidence for Mesolithic/Neolithic sites

elsewhere in the North, including Yorkshire, Cumbria and Southern Scotland.

Links to other agendas

The Mesolithic/Neolithic transition has been highlighted as one of the significant 'Processes of Change' requiring further research in the *English Heritage Archaeology Division Research Agenda* (English Heritage 1997, 44, PC1).

Mv. Mesolithic lithics in the North-East

Academic

There must be a comprehensive re-examination of existing collections of lithics in the region's museums and an improvement in the analysis and reporting of assemblages derived from development-led fieldwork. This should include a consideration of tool types, chronology and materials used and aim to answer specific questions about the chronology of Mesolithic occupation and procurement strategies. Much PPG16 work has taken place outside those geographical areas which have traditionally seen the bulk of research on Mesolithic archaeology; this new work has the potential to fill gaps in the archaeological record.

Strategic

This research has great potential to re-assess known Mesolithic sites. This may impact on decisions about conservation and site management. It will also help place Mesolithic assemblages recovered through development-control process into their regional context, as well as feeding back into conservation and management decisions.

Education

Museum interpretation might be enhanced with new display information and associated educational material.

Infrastructure

This research would provide an opportunity to train new specialists in lithic studies and to enhance existing lithics expertise within the region. There is a need to standardise the approaches used in the analysis and publication of lithic assemblages.

Links to other agendas

The re-evaluation of existing lithics collections has been advocated by Young (2002, 26). Waddington (2004) highlights the need to re-examine the Cocks, Weyman and Buckley collections in the Museum of Antiquities, Newcastle, as well as collating unpublished developer-funded work. The Mesolithic/Neolithic transition has been highlighted as one of the significant 'Processes of Change' requiring further research in the *English Heritage Archaeology Division Research Agenda* (English Heritage 1997, 44, PC1).

Mvi. Vegetation sequences across the North-East

Academic

More dated high-resolution pollen cores should be obtained from contrasting environmental settings. Specific areas highlighted for investigation include: the Tees estuary carrlands, Prestwick Carr, Shildon Lough, Wansbeck, Blyth, Till and Tweed river systems. Among

the upland areas that remain poorly understood are Weardale (Co. Durham), Allendale, the Cheviots and the Fell Sandstone escarpment (Northumberland). More pollen cores are required from all coastal areas; the possibility of obtaining cores from the offshore peats off Redcar should be explored.

The evidence from lithics scatters and other aspects of material culture needs to be examined in relation to their environmental context. Until now, most pollen cores have been taken from upland locations in the North Pennines; this must be balanced with an enhanced understanding of the pollen record in other areas and hence of the earliest phases of Mesolithic occupation in the region and the advent of farming and the Mesolithic/Neolithic transition. This project would involve the identification of potential lowland peat deposits and may include both survey and map-based work. All pollen cores should be adequately dated using AMS techniques.

Strategic

Sites of high palaeoecological potential cannot currently be protected through Scheduling, instead alternative means of preserving them should be put in place, either through their designation as Sites of Special Scientific Interest or the implementation of management plans. Such sites should be recorded on HERs/SMRs.

Education

An understanding of long-term environmental change is an important element of Geography in the National Curriculum. There is potential for the creation of appropriate educational and interpretative material drawing on this research.

Infrastructure

A focused campaign of research into the lowland pollen record would make an appropriate subject for a PhD thesis.

Links to other agendas

A requirement for more environmental work as part of a broad programme of investigation and sampling is advocated in the *English Heritage Archaeology Division Research Agenda* (English Heritage 1997, 46, P4). Young (2002, 16) isolated the need to identify locations which preserve palaeoenvironmental data, as well as early prehistoric archaeology, highlighting the potential of the south-east Durham/Cleveland carlands.

Mvii. Activity and occupation sites in the wider landscape

Academic

The distribution of known Mesolithic sites is heavily influenced by the pattern of earlier research. It is crucial that the gaps in the distribution of sites are filled in. Fieldwork should be focused in areas outside the main foci of activity by earlier researchers identified by Young (1994a).

Further research may provide a record of off-site hunter-gatherer-fisher activities at the landscape scale and a predictive model for identifying likely sites of permanent/semi-permanent settlement where structural remains may be found (Figure 58).

Further evaluation on rock shelter sites should be carried out to characterise the type and extent of their use during the Mesolithic.

The discoveries of the site at Howick and the midden at Low Hauxley indicate that the coastal zone is one of high potential for new sites. There should be a coastal survey to establish the potential for survival of Mesolithic deposits.

Strategic

Any new sites recorded should be passed to regional HERs/SMRs and where necessary, protected through Scheduling or management agreements. Work on the coastal zone may take place in the context of wider management surveys.

Education

Field-walking surveys are necessary to identify potential Mesolithic sites and would provide ideal projects for local amateur archaeology groups.

Infrastructure

Many of these research topics would make ideal post-doctoral projects, though the evaluation of rock shelter sites (this would require comparative work in southern Scotland and North-West England) and predictive modelling of lithic assemblages is better suited to commissioned work.

Links to other agendas

The *English Heritage Archaeology Division Research Agenda* calls for a broad programme of investigation and sampling of Mesolithic sites (English Heritage 1997, 46, P4). Young (2002, 26) has highlighted the need for coastal survey along the coast of County Durham, Tyne and Wear and Cleveland, north of the Tees.

Mviii. Mesolithic burials

Academic

There are no recorded Mesolithic burials in the region, a situation mirrored in most other parts of the British Isles. This may be linked to the acid soil conditions in the region, but could equally reflect the use of burial practices that leave no archaeological trace. Discovery of Mesolithic burial remains should be accorded utmost importance.

Nothing is known of even the basic details about Mesolithic populations (for example, age of death, height, pathologies, etc). There would also be scope for more advanced analysis, including isotope investigation.

Strategic

Any undated prehistoric human remains must be radiocarbon dated; this includes the undated human skulls found beneath the peat at Middlesbrough.

Middens may provide suitable soil conditions for bone preservation. Any future midden sites should be investigated with this in mind.

Education

n/a.

Infrastructure

Any burials revealed through future fieldwork will be of utmost importance and should be fully analysed and published. Advice should be taken from the English Heritage Regional Science Advisor as soon as possible. Where necessary, additional funding should be available for additional analysis.

Links to other agendas

n/a.

Mix. Food and raw materials

Academic

The archaeological record has much to tell us about the ways in which the landscape was exploited for food and raw materials. The raw materials used in stone tool production require closer definition; this work should form part of any re-assessment of lithics assemblages. More broadly, there is a need to identify and map existing sources of early prehistoric raw materials in the region (Figure 58). Such research has the capacity to enable major advances in the study of ancient technology, socio-economic relations, mobility, past geographies and landscape use and perception. Existing lithic collections in the region's museums must be revisited (See Mv. above).

Strategic

Any re-assessment of the importance of known Mesolithic sites will impact on conservation and site management. It would help place Mesolithic assemblages recovered through development control process into their regional context, feeding back into management decisions.

Education

Such research has potential for museum interpretation with enhanced displays and associated educational material.

Infrastructure

There is need for a major project to study Mesolithic use of raw materials, both in terms of the categorisation of

materials found in assemblages, and the identification of raw material sources. This would make a suitable project for commissioned research or as a joint project between a university archaeology and geography/geology department, and could be a suitable context for several PhD or, more likely, post-doctoral research projects.

Links to other agendas

n/a.

Mx. Faunal evidence

Academic

Given the lack of faunal evidence from the region, it is important to exploit what little material does survive. For example, the analysis of the isotopic composition of shells might shed light on issues of seasonality.

Despite occasional spot finds of animal bones, preservation of faunal material is very poor in the North-East, though it is clear from discoveries at sites such as Howick that, in certain contexts, bone survival may be quite good (Waddington *et al* 2003). Any faunal material recovered must be dated using high-precision radiocarbon techniques.

Strategic

It is important that all spot finds of animal bone are adequately recorded on local HERs/SMRs. Where such finds are recovered in non-PPG16 situations, funds should be available to carry out analysis and radiocarbon dating.

Education

n/a.

Infrastructure

Any major assemblages of Mesolithic faunal material must be fully analysed and published.

Links to other agendas

Huntley (2002, 90) emphasises the value of fully investigating sites where macrofossil, pollen and bone evidence survive.

13. Neolithic and Early Bronze Age research agenda

The archaeology of the Neolithic and Early Bronze Age is characterised by the immense diversity of its varied monument types. One theme which came through strongly in this Period Group's discussions was the need to impose some kind of order on this material, an important corollary of which was a need for a firmer chronology, both for sites and material culture. Despite the intensity of work in some parts of the region, other areas of the North-East remain relatively under-researched. The Group also showed an enthusiasm for capitalising on the many new scientific techniques which have entered the archaeological arsenal over the last two decades, recognising that there are opportunities to investigate new research avenues. More generally, it was agreed that, due to the growth of development-driven archaeology catalysed by the adoption of PPG16, the archaeological community had not yet risen to the challenge presented by the sheer quantity of new data.

Gaps in knowledge

Geographically, the distribution of known sites is as closely related to post-depositional factors as it is to the original location of prehistoric activity (Young 1994a). Post-medieval urban expansion, in particular the growth of Consett, Gateshead, Newcastle, Sunderland and the towns of Teesside, has smothered large tracts of the lowland landscape, although the discovery of prehistoric remains on the site of South Shields Roman fort demonstrates the possibility of the survival of early remains in the most unpromising situations (Hodgson *et al* 2001). Even outside the major urban areas, large-scale coal working in east Durham and south-east Northumberland has also led to a major landscape disturbance, while other gaps can be attributed to patterns of earlier research (see Chapter 4). Areas which are largely blank (for the Neolithic period) include the Cheviots, much of the northern North Pennines, particularly the Allendales, and lowland Durham and Cleveland. The distinction between upland areas of preservation and lowland areas of destruction characterises much of what we know about the archaeology of this era in the region.

Environmental evidence is varied. Faunal evidence is largely lacking, mainly due to the poor soil conditions, and there are few invertebrate remains. The coverage of pollen cores is largely confined to limited upland areas, with the lowland and coastal zones barely considered.

A small number of occupation sites are known and in the Neolithic these are confined to Northumberland, with little surviving in the rest of the region. Clusters of pit-features are restricted to the Milfield region, and it is not yet clear whether they are a localised phenomenon or have just not been recognised elsewhere. Bronze Age settlement is more widely distributed, but is mainly limited to upland areas where it survives as upstanding field remains.

Although widely recognised, few Bronze Age sites have been excavated, and there is considerable uncertainty over

their chronology. Far less is known of settlement of this period in the lower-lying areas of the North-East. Again, knowledge of associated field systems and cairn fields is limited to the upland areas of the Cheviots, the Fell Sandstone escarpment and the North Pennines. While these remains can be quite extensive, they are often poorly dated.

Neolithic mortuary behaviour is characterised by a diversity of site types, including different forms of cairns and enclosures. It is unclear how this diversity relates to chronological variation or other factors such as status. Variety in site form extends into other forms of Neolithic monumentality, again with little certainty about whether differing forms reflect chronological developments (which are very poorly understood) or other possible factors. Regional distinctiveness is present in a number of monument types, such as the newly discovered and poorly understood tri-radial cairns, and enclosures and boundary features.

Many Bronze Age cairns have been excavated, often by antiquarians in the 19th century. A large amount of material culture is still retained, but there is rather less clarity about its exact archaeological context. Recent excavations on cairns have shown how complex these apparently simple structures can be, and just how much information has been lost due to these early investigations. A more sophisticated understanding is needed of their chronology and the factors which cause the wide variety in their structure. The best understood sites are confined to the uplands; very few lowland ring-ditches have been adequately explored.

The North-East is nationally important for its prehistoric rock art. There is a long history of good quality research, and with the current web access to the Beckensall Archive Project at the University of Newcastle and the Northumberland/County Durham Rock Art project, the carved stones in the region will be among the best recorded in the country. There is still much to be done in understanding this aspect of prehistoric society, however, particularly its landscape context.

Lithics assemblages are widespread, and importantly, often recovered from lowland areas. Important collections are held in most local museums. Development-driven archaeology has also led to the collection of new assemblages. Both museum collections and more recently collected assemblages are poorly understood, and require critical analysis and publication (Figure 59). Pottery is also known from many sites, but its chronology, function and symbolic associations have not yet been the subject of concerted research.

Potential of the resource

Despite these gaps in the evidence there is still substantial potential in the existing resource. The large number of



Figure 59 Arrowheads found (here magnified) during fieldwork as part of the Coquetdale Community Archaeology project. © Northumberland National Parks Authority

sites in upland areas allows prehistoric settlement and monumentality to be understood in its landscape context, though this will require further refinement of chronologies. The intensive fieldwork carried out in the Milfield Basin combined with the detailed work on the environmental evidence for the region also allows very fine-grained research questions to be formulated here.

The increase of excavation driven by the development process is also adding to our understanding of these prehistoric areas where our knowledge is least good, but fortuitously where there is most development, e.g. urban areas and lowland Durham and Northumberland. The growing use of geophysics and large-scale open area excavation means that prehistoric remains are increasingly being recognised (Figure 60).

This period is privileged to be the focus of work by independent workers and amateur groups. The work of Stan Beckensall, Tim Laurie, Paul Brown and others on prehistoric rock art has shown how major contributions can be made by those outside the formal Historic Environment sector. Thanks to their hard work the rock art of the region is the best recorded in the country. Other good examples include the identification and excavation of tri-radial cairns by the Borders Archaeological Group. The upstanding nature of much of the upland field evidence lends itself to field survey, an exercise particularly suitable to amateur groups (Figure 59).

Research Agenda

Key research themes

NB1. Rock Art

Rock art is one of the most distinctive aspects of the archaeology of the Neolithic and Bronze Age in the region. Future research should be carried out in three main areas:

- i Chronology. Recent work by Clive Waddington at Hunterheugh has illustrated the potential of small-scale, targeted excavation for clarifying the chronological development of rock art sites (Waddington *et al* 2005).
- ii Rock art did not exist in isolation; it was frequently associated with other prehistoric monuments, particularly cairns and enclosures. More detailed survey of specific sites is needed. Their wider landscape context should also be a major research topic. Areas which might be particularly targeted include Roughing Linn (Northumberland).
- iii A better understanding of the processes of the decay and erosion of rock art is required. Future research might build on existing technical developments in recording and monitoring rock art sites (Barnett *et al* 2005; Barnett and Díaz-Andreu 2005; Simpson *et al* 2004; Figure 8, this volume).

NB2. Enclosures (Neolithic)

Neolithic enclosures show considerable variation and need to be adequately characterised. Models of Neolithic enclosure based on examples in the south of England are insufficient to explain North-Eastern sites. Several enclosures survive as cropmarks and a programme of sampling and larger-scale survey work would secure information relating to their chronology and function. A wider campaign should include those enclosures which retain standing earthworks.

NB3. Standing stones and stone settings

A range of stone settings exists in the region, including single standing stones, pairs of stones, monumental 'edge-set' stones and linear settings. Remarkably, there has been very little detailed work on these sites. In particular, our appreciation of their chronology must be improved.

There is a need for detailed field survey of a sample of these sites, including examples of the main monument forms. This should be supplemented by targeted excavation and, where appropriate deposits are found, radiocarbon dating.

NB4. Cairns

Large numbers of stone cairns survive in the upland regions of the North-East, including field clearance cairns and burial cairns. Further research should include:

- i Detailed field survey of cairns and groups of cairns in order to record their precise form and place them in their wider landscape context.
- ii The excavation of a representative sample of cairn types, building on the results of survey. Previous excavation on cairns has demonstrated the complexity of even apparently very simple structures, so, where possible, excavation should be total. It is important that scientific dating accompanies fieldwork.
- iii Synthetic work on cairns in the North-East. The sheer range in their form and function has led to a reluctance to attempt this kind of task, which should be preceded by an attempt to refine definitions. The synthesis should draw on new field survey and excavation, and collate the evidence from earlier archaeological excavation. This would make an ideal PhD thesis.

NB5. Round houses, settlements and field systems

Much of the work on the archaeology of Bronze Age settlement has, in the past, tended to focus on occupation sites. The Neolithic and Bronze Age however, saw the increased spread of agricultural landscapes across the North-East, with the associated construction of clearance cairns and field systems. A better grasp is needed of the relationships between these landscape features, monument building and settlement sites.

Work to further this research might include detailed survey of settlements and their surrounding landscapes. There is also a need for targeted excavation, with a particular focus on the chronological evolution of selected landscapes. Excavation in areas surrounding settlements may also help identify areas of middening or dumping of

rubbish and this would lead to a better understanding of discard patterns across prehistoric sites.

N6. Neolithic settlement

Very few Neolithic settlement sites have been excavated in the region and the complete publication of all backlog sites of Neolithic date is a matter of urgency.

Two ways forward are suggested. First, radiocarbon dating of all excavated round huts should be adopted as standard procedure. This may help identify early structures, particularly in areas where there is a relatively low level of diagnostic material culture. Second, more detailed survey of known Neolithic settlements is needed. This may identify distinctive morphological characteristics which, in turn, could help to locate other early occupation sites.



Figure 60 Prehistoric pit alignment under excavation at Fox Covert (Tyne and Wear). © Tyne and Wear Museums

Key research priorities**NBi. Early settlement in an upland/lowland context****Academic**

Whereas individual Neolithic monuments have been excavated, our appreciation of the extent and nature of wider Neolithic landscapes is less good (though there are some exceptions). Large-scale walk-over survey offers the potential to build up a picture of these landscapes, although any extensive survey can only be of real benefit when combined with more detailed investigation, focusing particularly on providing a chronological framework. While extensive survey of this kind may identify monumental

sites in upland areas it may be less successful in detailing more exiguous aspects of Neolithic and Bronze Age landscapes, such as lithic scatters.

It is unlikely that any of the major changes occurring during the Neolithic and Bronze Age period, such as the adoption of farming or the increased occupation of the uplands, took place at a uniform rate across the North-East. The various topographical areas of the North-East probably followed different trajectories, varying according to both the natural landscape and differences in social organisation. It is not possible to extrapolate theories about such changes across the region using data derived from only a few sites. It is important that these gaps are filled and new data are placed in a secure chronological context. Pollen cores should be as closely dated as possible, using both AMS dates and calibration utilising Bayesian statistical approaches.

A particular challenge is to integrate lowland and upland landscapes. This issue remains methodologically problematic due to the very different potential of survival of Neolithic and Bronze Age activity in the two zones. Questions about the pattern of colonisation of upland areas from the lowlands can only be addressed, however, through a unified strategy.

The good quality of monument survival in upland areas gives us the opportunity to explore particular landscapes in real detail. Major research questions here include:

- i How do we characterize the changing nature of Neolithic/Bronze Age landscapes; what is the relationship between clearance cairns, 'reave'-like stone banks and field systems?
- ii How and when do field systems develop?
- iii Is it possible to breakdown and order the evidence from clearance cairns?
- iv How was early farming organised on a landscape scale?

These themes can be explored through small-scale targeted excavations; particular clusters of sites and monuments can be highlighted for the great research potential they afford. These are:

- i Broomridge/Goat's Crag/Roughting Lynn/Ford Moss (Northumberland)
- ii Frankham Fell/How Tallon/Eel Hill/Barningham Moor (Co. Durham).

One area in which there is need for significant new research is the Neolithic occupation of the Cheviots where, surprisingly, little has been recorded. A project is needed to assess whether this lacuna is real or due to a lack of fieldwork. This might be addressed by upland survey, aimed initially at identifying sites but followed by more detailed survey work and excavation which would allow sites to be dated. It is also crucial that the Royal Commission's South Cheviot survey is published. There is a need for further research on the lowland

zones, particularly east Durham and the coastal zone of Northumberland. These areas are less responsive to the walk-over surveys that provide significant new data in the upland areas. Instead, it is likely that sites will either be identified through PPG16-driven fieldwork or large-scale research project such as the Milfield Basin project (Waddington 1999).

One area which may offer particular research potential is South Shields, where there is evidence for a Mesolithic/Neolithic palimpsest on a coastal estuary. This would allow the evaluation of the survival of prehistoric deposits in an urban context and the exploration of possible causewayed enclosure around the hilltop. This area should be flagged up as an area of particular importance by development-control officers. Due to the built-up nature of the area it would be valuable to construct a deposit model of known surviving archaeological stratigraphy and areas of probable survival.

Any detailed exploration of prehistoric landscapes must also include a solid appreciation of the environmental data. Currently the geographical spread of pollen cores is very uneven; they are concentrated in upland areas. While any additional data will be important, there is a particular need to increase pollen coring along the coastal zone, the Northern Cheviots and lowland County Durham. Pollen cores from peat deposits are not the only locations from which environmental data may be derived, and the potential for prehistoric land-surfaces sealed beneath cairns should not be ignored.

The Mesolithic/Neolithic transition is a period of great importance; pollen evidence can contribute to the debate concerning its nature and chronology, particularly through the recognition of periods of clearance and early cereal pollen (Simmons 1996). It is essential that the chronology of such events is as tight as possible; this can only be achieved through increased use of high-resolution radiocarbon dates, especially from the Late Mesolithic/Neolithic transition period. Recent developments in statistical approaches to the calibration of radiocarbon dates should be employed.

Strategic

When identifying new sites an appropriate balance should be struck between conservation and research. Sites must be preserved for the future, but it is essential that sufficient excavation takes place to allow detailed understanding.

The decision to Schedule is an important mechanism for protecting sites, but positive management regimes must be linked to assessments of their current condition. Any such assessment must be carried out with a view to academic research potential (Frodsham 1995a). Scheduling is not always easily applied to all new sites, particularly lithic scatters and palaeoenvironmental sites. Other forms of management will need to be found, which may also require fieldwork.

Newly identified sites, including those of palaeoenvironmental importance in both upland and lowland contexts, must be recorded adequately on the regional HERs.

Educational

In the major upland areas of the region, the Cheviots and the North Pennines, tourism is becoming an important element of the local economy. It is also in these areas that upstanding Neolithic and Bronze Age monuments are most likely to survive. The impact of the new 'right to roam' may form a new threat to the management of many of these sites, however. While it is important that new information about the prehistoric archaeology of this region is fed through to the public, it is also vital that any increase in site visits is balanced by appropriate conservation measures. Educational initiatives must go hand-in-hand these initiatives. In upland areas, large-scale walk-over surveys may provide a suitable activity for local community or amateur archaeology groups.

Infrastructure

Both the Durham and Northumberland North Pennines, the uplands of Northumberland and the North York Moors fringe are contiguous to upland areas outside the North-East region. Any research should liaise with neighbouring regions to ensure methodological consistency and sharing of data.

Links to other agendas

The need for on-going management survey has been highlighted by Quartermaine (2002, 35), particularly focusing on basic identification survey to cover large areas of upland rapidly. He also promotes the need to bring together a 'survey of surveys', collating all the smaller-scale surveys carried out in each county. Finally, he advocates the need for large-scale projects focusing on the whole landscape, not just individual settlements. These should also include detailed environmental research on vegetational history (Quartermaine 2002, 36).

Frodsham (2000, 19) identifies a need to develop a better understanding of the Neolithic period in the Cheviots and to integrate this evidence with the Neolithic occupation of the lowlands. Bradley (2002, 39) calls for the publication of the former Royal Commission's surveys in the Cheviots.

English Heritage has identified the transition from Mesolithic to Neolithic (c. 5,000-3,000 BC) and the 3rd millennium BC, the period that sees the development of settlement, burial and monument types typical of the Later Neolithic, as two crucial periods for further research (English Heritage 1997, PC2, PC3, 44). It has also highlighted Territories and Tenure in the 4th and 3rd millennium BC as a major chronological priority, noting the need for more excavation from upland sites and increased analysis and recovery of environmental data (English Heritage 1997, P6, 47). This transitional period has also been highlighted by Harding, Frodsham and Durden (1996, 191-192) who advocate a holistic approach.

The issue of mobility versus permanent occupation in the Neolithic period in Northern England has been flagged up as a central research topic (Harding *et al* 1996, 194).

The lack of pollen evidence from Northumberland has been noted (Harding *et al* 1996, 191), together with a general need for high resolution analysis of pollen cores covering the Neolithic period (Bradley 2002, 38). Huntley

advocates further environmental sampling from Neolithic settlements to investigate the domestication of plants and animals and she has also promoted the need for synthesis of existing pollen work combined with new fine-resolution work (Hall and Huntley 2002, 90).

NBii. Settlement chronology

Academic

Enclosures are one of the suite of monument types known from the Neolithic of the North East, but they are often interpreted from work done in the south of England. It is still not clear how far these sites are a homogenous class of monuments, or whether there is considerable diversity. As with many other monument classes their chronology needs refining more precisely; the morphology of these sites, and the extent of activity within enclosures and within the surrounding area also need further research.

The pit groups of the Milfield Basin are unique in the North-East, but it is not clear how far this is merely a function of more intensive work in the area. Because they are relatively ephemeral, they may not have been recognised elsewhere. It is important that pit groups are adequately characterised, including their chronological range, any possible variation in date according to their geographical location and size, as well as their relation to other evidence for Neolithic activity, such as lithic scatters.

Refinement of the chronology of the Neolithic and early Bronze Age remains a central demand for researchers in the region. Trajectories of development vary significantly even within the region, and if these differing patterns of social change are to be synchronised and more refined models of change generated, it is essential to have greater chronological clarity. Previously excavated sites could also be quarried for further information. The retrospective dating of material held in museums, targeted re-excavation of certain sites and the full analysis and publication of some backlog sites are all possible.

AMS dating and Bayesian statistics would both allow for greater dating precision and other absolute dating techniques, such as archaeomagnetic dating and optical luminescence dating, must also be encouraged.

Strategic

Important settlement sites are likely to be recognised during the development-control process, and contractors should be made aware of their importance, so that they can be picked up as early as possible (i.e. at evaluation stage). Care should be taken to identify any related contemporary features that may help to characterize the function of the site, particularly of Neolithic enclosures. Adequate provision for environmental sampling and analysis of the fill of these features should also be made. Strategic use of geophysical survey may help identify related features within the enclosure or in the surrounding area.

It is vital that there is regional agreement on the terminology used to record Neolithic enclosures on HERs.

A greater understanding of the chronology of Neolithic sites is indispensable to clarify the extent and nature of the archaeological resource. A requirement for absolute dating techniques should be written into briefs for development-control archaeology on sites of this date.

Educational

The importance of developing interpretative models based on local evidence, rather than that derived from southern English data, needs to percolate through to undergraduate and postgraduate teaching in the region's universities.

Infrastructure

Due to their importance, settlement sites should be published as fully and as rapidly as possible. A register of radiocarbon dates from the Neolithic and Bronze Age of the North-East should be established, including the re-calibration of previous dates.

Links to other agendas

Frodsham (2000, 18) highlights the need for a greater understanding of Neolithic enclosures in the north of England, noting that 'there is a need to investigate a series of carefully identified such sites with a view to identifying those which could conceivably be our equivalents of the southern causewayed enclosures'. Bradley (2002, 41, 39) underlines the lack of good dating evidence for henges and enclosures and calls for an intensive programme of radiocarbon dating for the Neolithic and Bronze Age.

NBiii. Monumentality

Academic

There is a great diversity in Neolithic/Early Bronze Age monumentality in the region and some order should be imposed on these data. The great heterogeneity amongst cairn types and stone settings requires clarification, both morphologically and chronologically. This might be addressed in a variety of ways, including detailed survey of individual classes of monuments and targeted excavation to anchor them chronologically. Upstanding monuments are unlikely to be excavated through development-control archaeology; study is more likely to be carried out in a research context.

Funerary behaviour is a particularly important aspect of prehistoric monumentality. There is ample scope for further work moving beyond the form of the monuments themselves, to explore the nature of the burial rites themselves. Major variation is noticeable in the provision of grave-goods and in the treatment of the body (i.e. cremation or inhumation), although the decisions behind these choices remain unclear. How might these variations within Neolithic and Early Bronze Age mortuary behaviour relate to social, gender, age or chronological distinction? The chronological element of this variation is of particular importance. Any potential Late Mesolithic/Early Neolithic burial sites should be identified and the shift in burial traditions from Neolithic into Early Bronze Age must be investigated further.

Increased holdings of Neolithic skeletal material are needed and there is still much work to be done on collecting

baseline information about Neolithic populations, including age, stature and evidence for pathologies. The recovery of more skeletal material would allow the application of new techniques, such as isotopic analysis, opening up research avenues into patterns of population movement and migration (cf. recent work on the 'Amesbury archer'; Wessex Archaeology 2004) and issues relating to dietary changes (for example, to what extent were maritime resources exploited, and how did this change over time?). It is possible that flat cemeteries and ring ditches investigated as part of the development-control process may produce burial evidence but it is important that any skeletal material discovered in this way is fully recovered and analysed, using absolute dating techniques wherever possible.

Strategic

Any improvement of our understanding of Neolithic monuments will inform decisions concerning their management. The ability to distinguish between different forms of cairns, for example, might feed through to management agreements and the DEFRA Environmental Stewardship Scheme. The advent of the 'right to roam' will have implications for monitoring of increased erosion; it is essential that the academic potential of such work is considered in parallel with the demands of conservation. The use of absolute dating techniques and full survey should be a requirement where appropriate. It is also important that the re-interpretation of monuments is fed back to the HERs/SMRs allowing the necessary updates to existing entries to be made. There needs to be regional agreement about the ways in which such sites are recorded on HERs/SMRs.

Educational

Upstanding monuments are one of the most publicly visible aspects of the prehistoric archaeology of the region. It is essential that any re-interpretations feed through rapidly to public interpretation, both for museum displays and in print.

The survey work required to further this research would make an ideal project for local archaeological groups, if provided with adequate specialist training and equipment. Their potential has been borne out by recent work on tri-radial cairns by the Borders Archaeology Group.

An analysis of variation in the burial record will require broad synthetic work, bringing together the dispersed information held in archives, museums and on HERs/SMRs. It would make a suitable project for a MA or PhD thesis.

Infrastructure

New work, whether surveys or excavation, should be published and appropriately disseminated. Research in neighbouring areas, such as Cumbria, Southern Scotland and North Yorkshire, would provide useful parallels.

Some evidence for prehistoric burial is currently only available as 'grey literature' and an avenue for its dissemination should be found in the near future.

Links to other agendas

Richard Bradley notes the need to investigate the

relationship between monuments and the process of artefact production. He also highlights the lack of good dating evidence for henges and enclosures (Bradley 2002, 40-41) and suggests a programme of small-scale excavation (cf. Harding 1981).

The relationship between classes of monument and their wider landscapes is recognised as an area of future research (Harding *et al* 1996, 193-194), together with the role of monuments in the landscape; for example, were they central places or is this merely an assumption (Bradley 2002, 41)? Questions like this could be answered by systematic field-walking and the need for a large-scale, integrated landscape approach is echoed by Frodsham (2000, 19).

The nature of the region's few Neolithic long cairns has already been stressed (Frodsham 2000, 19; Vyner 2000). Frodsham also notes the need to explore the early adoption of round cairns, and particularly the fact that large hilltop cairns may be of Neolithic date. He also highlights the need for a long-term, integrated study of Neolithic and Bronze Age burial practices, including the sampling of both long cairns and round cairns (Frodsham 2000, 19). The need to explore the development and relationship between differing Neolithic burial traditions, and the evidence for the Neolithic use of round cairns in the region has also been noted (Harding *et al* 1996, 193).

NBiv. Rock art

Academic

There is still a need to establish firmly the chronology of rock art, including its earliest and latest examples. Consideration should be also given to the changing ways in which it was used. It is also important to reconsider our preconceptions about the geographical spread of rock art. Most research has taken place on the fell sandstones of Northumberland and, to a lesser extent, the southern moors of County Durham, but rock art may also survive on the granite uplands of Northumberland; this area should be the focus of further surveys, together with the northern fringes of the North York Moors. Finally, there should be more study of the surviving rock art from lowland contexts.

Apart from the panels of rock art themselves, their landscape context and relationship with other surviving archaeological sites, including enclosures and cairns, should also be explored, making use of environmental evidence.

New and novel scientific techniques for use on worked stone should be evaluated especially where they help gain a better understanding of dates for rock art and, in turn, lithics assemblages and megalithic monuments.

Strategic

The preservation of rock art is vital and long-term monitoring of the state of the known rock art sites is considered essential. This should involve initial base-level survey with a timetable for on-going monitoring and the characterisation of factors that may influence erosion, for example, geology or aspect, allowing more nuanced management regimes to be put in place. Consistent

approaches to recording sites for monitoring purposes should be established (cf. Clogg *et al* 2000). It is important to look beyond the preservation of individual rock art panels and consider the management challenges posed by clusters of associated monuments; this may well require detailed survey of the immediate surroundings of rock art.

One site which is in particular need of conservation measures is Goat's Crag (Northumberland), which is under threat from damage by rock climbers.

Educational

Rock art has a high public profile in the region as a result of the success of projects such as the Durham and Northumberland Rock Art Project and the publicity related to the web access to the Beckensall Archive of Northumberland Rock Art project (<http://rockart.ncl.ac.uk>). Both projects have demonstrated the potential for significant archaeological work carried out by amateur and independent archaeologists, although it would be gratifying to see this properly emphasised in public interpretation.

Infrastructure

Consideration should be given to the way in which rock art is recorded on the region's HERs/SMRs as currently there is no consistency in terminology. This issue should be tackled at a national level to ensure consistency between regions.

Links to other agendas

English Heritage (1997, P5, 47) highlights the importance of prehistoric rock art and notes four main avenues for further research: identification of the location of sites, establishing their wider relationship with other features, the assessment of the condition of the resource and its vulnerability, and the establishment of recommendations for further research and future management practice, to enable fuller understanding and improved conservation practice. Frodsham (2000, 20) notes the need to examine the chronology of rock art and the extent to which rock art was 're-used'.

NBv. Material culture: general

Academic

Lithics form the most common element of Neolithic and Early Bronze Age material culture. Despite the important lithics collections held in the region's museums and the collection of new material through development-control projects much work is still needed, particularly their analysis and publication. The dating of assemblages must be a priority, as typologies remain poor. An area of particular importance is the Mesolithic/Neolithic transition. Do collections with diagnostic Late Mesolithic/Neolithic forms imply occupation in both periods or are they being used simultaneously?

A greater understanding of the raw materials used is also required. Most studies of provenance have focused on hand axes, and there is now a need to identify the sources of raw materials used in less high-status tools. A greater understanding of the origin of these materials has real potential to expand our understanding of contact and exchange in Neolithic and Early Bronze Age society.

Strategic

Lithics assemblages acquired through development-control archaeological work should be properly analysed. Information about assemblages which have been re-dated through new research should be fed back to the region's HERs/SMRs so that their entries can be updated. Under current legislation it is not possible to protect lithic scatters through Scheduling; alternative ways must be sought of protecting these potentially important records of prehistoric activity.

Educational

Any re-assessment of museum collections should be fed back into interpretative material.

Infrastructure

Methods of analysing and publishing lithics material from the region must be standardised. This requires consultation with specialists within and beyond the region.

The publication of those assemblages currently only accessible via 'grey literature' is important, even if it may not always be worth making individual assemblages available.

Links to other agendas

Richard Bradley (2002, 38) questions the extent to which Late Mesolithic and Early Neolithic artefacts may be distinguished, and suggests that one way forward is to reconsider the so-called 'mixed' flint scatters published by Young, noting the need for supplementary stratigraphic evidence.

A renewed consideration of the supply of raw materials in the Neolithic/Early Bronze Age could help define the extent of contact across the Pennines (Bradley 2002, 39-40). The need to develop a better understanding of Neolithic mobility through consideration of the exchange of axes and other lithics has also been noted (Frodsham 2000, 20), some authors prioritising the systematic mapping of lithics by their raw material source (Harding *et al* 1996, 194-195).

NBvi. Material culture: metal objects

Academic

The study of metal objects from Early Bronze Age contexts has been focused mainly on their typology and new ways of exploring these artefacts are now required. Also essential is a full metallurgical analysis of all Early Bronze Age metal artefacts in the region's museums.

The main priority should be to acquire a better understanding of production and early metalworking technology. There is also an urgent need to locate early production sites. There may be some relationship between burnt mounds and early smelting sites; this would make a useful research project.

Strategic

It is crucial that any early Bronze Age metalworking sites

identified through development-control archaeology are subject to a full range of scientific analysis, and to involve the English Heritage Regional Science Advisor at an early stage when such remains are located.

Educational

A detailed exploration of the metallurgical composition of existing early Bronze Age objects would make a suitable PhD or MSc thesis.

Infrastructure

n/a.

Links to other agendas

Harding, Frodsham and Durden note the need for a better chronology of high-status artefacts in the region, to help clarify the dynamics that led to their production and circulation (Harding *et al* 1996, 195). The identification of Bronze Age mining activity in England has been prioritised by the Historical Metallurgy Society (Cranstone 1991a, 7).

NBvii. Material culture: ceramics

Academic

Apart from Grimston Ware-type pottery, chronologies are poor for early prehistoric pottery in the region. Absolute-dating should be attempted for those contexts from which pottery has been recovered, and also for the pottery itself (thermoluminescence dating). The latter approach would also lend itself to retrospective dating of existing material held in museum collections.

An improved chronology is particularly important for Impressed Wares, Grooved Wares, Beakers, and Food Vessel Urns. The use of early ceramics should be investigated through residue and lipids analysis.

Strategic

Provision should be made for the absolute dating of those contexts from which ceramics are recovered as part of the development-control process, where this can be achieved reliably.

Educational

Any re-assessment of museum collections should be fed back into interpretative material.

Infrastructure

There is a generally recognised need for publication of existing ceramic assemblages currently only accessible through 'grey literature'. While individual assemblages may be small in size, they have greater research value as a group.

Links to other agendas

Harding, Frodsham and Durden note the need for improved pottery chronologies in the region (Harding *et al* 1996, 195).

14. Late Bronze Age and Iron Age research agenda

Despite some notable gaps, the archaeology of the Late Bronze Age and Iron Age period is relatively well documented. New excavations have begun, however, to challenge the established models of settlement morphology which have long dominated its study. It seems that settlement development follows complex trajectories that vary across the North-East region and as a consequence the chronology of settlement has become less clear. This, in turn, has impacted on the study of many aspects of material culture, particularly pottery, which had traditionally been dated indirectly via settlement morphology.

Development-led excavation has increased the number of large-scale open area excavation and the widespread application of geophysical techniques, moving the focus away from individual settlement sites to an exploration of their wider landscape context. These two developments, the unseating of previous assumptions about dating and the greater emphasis on settlements in their landscape, make the production of a research agenda at this time particularly fortuitous.

Gaps in knowledge

As with most periods of archaeology in the North-East there is regional variation in the extent of fieldwork. Some areas, such as upland Northumberland, have a long history of endeavour, whereas others are relatively little studied. Most lowland areas must be included here, but some uplands such as Allendale and Weardale have also been neglected. The expansion of urbanism has obviously covered over many sites in Tyneside, Wearside and Teesside. Lowland Durham on the other hand has been the focus of extensive field-walking as part of the East Durham Survey (Haselgrove *et al* 1988), during which few later prehistoric sites were discovered, and scepticism has been expressed about the utility of field-walking for identifying settlements of this period (Haselgrove 2002, 54).

Despite these geographical gaps, there is a broad understanding of the basic types of late prehistoric settlement. Few late prehistoric field systems survive in the lowlands; those that are known tend to be only recorded as cropmarks. Upland field systems are better preserved but they are poorly understood and there is little solid dating evidence from them.

Much less is known about other aspects of contemporary life. Most striking is the almost complete absence of Iron Age burial, which is in contrast to the evidence for cremation and inhumation in barrows in the Late Bronze Age. While the acid soils may be partly to blame, their absence is so complete that the main mortuary rites are probably archaeologically invisible.

Although the period is not aceramic, as is sometimes claimed, our knowledge of late prehistoric pottery is weak. There are few substantial assemblages and little synthetic work. One major problem is a lack of a robust chronological framework. In general there is a low level of material culture,

although there was a tradition of votive deposits in both the Late Bronze Age and Late Iron Age. More mundane domestic objects are rare, even iron objects are uncommon, and it is not clear whether this is due to their original rarity or high levels of recycling of raw materials.

Potential of the resource

The large number of late prehistoric settlements offers an important resource for further work, though dating issues need to be resolved. Importantly, the advent of PPG16-driven development work has led to an increase of sites being excavated, particularly in lowland areas. Large-scale development projects have facilitated the use of large, open-area, strip-and-record strategies on a number of sites, such as Faverdale near Darlington and the Newcastle Great Park sites. These have revealed networks of enclosures and field systems, as well as settlements and structures. The use of geophysical survey has also proved invaluable in recognising late prehistoric settlements. Once published, the excavations at Catcote, Faverdale, Ingleby Barwick, Newcastle Great Park (Figure 61) and Pegswood will have a fundamental impact on the way in which the later prehistoric archaeology of the lowlands is understood.

The other crucial resource is aerial survey which has covered specific regions in Northumberland (McCord 1991; Gates 2004), County Durham (Selkirk 1983; Harding 1979), and Cleveland (Still and Vyner 1986; Still, Vyner and Bewley 1989). Tim Gates' photographic surveys of the Hadrian's Wall corridor, the Otterburn training area and the College Valley (Gates 1997; 1999; 2000; 2004) have produced large quantities of fresh information, which now needs detailed evaluation.



Figure 61 Drip gully around house 1 in the centre of the enclosure at West Brunton, Newcastle Great Park (Tyne and Wear). © Tyne and Wear Museums

One final significant project is the Northumberland National Park's *Discovering Our Hillforts Heritage Project* which tackled key issues of conservation, research, public access and public interpretation at hillforts inside the Park. In all, ten hillforts and their adjacent archaeologically sensitive areas are now secured under 25-year management agreements. Where necessary this has been supplemented by new initiatives, such as Tim Gates' aerial survey of the College

Valley Estate. As part of this project, surveys of a number of the hillforts were undertaken by English Heritage (York Office) and these have produced an important information resource on which further research can now build.

Research Agenda

Key research themes

The Research Strategy for the Bronze Age and Iron Age has identified a series of research themes which address a range of archaeological topics.

11. Chronology

The failure of chronologies based on settlement morphology and the lack of chronologically diagnostic material culture has led to uncertainty in the dating of later prehistory. This challenge can be met through increased use of absolute dating techniques in both research and development-control fieldwork. The use of multiple radiocarbon dating should be standard; where possible samples should be taken from contexts with stratigraphic relationships, allowing the use of Bayesian calibration of dates. Increased use should also be made of alternative absolute dating techniques, including thermoluminescence, archaeomagnetism and optical luminescence.

Large-scale, open-area excavations are boosting the recovery of Iron Age ceramics. This will increase the possibility of the creation of a diagnostic ceramic type series for the North-East. The use of thermoluminescence linked to traditional typological studies of pottery assemblages should now be a priority.

12. Changing landscapes

An improved understanding of later prehistoric landscapes in the North-East is needed, focusing not just on individual settlements but also on their situation within the wider landscape, integrating archaeological and palaeoenvironmental work.

A topic of particular importance is the issue of upland desertion. This requires detailed research to resolve regional and chronological variations and will involve analysis of carefully selected landscapes, including detailed field survey and targeted excavation in areas such as the Cheviot foothills, the North Pennines, North Tynedale and the Magnesian Limestone Plateau.

13. Settlement function

Further research is required on the varying patterns of settlement function. In some parts of the lowlands, increased use of large-scale, open-area excavation has improved our understanding of the layout of settlements and their associated networks of enclosures and field systems. In upland areas aerial photographic surveys have recorded large numbers of later prehistoric settlements. Synthetic work to bring together new evidence from upland and lowland areas and to explore settlement function is now a priority.

14. Social organisation and identity

Social organisation and cultural identity in later prehistoric

society in the North-East are both understudied themes. Settlement archaeology shows distinct regional patterning, the hillforts of the Cheviots being one example, and it may be possible to recognise similar patterns elsewhere in the archaeological record, such as in material culture.

The extent to which regional variation reflects social identities should be explored and any advances in the chronology of the period must be exploited in order to identify changes over time.

15. Material culture

Despite the relatively low level of material culture in later prehistory in the North-East, there is still a need for a more thorough understanding of finds assemblages of this date, especially ceramics, which are now being recovered in greater numbers.

As noted above, scientific dating techniques must be employed to achieve a more secure chronological framework for pottery. It is essential that such synthetic work, possibly undertaken as part of a postgraduate research project, is adequately disseminated to the region's pottery experts.

Key research priorities

ii. Chronology

Academic

Scientific methods must be explored with the intention of providing firm dating for later prehistoric sites, for example optical dating of sediments where organic preservation is poor and thermoluminescence dating for ceramics.

The relative lack of easily datable material culture and the failure of chronological models derived from settlement morphology means that absolute scientific dating techniques provide the best opportunity to establish a robust chronological framework for the later Bronze Age and Iron Age of the region. Although long-established, dating techniques such as radiocarbon dating have been greatly refined by the use of Bayesian statistical techniques and the use of new sampling techniques, such as the increased practice of single entity dating.

Strategic

Appropriate curatorial and conservation decisions flow from a good understanding of the nature of the archaeological resource. By re-assessing our knowledge of the archaeological resource it will be possible to ensure appropriate decisions are taken.

Education

A major re-assessment of the chronology of later prehistoric settlement in the region should feed through to educational material, such as museum displays and popular publications. These should be rewritten in the light of our new knowledge about the period.

Infrastructure

Any new evidence for the chronology of late prehistoric settlement will feed directly into the regional SMRs/HERs. The field-testing of new techniques also offers the potential

for collaboration between the university departments and commercial archaeological contractors.

Links to other agendas

The need to explore new forms of absolute dating, such as optically stimulated luminescence dating of sediments, is recommended in *Understanding the British Iron Age: an agenda for action* (Haselgrove *et al* 2001, B2.4, 6). The importance of harnessing the potential of absolute dating techniques has also been highlighted by Haselgrove (2002, 69; 1999, 265).

lii. Settlement

Academic

The collapse of settlement chronologies based on morphology now means that it is timely to review typological systems of site classification. It is essential that rigorous new work is carried out to develop a secure chronology.

Research on settlement archaeology should test survey-based typologies and establish firm chronologies, particularly in areas where they are lacking. Site function and role in social organisation, in particular the social role of settlements in the landscape, should be addressed. Simple models of settlement morphology provide an inadequate chronology for later prehistoric settlement in the region.

In addition to creating secure chronologies through new development-led excavation, targeted re-excavation of previously excavated sites should be considered, with the specific aim of retrieving better dating evidence. This is an effective way of dating well-known existing sites without large-scale excavation.

The need for firmer chronologies is particularly acute for upland settlement sites. Many sites have been identified in the region's uplands through survey and aerial photography but there is still a pressing need for these sites to be placed in their correct chronological framework. For example, despite their widespread distribution in the uplands, the dating of 'scooped settlements' is entirely unclear. Resolving their date may enable researchers to tackle wider questions relating to the impact of Roman control in the region.

The absence of settlement hierarchies is an important element of the later prehistoric archaeology of the sub-regions in the North-East. There is potential to improve our understanding of the ways in which these societies functioned, and better appreciate their later chronological development. The extensive, upstanding upland archaeology of the Cheviots and its well-preserved hillforts make this line of research of particular importance.

Publication of significant excavations on later prehistoric settlement sites is necessary. This should include not only the full analysis and dissemination of recent, development-control led excavation, but also the post-excavation analysis and publication of a range of important backlog sites.

Strategic

More precise dating of previously excavated sites will help to re-evaluate existing conservation regimes and may improve our understanding of the chronology of unexcavated sites.

Full publication of recently excavated sites will demonstrate the potential of large-scale, open-area, strip and record excavation strategies, and encourage the use of similar approaches on other sites of this period. More generally, a wider understanding of the later Bronze Age and Iron Age in the area will facilitate the interpretation of the archaeology and, in due course, impact on curatorial decisions.

Education

A major re-assessment of the chronology of later prehistoric settlement in the region should feed through to educational material, such as museum displays and popular publications. These should be rewritten in the light of our new knowledge about the period.

The impact of a series of major archaeological excavations within the area should be reflected in interpretative projects aimed at the general public (either temporary/permanent exhibitions and/or popular publication).

A long-term project of excavation and field survey would provide the ideal context for the establishment of a major community archaeology project, drawing on both the local population and interested individuals from across the region.

Infrastructure

The increased understanding of the chronology of late prehistoric settlement will feed directly into the regional HERs/SMRs.

Links to other agendas

Understanding the British Iron Age: An agenda for action calls for a detailed audit of existing chronological frameworks encompassing artefactual typologies, as well as radiometric dates (Haselgrove *et al* 2001, B2.1, 3). Routine radiocarbon dating is recommended for all sites using appropriate sampling strategies, including single entity sampling where practical. All published dates must be subject to critical analyses using available statistical techniques (for example, Bayesian approaches) (Haselgrove *et al* 2001, B2.2.1-2, 5, 4-5).

The same agenda notes the need for more research on how different components of Iron Age societies were organised across the landscape, and particularly recommends intensive area projects similar to those carried out around some leading Wessex hillforts (Haselgrove *et al* 2001, C2.2). Haselgrove has also emphasised this need in earlier papers (for example, Haselgrove 1999, 270).

liii. Landscapes

Academic

Much archaeological work on the Bronze Age and Iron Age in the region has focused on individual settlements. There is now a need to balance this research through the identification and excavation of Late Bronze Age and Iron Age landscapes. In particular, more work is needed on later prehistoric subsistence strategies, including garden plots, cord rigg, field systems, cairnfields, linear boundaries and droveways. Wider patterns of landscape change are also an important topic for further research, particularly those long-term processes associated with apparent upland desertion

in the Bronze Age and the potential recolonisation of such landscapes during the Iron Age.

More upland pollen sequences with accurate dating would help to provide the environmental context for these changes. Although there have been many cores taken in the North Pennines some now need to be re-dated to maximise their potential. An improved chronology would allow these data to feed into a series of research questions. For example, many patches of cord rigg are believed to be of prehistoric date, yet little is known about the formation processes which led to their creation and the preservation processes which resulted in their survival.

Strategic

The need to achieve the optimum understanding of a site, where total excavation is not possible, is at the heart of the development-control process. It is essential that briefs written by local government archaeological officers make clear and explicit recommendations about the way in which sites should be dug to ensure that data retrieval is maximised. Research into sampling strategies will feed directly back into the decision-making process. Recent work at sites such as Ingleby Barwick and Newcastle Great Park demonstrates the benefits of large-scale, open-area strategies, although further consideration of the balance between random sampling of features and more targeted excavation is needed. Excavation sampling strategies have been effective in southern England; whether they can be applied in the north of England, with its very different archaeological record, remains to be seen.

Geophysical prospection offers real potential for Iron Age and lowland Bronze Age settlement. Even in areas with relatively good cropmark preservation, geophysical techniques have proved more effective in identifying later prehistoric sites and may prove particularly useful in recognising open settlements.

Aerial photography has proved effective in recognising prehistoric features, though supplementary work is required to date them. While much of the upland area of Northumberland has been covered by aerial photography, this has not always been published (for example, for the Cheviots). The North Pennines lacks similar coverage and should be a priority for an English Heritage mapping programme.

Education

Extensive upland survey is an ideal activity for wider community participation, and could contribute to significant archaeological research. There is potential for an educational element as a component of resulting conservation measures, supplying general information via leaflets and visitors centres, and in providing specific conservation advice to landowners via DEFRA Environmental Stewardship Schemes.

Re-interpretation of the later prehistory of the region's uplands coupled with effective publication of sites should feed through into relevant educational and publicity material.

Infrastructure

Provision of information in appropriate digital format

would provide significant added value to the region's HERs/SMRs.

Research into excavation strategy would ideally involve collaboration between local authorities and other partners, such as English Heritage and possibly universities. There is also the potential for international co-operation following the model of the PLANARCH project, which involves Kent, Belgium, the Netherlands and France (Hey and Lacey 2001). Aerial photography has the potential to recognise large numbers of previously unknown sites, and results should feed directly into the appropriate HERS. As the North Pennines area covers parts of three different counties there is the potential for significant collaboration here between local authorities as well as the North Pennines AONB.

Increased environmental work is likely to require collaboration between the archaeological curators and universities, this work has the potential for forming the basis of PhD research.

Links to other agendas

Understanding the British Iron Age: an agenda for action recommends further excavation of open settlements and burial sites, and highlights the need for new methods of detection (Haselgrove *et al* 2001, C2.1; see also Haselgrove 1999, 265). The benefits of geophysical prospection in the interior of hillforts have been demonstrated via the recent work of the English Heritage Landscape Investigation team as part of Northumberland National Park's Discovering Our Hillfort Heritage project.

Haselgrove recommends that work be carried out beyond visible settlement boundaries, focusing on wider inhabited zones' (Haselgrove *et al* 2001, C2.2). Welfare (2002, 29-40) reiterates this need for a move away from individual sites to a landscape focus in the uplands, with continued upland survey, including aerial photography.

A need for a better understanding of cord rigg has been highlighted by the work of Topping (1989), while the integration of settlement data with archaeological and palynological evidence is emphasised by Haselgrove (2002, 69). The extent of continuity and disruption in Bronze Age upland landscapes requires further research, as does their vegetation history (Welfare 2002, 39-40).

liv. The later prehistoric coastal zone

Academic

There is increasing evidence for the exploitation of the coastal zone in later prehistory, but little work to bring together the diverse strands of evidence involved. Despite the presence of extensive upland pollen samples, the coastal areas of Northumberland are under-represented. This partly reflects the perceived lack of suitable deposits, even though recent work demonstrates their potential.

What is the evidence for salt production around the mouth of the Tees? Prehistoric salterns may survive on Coatham Marsh. The salt trade was undoubtedly an important aspect of regional exchange, particularly in the south of the region. This is reflected in the discovery of some Iron Age

briquetage. A detailed coastal survey attempting to recognise salt production sites would furnish important evidence for regional economic specialisation. Comparative research on late prehistoric salt production elsewhere in the country may help to characterise likely areas of survival.

Research is also needed on the numerous wooden canoes found in the region's museums, addressing later prehistoric woodworking techniques and early boat-building technology. A re-consideration of their contexts may also shed light on early exploitation of the prehistoric coastline and waterways.

Strategic

The identification of suitable lowland peat deposits will allow suitable management regimes to preserve this sparse resource. This is also likely to intersect with the conservation demands of wildlife and ecology curators. Identification of possible early salt production sites will require appropriate conservation and management regimes. Conservation techniques used on large wooden objects, such as boats, should be reconsidered, allowing appropriate decisions to be made when new discoveries are made.

Education

n/a.

Infrastructure

There is scope for extending the work around the Tees to other river mouths in the region, also for collaborative research on early salt production with other regions in Britain and along the North Sea littoral, as well as for wider comparative work between the north-eastern canoes to those found around other major rivers, including the Humber and the Thames.

Links to other agendas

The importance of exploiting the potential of lowland peat deposits has been highlighted by Rippon (2003; 2004), though here in a medieval context.

The need for radiocarbon dating of possible Iron Age wooden objects is recognised in *Understanding the British Iron Age: an agenda for action* (Haselgrove *et al* 2001, D3.1.3, 20).

iv. Material culture: general

Academic

The region's museums hold extensive collections of late prehistoric material culture, including lithics, ceramics and other items, but these collections are under-exploited. The combination of new research questions, new dating and sourcing techniques has significant potential. For example, relatively little is known about regional and national exchange networks and work on provenancing stone tools, ceramics and metals has some way to go.

Late prehistoric depositional practices provide insights into the symbolism and ritual of early societies in the North-East. The contextual/depositional approach to hoarding pioneered by Richard Bradley (1990) and Fraser Hunter (1997) should be extended to the North-East; not all hoards are from wet places.

Strategic

Collecting strategies used in commercial archaeology will be influenced by any new research of this kind, and suitable forms of analysis should be specified in briefs provided by local government curators. Certain contexts, such as ditch terminals, may be more likely to contain structured depositions and should be preferentially sampled.

Education

Improved knowledge of existing museum collections should feed through into the interpretation provided in the museum for the general public. There is also scope for interpretation related to the use of scientific techniques.

Infrastructure

Work on these existing collections would provide suitable PhD or MA theses and will involve collaboration between universities and museums. Wider synthetic research on the later prehistoric depositional practices, possibly carried out in a university context, needs to feed through to local government curators and contractors.

Links to other agendas

The importance of flexible sampling strategies to enable proper recording of structured deposits has already been highlighted (Haselgrove *et al* 2001, C2, 1, D2.3) while the need to develop a better understanding of depositional practices is stressed in an earlier paper by the same author (Haselgrove 1999, 268). The significance of northern pottery assemblages has been stressed (Haselgrove *et al* 2001, D3.2.2), echoing proposals put forward earlier by Haselgrove (1999, 268) to the effect that museum collections need revisiting.

ivi. Material culture: ceramics

Academic

Later prehistoric assemblages are not as rare as has been traditionally thought, especially in the south of the region. Basic issues, such as chronology, use, production and deposition, should be tackled.

The dating evidence for later prehistoric pottery in the region has often been based on stratigraphic evidence and settlement morphology. With the basis for their chronology now being undermined, the dating evidence for these ceramic assemblages should be re-assessed. The improved dating of later prehistoric pottery will, in turn, further its use as a diagnostic tool.

There is ample scope for synthetic work, particularly drawing on recent large-scale excavations of settlements. An improved understanding of the origin of pottery types and their production will also feed into our understanding of late prehistoric economic relationships, shedding light on the occurrence of economic specialism and trade.

The symbolic importance of the deposition of material culture in later prehistoric contexts is now more widely appreciated, not only the votive deposition of high quality metalwork, but also day-to-day refuse (cf. Hill 1995). A better understanding of deposition practices can help us to improve our understanding of later prehistoric ritual activity (cf. Pope 2003), and will allow more targeted sampling and increased recovery levels.

Strategic

More precise dating of material culture will improve our understanding of the wider settlement chronology of the North-East in later prehistory. Local government curators should ensure that the use of relevant scientific techniques is specified in briefs for commercial contractors.

An improved understanding of likely contexts for the deposition of material culture should feed through to local government curators, and should influence sampling strategies. Certain contexts, such as ditch terminals, may be more likely to contain structured depositions and should be preferentially sampled.

The identification of pottery production sites will require adequate conservation measures to be put into place. Considering their rarity in the region, as well as more generally, designation should be considered.

Education

Any research on objects in museum collections should feed through into interpretative material.

Infrastructure

Wider research on the applicability of thermoluminescence dating to later prehistoric ceramics assemblages will require collaboration between museums, contractors and finds specialists. Retrospective dating of museum material, possibly as part of a PhD thesis, is of high priority, but the results must be fed through to finds specialists and contractors.

Links to other agendas

The specific importance of northern pottery assemblages is highlighted in *Understanding the British Iron Age: an agenda for action* (Haselgrove *et al* 2001, D3.2.2), where the petrological examination of all large pottery assemblages is also recommended as standard (*ibid*, D2.1, 18). The same agenda also underlines the potential for exploring thermoluminescence dating of Iron Age pottery assemblages (*ibid*, B2.4, 6) while improved absolute dating is also advocated by the Prehistoric Ceramics Research Group (1991, 1.2).

Ivii. Material culture: worked stone

Academic

More work is needed on later prehistoric worked stone and should cover a large range of material from worked lithic assemblages to coarse stone tools and stone querns. Coarse stone tools in particular are often overlooked, but there are clear opportunities for research into their forms and the provenance of stone types. A new chronology of forms would be extremely useful, and could be matched by a careful consideration of the context of deposition.

Some flint assemblages may be of late prehistoric date. Rather than simply assuming that all such material is residual, later prehistoric lithic assemblages may be instructive as a means of identifying sites through field-walking. The work of Jodie Humphrey (in press) has shown that it is possible to characterise Late Bronze Age-Early Iron Age lithic assemblages.

The Yorkshire Quern Survey has shown exciting preliminary results. An understanding of the geological origins of querns has great potential in enhancing our understanding of trade links and economic interaction in the region. This sort of work should be extended northwards, but there may be problems given the lack of expert knowledge in the sedimentary geology of the region, especially north of the Wear.

Strategic

Coarse stone tools are often isolated finds, and their role as indicators of later prehistoric settlement should be assessed. There is considerable scope for re-assessing existing lithics collections and collections of querns in the region's museums.

Education

Any research on objects in museum collections should feed through into interpretative material.

Infrastructure

The required synthesis will draw on museum collections and have access to recently excavated material. It is essential that research derived from this topic reaches other finds specialists. This may be a possible PhD research topic.

Links to other agendas

Further work on coarse stone tools is recommended in *Understanding the British Iron Age: an agenda for action* (Haselgrove *et al* 2001, D3.2.1, 20-21), in particular regional synthesis to identify recurring types and their functions. That volume also highlighted the need for more work on late lithic industries (*ibid*, D3.2.1, 21), just as the analysis of later prehistoric lithic assemblages was also prioritised by Haselgrove (1999, 268-269; 2002, 69).

Iviii. Material culture: metalwork

Academic

There is a need to move beyond the construction of typologies of bronze objects and explore patterns of production, distribution and deposition.

Iron-working has also been little researched, and there is an opportunity for basic work on this topic, particularly the production process. The advent of large, open-area excavation has increased the potential for recognising areas of iron-working within settlements; its study will also have implications for our understanding of the social use of space in later prehistory, just as an improved appreciation of origins of metal used in the region will inform patterns of long-distance trade links within and beyond the North-East.

Upland landscapes provide contexts in which upstanding remains relating to metalwork may survive and here further research in the North Pennines and north Northumberland may be particularly valuable. Although such sites may be recognised during extensive field survey, they will require absolute dating to confirm their chronological context. How far can radiocarbon dating from charcoal extracted from slag help with dating such sites? What potential might these sites have to provide

detailed evidence for the technology of late prehistoric metal production, as well as for the surrounding landscape and for early forest management?

Strategic

It is not uncommon for bronze metalwork to be reported as small finds by members of the public, particularly via the Portable Antiquities Scheme. Such reports should be followed up by a detailed investigation of the find spot. Technical details about the composition of later prehistoric metalwork may have implications for their conservation in museums.

The use of geophysical techniques should be promoted in a development context by local government curators. Further magnetometer survey with appropriate specialist methodology is required to highlight possible iron-working within settlements.

Education

Upland field survey should involve local amateur groups.

Infrastructure

Any synthesis must draw on museum collections and would require access to recently excavated material. It is essential that research reaches other finds specialists. This may be a PhD research topic, but there is also scope for larger scale projects exploring metalwork from beyond the region, for example, in the North-West and southern Scotland.

It is important that evidence for early iron-working from development-driven excavation is analysed by appropriate specialists. With the acquisition of sufficient data, there is scope for more substantial synthetic work.

Detailed field survey will require advice from appropriate specialists, including for archaeometallurgy, plant macrofossils and absolute dating. Collaboration might be sought between local bodies (for example, Northumberland National Parks Authority, North Pennines AONB, Northumberland and Durham County Council) and universities. There is also scope for wider scales of survey involving neighbouring regions such as Cumbria and southern Scotland.

Links with other agendas

Understanding the British Iron Age: an agenda for action recommends the need to focus on production and distribution, use and deposition (Haselgrove *et al* 2001, D2.1-3, 18-19) and highlights detailed technological examination of metal objects, especially copper-alloy sources (*ibid*, D3.3.3, 21). The same volume also notes the lack of knowledge about the location of iron-working, and the need for more detailed regional overviews (*ibid*, 22, D2.1, D3.3.3, 18, 22). Early iron production and its relationship to other technologies has also been underlined (*ibid*, F3.1, 31) as has the importance of routine radiocarbon dating using single-entity approaches (*ibid*, B2.2.1-2, 4-5).

lix. Burials

Academic

Much basic work remains to be done on later Bronze Age and Iron Age burial rites, although research has hitherto been limited by the poor preservation of skeletal material.

The recovery of any bone remains will be vital to improving our knowledge of the basic anthropology of the population of the period. Evidence for associated mortuary rituals also has wider implications for our understanding of late prehistoric society. AMS dating of cremated bone offers the potential to improve our chronological understanding of later prehistoric burials; it may also help identify previously invisible Iron Age burial practices, and will give a greater chronological control over our understanding of Bronze Age monument use.

The debate over the origins of Beaker pottery is a fundamental one for Bronze Age archaeology, and one that can be informed by the development of new techniques, such as isotope and DNA analysis.

Strategic

The characterisation of areas of possible survival of later prehistoric burial types (possibly relating to soil type or archaeological context) may impact on advice from development control officers.

Development control officers should highlight the potential value of Bronze Age bone assemblages and encourage excavators to take expert advice at the earliest opportunity. They should stipulate that all later prehistoric cremated human bone is dated using AMS techniques, and, where relevant, use Bayesian statistical techniques in their analysis.

Education

Any evidence relating to Iron Age burial will significantly impact on our basic knowledge of later prehistoric society. This should be recognised in subsequent popular synthetic publications.

Infrastructure

Any bone recovered may be in poor condition due to hostile soil conditions or cremation. This may require the exploitation of specialist techniques available through the universities. There is also scope for wider comparative work with other areas where Iron Age burial is largely absent, for example, north-west England and southern Scotland. A synthesis of the regional evidence would be suitable for an MA or MPhil dissertation.

Links with other agendas

Understanding the British Iron Age: an agenda for action recommends the careful excavation of all graves and cemeteries, including the areas around graves as well the use of radiocarbon dating for human remains (Haselgrove *et al* 2001, B2.2.4, C2.3 12-13). With the benefit of further information, the zones where Iron Age burials are most likely to occur could be predicted (*ibid*, 13).

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15. Roman research agenda

The archaeology of the Roman period in the North-East has a high profile due to the international importance of Hadrian's Wall (one of the region's two World Heritage Sites) and the presence of a series of well-preserved forts on the Wall itself and in its hinterland. The visible nature of these military sites encouraged an antiquarian interest from the early 18th century, and has generated a long history of archaeological investigation. The regional strength of Roman military archaeology was recognised in 1924 when Eric Birley was appointed director of archaeological excavation at the University of Durham and this led to the establishment of one of the first departments of Archaeology in the country.

Although the military archaeology of the region has had the highest profile, there has also been significant work on civilian sites on both sides of the Wall. This includes research in the uplands of the Cheviots and North Pennines, as well as the excavation of sites in lowland east Durham and Cleveland.

In addition to academic, research-led excavation, the advent of developer-funded fieldwork has produced significant insights into Roman archaeology, such as the recent work on Hadrian's Wall in urban Tyneside and at civilian sites in lowland Durham and Teesside, such as Ingleby Barwick (Figure 62), Sedgfield East Park and Faverdale, Darlington.



Figure 62 A small hypocausted building under excavation at the Quarry Farm villa site, Ingleby Barwick, Stockton-on-Tees (Teesside). © Archaeological Services Durham University

Gaps in knowledge

Roads

The basic layout of the Roman road network in the region is well understood, although there are still gaps where the precise route is conjectural. In addition to these major roads, there would have been a network of minor routeways, about which relatively little is known.

Military infrastructure

Although several marching camps have been recognised, there has been little excavation on them, and their chronology remains unclear. The precise nature of the Stanegate is still debated. Although some of the associated forts, such as Corbridge and Vindolanda have been investigated, we still know little about others, such as Newbrough.

Hadrian's Wall has been the subject of extensive study, although it is only recently that significant work has taken place along its course in urban Tyneside, and there is still some debate about the precise constructional sequence. Major work has been carried out on most Wall forts, although there are some gaps, perhaps most notably Benwell. For other sites, such as Halton Chesters, the publication of earlier excavations remains a priority.

South of the Wall, work on the forts along Dere Street has been less intense, and the publication of significant excavations at Binchester and Piercebridge is long awaited. In general, there has been little excavation on the Dere Street forts or those associated with the Stainmore Pass over the Pennines since the 1970s. Although geophysical survey has been undertaken, this has limitations, particular as it furnishes no chronological information. A major lacuna in the distribution of known forts in Durham and Cleveland is the lack of any known military installations along the coastline. Whether this absence is real or due to the destruction of sites through coastal erosion is unclear.

North of the Wall, there is patchy excavation coverage. Little work has taken place since the 1930s and 40s on the remote sites at Chew Green, Risingham, and Learchild, and no significant work at all at Blakehope. There are also gaps in the distribution of forts. Again, there are no known coastal installations, and fewer forts than might be expected along the Devil's Causeway.

Native settlement

Despite the recent discovery of several small villa-type sites, there is little excavated evidence for civilian or native settlement between the Tees and the Tyne. This absence is particularly noticeable in the South Tees Basin, possibly due to the marshy conditions which may have prevailed. A similar absence is noticeable between the Tyne and Wear, although there is some cropmark evidence. Few settlements have been identified from the corridor of the Wall itself, beyond the excavation of the site at Milking Gap. To the west, the North Pennines is mainly devoid of recognisable Roman settlements.

This lack of evidence to the south of the Wall contrasts strongly with the pattern known to the north where the higher level of fieldwork, particularly in the Cheviots, has identified many native sites. Nevertheless, there are still notable gaps, particularly to the north of the River Coquet and along the coastal plain.

Towns and *vici*

Although *vici* developed around many Roman forts in the region, they are still poorly understood. Despite extensive recent geophysical work on many sites, their precise spatial limits are still little known. The detailed chronology of these sites is also poor due to the relative lack of excavation.

Material culture

Some aspects of Roman material culture are well published, such as the large bodies of small finds, but there are still notable gaps, seen most clearly in pottery studies. Despite large assemblages of pottery, patterns of local production remain obscure, while the use of pottery on native settlements is understudied.

In general, local industrial production is poorly understood. There is an absence of evidence for lead and silver mining from the North Pennines, despite the suggestive location of the fort at Whitley Castle (Cumbria). Although coal is known from several Roman sites, no evidence has been identified for its extraction. Fragments of briquetage are an indicator of local salt production, probably around Coatham (Teesside), but no remains of commercial extraction have yet been found.

Religion

Despite the epigraphic evidence and excavation on several temple sites related to forts on the Wall, little is known about the wider nature of Roman religion, no civilian religious structures have been excavated. There is extensive evidence for votive deposition in watery contexts, but no overall synthesis of this material. The study of burial rites has been hampered by the absence of any extensive excavation on a Roman period cemetery. The little evidence that does survive (mostly epigraphic) is mainly related to military burial; nothing is known of civilian practices, particularly away from *vici*.

Environmental evidence

The environmental evidence is variable. The lack of deep deposits has led to a limited survival of insect remains, though the waterlogged deposits at Vindolanda must surely have potential. Although some plant macrofossils survive from civilian sites there are, surprisingly, few assemblages from military sites, and those that do exist belong to forts from the Wall itself, with nothing surviving from forts to the north or south. In contrast, there are several faunal assemblages from military sites, but little from civilian sites.

Potential of the resource

Despite extensive work on the military remains of the region there is still great potential for further work, building on existing knowledge and filling in gaps. There are still many forts which have not been extensively excavated, and



Figure 63 A section of Hadrian's Wall preserved in a shallow valley in central Newcastle. © Archaeological Services Durham University

it is clear from the recent discoveries along the course of the Wall in Newcastle (Figure 63) and the long-term work on South Shields (Figure 64) and Wallsend that Roman remains can survive in seemingly unpromising urban contexts. This has important implications for such forts as Benwell, where extensive Roman stratigraphy is likely to survive. The recent increase of geophysical surveys on Roman sites has shown the potential of the technique when applied to Roman sites, for example, the exceptional preservation of remains at the fort and *vicus* at Lanchester.

Development-driven archaeology has also led to an increase in the discovery of civilian settlements in south Durham and Cleveland, and south Northumberland, and these areas have further potential. The use of large-scale, open area, strip-and-record strategies is doing much to plot the full extent of these sites and situate them within their wider landscapes. Geophysical survey has again proved crucial, where sites rarely produce good cropmarks. In upland areas, recent aerial survey has led to the identification of many new settlements of possible Roman date. These require further investigation.

The sheer quantity of excavation on Roman military sites has produced huge quantities of material culture, with a major research potential. The small finds from nearly all major excavations are well on their way to publication, giving the region an internationally significant resource which allows more complex synthetic work to be carried out, as well as comparison with assemblages from other Roman military frontiers. The potential for internationally important

quantitative and qualitative research on relatively prosaic objects should not be underestimated.

There are also large quantities of ceramics. The distinct chronological horizons and often limited periods of occupation mean that forts can help provide important chronological information about pottery, both within Britain and internationally.

Finally, it is important to be alive to the possibilities afforded by the extensive corpus of epigraphic material surviving, and its potential for further research, particularly in providing comparisons with other bodies of material within Britain and beyond.

Research Agenda

Key research themes

R.1 Landscape survey

Outside small areas of the uplands there has been a noticeable lack of large-scale landscape survey work. This type of work is essential if an improved understanding of the relationship between sites and the way in which they exploited their surroundings is to be achieved. Although such a major project would be of benefit in almost any part of the region, it would be particularly valuable in the following specific areas:

→ the Tees lowlands between Darlington and Barnard Castle (including Piercebridge). This area



Figure 64 Excavations, funded by the Heritage Lottery, being carried out within the central area of the Roman fort at South Shields (Tyne and Wear). ©Tyne and Wear Museums

supported intense later prehistoric and Romano-British occupation (including villas) but there is little threat from post-medieval and modern development;

- the route of Cade's Road from the Tees to Durham. This project could employ a range of techniques to detect Iron Age, Roman and post-Roman activity associated with this significant communication route;
- the East Durham Plateau (extending to the coast to include South Shields, Sunderland, Seaham, Peterlee, and Blackhall), including a mapping programme and targeted aerial reconnaissance of this unexplored landform which is known to contain at least some later prehistoric and Roman occupation;
- the Northumberland Coastal Plain. This fertile area is likely to have been subject to intense occupation during the Iron Age and Roman period, but relatively little is known in detail. The extent of possible Roman military activity in the area, including roads and any coastal installations, remains unclear.

Such work should include field-walking, shovel pitting, aerial photography along with targeted geophysical survey and excavation. A project of this kind, with its focus on extensive survey, would offer an ideal opportunity for wide community involvement, allowing the possibility of bringing funds from the Heritage Lottery Fund, particularly via the Local Heritage Initiative and its successors (see also EM2 and MD1).

R.2 Fort and *vicus* project

A single research project might usefully encompass both a fort and its attached *vicus* and so lead to a greatly improved understanding of the integration between these two site types. Of particular value would be a comparison of the chronologies of fort and *vicus*.

Such a project could include extensive geophysical survey with carefully targeted excavation. A large-scale research-driven project such as this would require considerable resources, probably only available via academic funding bodies, such as the AHRC. An alternative is to explore the possibility of packages based on regeneration funding; much could be learned about fort/*vicus* relationships through relatively modest tourist-development based projects at Lanchester or Binchester, for example.

R.3 Relationship between forts and earlier settlements

The relationship between Roman forts in the North-East and their Iron Age predecessors is still poorly understood, but has the potential to improve understanding of the function of forts and patterns of integration between native communities in the early stages of Roman rule in the region. The relationship must be explored between forts and the settlements that directly preceded them, and also with earlier settlements in the wider landscape. Such a research project may require some excavation, but extensive survey including field-walking, geophysical survey and the use of aerial photographs would be essential to allow each fort to be firmly situated within the pre-existing late Iron Age landscape.

R.4 Votive deposition

Another objective is to improve understanding of long-term patterns in votive deposition practices in the region in the Late Iron Age and Roman period. There should be particular focus on continuity in the types of locations used for such ritual behaviour, both at a landscape scale (for example, watery areas) and within settlements and forts (for example, ditch terminals). Although this research should focus on the North-East it is essential to incorporate a study of wider patterns in the north of Britain and indeed the province as a whole. Such a research topic would be ideal for doctoral research.

R.5 Roman cemeteries

Very little is known about Roman cemeteries and burial practices in the North-East. Few sites have been excavated, with little human skeletal material recovered. Although it is likely that most civilian and military sites would have had their own burial grounds, their precise location is rarely known. There is a need for increased research into this important aspect of Roman life; extensive excavation of a cemetery would be extremely valuable.

Key research priorities

Ri. The Iron Age to Roman transition

Academic:

Although the general political events related to the Roman conquest of northern Britain are well known, the social impact of the military takeover is poorly understood. There is likely to have been regional variation in both the pre- and post-conquest landscapes.

One priority is to establish whether changes recognised in the archaeological material date to before or after the advent of the Roman military. Further analysis of existing excavated material might reveal which pre-Roman Iron Age sites continued past the Roman conquest and which ones did not.

A particular priority is to clarify the nature of this transition in Northumberland. The work of George Jobey has been extremely important, but there is need to revisit the topic of so-called 'Jobey sites', particularly to establish a more precise chronological understanding of these settlements.

It is essential that all elements of the settlement hierarchy are further investigated; in particular further work should be carried out to assess the extent and significance of the abandonment of hillforts in the Cheviots (and elsewhere).

Although the oppidum of Stanwick is just outside the region, its influence may have been felt across much of south Durham and Cleveland. One major research area must be a more detailed exploration of the Roman military and administrative response to Stanwick. Can comparable sites be found in the region? In the early Roman period there is a concentration of early Roman imports around Scotch Corner; how far was this due to the earlier presence of the oppidum? How far was the wider network of known and possible villas (for example, Faverdale) and small towns (for example, Piercebridge and Catterick)

influenced by the presence of this important focus of pre-Roman Iron Age occupation?

Strategic

Specifications for excavation on sites of late Iron Age or early Romano-British date should have adequate provision for establishing precise site chronologies. This might include the use of high-resolution radiocarbon dating and full analysis of ceramic assemblages, including thermoluminescence dating.

Any re-dating of previously known sites should be fed back into the region's HERs/SMRs.

Education

There is scope for further research on the area around Stanwick to involve significant levels of community involvement in field-walking programmes.

Infrastructure

Comparative work on the nature of the Roman transition in the regions to the east and west of the Pennines is needed. Although both Stanwick and Catterick are just outside the southern border of the region, research into the hinterlands of both sites should be co-ordinated with work in the North-East. A better understanding of the chronology of Late Iron Age/Romano-British coarsewares is fundamental here.

Links to other agendas

The transition from Briton into Roman was one of the key 'processes of change' requiring further work in the English Heritage research agenda (English Heritage 1997, 44, PC4). Rural Settlement is also one of its major thematic research priorities (English Heritage 1991, 51, T3). James (2001, 88) notes the need to dig indigenous sites to gain 'a fuller picture of regional patterns within which military communities were planted, to see what evidence there may be for contacts and interaction or (equally important) continued divergence'. He also notes the lack of follow-up on the work of George Jobey, arguing for more interventions into native sites. Crow (2002, 100) indicates the need for improved chronological evidence, using high precision radiocarbon dating; the importance of re-evaluating British oppida and related settlements has also been noted elsewhere (Burnham *et al* 2001, 68). The Study Group for Roman Pottery Northern Regional Group identifies the need to further our understanding of pottery supply to rural sites and urban centres; it has also advocated carrying out hinterland projects in order to place rural sites in their wider landscape context (Evans and Willis 1997, 7.2, 7.3). The same group prioritises a better understanding of the continuation of Iron Age pottery traditions through the Roman period (Evans and Willis 1997, 12.2).

Rii. Roads and communication

Academic

The Roman communication network in the region is only superficially understood and a greater understanding of its development is a priority. This research is intimately linked to the development of the earliest military infrastructure of the region, such as the Stanegate.

The work of Margary (1973), still the main source for roads in the region, should be revisited. Particular focus needs to be placed on exploring the putative course of Cade's Road and the installations along it, and the possibility of a road from Newcastle/Benwell to the Devil's Causeway. There has been very little excavation of roads in general and a better understanding of the network of minor roads and trackways in the region would be welcome, especially exploiting the potential of aerial photography and geophysical survey.

There should be a particular focus on the Stanegate. Although some of the associated forts, such as Corbridge and Vindolanda have been investigated, we still know little about others, or about pre-Hadrianic dispositions east of Corbridge, and the relationship between sites, such as South Shields and Washingwells to the Stanegate; in the case of Washingwells further work should establish the chronology of the fort.

Undated marching camps might be targeted for small-scale excavation to try and establish their chronology and major re-evaluation of the aerial photographic evidence could identify further possible sites. This would help to improve our understanding of Flavian forts and marching camps.

The role of riverine communication and coastal installations related to seaborne trade should be researched. What evidence is there that the *Classis Britannica* operated in the North-East? Is there any evidence for Roman lighthouses? As a known Roman fort with evidence for a possible surviving Roman shipwreck South Shields is a site with high potential to address this topic.

Strategic

There should be consistency in approaches to recording probable and possible Roman roads on the region's HERs/SMRs, exploiting the potential of GIS techniques. Coastal installations should be assessed for potential threat from erosion and where necessary appropriate management regimes put in place.

In many parts of the region marching camps and small forts may not appear as cropmarks; large-scale geophysical survey must be incorporated into the site evaluation process.

Education

There is great public interest in Roman roads, with much enthusiasm for spotting stretches of potential roads. This existing public audience could be harnessed and on-going research projects better structured. Much of this work is based on relatively simple map work and ground observation. There is good potential for basic fieldwork and geophysical survey to confirm the Roman identity of reported sites, but clear lines of communications between this local work and the HERs/SMRs and archaeological curators must be maintained.

Infrastructure

Many major Roman roads cross internal county boundaries. There is a need to co-ordinate work on these roads to ensure consistent approaches to their study.

Links to other agendas

n/a.

Riii. The Roman military presence

Academic

Despite its focal role in archaeological research in the Roman period in the region, reflected in its inscription as a World Heritage Site, further research into Hadrian's Wall is required (for example, Crow 2004). Though the Wall is visible along much of its course, further investigation is warranted into the path of the Wall in urban Tyneside. There is also potential for previously unrecognised contiguous elements of the Wall system to be discovered.

The other main focus for research is the impact of the Wall on its surroundings. What was the impact of the creation of the frontier on native society. Was there a deliberate removal/clearance of sites in the vicinity? This links into a wider need to date the native sites found in Tim Gates' aerial survey of the Hadrian's Wall corridor, and sites from other aerial work across the whole region. As well as the influence of the Wall on its immediate hinterland, it is important to consider the difference between native societies to north and south. Is this a consequence of the Wall or does it reflect pre-existing differences?

Increased environmental work will also improve our understanding of the environmental impact of the Wall, such as the extent of forest clearance and the resources needed for both its construction and the surrounding infrastructure (stone, lead, iron, wood, etc).

Research on the forts to the south and north of the Wall has generally been less focused and coherent, though there have been some recent exceptions. Amongst the basic research priorities for the southern forts is the need to expand our knowledge of their interiors and their related *vici*. Particularly poorly understood is the fort at Whitley Castle; is it related to Roman lead mining in the North Pennines? Does it have a *vicus*? Just to the south of the Tyne, the date of the foundation of the fort at South Shields remains uncertain. Was there a military establishment at Gateshead?

A number of probable forts, at Wreckenton, Elstob and Picktree, have been identified using aerial photography by Raymond Selkirk. The nature and extent of these remains should be evaluated through a programme of fieldwork. More generally, further work on the Dere Street forts would be greatly facilitated by the full publication of the excavations at Binchester and Piercebridge. There are indications from the *Notitia Dignitatum* that the units on the southern forts changed in the 4th century. Is this reflected archaeologically? How does this affect the *vici*?

Amongst the basic research priorities for the northern forts is the need to expand our knowledge of their interiors. It is also important to establish the number and extent of associated *vici*. There is an apparent absence of sites along the Devil's Causeway. Is this gap real or apparent? Why does a Roman road head towards Tweedmouth? Is it because of the presence of a military establishment? What is the identity of the site at

Learchild? In addition to the study of known systems of forts, it is important also to explore areas where there are no forts but where we might expect to find them. This is most apparent along the coast of the region. Surprisingly few Roman military sites have been recognised. Is this an accident of research or due to erosion? Is there any evidence for Roman activity at the mouth of the major rivers to the north of the Wall, such as the Tweed, the Coquet, the Blyth and the Aln?

Finally, research is required into the function of forts. Were all forts established for purely military purposes or do some represent an initial attempt to establish urbanism and local self-government (using the native elite?), as at the Augustan site of Waldgirmes (Germany), and elsewhere? How much did the function of forts change over the period of their use? Forts should not be studied separately from their *vici* and vice versa; the populations and economies of these two site types would have been closely integrated and their development closely linked.

Strategic

Much of the Wall is a Scheduled Ancient Monument, although in built-up areas, both in urban Tyneside and in villages, remains are not protected in this way. Any development-driven archaeology here must be carried out within a research context. Reporting of such work should not be limited to 'grey literature'.

A better understanding of the sites identified along the Wall corridor will entail a campaign of targeted excavation, which balances conservation and research. Fieldwork should evaluate the date and preservation of sites, which must feed into site management and protection.

It is clear from recent geophysical work that the *vici* often extended beyond the current scheduled area; full surveys of all the *vici* should be carried out in advance of re-consideration of protected areas.

Finally, any work on Hadrian's Wall and the associated military infrastructure must be placed firmly in an international context. The world importance of the Wall is highlighted by its status as a World Heritage Site, and moves to increase modern links between Hadrian's Wall and the Antonine Wall, as well as the wider integration with research on other important Roman limes structures further emphasise this dimension of the region's Roman heritage.

Education

New results and perceptions should feed through into on-site interpretation and popular publications, as well as into more academic outlets.

Away from the Wall the public interpretation of the standing remains is more limited. Binchester Roman fort is open to the public, and Lanchester has an active local history group. It is important to harness local and regional interest in these forts because there is particular potential for community involvement in field survey (field-walking and shovel pitting) of their immediate hinterlands.

Infrastructure

The Wall crosses regional and county boundaries. It is essential that any major research projects liaise within the wider Wall area to ensure consistency of approach.

Links to other agendas

The forthcoming *Hadrian's Wall Research Agenda* will contain a much more detailed agenda for Wall and its hinterland.

Crow (2002, 104) also notes the need for further research on outlier forts and their environs, as a contrast to the better-known Wall forts.

The Study Group for Roman Pottery highlights the need to publish the ceramic assemblages from Housesteads, Wallsend, High Rochester and Risingham and the extensive excavations at Piercebridge (Evans and Willis 1997, 15.2). This has been echoed by Crow (2002, 103).

Riv. Native and civilian life**Academic**

Our appreciation of the relationship between the Roman military and the native and civilian populations of the region should be improved, whether native British communities or groups from elsewhere in the Empire.

To what extent was the economy of native communities influenced by Roman invasion and control? Did indigenous communities continue to farm and carry out industry in a native manner, or did they change their ways under Roman influence? What impact did the environment and native society have upon the deposition of Roman military forces during the conquest? How did native peoples react to Roman soldiers (and vice versa)?

Roman Iron Age settlement has traditionally been dated according to ceramics, glass or metalwork typologies. We currently understand there to be a decline in native settlement following the second century. If we are to clarify how rural settlement develops in the early first millennium AD, we must begin to build absolute chronologies. The Northumbrian uplands are home to a variety of rectangular structures, many of them enclosed, which Jobey believed to be Roman in date. Little excavation has taken place here, however, and although we rely on a typological understanding of architectural types, it is possible that these structures span the period from the later Iron Age into the early medieval period.

Are the military and native populations quite as distinct as traditional models make them seem? Do we have settlements that acted as local administrative centres and were independent (to a degree) from the army? What is the difference in civilian settlement between the north and the south of the Wall? It is important to avoid the easy elision of 'native' and 'civilian': many civilians in the region would have come from outside the region (either from elsewhere in the Britain or from abroad), whilst it is possible that some 'native' groups could have operated closely alongside the military, such as the *areani*.

In addition to native communities there were other important civilian centres, most notably the *vici* attached to many forts. There is still much basic work to be done in mapping the distribution and extent of *vici*, both at a regional level and for individual sites (see Riii).

There is a need to improve our knowledge of the chronology of the *vici*, particularly the date at which they fall out of use. Who were the *vici*? What was the relationship between the *vici* and their forts? Was it one of economic dependency or were the *vici* self-sufficient? There are also wider questions about this class of site: to what extent was there real urbanisation in the North-East? What distinguishes Corbridge and Piercebridge from the *vici*? What is the function of other civilian sites in the region such as East Park, Sedgefield (see cover and Figure 29)?

A final research topic is the spread of the villa form in North-East England. A number of sites, such as Faverdale, Old Durham, Quarry Farm in Ingleby Barwick and Holme House have been suggested as villa sites. More work should be carried out at these, and similar future sites, to establish whether they ever acquired a villa house. An important related question is who built and lived in them? Were they the homes of the descendants of the local, pre-Roman elite or immigrants in the aftermath of the Roman conquest. The spatial organisation and architecture of these sites should be explored more thoroughly. To what extent is masonry construction used? Is there regional consistency in their spatial layout or is there heterogeneity amongst this class of sites? How did these villas fit into their wider landscape? Do networks of fields and paddocks surround them? What was their relationship to larger rural/urban settlements?

For populations living in villas and *vici*, what do artefactual and ceramic assemblages tell us? How do they relate to assemblages at military sites? This artefactual material will also help improve our chronological understanding of these sites. Do they grow out of native Iron Age settlements or are they entirely new establishments? How late do they continue in use? Is there any evidence for sub-Roman occupation?

The provision of agricultural goods to markets by villa estates would have required good communication. Can the presence of roads be used as a predictive tool for identifying further sites? (see also Rii).

Strategic

When future sites are excavated, work should be preceded by large-scale geophysical survey and field-walking. Where possible, open-area, strip and plan excavation strategies should be employed.

Future excavations of native settlements must collect samples for absolute dating with a view to using up-to-the-minute techniques. They could be used to re-assess the current typology-based understanding of rural settlement in the region. Full surveys on all *vici* and potential *vici* should be carried out to define their extent and ensure adequate protection is in place.

Education

The response to recent excavations on the settlement at Faverdale demonstrates the intense public interest in Roman sites. Future excavations should ensure that, where possible, there is a full programme of public site visits and appropriate outreach material is available.

Infrastructure

Research on the *vici* and urban settlements of the North-East should be carried out in the wider context of similar sites in the North-West.

Where possible known sites should be subject to wider research, using field-walking and geophysical techniques in order to improve our knowledge of their hinterlands. This might make an appropriate study for a local archaeology group, possibly with funding from the Local Heritage Initiative and its successors.

Links to other agendas

Millett (2001, 64) notes that new approaches to urbanism within Roman Britain should include forts as well as *vici*. James (2001, 86) highlights the need to understand further the relationship between forts and their associated *vici* and the wider civilian landscape.

Burnham *et al* stress the need for future research on the size and identity of urban populations; they also highlight the impact of settlement development on local agricultural and industrial production, particularly of military *vici* on their hinterland (Burnham *et al* 2001, 75, 70). An extended programme of sampling is suggested across a wide range of urban and rural sites. James (2001, 84, 88) notes the need to characterise the artefactual signatures of *vici* and forts, as part of an exploration of the relationship between fort-vicus complexes. This reflects his wider prioritisation of *vici* as an important focus for research (James 2001, 86).

English Heritage identifies Military and Civilian Interaction as one of its chronological priorities, noting the opportunity presented by existing significant datasets to provide a synthesis as well as more complex models of these processes (English Heritage 1997, 49, H1).

Millett (2001, 64-65) highlights the need to reconsider the criteria for urban sites, and to reflect upon what characterised Roman urbanism, building models based on archaeological material rather than from documentary approaches. He advocates exploring the following variables: size, settlement density, planning, public buildings, space and display, residence patterns, house types and functional differentiation/specialisation or intermixing. He also emphasises the importance of understanding major centres in the frontier zone, including Corbridge and Piercebridge. English Heritage (2001, 52, T2) underline the wider study of urbanism as one of its major thematic priorities, especially exploring patterns of deposition and consumption.

Taylor (2001, 58-59) presses for research into large nucleated settlements/'small towns', including both their pre-conquest origin and their relationship with surrounding

rural settlements. Millett (2001, 62) notes the potential for a series of systematic studies of important green field sites, particularly lesser, nucleated sites. Burnham *et al* (2001, 73) look to gain a comparative understanding of minor towns, roadside settlements and military *vici*. The Study Group for Roman Pottery Northern Regional Group highlight the need to understand the nature of supply to *vici* and their wider integration with neighbouring rural sites (Evans and Willis 1997, 4).

A more theoretically informed approach to rural settlement, particularly the use of space and its change over the Roman period has been called for by Evans (2001, 49). Taylor (2001, 56) advocates increased research into the articulation of the rural economy. English Heritage (2001, 51, 52, T1, T3) identify Settlement Hierarchies and Interaction and Rural Settlement as major thematic research priorities, noting the need for extensive sampling of the environs of important sites.

Rv. Material culture

Academic

More research into Roman artefacts from the region would be welcome. Although they are mostly published, particularly those from military sites, there is a need to capitalise on this vast quantity of accessible material. What suite of finds might be expected from a rural settlement, a *vicus* or a fort? (Allason-Jones 1988; Reece 1995). How can these assemblages be used to explore topics such as age, gender, class and ethnic identity? In addition to studying patterns relating to the use of small finds, there is still potential to improve our appreciation of their production, for example where objects are being made and by whom. It is important to be more alert to technical advances in the study of small finds research.

Despite the large quantity of excavated ceramics from the region, there is still much important work to carry out. The large, stratified collections from the three Tyneside forts offer an opportunity for a significant work of syntheses. There is also need for a re-examination and synthesis of the pottery from turrets and milecastles, and to look again at the pottery from Benwell.

Mechanisms of pottery supply also require investigation. These include the trading links which bring in ceramics in from outside the region, as well as native pottery production. Further petrological analysis of coarsewares may help locate local production. There should be full publication of the kilns excavated at East Park, Sedgfield and Piercebridge.

Strategic

Briefs for PPG16 excavation on Roman period sites should ensure adequate provision for full analysis of all ceramics recovered. Where necessary, petrological analysis should be specified. The recording of Roman material through the Portable Antiquities Scheme must be consistent.

Education

This project would need to capitalise on the potential offered by the Portable Antiquities Scheme for the recovery and

recording of Roman material culture. The Scheme should have strong support locally from within the heritage sector.

Infrastructure

Although small finds from major research and development-driven excavations are likely to reach publication, it is important to ensure that finds, including pottery, recovered on smaller PPG16 excavations, do not languish as 'grey literature'. On-going training of small finds and pottery specialists is vital and students should be encouraged to carry out small finds and pottery-related dissertations at undergraduate and postgraduate level.

New methodological approaches to the analysis and interpretation of material culture should be explored (for example, Cool 2004).

Links to other agendas

Foodways' and patterns of consumption are highlighted by Hill (2001, 17) as fundamental to the recognition of the 'process and progress of Romanisation/creolisation'. He particularly notes patterns of deposition and context. This will require the recording of all classes of ecofact and artefact to the minimum standards recommended by appropriate specialist groups, and the provision of adequate contextual data at archive level at least. Burnham *et al* (2001, 75) advocate the need to clarify the production, distribution and consumption of different categories of goods related to particular classes of settlement. James (2001, 88) notes possible dietary variation between different classes of military site. The Study Group for Roman Pottery Northern Regional Group observes the potential of the ceramic evidence to inform aspects of the organisation of the army, such as its ethnic composition and the value of researching military and civilian supply networks of samian ware (Evans and Willis 1997, 3.9, 3.8).

The Study Group for Roman Pottery Northern Regional Group prioritises the study of Roman pottery workshops, including the use of magnetometry surveys to identify possible sites and the full publication of excavations (Evans and Willis 1997, 9.1, 9.2).

The importance of exploring social identities, such as class, gender and age, and moving beyond simple models of 'Romanisation' is highlighted by Hill (2001, 15-16). More quantification is called for by Allason-Jones (2001, 22-23). This is echoed by James (2001, 84), who argues for the identification of artefactual 'signatures' of military and civilian sites. The creation of 'phased spectra' of material culture from sites to aid intra-site comparison has also been promoted by McCarthy (2002, 110).

Burnham *et al* (2001, 74-75) recommend more consistent and explicit recovery procedures, and standardised presentation of artefacts and contextual information. The Study Group for Roman Pottery Northern Regional Group advocates the integrated study of finds assemblages, bringing together research on small finds and pottery, and the increased use of scientific techniques, including residue analysis and neutron activation (Evans and Willis 1997, 11.4-5).

McCarthy (2002, 110) points to the challenges of taphonomy and residuality on rural sites.

Rvi. Trade and industry

Academic

Further research is required into Roman industry, including primary mineral extraction and the production of ceramics and metalwork.

Additional fieldwork in the North Pennines may locate traces of lead and silver working, including both mining and smelting sites (and silver-extraction works, if these were indeed separate from smelting sites). This should include geochemical approaches as well as conventional fieldwork. What is the role of Whitley Castle?

Another important extractive industry was the salt-making industry around the Tees Estuary. Although briquetage is present at late Iron Age and Roman sites in the Tees Lowlands, Pegswood Moor and beyond, very little is known about the location and technology of the industry itself.

Evidence from the Vindolanda tablets suggests the army was sending some distance for supplies which would be expected to be available locally. How far does this hold out for material which is archaeologically visible, for example, small finds, pottery, etc?

More research into Roman quarrying and stone extraction would be valuable, combining field research with other sources such as the epigraphic material, some of which is *in situ* and some in the region's museums.

Strategic

Early mineral-working sites should be dated using absolute dating techniques, otherwise it may not be possible to distinguish Roman sites from earlier and later examples. Where located, appropriate conservation measures must be put in place, possibly through the DEFRA Environmental Stewardship Scheme or via Scheduling. Full analysis of ceramic assemblages and increased understanding of local metal production and processing are priorities.

Education

The historic importance of lead mining to the North Pennines is highlighted by the North Pennine Lead Mining Strategy. Any significant campaign of research into Roman lead mining should engage with existing interest in the wider topic.

Infrastructure

Provision of appropriate metallurgical knowledge within the region must capitalise on any discoveries relating to metal and ore processing.

Links to other agendas

The Historical Metallurgy Society highlights the importance of locating, investigating and preserving Roman lead smelting sites (Cranstone 1992, 9). The Study Group for Roman Pottery Northern Regional Group notes the need to

research military and civilian supply networks of Samian ware (Evans and Willis 1997, 3.8).

Rvii. Religion

Academic

The North-East possesses an extensive corpus of epigraphic material, and the excavation of a number of religious sites, such as Coventina's Well, has taken place. However, many important questions remain to be asked about religious practices in the region.

There are relatively few Roman or Romano-British temple sites, particularly away from military establishments. Are these being missed by archaeologists or did religious observance take some other form? Much of the surviving evidence for religious practice relates to the public and official rites of the Roman army; can we identify changes in religious practice at military sites which might reflect changes in units? Do all forts have mithraea? What is the extent of Christianity in the late Roman period? Is it purely a military phenomenon?

Moving away from public practices, what kind of domestic religion was practiced? How can we recognise native religion when it is filtered through Roman material culture? Is this necessarily true, or are we just looking in the wrong way? Are the so-called 'Celtic stone heads' really native British, or are they Gallo-German in origin?

A wider understanding of the ritual and symbolic landscapes of the region could be achieved, both north and south of the Wall. Further research and full publication of the material recovered from the river at Piercebridge is essential. How widespread was the deposition of material in natural features, such as bogs, hills and rivers?

Strategic

Any assessment of the context of known spot finds of Roman metalwork should establish whether they are from possible ritual contexts (for example, former river channels, mires, etc). This will involve co-ordination with the Portable Antiquities Scheme.

Likely contexts of votive deposition on settlement sites must be characterised and appropriate site sampling techniques established.

Education

n/a.

Infrastructure

The creation of an on-line, searchable database of epigraphic material, either on a regional basis or on a wider northern British scale (such as the *Celtic Inscribed Stones Project*: www.ucl.ac.uk/archaeology/cisp/) would be invaluable.

Links to other agendas

Crow (2002, 104) suggests using GIS to understand the 'Sacred Landscape of Hadrian's Wall', investigating the locations and origins of shrines and sacred objects from the military zone.

Rviii. Burial

Academic

A small number of excavations have taken place on Roman burial sites in the North-East (Lanchester, South Shields, High Rochester), and these are supplemented by an extensive epigraphic record (see Rvii above).

It is important to develop new research questions and ask for central questions to be addressed, such as: is the idea that cremation might have prevailed in the late-Roman period in the military north based on evidence, or merely the absence of evidence (successfully recovered late-Roman inhumations)?

Although some cemetery locations are known, there are likely to be many more. Parallels from elsewhere in Roman Britain are a useful indicator to their likely location. Targeted geophysical work may be useful. Where were the civilians buried? How is burial outside the immediate vicinity of Roman military sites characterised?

In addition to simply identifying sites, it is important to have large-scale cemetery excavations. Excavation of burial sites within the region has been piecemeal, and it is only by exploring rites and practices that many questions can be answered. What was the effect of change of military units on burial practices? What evidence is there for ethnic grouping in burial practice (Cool 2004)? How were graves marked before and after the use of gravestones?

Further Roman period skeletal populations should be recovered. Many basic questions are still unanswered relating to stature, age and pathologies. There is also scope for exploiting the potential of isotopic analysis on skeletal material, which may identify the geographical origin and biographies of buried communities.

Strategic

Roman burials must be fully excavated and analysed, particularly if skeletal material is preserved. Where possible absolute dating should be carried out.

Large-scale geophysical survey might be used to identify burial sites related to forts/*vici*.

If burial sites related to known military or civilian sites are identified, the state and extent of preservation of the burials should be evaluated and, where necessary, protection extended to cover the burial ground.

Education

n/a.

Infrastructure

Philpott's survey of Roman burial practices should be updated (Philpott 1991).

Links to other agendas

The need to excavate more military cemeteries is noted by Allason-Jones (2001, 24).

Rix. Landscape and environment

Academic

Our knowledge of the landscape of the Roman North-East might well be expanded, including environmental evidence for farming practices.

The work of Marijke van der Veen (1992) on arable farming in the region has been of great importance in improving our understanding of Roman crop husbandry, though it incorporated a relatively small sample of material. Are the conclusions borne out by new data? What was the impact of the Romans on stockbreeding?

More pollen cores are needed in most areas, but especially away from the uplands. This material should be synthesized to inform the wider picture of environmental change. What is the environmental potential of sites along the Wall, for example Broomlee Lough, Fozy Moss, Halleepike Lough, Crag Lough, Greenlee Lough? What is the potential of wetland sites elsewhere? Further investigation of fossil soils under the Wall and its earthworks, and of ditch infills within its earthworks is vital.

Strategic

Full analysis of plant macrofossils and faunal data should be part of the brief for development-driven archaeology. There should be adequate provision for sampling and analysis of small peat deposits discovered during development-driven fieldwork.

Education

A re-evaluation of van der Veen's work could form a useful postgraduate research project.

Infrastructure

Archive information on plant macrofossils and biometrical data relating to faunal assemblages needs to be made more accessible to facilitate comparative work. It is important to identify sites with the potential for preserving lowland peat deposits.

Links to other agendas

The need to improve our understanding of rural dietary practices is noted by Taylor (2001, 55). Huntley (2002, 90) emphasises the value of charred plant remains, while Dobney (2001, 39) underlines the importance of patterns of stockbreeding and the importation of stock.

McCarthy (2002, 109) has called for a clearer understanding of the ecosystem within which all settlements operated, whereas James (2001, 88) notes the potential of small bogs for environmental evidence.

Rx. Roman-early medieval transition

Academic

The Roman-early medieval transition requires clarification. Is it possible to distinguish between continuity and re-use on Roman period sites in the 5th century?

What was the role of Christianity in the late 4th and 5th centuries?

Strategic

A re-assessment of post-Roman finds from South Shields is currently underway; similar work should be carried out for other major Roman sites, such as Corbridge and Wallsend. Margaret Snape has identified a distinct sub-Roman variant of D7 penannular brooches. Further work could identify other potentially diagnostic examples of very late/sub-Roman material culture.

Absolute dating techniques must be employed wherever possible to date very late layers on Roman sites. There should also be a reassessment, and dating, of common 'native' settlement forms, to investigate whether forms like the roundhouse continue into the post-Roman period.

Education

n/a.

Infrastructure

n/a.

Links to other agendas

English Heritage (1997, 44, PC5) underlines the transition of Empire to Kingdom (c. AD 200- 700) as one of its 'processes of change' in its research agenda.

Crow (2002, 103) calls for future excavations to target the latest Roman and post-Roman deposits.

The Study Group for Roman Pottery Northern Regional Group notes the need to develop a better understanding of the 'deromanisation' of northern pottery assemblages in the late Roman period (Evans and Willis 1997, 12.2).

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16. Early Medieval research agenda

Although there have been a series of important projects carried out in recent years in the region, including excavation at Bamburgh, Holy Island and Hartlepool, as well as a major campaign of post-excavation analysis on the earlier investigations at Monkwearmouth and Jarrow, little early medieval material or evidence for occupation sites has so far come to light through the development-control process. Despite the excavation of a number of important sites of national and European significance, therefore, overall this resource lacks strength in depth. The list of key research themes presented below will encourage the development of a more textured and nuanced understanding of the archaeology of the early medieval North-East.

Gaps in knowledge

Settlement

Despite a cluster of early medieval settlement sites known through excavation or aerial photography in north Northumberland, including Yeavering, there are few others in the rest of the region. Apart from ecclesiastical sites, there is virtually no archaeological evidence for settlement in Durham and Cleveland, beyond the marginal upland site of Simy Folds and the possible late Anglo-Saxon building at Seaton Holme. The reasons for this absence are unclear; it may be that early medieval settlements have simply not been identified or it is possible that they lie under their later medieval successors. In upland areas several sites have been suggested as having possible early medieval occupation on the basis of their morphology, but there has been no work to test these hypotheses (Coggins 1992).

There is also scant evidence for early medieval urbanism. While several towns (Hartlepool, Newcastle, Durham and Darlington) can be assumed to have pre-Conquest origins, there is precious little archaeological evidence for this, particularly following Alan Vince's re-dating of Durham Saddler Street deposits, which suggests that Durham may be a Norman construct (Vince pers comm).

Landscape and environment

Little is known about agricultural regimes and their development in the early medieval period. For example, the origin of neither the shieling system nor the open fields are understood in the North-East. Some of the boundaries and earthworks in the upland Cheviots and North Pennines may be early medieval, but there is no dating evidence.

Environmental evidence is also variable in quality. While there are pollen cores covering the uplands of the Cheviots and the North Pennines, information is lacking from the lowlands. Due to the lack of excavated sites there is also little faunal evidence, a situation exacerbated by the poor preservation of bone in acid soil.

Burial

The evidence for burial in the south of the region, especially south Durham and Cleveland is good, with surviving graves from the pagan period and the Christian

era, but there is far less information for northern Durham, Tyneside and Northumberland (though there is a cluster in the Milfield Basin area). This may reflect the difficulty in identifying early medieval burials in the absence of diagnostic Anglo-Saxon metalwork, which appears to have been less commonly used in the burial rite in these northern regions. It is possible that there may have been continuity from Iron Age and Romano-British burial rites, which have proved equally difficult to characterise.

Religion and belief

Evidence for Anglo-Saxon paganism is largely absent, reflecting the wider national pattern in which early medieval paganism has left relatively few obvious archaeological signatures. Evidence for Christianity is more extensive, but there are still several notable gaps in our knowledge. Excavation has focused on larger monastic sites (e.g. Monkwearmouth, Jarrow, Hartlepool), and less is known about the archaeology of minster churches. Despite Cambridge's work on identifying minster churches in County Durham, there has been no comparable exercise for Northumberland (Cambridge 1984). Little is known about the wider topography of ecclesiastical sites, for example the presence and extent of enclosures.

Material culture

In general, there are very low levels of material culture in the region. Pottery is exceptionally rare, and limited to a few, rare imports, some possible sub-Roman coarsewares and Anglo-Saxon cremation urns. As with other regions of the country, metalwork is not uncommon, surviving both as grave-goods and stray finds, but, in general, it is more common in the south of the region than in the north. Coinage is equally rare. Despite one or two notable clusters, such as Bamburgh/Lindisfarne and Jarrow/Monkwearmouth, the distribution of coinage is far less extensive than it is to the south of the Tees.

Apart from some domestic-scale craft production and iron working, evidence for production is also largely absent; nothing is known of coal or lead extraction or salt working, for example.

Potential of the resource

Despite so many gaps in our knowledge, there is huge potential for the future study of the early medieval period in the region. The most exciting opportunities are currently to be found in the sphere of burial archaeology. Fortunately, the region has a number of well-preserved skeletal assemblages, which create possibilities for fresh research. In addition to the important osteological work now underway, some burials have also been evaluated for the potential they offer for isotopic analysis, particularly for answering questions about population movement.

There have also been advances in the identification of burial sites, particularly in the south of the region, where several important cemeteries have been discovered during the development-control process. The appointment

of a Portable Antiquities Scheme Finds Liaison Officer and the increased dialogue with metal-detecting groups which has resulted from this has led to the identification of several other possible early medieval cemetery sites. Recent excavations on the Bowl Hole cemetery at Bamburgh also demonstrate the potential for new cemeteries in the north of the region.

There is also now a platform for advances in the study of the ecclesiastical archaeology. The 1984 publication of the *Corpus of Anglo-Saxon Stone Sculpture*, covering Durham and Northumberland, created an important resource to which can be added recent work by Peter Ryder in his role as a consultant for the Diocesan Advisory Committee in Durham which led to the reassessment of the survival of Anglo-Saxon fabric in many churches. The publication of Rosemary Cramp's seminal excavations at Monkwearmouth and Jarrow are of fundamental importance (Cramp 2005).

In the north of the region, the on-going excavations at Bamburgh Castle and work on Lindisfarne (including excavations at Green Shiel and Lewins Lane) already show the potential to transform our knowledge of the archaeology of early medieval north Northumberland. Access to the archives of Brian Hope-Taylor's work at both sites would add significantly to our understanding of this important Northumbrian nexus of power.

Another recent development is research for the English Place Name Society volume for Durham, which was completed just prior to the death of its principal contributor and whose publication is now imminent. This opens up the possibility of returning to the use of place-names as a source of evidence for early medieval settlement with renewed vigour. There is also clearly great potential for similar approaches using field-names. Finally, there have been changes in archaeological practice following the advent of developer-funded archaeology; large-scale, open-area excavations are now more common and will lead to further discoveries, quite possibly on sites originally investigated for other reasons.

Research Agenda

Key research themes

EM1. Bamburgh

Bamburgh has long been recognised as a site of exceptional importance in the history and archaeology of Northumbria. It was the focus for important, unpublished excavations by Brian Hope-Taylor in the 1970s and is now undergoing further research carried out by the Bamburgh Research Project.

It is essential that the work of the Bamburgh Research Project continues and has access to adequate funding. A number of important challenges lie ahead. Most important is a continued difficulty accessing the archives of Brian Hope-Taylor's excavations which are currently held by Historic Scotland. This issue must be resolved swiftly; if necessary, appropriate funding should be made available for the creation of a full set of duplicates.

A second important challenge is the provision of suitably trained specialists. The recent death of Elizabeth Pirie

means that there are now no specialists in the coinage of early medieval Northumbria in the region. As Bamburgh is producing a substantial quantity of coinage it is important that this is rectified. A second clear training need is for specialists in fish bone assemblages. The coastal setting of Bamburgh means that significant assemblages are now being recovered.

EM2. Large-scale landscape research project

Some of the research priorities highlighted below relate to early landscapes and settlement. Many of these issues could be addressed through a significant, large-scale field survey project dedicated to exploring an area of land of at least parish size.

Such a project should focus primarily on extensive field survey, including field-walking, shovel pitting, and woodland and hedgerow survey, with a limited amount of targeted excavation. It must take a broad chronological view; the need for similar projects has also been noted by the Roman and medieval specialist groups (see R1, EM2 and MD1).

There is potential here for substantial community involvement, drawing on both the local community and members of regional archaeological societies. This level of community participation opens up access to Heritage Lottery Fund funding streams, but it would also require access to other sources of funding, such as the AHRC.

EM3. Cemetery studies

The burial archaeology of the North-East is clearly a priority and the early medieval period has produced significant skeletal assemblages. These provide substantial bodies of data for both basic osteological analysis as well as forming useful resources for exploring more complex scientific analyses.

The North-East was open to many cultural influences, British, Anglo-Saxon, Scottish, Irish and Viking, making it an ideal area to explore the complexity of the relationship between burial rites and social and cultural identity, a research topic that could make use of traditional archaeological analysis as well as cutting-edge scientific techniques, such as single isotope analysis.

There are still clear regional gaps in the distribution of known early medieval burial sites, however. This may be partly due to the poor conditions for skeletal preservation, but it is also possible that some burials may simply not be being identified as early medieval. It is essential that all unaccompanied burials should be dated using high-resolution radiocarbon dating.

EM4. Portable Antiquities Scheme

The Portable Antiquities Scheme has now been active in the region for nearly three years. Only relatively small quantities of early medieval metalwork have been reported from the North-East, but the Scheme has much to offer in terms of improving our understanding of the early medieval archaeology of the region. For example, the recent discovery of early Anglo-Saxon metalwork in south Durham seems to indicate at least two previously unknown early Anglo-Saxon cemeteries, a site type which is still rare north of the Tees.

All reports of early medieval metalwork should be followed up by a site visit and, where appropriate, targeted excavation, field-walking or geophysical research. Given the difficulty in identifying early medieval sites of all types it is essential that the potential of the Portable Antiquities Scheme be exploited to the maximum.

EM5. Improved chronology

The scarcity of metalwork, ceramics and other small finds of early medieval date from the North-East means that the chronology of this period is still inadequate. All steps should be taken to increase chronological precision. This can be best addressed through the increased use of scientific techniques, and high-precision radiocarbon dating should become standard on early medieval sites. Where possible there should also be more routine use of other techniques such as thermoluminescence dating on possible early medieval ceramics and optically stimulated luminescence and archaeomagnetic dating on promising archaeological contexts.

EM6. Detailed analysis of an early medieval church

A programme of detailed structural analysis of one or more of the region's important late Anglo-Saxon churches is a priority. This should include full internal and external photogrammetric survey, detailed structural analysis and full geological and mortar analysis.

This research has the potential to touch on a series of vital research questions, including the chronology of church construction in the region, technological issues relating to constructional techniques and, through the study of stone sources, the wider economic influence of the early medieval church.

Key research priorities

EMi. Landscape

Academic

The early medieval landscape has been relatively little studied in the North-East, although it formed the underlying structure of the later medieval landscape of the region.

It is likely that the early medieval period saw the development of the distinctive landscape regions or *pays* that still characterise much of the contemporary landscape of the North-East. However, the extent to which the remains of the preceding prehistoric and Roman landscapes formed the basis for the early and late medieval environment is open to question, and it is important to analyse the extent of long-term continuity of boundaries, dykes and other elements of field systems. The possibility of a pre-Conquest date for some ridge and furrow should also be explored.

There is not even a basic understanding about the development of settlement from the early medieval into the later medieval period. While PPG16 work does provide occasional keyhole glimpses into this process, there is still a need for substantial long-term projects which are capable of recognising wider changes, including the evolution of field systems and a clear understanding of their environmental context.

Despite the presence of extensive upland pollen samples, the lowland and coastal areas of Northumberland are relatively under-represented. This partly reflects the perceived lack of suitable deposits, although recent work elsewhere has demonstrated their potential (Fyfe and Rippon 2004). Work is needed to identify possible suitable lowland sites for sampling, possibly through place-names. Any new pollen cores must be adequately dated.

Strategic

There is a need for large-scale landscape approaches to settlement archaeology (cf. Wharram Percy and Shapwick). The development of a substantial settlement research project requires co-operation with local landowners and accommodation with local farmers which might be reached through the DEFRA Environmental Stewardships Schemes. Large-scale, long-term research projects such as this are ideal for the involvement of the local community. Use of techniques such as field-walking and shovel pitting facilitate participation by community archaeology and local history groups.

The wider environmental context in which putative early medieval upland activity took place is poorly understood and there is a need for more pollen coring. Whilst the early medieval radiocarbon calibration plateau may present challenges, the use of AMS dating and Bayesian statistics in their calibration may limit this problem. The identification of suitable lowland peat deposits will allow appropriate management regimes to be imposed where necessary to preserve this sparse resource. This is also likely to intersect with the conservation demands of wildlife and ecology curators.

Education

The establishment of large-scale settlement survey projects, involving field-walking, geophysical survey and excavation may lead to the identification of early medieval remains. This form of project is ideal for community participation.

Infrastructure

Such large projects provide opportunities to bring together a range of different partners, including local government, English Heritage, universities and local community groups. Without the pressure on time found in commercial archaeology, such projects also provide a suitable chance to carry out experimental work using new fieldwork and scientific techniques.

Links to other agendas

The need for large-scale, interdisciplinary research projects, at parish or manor level, is stressed by the MSRG (1997). An area with dispersed settlement or mixed, nucleated and dispersed, settlement should be chosen and any such project should use a wide range of techniques, including extensive survey, geophysical investigation, analysis of environmental remains, documentary study and work on standing buildings. Rippon notes that such a project in the North could recognise the development of regionally distinctive landscapes at the end of the first millennium AD (Rippon 2003). He also highlights, more generally, the need to develop a better understanding of the early medieval period, particularly exploring the nature of continuity from the Roman period, and he too notes the need for large-scale

excavation. Cramp (2002, 125) echoes the need for large-scale targeted excavation. Esmonde Cleary (2001, 96) meanwhile advocates the utility of landscape approaches to the Roman-early medieval transition.

Rippon (2003) has highlighted the potential of recovering pollen sequences from lowland contexts, noting their importance in supplementing environmental information largely derived from the uplands.

EMii. Settlement

Academic

Despite the importance of the early medieval period in the region, little is known about settlement archaeology outside a restricted region in the north Northumberland. Most existing sites were discovered using aerial photography, but many parts of the region do not produce legible cropmarks due to the underlying drift geology. Other approaches need to be used, such as large-scale geophysical surveys in advance of development. The large-scale, open-area excavation strategies which have proved so effective in recognising late prehistoric settlements may also prove beneficial in identifying early medieval sites.

Excavations at forts such as Birdoswald and South Shields and civilian sites, such as Ingleby Barwick, are making it increasingly clear that sub-Roman occupation on Roman sites is a very real possibility, although these remains are likely to be extremely ephemeral. Any excavation work on Roman military sites needs to be alert to the possibility of the survival of late stratigraphy. There is also scope for re-assessing the archival and artefactual record of previously excavated sites. A good example of this is the current re-examination of early medieval finds from the Roman fort at South Shields.

The changing morphology of settlements is still little understood, and many current models are constructed on very little firm archaeological evidence. Research must embrace the detailed exploration of settlement morphology if it is to identify potentially early village cores. In the medieval period, the North-East shows a distinct contrast between upland and lowland settlement patterns. It is important to develop a better understanding of when this developed. Currently there is only one excavated upland settlement from the entire North-East (Simy Folds). Further excavation in the North Pennines and Cheviots may help distinguish pre- and post-Conquest structures. Clarification of the origins of the shieling system of pastoral transhumance must be a priority.

Finally, the inter-relationships between early medieval settlements need to be examined. The settlement framework that forms the basis of the medieval and post-medieval landscape should be investigated, not just to understand the basic distribution of pre-Conquest settlement, but also to appreciate its tenurial and administrative complexity. Documentary evidence is lacking in this region, so most work on this topic will be, by necessity, archaeological. Is the post-Conquest settlement hierarchy a relatively late phenomenon laid down in the 10th and 11th centuries or does it have its roots in early times? Did the administrative centres of estates,

wapentakes and hundreds have a similar late origin or are they the cores of earlier territories?

Even when possible early medieval occupation can be positively identified, in a region poor in ceramics there is a clear need to establish tighter chronologies. One avenue is the greater use of scientific techniques such as archaeomagnetic and optical luminescence dating of deposits.

Strategic

The low visibility of early medieval settlement in the region is a concern. Any sites encountered during the development-control process require extensive excavation and environmental sampling. Sites identified in other contexts require characterising and, where necessary, designation and the imposition of an appropriate management regime. Large-scale, open-area excavation may well be the best way to recover potentially ephemeral remains.

The possibility of early medieval occupation surviving within the footprint of modern rural settlements is high. Any infill development within the historic cores of the region's villages or on village greens should be subject to archaeological conditions. Extensive Urban Surveys should be used to identify likely cores of those early settlement where particular care should be taken.

Despite the existence of a suite of suitable absolute dating techniques, there has been a relatively low uptake. Development-control work should include costings for such work in their budgets. Where necessary consultation with English Heritage Regional Science Advisor should take place at an early stage.

In general, little PPG16-driven fieldwork takes place in upland areas, making archaeological interventions on such sites rare. When it does occur, it is essential that scientific absolute dating techniques be used. In existing villages, where small-scale PPG16 work may take place when infilling occurs, the possibility of early medieval activity must be flagged up by the Development Control officer and, where necessary, scientific dating techniques should be used. In areas where there has been aerial photographic survey of upland settlement fieldwork must take place to establish the dates of those sites identified.

Education

Large-scale settlement survey projects, involving field-walking, geophysical survey and excavation may lead to the identification of early medieval remains. This kind of project is ideal for community participation.

Potential for educational elements exists through current conservation measures; general information could be supplied via leaflets and visitors centres, specific conservation advice being provided to landowners via DEFRA Environmental Stewardship Schemes.

In addition to the Extensive Urban Surveys there is a need for more localised studies to identify the historic cores of villages that may preserve archaeological deposits relating to their earliest phases of occupation. This would make a suitable topic for university BA or MA dissertations.

Re-assessment of early medieval finds from earlier excavations would make a suitable MA or PhD project.

Infrastructure

While early medieval settlement may be recognised through the development-control process, a more considered approach is appropriate. A large-scale project, possibly based in a university and targeting likely areas of early medieval settlement through a range of survey techniques would allow sites to be characterised. A pilot project would be advisable to assess potential.

The development and utilisation of appropriate techniques requires collaboration between contractors and technical specialists. Longer-term research excavation may also provide the opportunity for combining detailed excavation with experimental, technological developments.

Any large-scale attempt to characterise early medieval settlement in the uplands will require collaboration between local government curators, English Heritage and those carrying out the fieldwork. A project such as this might prove an ideal fieldwork project for a university.

There is a need to explore the potential of incorporating historical place-name data onto HERs/SMRs, as well as historical information relating to wapentake centres. A better understanding of the preservation of the ephemeral upper layers on late Roman sites would allow the implementation of appropriate management agreements to ensure their survival. Wherever possible, management agreements should aim to minimise ploughing.

Links to other agendas

Loveluck (2002, 148) has highlighted the need to recognise early settlement sites in County Durham, while Esmonde Cleary (2001, 93) advocates large-scale open-area excavation to maximise potential artefact recovery, and to identify possible features. The Medieval Settlement Research Group (MSRG 1996) highlights the need for a large-scale, interdisciplinary survey focusing on an area with dispersed settlement or mixed nucleated and dispersed settlement. The Society for Medieval Archaeology (SMA 1987, I.B.i) also called for more work on dispersed settlement, and more recently Rippon (2003) echoes this with a call for more work outside the 'village zone' of central southern England and the Midlands. Rippon especially stresses the need to gain a better understanding of specialist settlements, such as shielings, in the wider context of improving the archaeological and historical understanding of non-arable areas. Loveluck (2002, 148) has called for a better understanding of the changing patterns of settlement subsistence and integration in uplands. He advocates increased pollen sampling (using AMS dating techniques) and adequate sampling and retention of faunal remains (where surviving).

Rippon (2003) highlights the use of scientific dating techniques on the stratigraphically latest deposits on 'Romano-British' sites and the earliest phases of medieval settlements.

The MSRG have identified the 9th-12th centuries as the most important period in understanding settlement

nucleation and a central area for research, also noting the need to explore the role of government, lordship and market relations in forming regional cultures (MSRG 1996). Cramp also highlights the need to develop a better understanding of the early medieval origin of the medieval settlement system (Cramp 2002, 125). The recent research framework for relationships between town and country pointed to the range and diversity of settlement in the 7th-9th centuries as one possible research theme, noting the need to distinguish, if possible, different 'classes' of site (Perring *et al* 2003, 2.5.3, Q20, 31).

EMiii. Architecture

Academic

Our knowledge of early medieval domestic architecture is based narrowly on a handful of excavated sites in the north of the region (for example, Yeavinger and Thirlings). A wider understanding of the vernacular architecture of the North-East is of paramount importance.

It has been suggested that certain building types are ethnically distinctive (for example, bow-sided buildings might be Anglo-Scandinavian), but how far does the archaeological evidence justify these assumptions? Early medieval settlement often lacks chronologically diagnostic material culture; the possibility of dating sites morphologically would be extremely useful. Is it possible to distinguish between Romano-British, sub-Roman and Anglo-Saxon building techniques?

Even basic questions, such as when the transition from the Romano-British tradition of circular building to the medieval rectilinear tradition took place, are still unanswered. It is possible that many rectangular structures, ostensibly of later medieval date, may in fact be of pre-Conquest date.

Early medieval buildings in the region show a range of construction techniques. Some, such as sunken-featured buildings, appear to be new introductions from outside the area. Others may have developed from indigenous building traditions, or even from Roman military techniques. What are the origins of building techniques such as post-and-panel, long houses and cruck construction? How long did early medieval building traditions continue into the later medieval period?

Strategic

Aerial photographic surveys in upland areas have frequently identified rectangular structures of uncertain date (Coggins 1992). A campaign of targeted excavation on several of these sites may enable those of early medieval date to be characterised.

Education

n/a.

Infrastructure

Due to the lack of excavated early medieval structures in the North-East chronological and ethnic characterisation are poorly developed. While some useful data may emerge through PPG16-driven archaeology, more substantive research-driven excavation is likely to remain a priority.

There is a clear requirement for synthesis, both of native building traditions and those from outside the region. Useful comparative data will be provided by Leverhulme Trust-funded *Structural and Social Aspects of Timber Buildings in England and Wales, 900-1150* project, based at Queen's University Belfast. Such research would provide an excellent topic for postgraduate research.

Links to other agendas

The role of the household is flagged up as a neglected area of research by the MSRG (1996), who also highlight the need to examine the experiences of builders and users of medieval houses through the study of building plans (MSRG 1996, Strategy, 5).

EMiv. The early medieval coast

Academic

The exploitation of the coast in the early medieval period, both as an economic resource and a major line of communication, is poorly understood. The coast presented a distinctive landscape, which is likely to have had strong symbolic and ideological underpinnings.

Further research is required into the pattern of early medieval exploitation of maritime resources. Does the evidence confirm James Barrett's suggestion of an intensification of deep-sea fishing around 1000 AD (Barrett *et al* 2004)? Although by the later medieval period the North-East had a deep-sea fishing industry, it is not clear when it began. A closer analysis of maritime faunal assemblages would allow archaeologists to chart the increasing exploitation of deep-water fish stocks.

A more accurate mapping of the coastline in the early medieval period is essential if site locations are to be predicted and protected, particularly this is the case for beach market sites. Major monasteries, such as Tynemouth, Hartlepool, Monkwearmouth and Jarrow, lay on the coast or on major rivers. The major palace site at Bamburgh was also in a coastal location, and islands such as Coquet Island, Lindisfarne and the Farne Islands all had religious communities.

Strategic

It is vital that environmental sampling and adequate analysis is included in all specifications for development-driven archaeology. The English Heritage Regional Science Advisor will be able to provide appropriate specialist advice.

By understanding the movement of sand dunes, some insight may be gained into the post-depositional factors that may have affected any surviving deposits within the dune zone (for example, Green Shiel, Lindisfarne; Bowl Hole, Bamburgh; Ebba's Chapel, Beadnell). It will also provide important conservation information, allowing stabilisation of mobile dunes.

Education

The sand dunes are an important element of the Northumberland Heritage Coast. A greater understanding of the dynamic nature of the dune landscape should be highlighted in public interpretation, via on-site boards and displays in museums and visitor centres.

Infrastructure

Increased training of specialists in analysing maritime faunal assemblages is vital. It is important to ensure that, in addition to analysing assemblages from individual sites, there is on-going regional synthesis.

Work on the coastline of the region requires co-operation between archaeologists and geomorphologists. In practical terms, such research should focus not just on the early medieval period, but also explore the long-term development of the region's shoreline. Such work is likely to involve partnership with local government archaeology curators and wildlife conservation officers.

Links to other agendas

n/a

EMv. Trade and economy

Academic

We need to improve our understanding of the locations at which trade and exchange occurred, especially those at which ecclesiastical sites may have had a key role. The absence of *wics* or *emporia* and 'productive sites' typical of the early medieval period in many other regions is noticeable (cf. Hodges 1982). The largest collections of coins and imported pottery in the region are all associated with ecclesiastical sites, rather than secular ones. Although there was certainly some coastal trading, both along the coast and across the North Sea, there is little surviving evidence for possible trading sites in the North-East. It is possible that beach locations were exploited. Excavations in other regions, such as the south-west of England (for example, Bantam and Mothecombe in Devon) have shown the potential for the survival of such sites, often preserved by sand dunes. The highest tidal point on rivers and concentrations of sculpture may also be pointers to trading sites (Stocker 2000). Possible predictive approaches might include the sourcing of ballast dumps, exploration at river mouths, the highest tidal point on rivers, pre-existing Roman road systems, etc.

Although relatively little early medieval pottery has been identified in the region, some simple coarsewares may have been produced. These, however, may be difficult to distinguish from earlier, Roman or even prehistoric, coarsewares, so there is an outstanding need for a programme of scientific dating on such assemblages that may throw up unsuspected examples of early medieval pottery. Dating by thermoluminescence should be applied to both ceramics recovered from on-going development-driven research, and to material currently held in museum collections. The discovery of any pottery production sites will require extensive excavation, including scientific dating of the deposits and thin-sectioning/chemical analysis of any waste products, in order to shed light on their chronology and technology.

Most early medieval coins from the region are from hoards, with relatively few scattered individual finds. Whether this reflects a genuine distribution or is a factor of the lack of excavation on mid-late Anglo-Saxon settlement sites is unknown. In the light of the extensive coin finds at Bamburgh there is a need to characterise this assemblage, and better

understand its archaeological context. It is important to identify the minting sites of Group A styca which are believed to have been minted in Bernicia (Pirie 2004, 72).

Very little is known about the mining, processing or working of lead or iron in the region during the early medieval period, despite the presence of ample local raw materials. Likely sites of early medieval activity should be sought and subjected to detailed excavation and scientific analysis.

Strategic

Any pre-Conquest pottery workshops will be of exceptional importance for the study of the early medieval economy. Where possible, their sites should be designated or afforded some other form of statutory protection. Early medieval pottery is rare, and it is important to ensure that when recovered during PPG16-driven fieldwork funds are available for its full analysis, including thermoluminescence dating.

All stray early medieval coin finds should be reported to the Portable Antiquities Scheme Finds Liaison Officer (FLO), recorded on the region's HERs/SMRs and the *Corpus of Early Medieval Coin Finds* at the Fitzwilliam Museum, Cambridge should be informed.

It is likely that the precinct of many Anglo-Saxon monastic sites extended beyond the boundaries of the graveyards of the churches as they are preserved today. Local Government Development Control Officers should ensure that any development in areas adjacent to such sites is subject to archaeological evaluation. It is particularly important to ensure adequate sampling and analysis of any environmental remains recovered.

Education

Support should continue for the Portable Antiquities Scheme to ensure that all finds are reported to the Finds Liaison Officer.

Even though individual sites may be identified through the development-control process or exposed through unforeseen events of coastal erosion, there is still a need for a larger-scale, regional synthesis and investigation. This would make an appropriate MA or PhD topic.

There is much scope for community involvement in the recognition of possible medieval or early medieval metal-working sites, such as bail hills. The discovery of early lead working, in particular, links into a wide range of broader community and heritage initiatives relating to the preservation and dissemination of information about the North Pennines' important lead mining heritage.

Infrastructure

A campaign of thermoluminescence dating will require collaboration between museum curators, contractors and university departments. The results of this work must feed through to pottery specialists, especially where diagnostic criteria are present. The excavation of any early pottery workshops must utilise the full range of scientific techniques. This will require collaboration with university archaeology departments, following specialist advice provided by the English Heritage Regional Science Advisor. There is much to be gained from closer co-operation between archaeologists

and historians, for example in any study of the economics of monastic sites. There is a major need for a regionally-based expert on early medieval coinage.

Links to other agendas

Cramp (2002, 124) highlights the need to excavate pre-Conquest pottery kilns. Esmonde Cleary (2001, 96) notes the importance of using scientific dating techniques for dating artefacts.

The research agenda on urban-rural relationships underlines the need to understand the supply mechanisms for many early medieval site types including monasteries (Perring *et al* 2002, 2.5.3, Q26, 32).

EMvi. Christianity

Academic

Christianity is a major research topic in the study of the early medieval North-East. Further research is needed at a range of scales, for example into church fabrics, the layout of ecclesiastical sites, and their impact in the wider landscape.

The late (11th century AD) church is poorly understood in the region and the chronology of church building requires more detail. The Saxo-Norman towers of churches, such as Billingham, Bywell and Ovingham are an important element of the suite of standing Anglo-Saxon architecture, but the context of their construction is not understood in detail. While the re-use of Roman masonry in some churches, such as Escomb, has been recognised, a better understanding should be developed for other sources of building material. Research to provenance building stone is badly needed as well as, if possible, the identification of likely quarries. Sources for other construction materials are unknown, among them roofing lead and lime for mortar.

The region is well provided with evidence for the spatial organisation of churches, including standing buildings and archaeological evidence. Our understanding of the both the chronology and development of these sites has improved significantly since the work of Taylor and Taylor (1965-78). A start could now be made on a synthesis of the changing patterns in the organisation of space within the region's Anglo-Saxon churches. Were such shifts related purely to changes and developments in liturgy, or were there other factors at play, such as status?

Extensive historical evidence exists for contact between Northumbria and the church on the Continent; further analysis might reveal whether this is reflected in the design and planning of the region's churches. Much can also be learnt from an exploration of the spatial organisation of ecclesiastical sites, including their morphology (for example, the presence of multiple churches) and wider site context (for example, re-use of Roman forts; coastal locations). It may be possible to recognise the influence of neighbouring British, Irish and Scottish traditions, as well as to scrutinise variation between Northumbrian monastic sites. Sites with particular potential for further work include Sockburn, Gainford (Co Durham) and Bywell (Northumberland). Churches did not stand isolated in the landscape, they would

have been associated with secular settlement, but the political, economic and spatial element of this relationship is not yet understood. Minsters and other important early church sites may act as a catalyst for the formation of towns. This hypothesis should be tested in the North-East. More archaeological, landscape and documentary work is required. For example, is there a difference between religious and secular estates?

Strategic

Where recording work is undertaken on churches of possible or known Anglo-Saxon date stone types should be recorded and mortars sampled.

It is important to be aware of the possibility of other early medieval activity in villages where the church is known to have an Anglo-Saxon origin, through either documentary or archaeological evidence. Any infilling within such villages should always be subject to archaeological evaluation. Early medieval ecclesiastical sites may have enclosures which were substantially larger than those that survive today, and any development work in their environs should be subject to archaeological conditions.

Education

Any more detailed understanding of the chronology of these churches should be passed on to the congregations of the churches so that it can be incorporated into existing interpretative material, such as church guidebooks, which have rarely kept pace with the latest research.

A programme of analysis of building material from the region's churches might make a suitable postgraduate research project, particularly if there were to include re-used stone, brick etc.

Infrastructure

It is possible that survey as part of the Diocesan quinquennial reviews of churches may provide a suitable context for more detailed analysis of these buildings if funding was available.

Links to other agendas

Richard Gem (1996, 3-5) sets out research priorities for early church structures. At a general level our understanding of the chronology of the development of the earliest Romanesque architecture in England could be improved. Changing patterns of space within Anglo-Saxon churches, such as the development of transepts and choirs should also be examined, while the relationship between the church plans of England and Francia in the 7th century and the later links between English and Carolingian architecture in the late 8th and 9th century could also be fruitfully explored. Finally, Gem prioritises the need to develop a better understanding of the resource implications of the construction of pre-Conquest churches.

The relationship between early ecclesiastical sites and their surrounding lay settlements has been highlighted as a weakness in our understanding by Cramp (2002, 123) and this is echoed by Newman (2002, 154). Blair (1996, 9-10) also notes the need to explore the relationship between minsters and the development of towns and the importance of testing topographical inferences about ecclesiastical

enclosure with excavation. He prioritises the evaluation of large open area near known minster churches, calling for a series of flagship projects designed to research a range of minsters at different stages of their development.

The SMA (1987, 4, I.C.i) has indicated the importance of investigating pre-Conquest religious sites, and prioritises the need to improve our understanding of claustral arrangements, while Rodwell (1996, 198-199) has echoed the call for detailed research on the spatial organisation of churches.

EMvii. Death and burial

Academic

Well-preserved skeletal assemblages are a key resource for research. For example, burial evidence is particularly suited to exploring the wider debate on cultural identity and ethnicity, which is now a major topic in early medieval archaeology. However, more basic work on skeletal assemblages from the North-East is still needed to provide more details on stature, age and pathologies, particularly from the north of the region. Isotopic analysis carried out on the skeletal remains from the cemetery at Bowl Hole shows the potential to research, for example, the origin of individuals. This work clearly links into wider debates on migration and population movement in the early medieval period. In addition to any new cemeteries which might be discovered, there is scope for revisiting skeletal material in museum collections.

It is also important to explore the social implications of variations in the burial rite. Early medieval burial traditions in the North-East were open to many influences, including Anglo-Saxons rites and those used in neighbouring Scotland and Ireland, as well as continued input from native British mortuary behaviour. In the light of the on-going discovery of new burial sites there is a need to synthesise existing data. Broad assumptions exist about the relationship between burial rites and religious belief, such as the presumption that Christians are buried with no grave-goods, while pagans undergo accompanied burial, but these need to be tested in far more detail. Also, the changing patterns within accompanied burial traditions need to be better understood in the North, for example, is there a Northumbrian 'final phase', and can distinct British burial rites be recognised through the use of grave-goods, body position or grave alignment?

The question of social stratification is also of great importance, both at local, family level and in the wider regional context. Is it possible to recognise social differentiation through variation in burial rites? Relatively little is known about native British burial rites, particularly in upland areas. Judging from parallels with other uplands areas, such as the Pennines, barrow burial, particularly secondary barrow burial, may have been a common rite (Loveluck 1995). Excavators should be aware of this, particularly in areas where soil conditions may allow the survival of bone.

The Portable Antiquities Scheme has recorded a number of early medieval artefacts, some of which may indicate the presence of a cemetery, but these assumptions need

to be tested. Do they really represent burial sites or are they merely casual losses? Finally, unaccompanied burial was probably not uncommon in the region during the early medieval period, but similar burial rites may have taken place throughout the Iron Age and Roman period. It will only be possible to distinguish them chronologically if scientific dating techniques are used.

Strategic

Early medieval skeletal assemblages need to be fully analysed. Where necessary, skeletal material should be dated using high-precision radiocarbon dating and Bayesian statistical approaches to ensure a clear understanding of cemetery chronologies, particularly when datable grave-goods are lacking (Scull and Bayliss 1999).

Any information on early medieval finds should be reported to the Portable Antiquities Scheme and passed on to the relevant HERs/SMRs. They should be recorded as 'possible cemetery sites' rather than simply isolated finds. A field visit may be preliminary to small-scale fieldwork including geophysical survey or excavation.

Education

Issues relating to ethnic identity and origins are currently high in the public consciousness. This is recognised in the National Curriculum. It is important that results from such work feed through rapidly into educational material.

Some research relies on continued co-operation between the Portable Antiquities Scheme and local metal-detecting clubs.

Infrastructure

The use of isotopic techniques on skeletal material will require collaboration between specialists with technical skills in universities. Any retrospective analysis of skeletal material will require co-operation from relevant museum curators. A regional scale project exploring the topic of migration and population movement utilising these techniques might make an appropriate study for a PhD thesis.

A regional synthesis of early medieval burial rites, possibly bringing in the evidence from the full extent of the Northumbrian kingdom, including Cumbria and Southern Scotland, would make a useful MA or PhD.

Local synthesis and work on early medieval metalwork revealed through the Portable Antiquities Scheme needs to be co-ordinated with the national priorities for work promoted by the Scheme (<http://www.finds.org.uk/learning/research.asp>).

Links to other agendas

Esmonde Cleary (2002, 96) notes the importance of scientific dating techniques, and the use of mtDNA analysis to improve understanding of genetic relationships between culturally-defined populations in the region. The potential of artefact studies should be maximised if both chronological developments and the wider social symbolism of the material culture are to be investigated closely. The importance of maximising the potential of the Portable Antiquities Scheme is highlighted by Rippon (2003).

EMviii. The impact of the Vikings

Academic

Despite the presence of Anglo-Scandinavian sculpture in the Tees Valley and elsewhere, relatively little is known of the impact of Viking settlement and rule in the region. There is clearly a need to understand the effect that the transfer of power to new lords, and the dismantling of church lands had on society. An improved knowledge is required of the way in which Anglo-Scandinavian identity was expressed.

There is the possibility of targeting research at particular sites where there is evidence for substantial Viking burial, for example, at Sockburn and Gainford (Co. Durham). In the light of recent publication, the place-names of Durham should be re-assessed for what they can tell us about early medieval/Viking settlement in the region (Watts 1989, 2002).

It is clear from both the place-name and archaeological evidence that there was a distinct difference between Scandinavian influence to the north and south of the Tees. This dichotomy should be explored.

Strategic

Although limited amounts of Viking metalwork have been identified in the region, any examples should be reported to the Portable Antiquities Scheme and subject to investigation to characterise its context.

Education

Vikings appear in the History National Curriculum (Key Stage 2). There is potential for collaboration or involvement of school groups of the relevant age in any long-term research study on this topic.

Infrastructure

Although some Viking material may come to light through the Portable Antiquities Scheme or through commercial fieldwork, there is a need for a more long-term, research-driven approach.

Links to other agendas

Cramp (2002, 125) has highlighted the need to develop a better understanding of the sites of Gainford and Sockburn, especially the relationship between the church and the possible related secular settlement there.

The importance of cross-disciplinary work, including the use of place-names, has been highlighted repeatedly (Rippon 2003; MSRG 1996).

Town and country in England: frameworks for archaeological research stressed the need to assess the impact of Danish and Scandinavian settlement on town formation and settlement dynamics (Perring et al 2002, 2.5.3, Q28, 32).

The *English Heritage Archaeology Division Research Agenda* points to a need for increased understanding of Danish and Viking colonisation in northern England, particularly settlement patterns and layouts (English Heritage 1997, 45, PC6).

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17. Later Medieval research agenda

The study of the historical environment of the later medieval period involves a wide range of scholars, including archaeologists, historians, architectural and art historians. This diverse body of researchers has sometimes worked together, but all too often individual strands of research have been carried out in isolation. This partly reflects the differing organisational structures and priorities of each participating group. For example, amateur archaeologists often work through local societies, which provide an organisational structure and good links with professional bodies, whereas architectural historians are more likely to work alone. Equally, any archaeology carried out on medieval remains is most likely to occur today in the context of developer-funded archaeology. This can lead to inadequate resources in terms of time, money and occasionally the skills required to place the site under study in its broader context, particularly when original documentary research is required.

Despite this apparent disciplinary fragmentation, the study of the medieval period in the North-East is extremely healthy. Although there are gaps, scholars possess a broad understanding of the basic patterns of settlement, economy and belief for most parts of the region. The increase in fieldwork since the advent of PPG16 has been notable, but itself leads to fresh challenges to disseminate the data collected.

The Medieval Period Group explored the existing archaeological and historic environment resource in great detail, but it was not within the remit of the NERRF project to explore the potential of the contemporary archival and documentary holdings of the region, which survive both as original documents and as published texts. This does not mean, however, that such resources are unimportant. Far from it, the true study of the medieval period requires a profound engagement with historic sources; and a resource assessment of the available textual and cartographical material, carried out along similar lines to this document, could provide a massive boost for interdisciplinary activity.



CASTLE HILL, BISHOPTON.

Figure 65 Castle Hill, Bishopston (Co. Durham). From Mackenzie and Ross 1834, 82

Gaps in knowledge

Buildings, settlement and agriculture

Despite the overwhelmingly rural nature of the medieval

settlement pattern, there has been relatively little archaeological work on rural settlements, and virtually none in the North Pennines or in northern or upland Northumberland, with most excavated sites being found in south Durham and Cleveland. Our understanding of the wider field evidence is equally partial, though here the pattern is reversed; two PhD theses on the deserted medieval settlements of Northumberland cover the northern evidence extensively (Dixon 1984; Wrathmell 1975), leaving the evidence from Durham and Cleveland under-exploited, despite fine upstanding remains.

The archaeology of the main towns is also patchy. Parts of Newcastle and Hartlepool have been extensively explored, but our knowledge of the urban archaeology of Durham is very limited. More excavation is also needed on those smaller boroughs and shire centres which acted in the Middle Ages as centres for agricultural exchange and redistribution.

The evidence for agriculture varies, with distinct differences between upland and lowland areas. Large-scale upland surveys have identified field remains of presumed medieval date, although for many of these monuments there is frustratingly little dating evidence. The standing field evidence for the lowlands is less extensive and, although there are good examples of ridge and furrow right across this region, full mapping has never been undertaken. The quality of environmental evidence for agriculture is also variable. Peat cutting has removed many of the crucial upper layers of peat beds that could otherwise shed light onto the environment of this period. Likewise faunal assemblages have tremendous potential to inform our understanding of the pattern of meat supply, particularly to towns, but there has been no wider synthesis to place the individual published assemblages into a wider context.

Little vernacular architecture survives, probably due to the political and military instability in the region throughout much of the medieval period, though some structures in towns may yet prove to have a late medieval date. Our understanding of small defensive sites (moated sites and tower houses) is still inadequate, not helped by contrasting approaches to these sites, particularly the assumption that tower houses are 'Defensive' whereas moated sites are 'Domestic' (EH Monument Class Descriptions).

The well-preserved castles of North-Eastern England have attracted much research, though mainly architectural rather than archaeological (Figure 65). There have been a small number of excavations, but these are either unpublished or limited in scale, and leave us no better informed about patterns of consumption and other economic behaviour. The rather rigid focus on upstanding remains also means that far less is known about the early phases of castle sites and the chronology of wooden, primarily defensive structures, notably the simple motte and baileys found in the region. There is also a range of other defensive structures, including

town walls, Vicar's peles and monastic precincts, all of which remain understudied.

The Church and religious belief

The best-preserved class of ecclesiastical site is, unsurprisingly, the parish church. The architecture of the region's churches is relatively well understood, though the precise chronology of the Saxo-Norman overlap remains uncertain, and it is still unclear whether the group of towers, such as Norton, Billingham, Bywell and Ovingham are pre- or post-Conquest.

The region is poorly served with stained glass and wall painting, and only a small body of medieval church furnishings have survived. Although these classes of ornament have been individually listed, there has been no wider synthetic work on internal decoration in churches which may shed light on popular religion and patterns of patronage and belief.

Wider patterns of ecclesiastical organisation are not well understood. The development of parochial structures and the role of more minor chapels-of-ease requires further clarification. Similarly, despite the presence of important monastic houses in the region, they remain understudied; there has been some architectural recording but little geophysical work and no significant modern excavation (Figure 66). Early antiquarian excavation often focused on delineating the broad plan of the main claustral buildings, rather than tackling other issues, such as economy and consumption or the structures in the outer precinct.

Industrial production

Evidence for crafts and medieval industry in the region is extremely limited. There has been some investigation of pottery production workshops with the traditional bias towards recording kilns rather than other components such as waster dumps and the region could not be said to be well served in comparison to other counties of England. Mineral extraction and metal working are virtually unknown, and although lead mining certainly took place, there is little field evidence. Likewise, despite textual evidence for medieval collieries, the coal mining industry also lacks surviving early workings. Quarrying was clearly important, the construction of Durham Cathedral alone would have required huge amounts of stone, but, once again, no surviving field evidence has been recognised.

Material culture

Although medieval pottery is a common find, it often used as little more than a dating tool. There is a notable lacuna in pottery studies in Northumberland, and even though larger assemblages have been published from the urban excavations at Durham, Harltepool and Newcastle, there has been no wider synthesis. Relatively little pottery from rural sites is available for comparison due to the lack of excavation generally though a number of assemblages from recent excavations are under analysis at the time of writing. Little can be said at present about how the region's ceramic evidence might relate to that from surrounding regions, particularly Scotland.

Potential of the resource

Buildings, settlement and agriculture

The publication of the *Atlas of rural settlement in England* (Roberts and Wrathmell 2000) and the *Historic atlas of North Yorkshire* (Butlin 2004) have both improved our understanding of how regional patterns of rural settlement might relate to the national picture. Local projects, such as the Northumberland National Park's *Historic Village Atlas* and the forthcoming survey by the Weardale Society, should provide more detailed local snapshots.

There has also been important recent work on the rural landscape, which will open up exciting new research possibilities. For example, the major North-East England History Institute (NEEH) research project *Settlement and Waste in the Palatinate of Durham*, will elucidate the distribution of waste, moorland, rough pasture and woodland in much of the region, integrating archaeological and cartographic evidence, as well as bringing in documentary evidence. Although aimed mainly at identifying Roman and prehistoric sites, aerial photographic surveys of Hadrian's Wall will also prove invaluable for recognising medieval sites, though many require targeted excavation on the ground to confirm their dates (Gates 2004).

Although the medieval vernacular building stock is small, there is still potential for recognising new structures through the careful application of dendrochronology. This technique has already proved successful on the estates of Durham Priory. Similarly, the use of dendrochronology and experimental techniques of dating bricks using thermoluminescence are now providing interesting results in urban contexts.

The Church and religious belief

Although there has been no major re-evaluation of the architecture of parish churches, the on-going work of Peter Ryder on behalf of the Durham Diocesan Advisory Committee has proved invaluable in shedding light on the architectural development of individual churches. Ryder has recorded the large number of medieval cross-slabs from the region, an important corpus on which future research could be based. There are also registers of effigies and other medieval memorials, which would prove useful for further research on this topic. Among the excavated cemeteries are the later medieval levels at Monkwearmouth and Jarrow, West Chevington and the castle in Newcastle. All these provide potential bone assemblages for osteological work.

Industrial production

Despite the absence of extensive field evidence for mineral extraction, the recent discovery of 10th-century slag in Weardale, probably indicating silver extraction, shows that there is potential for medieval evidence. A number of sites have been suggested as being the remains of medieval lead working, and offer great potential for carefully targeted excavation. In addition, the extensive documentary evidence for medieval coal mining at Moorhouses Wood, West Rainton (Tyne and Wear), may relate to existing earthworks there. There is rather more evidence for iron production, and the bloomery site at Glantlees (Northumberland) requires

publication. Tom Gledhill's survey of charcoal pits and bloomeries in Upper Teesdale also offers significant potential for follow-up work and targeted excavation.

Material culture

Despite our current poor understanding of medieval pottery, there are several important groups undergoing analysis, including the major assemblage from Newcastle Castle. There are also rural collections from Northumberland, (Lindisfarne, Alnwick, Ingram and Chevington) all progressing towards publication. Other assemblages relating to recent excavations in the Tees Valley have been collected, though these still require analysis. In the meantime several characterisation projects by Alan Vince on pottery from the region will doubtless prove important in clarifying patterns of local production and regional supply.

Research agenda

Key research themes

MD1. Large-scale settlement survey

The development of a large-scale (parish scale or above) landscape archaeology project exploring the long-term development of a rural region in the North-East is a priority (see also EM2). This should draw on similar projects elsewhere in the country, including Shapwick, Wharram Percy and the Whittlewood Project.

This project should include an area with both upland and lowland landscapes and address the issue of settlement

dispersion and nucleation. Although this project will require a lead partner (probably a university), it should also make an active attempt to include local archaeological and community groups, who should have representation on the project steering group.

Fieldwork should include small-scale targeted excavation (rather than large-scale, open area excavation), field-walking and test-pitting surveys, standing building recording and documentary research.

Funding for this project is likely to be best secured through the academic research boards, though a real commitment to public involvement in the project would open up a range of other funding sources, including the Heritage Lottery Fund (see also R1 and EM2).

MD2. Origin of urban communities

Despite significant archaeological investigation in the region's larger cities, such as Durham, Hartlepool and Newcastle, a better understanding of the development of the middle tier of small towns and market centres would be welcome.

A number of steps can be taken immediately. Further research into medieval pottery assemblages is a necessary prerequisite, with particular attention given to tying in assemblages from small towns and rural sites to the type series developed for the large urban centres. Adequate publication and dissemination of this material is essential.



Figure 66 Excavation of a well; part of the medieval grange at Fox Covert, Dinnington (Tyne and Wear). © Tyne and Wear Museums

Development Control Officers should ensure full archaeological evaluation of all development within the historic cores of the region's small towns and large villages. Particular care should be taken to ensure adequate evaluation of small-scale, infill development. Specifications for fieldwork should include a requirement for full analysis of pottery assemblages and, where appropriate, the use of scientific dating techniques. Finally, it is important that Extensive Urban Surveys for the entire region are completed. These should include the creation of digital data sets, suitable for incorporation into the region's HERs.

MD3. Medieval vernacular architecture

In order to develop further our understanding of medieval vernacular architecture, particular priority should be given to the chronological development of building types, including evidence for the origins of building forms.

There is likely to be limited opportunity for the archaeological study of medieval vernacular buildings through the development-control process, but the development of a major field-research project could provide opportunities for their investigation (see also EM2).

Continued work by groups such as the North-East Vernacular Architectural Group should be encouraged, and funding made available for increased use of dendrochronological dating.

Although research into medieval vernacular architecture in the region has included both standing building recording and archaeological investigation, there has not been sufficient communication between these two research communities. A conference could usefully explore vernacular building styles in the region, bringing together architectural historians and archaeologists, and involve scholars from outside the region, particularly from the North-West and southern Scotland. The conference will require funding and prompt publication.

MD4. Church architecture

Renewed research into the development and chronology of church architecture in the region is long overdue (see also EM6), and should include basic questions about who was building the churches, how they were built and influences on the region's architectural repertoire (Figure 67). A more specific research question is the precise chronology of Saxo-Norman architecture in the region. This research can be taken forward through a series of detailed structural surveys of selected churches (for example, Norton, Escomb, Billingham, and Monkwearmouth). These surveys should exploit the latest developments in architectural recording and include full digital photogrammetric survey and rectified photography, mortar and stone analysis and where appropriate, dendrochronological and thermoluminescence dating of ceramic building material. This should culminate in the creation of CAD-based digital models of structures.

MD5. The origins of deep-sea fishing in the North-East

The fishing industry was an important aspect of the local economy and diet in coastal areas from at least the medieval period until the later 20th century. The

archaeological record comprises both onshore features (both harbour- and fish-processing-related), structures and deposits (including faunal remains), fixed intertidal, marine, and riverine installations, and mobile equipment such as boats and nets, now found in inland, intertidal, and marine contexts. The industry has received little archaeological attention either regionally or nationally, and the work that has been done has tended to separate rather than integrate onshore, intertidal, and marine evidence.

These developments had a profound impact on technology, as larger ships were needed for the longer voyages. Any information about medieval fishing boat construction, whether derived from wrecks, ship's timbers preserved in other contexts (for example, re-used in quays and staithes), visual images or textual information is of great importance.

Archaeological evidence for these developments can be plotted through detailed analysis of marine faunal assemblages, but further specialist training in this field is vital.

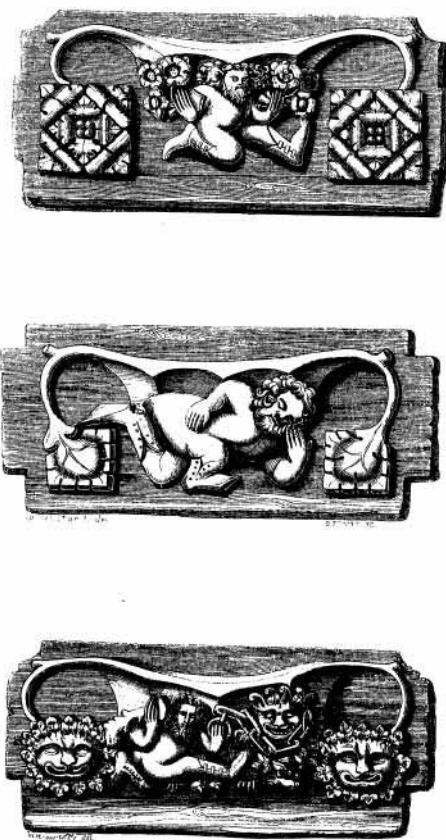


Figure 67 Carved misericords from St Cuthbert's, Darlington (Co. Durham). From Longstaffe 1973, 262

The growth of the offshore industry would have had an impact on the settlement patterns and morphology of coastal villages, but there has been no work on fishing villages of the North-East to compare with research elsewhere (for example, Fox 2001). Basic map work might profitably be combined with small-scale excavation (both development-control and research-based). In addition, investigation of standing structures should be undertaken to increase both our understanding of the chronological

development of these settlements and specialist building types related to the fishing industry.

Research priorities

MDi. Settlement

Academic

The landscape and settlement hierarchy of the region in the 11th century is still poorly understood. While the notion of a 1066 Conquest may be valid elsewhere in the country, the extent to which these political developments held influence in the North-East, particularly in Northumberland, is uncertain. To what extent can material cultures across the region be identified as recognisably 'English' (or indeed 'Scottish') in the 11th and 12th centuries? There is potential to explore the pattern of 11th century place-names as an indicator of new patterns of settlement (Watts 2002).

Although the *Atlas of rural settlement in England* has been crucial in delineating the morphology of settlements across the region, more detailed study is required at a sub-regional level. The processes behind the formation of the variety of settlement forms need investigation, and should be linked into economic factors and tenurial patterns. Can the conventional association of planned village layouts with the 'Harrying of the North' and other 11th-century destructions be supported, or disproved, by archaeological dating? If these layouts are genuinely relatively late, what settlement forms preceded them?

Environmental evidence from rural sites should be a priority. A large proportion of pollen samples from the region is derived from upland contexts and could be balanced by further evidence from lowland areas. Research to identify lowland peat deposits is essential, as is an increase in the recovery and full analysis of faunal remains and plant macrofossils. There is a particular need for more datasets from rural sites.

Although little upstanding vernacular architecture survives, there is the potential to find out more about local building traditions through archaeology. This may help answer some important questions. Where does the long-house form of structure come from? Why was it adopted? What does the 'terraced' house tradition found at Thrislington and other sites tell us about social organisation?

Strategic

There are still very few excavated sites of this period. It is essential that any development within the historic cores of early villages should have archaeological conditions imposed as a matter of course.

An extended survey of historic villages would help to identify their chronological development and historic cores. This should build upon the existing Extensive Urban Surveys. These data should be integrated into the region's HERs; to maximise their effectiveness these projects must have methodological consistency.

It is important that all environmental material recovered from development-driven excavation is fully analysed. Where lowland peat deposits are identified, some form of

protection should be put in place.

Recent research by North-East Vernacular Architecture Group has identified several examples of standing medieval vernacular architecture, in some cases contained within post-medieval farm buildings. It is important that, even when not listed, all such buildings are fully recorded before structural alteration takes place.

Education

The development of large-scale settlement or parish-centred research projects with academic and community input would prove of real value in tackling this research topic.

A synthesis of existing material from the region could form the basis of a MA or PhD thesis bring together both the excavated evidence and that for the stock of standing medieval vernacular buildings.

Infrastructure

An overview of relevant historic sources and place-names should be undertaken and the results integrated into the region's HERs.

The coverage of deserted and shrunken medieval village on HERs varies immensely across the region, and what information is recorded requires re-assessing. Authoritative surveys of the evidence, both documentary and archaeological, for sites south of the Tyne would complement the two major surveys of deserted medieval villages in Northumberland (Dixon 1984; Wrathmell 1975).

Mechanisms should be put into place for the full publication of metrical data from environmental assemblages recovered as part of development-driven excavation.

The North-East Vernacular Architecture Group has identified examples of medieval vernacular architecture, whose dating have been confirmed by dendrochronology. Adequate funds should be provided to allow this work to continue.

Links to other agendas

The *English Heritage Archaeology Division Research Agenda* notes the importance of an increased understanding of the impact of the Norman Conquest, and of the economic, social and political structures of rural England (English Heritage 1997, 45, PC6; 52, T3).

The MSRG stresses both the need to rectify the lack of excavation on villages or hamlets of the 10th and 11th centuries, and to explain the process of settlement nucleation between the 9th and 12th centuries (MSRG 1996, 4, 6).

The importance of collecting more detail from rural sites is highlighted by Huntley and Stallibrass (1995, 246). The Society for Medieval Archaeology (SMA) has also given the increased study of environmental material a high priority (SMA 1987, 5, I.D.ii) noting that further research into faunal assemblages will improve our knowledge of patterns of consumption, husbandry practices and breeding patterns, and that routine analysis of plant macrofossils would reveal more detail about consumption and agricultural practices.

Rippon (2003) also highlights the need for palaeoenvironmental material, particularly from lower-status rural sites. He notes the importance of obtaining long-term environmental sequences demonstrating changing land use, particularly indicating the potential of lowland peat sequences.

The MSRSG (1996, 6) emphasises the importance of understanding the household as a subject of study, and examining the experiences of builders and users of medieval houses through the study of building and settlement plans. Rippon (2003) also stresses the need for more regional surveys of the whole building stock, particularly those which integrate archaeological and historical research.

MDii. Landscape

Academic

Development-driven archaeology has had relatively little impact on our understanding of medieval landscapes due to limited development in the region's villages and the small size of those interventions. Medieval villages are fluid entities and it is clear that, for any real archaeological insight into their growth, large-scale excavation and multiple interventions are essential and should be combined with fieldwork such as shovel pitting and field-walking. Only at this scale of investigation is an understanding of the evolution of the historic cores of the region's villages possible together with an appreciation of the way in which they relate to their hinterlands.

There is extensive evidence for medieval field systems in the region, including well-preserved areas of ridge and furrow and upland terracing and lynchets, although there has never been a major inventory of all surviving examples and many are not recorded on the region's HERs/SMRs. In addition simply to mapping the surviving resource, a series of more detailed questions needs researching. First, their chronology: do they have a pre-Conquest origin and did the creation of ridge and furrow continue into the post-medieval period? Indeed, there is still much basic work to be done in understanding the process of the formation of ridge and furrow. Second, patterns of regional variation could be recognised and relationships mapped out between fields and other elements of the medieval agrarian landscape, such as access tracks and ponds.

Many place-names in the region are of late medieval date (rather than early medieval), including those with Norman French derivations (for example, Bearpark in Co. Durham = Beaufrepaire) and combined Norman-English names (for example, Frosterley in Co. Durham = 'forester's clearing'). A more detailed study of their distribution, building on the work of Victor Watts (2002), and a consideration of their wider social and political context is essential. Research into field-names also has the potential for informing the archaeologist of possible settlement sites, now lost, as well as to provide important insights into medieval land-use.

Despite the well-preserved remains of shielings in the North Pennines and the Cheviots the chronology of upland transhumance is still not adequately understood. More excavation is perhaps the only way to develop a better

understanding of their chronology; is it possible to find a way to date these sites morphologically? The complex relationship between shielings and permanent farms requires investigation, both spatially and chronologically.

Strategic

There has been a notable lack of large-scale investigative landscape projects in the region, such as Shapwick, Wharram Percy or the Whittlewood project.

There is a need for a major survey of surviving areas of ridge and furrow combining evidence from aerial photography and field survey. Once the extent of survival is better understood appropriate management regimes could be explored, such as the DEFRA Environmental Stewardship Scheme and, where necessary, further Scheduling might follow.

Development control officers should encourage the use of field-name evidence in Desktop Assessments.

Education

The detailed investigation of field-names is time intensive and requires detailed knowledge of local maps and records. This work would make an ideal project for local history societies.

Major landscape projects provide an ideal vehicle for long-term community involvement; the combination of excavation and extensive field survey involves communities at a variety of different levels and should be written into the project design at the earliest possible stage.

Infrastructure

A pilot project to define the potential of field-name evidence for the identification of archaeological sites should be carried out.

Historical place-names need to be integrated into the region's HERs/SMRs in a consistent manner.

The possibility of the appointment of community archaeologists should be investigated, based either in local authorities or contracting units, drawing on the experience of earlier community projects, such as the Hartlepool Headland Project, and the work of community archaeologists elsewhere, such as Lincolnshire and York.

It is important that the results of the survey of surviving ridge and furrow are integrated into the region's HERs/SMRs.

Links to other agendas

Rippon (2003) notes the potential of combining field survey with archival work and an examination of place-, road-, field- and furlong-names.

The SMA (1987, 4, I.B.ii) underlines the need for large-scale investigations of rural sites, preferably covering more than one administrative unit. The MSRSG emphasises the value of broad multidisciplinary approaches to the study of rural settlement (MSRSG 1996, 2). Rippon also strongly advocates large-scale excavation when integrated into long-term landscape survey work. The SMA (1987, I.D.i) advocates the increased study of field systems through survey.

The SMA (1987, 3, A.i) notes the need for more research into dispersed rural settlement. MSRG (1996, 3-4) recommends more scheduling of dispersed settlement and more excavation of deserted dispersed settlements of the later Middle Ages. Rippon (2003) stresses a requirement for further work into upland occupation, including vaccaries and shielings.

MDiii. Urbanism

Academic

The medieval period saw the foundation of the North-East's urban network. There has been archaeological excavation in some of the region's larger towns such as Newcastle and Hartlepool, but intervention has been less extensive in smaller towns and administrative centres. Once more there has been relatively little synthetic research on medieval urbanism. Basic issues such as patterns of urban-rural interdependence and urban consumption still require investigation (cf. Perring *et al* 2002). Other topics, such as detailed patterns of social identity within the region's urban centres, are also under-researched.

Many towns have an extensive stock of urban buildings. They should be the focus for a range of archaeological, architectural and historical approaches. Most towns in the region expanded massively in the post-medieval period, often obscuring earlier phases of their development.

Patterns of economic exchange, production and trade could usefully be explored through the artefactual record especially in conjunction with documentary evidence. The potential exists to exploit the large assemblages of material culture recovered from archaeological excavation, including faunal remains, as well as to research suites of environmental remains. Exploration of links such as these moves beyond site-specific studies and should expand our knowledge of regional economic and social interactions.

The multicultural and international nature of medieval Newcastle makes it an ideal context for investigating the construction and maintenance of social identities. Through an exploration of the notion of a Hanseatic identity, this theme has the possibility to create research of international importance.

There is growing evidence for the survival of medieval structures masked behind more recent facades. This should be synthesised and a typology created. In particular, there is greater potential than has hitherto been recognised for the survival of urban domestic structures, and there is still a need to understand the architecture of non-domestic buildings. They have the potential to inform us about the impact of urbanism on vernacular architectural traditions while their layout and organisation also has implications for the use of space in medieval towns, particularly the role of back lots as foci for small-scale industrial activity. Early engravings and photographs may preserve images of structures like these that have now been lost. Their potential should be explored further.

Strategic

A more detailed appreciation of the development of the

urban structure can feed back into the development process. For larger towns, such as Newcastle, deposit models could unite archaeological and geotechnical data. Any development on the back lots of urban properties should be the focus of adequate evaluation and, where necessary, full excavation. It is possible that some structures of medieval date may still stand, and a pilot project could usefully explore this possibility. Recently, there has been an increase in infill development in smaller towns and larger villages, which provides the opportunity for development-control work to feed into this research theme. Equally, any output would help inform development-control decisions in such contexts.

Research into urban material culture requires some infrastructural developments in order to maximise its potential, including more consistent approaches to data collection, possibly making use of the notion of 'recovery levels' and minimum standards for pottery and faunal remains analysis.

The co-operation needed in research into international identities has the potential to create wider regional and international partnerships, with the possibility of exchange of experience and expertise in these areas. The INTEREG IIC-funded *Kings of the North Sea* project provides a useful model.

Education

An increased understanding of the origins of urbanism in the region and its various trajectories would feed into the public domain in a number of ways, including popular publications and museum displays.

Research into smaller towns and administrative centres can have an important community archaeology element, for example, through a campaign of small-scale test pitting in back gardens.

Infrastructure

Increased understanding of the urban plan has the potential to provide further information for the region's HERs/SMRs, with the possible creation of GIS-based deposit models. This will supplement data gathered for the extensive urban surveys.

Further development of pottery type-series and their application to rural contexts as well as to other classificatory systems is desirable. This will require continued training of appropriate specialists.

There is clear potential for forging national and international links and partnerships through collaborative work related to such research, through seminars, conferences and exchange schemes. While growing out of a period specific initiative, such links have the potential for expanding into all aspects of the cultural heritage in the region.

Links to other agendas

The *English Heritage Archaeology Division Research Agenda* highlights the origins of medieval urbanism as an important research topic (English Heritage 1997, 44, PC6). It also notes urbanism as a major general research theme, particularly focusing on patterns of consumption. The need for further general work on urbanism is reiterated in

Recommendations for Medieval Archaeology (SMA 1987, 3, I.A). An increased understanding of the development of urban space also links with social reproduction whose importance is highlighted by Graves (2002).

The Society for Medieval Archaeology has also called for more work on middle-rank and smaller boroughs (1987, I.A.v). Recovery of material culture from these contexts also links with the Society's recognition of the value of material culture assemblages from urban areas. At a regional level, this reflects the requirement for more research into these areas as highlighted by Daniels (2002) and Harbottle (2002). The need to understand in more detail the economic basis of such sites, particularly their relationship to rural hinterlands has also been expressed (Perring *et al* 2002). The *English Heritage Archaeology Division Research Agenda* notes the impact of the Norman Conquest as a research theme (English Heritage 1997, 45, PC6).

English Heritage highlights an improved appreciation of the origins and development of the medieval small town and rural markets as a priority (English Heritage 1997, 49, H5), and this is echoed by the Society for Medieval Archaeology (1987, 3, I.A.v) who note the importance of further research into middle rank and smaller boroughs, in addition to major towns. The Medieval Settlement Research Group (MSRG) stress the importance of examining all types of rural settlements, including incipient market towns (MSRG 1996, 2), while Huntley and Stallibrass (1995, 24) have highlighted the importance of targeting small towns to see how they might relate to the rural sites in their hinterlands.

English Heritage notes settlement hierarchies and interaction as a research topic (English Heritage 1997, 51, T1), while the role of consumption patterns as a mechanism for exploring urban-rural differences formed the core of *Town and Country in England: frameworks for archaeological research* (Perring *et al* 2002). In turn, this reflects earlier calls to investigate towns within their wider landscapes by the Society for Medieval Archaeology (1987, 3, I.A.vi). The need for a better understanding of consumption within the region's towns (with its inherent relationship to urban/rural interaction) has been pointed out by Graves (2002). The importance of excavating sealed deposits which are well dated in order to maximise the potential of the recovery of material culture has also been noted (SMA 1987, 3, I.A.ii).

The issue of Hanseatic identity was highlighted in an overview of the future of urban archaeology in the region by Graves (2002).

The SMA (1987, 3, I.A.ii) recommends the investigation of complete tenements and groups of tenements from street frontages to the rear of the plots in order to clarify the relationships of outbuildings, yards and other activity areas outside the main residential unit.

MDiv. Castles and defensive structures

Academic

Traditionally, much work on castles has focused on their role

as defensive structures, however, recent work has emphasised the need for a more holistic approaches, asking questions about their position in the social, economic and ideological landscape of the region.

There is still much research to be done on the function of castles in the landscape and their role as consumers also needs to be investigated. What was their economic impact, and how did they interact with their hinterlands?

While it is important not to neglect the defensive function of castles, wider questions also need to be asked. What are the range of responses to unrest and the threat of violence in region, and what other responses, beyond the construction of castles, were deployed? How does the functional and symbolic dimension of castle architecture relate to other structures, such as fortified churches and city walls?

Finally, our understanding of the ultimate decline and afterlife of castles remains limited. How important was the advent of artillery in their disappearance, or were other social factors implicated? What do we know about the transition from castle to country house?

Strategic

A number of castles in the North-East are on the *Buildings at Risk Register*: Simonburn, Dilston, Mitford and Cartington (Northumberland), Auckland and Durham (County Durham), Kilton (Teesside), and Ravensworth (Tyne and Wear). Any conservation work should include full recording and results must be disseminated where possible.

Education

n/a

Infrastructure

n/a

Links to other agendas

Matthew Johnson (2002, 203) calls for more 'intimate studies of the standing fabric of castles combined with excavation and documentary research where necessary'. He particularly highlights the importance of addressing the landscape context of castles. The Society for Medieval Archaeology has emphasised the need for more investigation in baileys and the interiors of adjacent earthworks (SMA 1987, I.E.i).

Matthew Johnson (2002, 203) also highlights the potential to explore the changing behaviour of 15th- and 16th-century aristocracy and gentry.

MDv. Churches and religion

Academic

A tighter chronology for the architecture of Saxo-Norman churches is needed. What can this tell us about the state of the church in the 11th century?

There is ample scope for further clarification of regional patterns and variations in church design.

Although there is only limited evidence for wall painting and stained glass, there are more surviving examples of effigies, cross-slabs and other burial memorials. This resource offers real potential to answer questions about

the role of patronage in the design and use of churches and church furnishings.

A better understanding of the development of the parish and the pastoral responsibilities of the church is required. What is the origin of churchyard burial? When did the parochial system develop? More information is needed about the design and use of non-parochial chapels.

Strategic

All plaster should be treated as potentially concealing internal wall paintings (Peters 1996, 74). Church of England property stands outside the planning system but it is essential that, where possible, full archaeological assessments be undertaken in advance of development. All archaeological fieldwork should be carried out by appropriately qualified organisation following briefs provided by the Diocesan Archaeological Advisor, Cathedral Archaeological Consultant or County Archaeologist. Adequate funds must be provided to cover post-excavation analysis, as well as fieldwork.

Education

n/a

Infrastructure

Work commissioned by the region's Diocesan Advisory Committees (for example, Ryder 1997) must be published fully.

Links to other agendas

Brown (1996, 64-65) highlights the need to map out a more detailed picture of regional differences in church architecture. He also suggests archaeological investigation of church fabrics in areas of differing wealth and demographic patterns in order to refine the connections between the economy and church building.

Brown (1996, 66; see also Peters 1996, 68) notes the need to improve our understanding of the relative chronologies of naves and chancels in order to explore the relationship between lay and ecclesiastical investment in church building. He also highlights the requirement for a more detailed chronology of the addition of chapels and aisles in order to shed light on the relative need felt by lay people for intercessory service. Peters (1996, 68-69) recognises the complexity of parish devotion and the importance of lay initiatives as vital, noting also the need for more research on the presence and use of roods and rood lofts. Rosser (1996, 79-80) notes a wider requirement for a more detailed understanding of the layout and features located within medieval churchyards, including churchyard crosses and lychgates.

MDvi. Death and burial

Academic

The discovery of several cemeteries with skeletal material opens up the possibility of extensive research programmes to explore the medieval population, although this is not without its challenges. There is a need for more precise research questions on medieval skeletal assemblages to be developed due to the increased pressure for reburial. The retention of assemblages will require in-depth justification.

Other related questions include: are there regional sculptural traditions recognisable in the cross-slabs and other funerary monuments? How is their production organised? Where is the stone coming from?

Strategic

Adequate provision must be made for the recording and analysis of skeletal material excavated on church sites, following the recent *Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England* (Church of England/English Heritage 2005).

Education

n/a

Infrastructure

It is important that all metrical data related to skeletal material are adequately disseminated.

Links to other agendas

The Society for Medieval Archaeology (1987, I.C.vii) highlights the need for further research into human biology, physical anthropology and pathology.

MDvii. Medieval ceramics and other artefacts

Academic

Ceramic evidence is crucially important, it can be used as a chronological indicator and tells us about patterns of economic exchange and consumption. The role of pottery in gaining a further understanding of trade links (especially northwards to Scotland) needs to be progressed urgently. Are there local traditions of decoration and form? Local pottery chronologies exist, but it is necessary to synthesise and link them. The tight chronologies for pottery from urban assemblages should now be linked to rural assemblages.

There is a need to locate and publish more pottery production workshops, without placing undue emphasis on the kilns themselves and recognising the contribution of associated structures, such as waster dumps, drying and potting sheds. Viewed at a national level our knowledge of pottery production is thin, and north-eastern case studies are rarely cited further afield.

A start has been made on the identification of pottery imports, and comparisons could usefully be drawn with Hull, York and other better studied assemblages, as well as those across the North Sea. By what mechanisms did such pottery arrive and to what extent did it contribute to national and international identities?

These themes might also be addressed through the study of other medieval artefacts, such as metalwork. What transformations were brought about by the Reformation? How did displays of artefacts in households and on the body change? The study of dress accessories, for example, leans towards questions of dating and provenance and tends to divorce artefacts from any social meaning they may have held. Questions of regionality, customs of status, symbolic meaning and belief have all yet to be addressed and might usefully be combined with a study of

contemporary artistic media, such as paintings and monumental effigies.

Strategic

n/a

Education

n/a

Infrastructure

Increased training for pottery specialists in the region should be a priority.

Links to other agendas

English Heritage highlights 'Industrial archaeology' and 'Patterns of craftsmanship and industry' as major themes for further research (English Heritage 1997, 53-54, T6, T7). This includes the requirement for site-specific studies and the exploration of the wider social and environmental context of industry. Mellor (1994, 26) notes the importance of disseminating type series throughout the region, and the need to define ceramic regions or sub-regions. The Society for Medieval Archaeology (1987, I.D.vi) notes the potential for the study of ceramic production and advocates the continued investigation of brick and ceramic building materials.

MDviii. Other medieval industries

Academic

There is a need to discover about medieval exploitation of the region's coal resources. How do we identify colliery sites? One possibility is to combine archaeological fieldwork with the study of documentary evidence and field names. Once sites have been located there are wider issues to be addressed: how were they managed? Were they seasonal? Where did the workers live?

Further research on other extractive industries is vital. It is important to locate and examine the field archaeology of the 12th-century 'silver mines of Carlisle' (which probably extended into the region, for example, Shildon/Blanchland), including smelting and extraction of silver from lead. The development of the North Pennine lead industry from the 12th century onwards is also a priority for further study, with more research into boles, 'smeltings' and water-powered sites.

Research on the early iron industry should include fieldwork to identify bloomeries and the possible remains of waterpower. Blast furnaces and iron-working workshops might also be located.

There is a need to identify other industries, such as glass manufacture and leather-working.

The wider issue of the relationship between individual production sites (for any/all industries) and tenorial factors (for example, monastic/ecclesiastical estates, major lay magnates, smaller manors, open-field/enclosed/waste) should be explored.

Strategic

Metallurgical and other technical advice must be taken

routinely when relevant discoveries are made. This capacity should be built into the initial project design when it is thought that industrial processes might be present.

Education

n/a

Infrastructure

A type series of slag and other residues should be initiated.

Links to other agendas

English Heritage highlights 'Industrial Archaeology' and 'Patterns of craftsmanship and industry' as major themes for further research (English Heritage 1997, 53-54, T6, T7). This includes the requirement for site-specific studies and the exploration of the wider social and environmental context of industry.

The Society for Medieval Archaeology (1987, I.D.iii-iv) notes the importance of continued work on extractive industries, including the excavation of mines and associated workshops and dwellings, while the Historical Metallurgy Group underlines the importance of investigating pre-Industrial Revolution underground mining remains, should the opportunity arise, together with early ore-processing techniques (Cranstone 1991a, 7). Their agenda specifically refers to a better understanding of early non-powered bloomeries, water-powered bloomery forges and early charcoal fuelled blast-furnaces. In addition, more research into 'bole' smelting of lead has been prioritised, as has early silver extraction (Cranstone 1991a, 8-10).

MDix. Trade and economy

Academic

The North-East did not operate in isolation. The region had widespread political and economic links with other parts of England, Scotland and across the North Sea. We need to find ways of recognising these links, and of exploring the infrastructure through which trade and communication flowed.

Long-distance trade links must be identified and explored, apart from considering the ceramic evidence for trade. Possible avenues for new research include characterisation studies of medieval ballast (cf. Hoare *et al* 2002) and attempts to identify the use of Baltic timber. The North Sea was an important element in the regional economy, both as a conduit for national and international trade and as an important source of food, but its role is understudied as yet.

More locally, there are questions to be asked about the movements of animals and produce. What dates are the cross-dykes and other remains related to droving routes in the Cheviots? Are they all post-medieval? How far can the distribution of magnate holdings help us to understand the communication routes in the region, especially between England and Scotland?

Strategic

n/a

Education

n/a

Infrastructure

There is a need for increased collaboration with archaeologists working in areas with which the North-East had trade relationships, including the North Sea littoral and the Baltic, possibly capitalising on links already made through the EU Interreg IIC supported *Kings of the North Sea* project (Green and Bidwell 2002).

Links to other agendas

The Society for Medieval Archaeology highlights the need to improve our understanding of major and minor routeways (SMA 1987, 3.ii).

MDx. The fishing industry**Academic**

The fishing industry was an important sector in the economy of the North-East in the medieval period, although its development and the way in which it operated are poorly understood.

We must improve our understanding of the chronology of sea fishing, associated technical advances in shipbuilding and changes in the coastal settlement pattern. Is it possible to distinguish the development of an infrastructure? Where were ships being built and how were operations financed? The extent to which sea fishing was a seasonal activity might be explored through the analysis of maritime environmental assemblages. In particular, the exploitation of shellfish resources is barely researched.

Fishing was also an important element of the economy on the region's major rivers, most notably the salmon fisheries of the Tees. This should be explored archaeologically. Recent work by Victor Watts on the place-name evidence may identify the surviving remains of fishing installations. The potential for the survival of associated features, such as fish-traps and weirs, both in surviving river channels and in palaeochannels, should be assessed.

Strategic

Sieving of large bulk sediment samples is essential if representative collections of fish bones are to be assessed. Palaeochannels associated with the region's major and minor rivers may contain surviving evidence for the inland fisheries.

Education

n/a

Infrastructure

Full dissemination of the metrical data from analysis of maritime faunal assemblages is necessary.

Links to other agendas

The Society of Medieval Archaeology highlights the importance of recovering stratified assemblages from waterlogged deposits; it has also noted the significance of investigation of submerged sites inland,

such as rivers and ponds (SMA 1987, A.iv, 4.ii).

Collaborative work should be encouraged between archaeologists and divers (SMA 1987, 4.iii). Rippon (2003) indicates the importance of understanding the development of specialist settlements, such as fishing villages. Huntley and Stallibrass (1995, 246) note the importance of investigating the development of the fishing industry.

MDxi. The medieval to post-medieval transition**Academic**

The transition into the post-medieval period is an important process. Although there were important, short-term events which had a profound impact on society (for example, the Reformation and the Dissolution of the Monasteries), there were also longer term processes underway. To what extent can this transition be characterised by rupture or continuity?

There was clearly a change in the rural landscape, but important questions remain. Was there a decline in rural settlements and how did this vary regionally? Did a decline in settlement numbers reflect a reduction of the rural population due to the growth of towns, or was there merely a refocusing of existing rural settlement patterns? How and why did transhumance end? When did permanent coastal settlement begin?

The growth of towns is an important topic for further research, particularly the growth of suburban areas. Likewise, the role of industry in the expansion of urbanism and the wider expansion of the region's economy should be the subject of further research. Were the seeds of the Industrial Revolution sown in the intensification of industry in the 16th and 17th centuries? What were the patterns of investment and patronage that secured the capital for these developments? There were changes in all aspects of the region's architecture, both vernacular and high status and there is a particular need for more research into urban structures of the 16th and 17th century.

Strategic

n/a

Education

n/a

Infrastructure

n/a

Links to other agendas

The *English Heritage Archaeology Division Research Agenda* highlights the transition from medieval to post-medieval traditions (c. 1300-1700) as a field in need of further research. Changes must be examined holistically and avoid rigid categorisation between 'medieval' and 'post-medieval' (English Heritage 1997, 45, PC7).

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18. Post-Medieval research agenda

The sheer bulk of surviving relevant material makes characterising the post-medieval period and assessing its archaeological and historic environment resource a challenge. This is the first period for which our understanding of surviving upstanding remains is greater than our appreciation of the buried archaeology and, despite 20th-century developments, the historic environment of the North-East is still dominated by structures and landscapes of the post-medieval period. Nonetheless, the many economic and social challenges faced by the region in the second half of the 20th century have led to a wholesale destruction of some elements of this earlier landscape. Many facets of post-medieval life and industry have not survived to be recorded by modern researchers and this makes the creation of a research agenda all the more timely and pressing.

The sheer scale of the surviving resource creates a fragmented research community, including archaeologists (academic, commercial and amateur), specialists in designed landscapes, architectural historians, art historians, social historians and many special interest groups. There has been little unity in purpose; the process of creating this document itself led to useful new contacts between members of this diverse body of scholars, and this has been one of the most important collateral benefits of the project.

Another major obstacle is the sheer quantity of surviving documentary evidence, which includes contemporary records, maps, plans, personal papers and images. It is simply not possible to carry out significant work on the archaeology or historic environment of this period without engaging with the paper record in some form. Nonetheless, within the scope of the project no attempt could be made to audit existing archival holdings. For the present, we can only note that the increased electronic cataloguing of archive holdings is an important new development; recent examples include the A2A project (<http://www.a2a.org.uk>) and the Durham Record Office on-line catalogue (<http://www.durham.gov.uk/recordoffice>). Within the next decade there is a realistic possibility that a full audit of documentary evidence could be undertaken, though this would require a considerable infrastructural investment.

Gaps in knowledge

Extractive industries

Despite the importance of the region's industrial past, both as a force shaping local society and as a national and international technological innovator, there are still many notable lacunae in our knowledge, the most surprising being our understanding of the coal industry. Due to the dismantling of the coal industry, subsequent regeneration policies and an active political hostility to recording colliery remains, almost the entire stock of 19th- and 20th-century colliery buildings has been destroyed, even down to the landscaping of associated spoil heaps. We are left in the paradoxical position of knowing more about the

material remains of the earlier phases of the coal industry than the later ones, though there has been relatively little excavation work overall.

In the North Pennines the lead-mining industry had a social importance equivalent to that of the collieries of the north-eastern coalfields (Figure 68). There is an untapped resource of surviving field evidence for all stages of lead mining and processing, but our understanding of these remains varies widely. Earthworks and structures related to mining include hushes, shafts and adits, whilst evidence for ore dressing includes dressing floors, buddles and associated buildings. Little attempt has been made to characterise earlier 16th- to early-18th-century remains beyond Cranstone's work on hushes (1992). Despite good preservation on many sites there has been very little archaeological excavation, and even where there is place-name evidence for 16th-century lead-smelting boles, little serious research has taken place. The processing of lead, such as the manufacture of lead sheet or shot, has left few material remains. Lead was not the only vein mineral to be worked in the North Pennines, in the 19th century, zinc extraction and the mining of barytes, witherite and fluorspar were all undertaken, but again there has been no significant attempt to characterise the field evidence for these industries and to disentangle them from earlier lead-mining features. Iron mining was also found widely across the North-East, but little field evidence survives for before the 19th century.

In the post-medieval period a range of quarrying industries existed, ranging from small-scale working for local purposes to major industrial quarries providing large volumes of stone for use in the expanding towns. Quarries are marked on early maps but, while the locations of many quarries are known, there has been no systematic survey of the surviving field evidence. The winning of limestone for lime production was also widespread, but our knowledge of the field evidence for kilns varies widely across the region. There have been major surveys of the kilns of the North Pennines and Northumberland, but there has been no significant research into other limestone-rich areas, such as the Magnesian limestone measures of Durham.

The evidence for smaller-scale mineral extraction is variable. Although some peat was cut for use in the lead industry, most was supplied for domestic use and has left no documentary records. There has been little attempt to characterise the field remains. Similarly, the salt industry on the coast has left documentary evidence, but there has been no survey of the field evidence, even though remains survive at Haverton Hill (Teesside), Seaton Sluice and Amble (Northumberland).

Inorganic manufacture

The iron and steel industry was of great importance in the region. Despite the probable presence of water-powered bloomeries, evidence has not been studied in the region; the same is true of foundries, which are under-researched

on both a national and local level. Other aspects of the industry, including forges and smithies, are poorly understood, and many smaller-scale operations are not recorded on the region's SMRs/HERs. The use of metal in manufacturing and engineering has also been under-researched; for example, there has been no investigation of the swordmakers' workshops at Shotley Bridge (Co. Durham). The ceramics industry, including brick and tile works, is equally poorly understood and, despite the presence of major industries in the region, there has been little accompanying archaeological work.



Figure 68 Smelting chimney and flue, Ramshaw (Co. Durham).
© Durham County Council

Transport and communication

Thanks to cartographic evidence the post-medieval road network of the region is well known and the construction of toll-roads was an important phenomenon of the period. Nevertheless, there has been little synthesis of surviving field evidence, such as construction techniques, mile stones/posts, toll-houses and bridges.

The North-East is famed as the home of the railways, but despite extensive documentary evidence there has been little field research on the survival of formations, grading of track-beds and civil engineering of the earlier horse-drawn wagon-ways. There is equally little to say about on the archaeology of the later locomotive-hauled railways.

Ports and harbours were also a crucial component of the region's communications network. Whereas the archaeology and surviving infrastructure of the major ports, such as Newcastle, Hartlepool and Sunderland, are well understood, there has been little synthetic work on the smaller ports along the coast, which were so important for shifting coal

and agricultural produce; Alnmouth, Amble, Beadnell, Seaham and Seaton Sluice are among the better examples. Neither has there been any systematic evaluation of the field evidence for the navigational and life-saving infrastructure that developed during this period, including lighthouses, coastguard posts and rocket stations.

Agriculture and designed landscapes

Despite the rise of industry, agriculture remained a fundamental aspect of north-eastern life. There are, though, major gaps in our knowledge for the post-medieval period. We have little understanding of even some major changes, such as the end of the upland shieling system. In the uplands, in general, there are sizeable tracts of field evidence, including walls, enclosures, farm buildings and animal shelters, but little systematic survey has been undertaken; even the basic chronologies of dry-stone wall are poorly understood. One major phenomenon on the Anglo-Scottish border was the long-distance droving of animals, another topic that requires a survey of the surviving field evidence, such as cross-dykes. Less is known about lowland farming landscapes, even on such general topics as the pattern of enclosure.

Environmental evidence for the period is relatively poor, due to the lack of pollen cores. The upper layers of peat which would preserve more recent pollen have often disappeared due to peat cutting. Invertebrate evidence is rare. In practical terms it is uncommon for environmental samples obtained as part of PPG16-led excavation to be analysed due to the costs involved. Again, there are few substantial animal bone assemblages.

In addition to the agrarian landscape, there were also many designed public and private landscapes in the region, including parks and gardens. Although the Northumbria Gardens Trust has carried out an assessment of all designed landscapes in the old county of Northumberland, there is a need to take this southwards into Durham. One poorly understood aspect of the landscape of leisure is the material remains of the landscape used for field sports; there has been no systematic survey of shooting butts, shooting lodges and the provision of game cover.

Settlement and architecture

Broad patterns of settlement development are well understood in the region, but there are still gaps in our knowledge. For example, little is understood about the process of rural depopulation and settlement shrinkage in the 16th and 18th centuries. In the north of the region, this period encompassed the rise and fall of border raiding. While bastles are a well-studied building form, far less is known about their later 'afterlife'; the re-occupation of many of the border dales following peace and stability is not a well documented process.

Towns were expanding rapidly during in this period. The historic core of several towns, such as Newcastle, may contain buildings with earlier origins. This requires us to rethink our models of urban development. Clearly, one of the most important motives in urban expansion was industrialisation, which also saw the creation of many industrial villages, but little can be said about the earlier

stages of this process. For example, the early-18th-century industrial village at Winlaton Mill is poorly understood from an archaeological point of view, and little survives of early colliery housing (in contrast to that of the later-19th-century).

Material culture

Fieldwork in the region has produced large post-medieval ceramic assemblages, but they often derive from large-scale communal dumps, making refined analysis difficult. There has also been a tendency to focus on the analysis of earlier assemblages rather than 19th-century groups. Another clear bias is the emphasis on assemblages from urban contexts; only a handful from rural contexts have gone beyond the assessment stage.

The major urban excavations in the region have also produced a large number of small finds, such as dress items, shoes, textiles and sewing equipment, but there has been little attempt at synthesis or comparison with other sites.

Religion and ritual

Whereas the post-Dissolution use of a number of ecclesiastical houses, such as Black Friars in Newcastle, is well understood, less is known about many others, particularly in the 17th and 18th century. In general, little work has been done on the architecture and fittings of post-Reformation churches, and a better understanding is needed both of the construction of new churches and patterns of church restoration. Whilst there is some appreciation of the role of architects such as John Green and John Dobson, less is known of the provision and design of many of the simple Commissioner's churches provided for coal mining communities. Equally little is known of the later mission churches.



Figure 69 Interior of High House Wesleyan Methodist Chapel (Co. Durham). © Peter Ryder

Evidence for non-Conformity includes major surveys of chapels in the North Pennines and Darlington (Figure 69), but there is no real appreciation of the extent of survival of chapels in many urban conurbations and industrial areas. Catholicism also became increasingly important from the early 19th century and, although many churches were built

in the mid 19th century, there has been no overall synthesis of Catholic ecclesiastical architecture.

Defence

The rise in the use of artillery in the 16th century and the increased political stability in the region in the 17th century spelt the end of the defensive use of castles, but many of them remained in domestic use. This transition from fortification to country house is, however, weakly understood.

Following the suppression of border reiving, the next major phase of unrest was the English Civil War, but little is still understood about the provision of defensive structures, batteries and siege works, or about the level of destruction of property.

Potential of the resource

Despite these gaps in our knowledge and the increased level of destruction of many elements of the historic environment of this period, there is an immense archaeological, architectural and documentary resource yet to be exploited. Unlike other periods, such as prehistory, there has been a shorter history of endeavour in post-medieval archaeology. This means there is still much basic groundwork to cover, assessing and characterising the resource. There is a longer tradition of architectural research by building historians, but much of this has focused on high-status, 'polite' architect-designed structures, and significant basic work is still required on less high-profile buildings, including rural vernacular building traditions and the urban and sub-urban building stock.

Excavation at Wallsend Colliery B and Lambton D pit demonstrates that colliery remains may be preserved archaeologically, partly making up for our lack of standing structures. It is also likely that buried remains survive, most notably in the core late-medieval/post-medieval centres of the coalfield. Their study could be usefully supplemented through an examination of the impressive photographic archives in the region, which often record significant detail about the infrastructure of the coal industry. Well-preserved lead-mining landscapes are also a key resource, but they require detailed mapping and survey. Again, this can be combined with examination of the records of the major lead companies.

There are many other elements of the industrial archaeology of the region where basic survey work could characterise the extent and nature of the surviving resource. Examples include salt works, stone quarrying, limekilns in lowland County Durham and early iron mining and processing. The potential exists to identify sites from early maps, particularly the 1st edition OS, and it is vital to do this basic work in order to locate industries such as tile works, gravel pits, rope walks and engineering works. More detailed work on the industrial products, for example a survey of brick stamps relating them to their place and period of manufacture, would be of great value.

The infrastructure of roads and rail tracks is under-researched. Surveys of basic road infrastructure, such as small bridges and mile posts, have great potential and could easily combine map-based work and field survey.

Whereas work on those railways still in use may prove difficult, the large number of abandoned lines provides an important resource which could further our understanding of civil engineering. Encouragingly, recent work at Wylam, Throckley and Walkergate shows the potential for the survival of early wagon-ways (Brogan 2003).

Many upland agrarian landscapes are well preserved, offering great potential for further work, as illustrated by recent work in the College Valley (Barnwell 2000). Work of this kind should involve input from members of the local farming community to obtain a real understanding of how these landscapes actually functioned. The growth of Countryside Stewardship Schemes and other similar schemes should help to demonstrate the importance of the historic environment to the agricultural community.

Many buildings, particularly in towns, require more detailed internal survey, ideally through the judicious application of PPG15. The application of scientific techniques, such as the experimental thermoluminescence techniques being developed for use on brick at Durham University and dendrochronology, may provide important insights into the chronological development of both the urban and rural building stock.

Targeted excavation in urban backlots has further potential to investigate patterns of consumption and disposal at an individual household level, as well as to increase our understanding of the role of backlots in small-scale industrial production. Large quantities of ceramics and small finds offer great potential for synthetic work at the regional level. For example, clay pipes have mainly been employed for dating purposes, but there is also scope to explore the nature of tobacco consumption as part of the new range of commodity consumables introduced into public life in the post-medieval period.

The increased secularisation of modern society and changing patterns of worship threaten the stock of non-Conformist chapels, with many are being converted to other uses. While this is a threat to their preservation, particularly to interiors, it does provide the opportunity for their recording through PPG15.

Research Agenda

Key research themes

PM1. Early coal industry and coal use

The early development of the coal industry from the medieval period to the early 19th century needs further research, especially technological developments and the growth of early industrial communities. Other areas for further study are the early development of coal-using technologies, notably in the salt, glass, pottery and non-ferrous metal industries. This research can be progressed through both the development-control process and proactive investigations. Development control needs to be particularly aware of early industrial remains around Whickham and Gateshead. To ensure improved targeting of archaeological evaluation and excavation there should be a survey of documentary and cartographic evidence for

early mining in order to identify precise locations. This information should be fed through into the regional HERs/SMRs. Development-control commissioned fieldwork should also be aware of the potential for the survival of buried remains of early colliery buildings on later sites.

Sub-surface mineworkings may survive. These may be revealed during modern opencast mining and other deep-ground disturbances, and may require stabilisation (and therefore archaeological destruction) in advance of other surface developments. It is essential that appropriate archaeological monitoring processes be put in place to record such remains.

PM2. Early railways

The North-East was a world leader in the development of early railways. This needs to be recognised in on-going research. Three avenues have been defined. First, investigation should focus on the earliest wagon-ways and pre-locomotive hauled lines, as well as activity at the terminals of early railways, specifically the development of coal staithes. Second, existing landscape features along the course of known early wagon-ways require survey, including railway formations, track-beds and gradients. Third, the courses of early railways should be plotted on the region's HERs/SMRs. This will require archive research on early documentary and cartographic sources.

PM3. Winlaton Mill, Tyne and Wear

The major late-17th- to 19th-century iron and steel works at Winlaton Mill combines great historic importance, as one of the earliest purpose-built industrial settlements, with excellent on-site preservation, including well-preserved sub-surface remains and areas of ruined, upstanding structures. In addition to the surviving field remains, there is also a considerable amount of documentary and cartographic evidence (Figure 70). Investigation of this internationally important site would make an ideal long-term research project, including excavation, standing building recording and documentary research. A long-term project such as this would be ideal for a university, with significant potential for involvement by local archaeology and history groups, bringing possible Heritage Lottery Fund contributions.

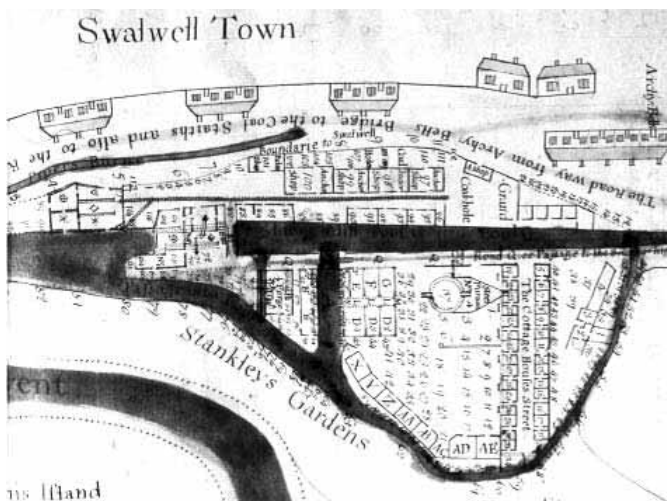


Figure 70 Mid-18th-century map of Winlaton Mill (Tyne and Wear). © David Cranstone

PM4. Timber-framed buildings in the North-East

Further investigation of post-medieval timber-framed building traditions in the North-East should explore the continuity of medieval building techniques into the post-medieval period and acknowledge that the origins of buildings of apparent post-medieval date may lie in the later medieval period.

This can be achieved by a full survey of targeted properties in Durham, Newcastle, and other promising towns. This should be supplemented by documentary research and funding for dendrochronological dating. There is ample scope for continued research into building materials, particularly brick, where priority should be given to the innovative dating and provenancing techniques.

PM5. Landscapes and mansions of the 18th century

The 18th century was a period of great expansion of stately homes and their associated designed landscapes. Some of these were owned by long-established families of high standing, others by those newly enriched from their involvement in the burgeoning industrial economy. Today many of these houses and landscapes are under threat from partition, development and decay. Among the flagship examples of conservation and research are Gibside (Tyne and Wear) and Hardwick Park, Sedgfield (County Durham), but there is still a need for further research investigations.

Among the themes that might be considered are the 'Brownian landscapes' of Northumberland, local accounts of visitors, and lodge and folly architecture. The 18th century deer houses of Bishop Auckland, Burn Hall and elsewhere are just one regional sub-theme to be explored, though many minor individual park and garden schemes would merit more intensive study.

Sources of evidence include maps, plans and illustrations, especially tithe and enclosure maps, documents such as the bills for the purchase of plants and trees, contracts for construction and maintenance, and fieldwork including earthwork surveys and botanical assessments.

PM6. Patterns of consumption

The changing pattern of consumption is an important element of post-medieval society. The rise of industrial-scale production of goods and the introduction of new luxury products from abroad, such as coffee, sugar, tea and tobacco, led to a consumer revolution. This can be seen in the archaeological record where there is a massive rise in material culture in the 17th and 18th centuries.

This phenomenon can be explored through development control. The recovery of post-medieval ceramics is common on archaeological evaluation and excavations, although they are often seen as of relatively little importance and usually neither fully analysed nor reported, unless part of an exceptionally large or significant assemblage. This is particularly true for 19th-century assemblages. These collections nonetheless have great potential for expanding our knowledge about consumer choices and wider patterns of consumption. Greater priority should be afforded to their full analysis and dissemination.

It is essential that there is more recovery and analysis of assemblages from rural contexts. These are currently much less common than their urban equivalents, although there is still substantial scope for improving our understanding of urban assemblages too. Currently most ceramics and small finds are derived from large deposits, probably indicative of dumping and refuse disposal. Unfortunately this means that analysis is coarse grained and it can be difficult to relate assemblages to individual properties. Instead, increased excavation of urban backlots would be extremely useful, as it would allow smaller assemblages of material to be related to specific properties which, when combined with documentary evidence for dwellings, would open up new possibilities.

In addition to exploring artefactual assemblages, changing patterns of consumer choice can be examined in other ways, such as through furniture and interior decoration. The judicious use of PPG15 should allow the recording and, where necessary, the preservation of important decorative schemes, and it is crucial that results are adequately disseminated. Documents such as inventories and probate inventories also offer considerable potential, which can be enhanced further when combined with evidence from standing buildings and archaeology.

PM7. North Pennine dales

The North Pennines forms a distinctive post-medieval industrial zone. While lead mining was important from the medieval period onwards, its massive industrial expansion in the 18th and 19th centuries led to a profound transformation in the landscape and society of the area.

Despite extensive research on the industrial archaeology of the lead industry significant new work is still required. It is important, however, to push beyond detailed investigation of the technological aspects of the industry and explore the social dimension of lead mining. For example, the pattern of company towns, miner-smallholdings and remote mine shops created a particular settlement landscape which was profoundly influenced by the industry, yet intimately bound up with co-existing upland agriculture, which was mainly dominated by sheep farming. The role of the lead-mining companies as providers of social infrastructure, such as housing, water supplies, co-operatives and reading rooms, is also a core research topic.

There has also been little analysis of the material culture of the inhabitants of the region. Despite substantial collections of objects held in museums, such as the Beamish and the Weardale Museums, their potential to expand our knowledge of day-to-day life in the dales has yet to be exploited. The architectural and archaeological investigation of post-medieval houses is also crucial.

There is great potential to explore many aspects of the historic environment through the establishment of community projects, capitalising on local enthusiasm for the region's lead mining heritage. Work by existing groups, such as the North-East Vernacular Architecture Group and the Weardale Society, must be encouraged, as must the dissemination of their conclusions.

Since the North Pennines covers parts of three different counties and two different English Heritage regions, the North Pennines AONB, where appropriate, should act as the lead body to bring together existing and future researchers.

PM8. Anglo-Scottish identities

The Anglo-Scottish border continued to be an area of contention and unrest well into the 16th and 17th centuries. The rise of 'reiver society' led to the development of a distinct architectural form (the *bastle*) and a unique lifestyle and economy based around cattle raiding by extended families. These raiding families, from both sides of the border, had little sense of wider national rivalries; instead there appears to have been a distinct border identity.

Although the Union of Crowns in 1603 led to the decline of large-scale cattle raiding, the region continued to be relatively lawless. The 1715 and 1745 rebellion saw further political uncertainty, but by the 19th century the region was firmly English.

The extent to which north Northumberland and the Scottish Borders had a shared sense of cultural identity in 16th and early 17th centuries might be fruitfully be explored. Equally, the process by which distinct English and Scottish identities were constructed in the 17th and 18th centuries is an important avenue for future research.

At a national political level, England and Scotland developed strongly separate identities in the Middle Ages; these identities became less opposed from 1603 onwards, and from 1707 were partly replaced by a shared British identity. At the local level, the picture is much less clear-cut and the central Borders arguably lay outside either national identity until the 17th century. Some aspects of Northumbrian dialect and place-names, for example, are more akin to 'Scottish' rather than 'English' norms. The archaeological manifestations of 'Scottish', 'English', 'Border', 'British' as well as more local identities has an important contribution to make current national debates (both in archaeology and in society more generally) on identity, culture and nationhood.

It is essential that any research into this topic explores data from both sides of the modern border, and extends into the North-West of England. A collaborative project might be an excellent way to bring together archaeologists working on both sides of the border. For example there is still much to be learnt about *bastle* architecture. Even basic questions about chronology and distribution have still to be resolved. Further research on the border town of Berwick-upon-Tweed would also be welcome. How does it relate in its form and architecture to other English and Scottish towns? Finally, is there a divergence in architecture and interior decoration (wall painting, wallpaper, wooden panelling) between north Northumberland and the Scottish Borders in the 18th and 19th centuries? Does this indicate the development of distinct national rather than regional identities? It is also the case that patterns of consumption of domestic goods, such as ceramics, may indicate changing concepts of ideology and identity. The full analysis and dissemination of

post-medieval ceramics from north Northumberland should be a priority (Brooks 2003).

A conference bringing together scholars from both sides of the border would help greatly to set the agenda for further research into the Border region.

Key research priorities

PMi. Cultural and ethnic identity

Academic

The issue of cultural and ethnic identity is a fascinating and complex one. During the post-medieval period a series of cultural identities were being constructed and maintained. Material culture and architecture are particularly potent tools in this process. It is vital to explore the multiple, cross-cutting and even contradictory identities recognisable in the North-East from the 16th to 19th centuries; these include, but are not limited to, class, gender, religious and political belief (see also MDvii).

The creation of national identities should be a focus of further research. How was material culture and architecture used to create and maintain a distinct English identity? How far was this identity found throughout the region, and to what extent were there competing 'Borders' and 'Anglo-Scottish' identities in the north of the region? How far were identities based on regional or local belonging manipulated and maintained?

Other identities should also be explored, including those based on profession (for example, a coal or lead-mining culture) and religious belief (for example, Catholic, non-Conformist). Did these lead to the creation of a distinct suite of material culture, architecture or patterns of consumption? Does the post-medieval period see a rise of class consciousness? How is this reflected in archaeology and architecture?

Did these regional identities contain elements of a wider 'North Sea' identity, shared with other North Sea/Baltic coastal regions? Is there, for example, a North European influence on early gardens?

A better understanding is required of the manner in which style and fashion in material culture and architecture might relate to wider national patterns: possible topics include regional furniture, the Gothic revival, internal decoration (for example, wallpaper, stencils, wall painting, etc; Bostwick 1993).

Strategic

n/a

Education

Continued training for finds specialists must be encouraged, in particular familiarisation with material from southern Scotland and elsewhere on the North Sea littoral.

Infrastructure

There is a need for integrated research with colleagues from outside the region, particularly in southern Scotland,

North-West England and around the North Sea. The possibility of the establishment of regular colloquia or seminars should be explored, these might cover a range of topics, including architecture (high status and vernacular) and material culture.

Links to other agendas

Johnson (2002b, 202) notes the potential to investigate identity through a detailed analysis of symbolism and iconography on clay pipes. English Heritage notes the importance of research into towns to test theories of ethnicity (English Heritage 1997, 51-52, T2). Gilchrist and Morris (1996, 126) note the role of architectural style of churches and religious features in the wider landscape to negotiate ethnic, social and political tensions. They emphasise the impact that variations in doctrinal fashions, for example, Puritanism, Arminianism/Laudian reforms, Oxford Movement, etc, may have had on the architecture and internal fittings of churches.

PMii. Industrialisation

Academic

The greatest change during the post-medieval period was the rise and massive expansion of industrial production in the region. The North-East was one of the foremost centres of technological and industrial innovation in the industrial revolution in Britain, and had a profound influence far beyond the shores of the North Sea. It is important to recognise, though, that industrialisation is not purely a technological process, it grew out of important changes in economic relationships and provoked shifts in the articulation of the workforce with financiers and proprietors. As a social process it profoundly influenced the way in which people lived, causing major new patterns in both production and consumption.

It is important to explore both the technological side of the industrial revolution in the North-East and the wider social impact of the explosive growth of the region's industrial economy. What is the effect of industrialisation on settlement patterns? This needs to be broken down chronologically; 16th/17th century industrialisation is very different from 18th/19th century industrialisation.

Study of the development of early urban/proletarian industrial communities is important, key sites include Whickham and Gateshead, both associated with the early coal industry. There is a need for an improved understanding of the cultural effects of population movement due to industrialisation. How do new groups become articulated with the urban economy? More work is required on early-19th-century colliery housing; can archaeological investigation supplement information derived from documents?

What is the relationship between industry and other economic aspects of society? It is important to explore variation within industrial areas, for example, the difference between Blakett-Beaumont and London Lead Company lead-mining areas or the difference between the archaeology and architecture of Winlaton Mill village and those villages not connected to Crowley's industrial concerns.

Understanding the complex relationship between changes in the transport infrastructure and industrialisation is also a priority. The region's nationally important wagon-ways require further archaeological and historical research. These would have formed an important part of the new industrial landscapes of the North-East. Industrialisation also impacted on all aspects of the rural landscape, for example, forestry for pit props and rails, cutting of peat for ore hearths and nurseries, although we know very little about the details of these changes.

As a process, the industrial revolution was as much about changes in patterns of consumption as production. What governs the choices made about consumption by the region's population: supply, economy, ideology? For consumption to be better understood, material culture assemblages must be related to individual properties. In urban situations an interest in excavation in backyards should be emphasised. The recovery of post-medieval assemblages from rural sites and colliery villages is also particularly important. In rural contexts, different disposal strategies such as manuring and middening may be at work.

In addition to these general topics, research questions specifically related to industry need further exploration. The coal industry is perhaps the industry which most characterises the post-medieval period in the North-East, but little is known about the historic environment and archaeology of its earliest phases. Outside PPG16 archaeological work should focus on the identification and excavation of early colliery sites and, most certainly, their associated settlements, particularly in the period 1790-1830.

The other main extractive industry in the region was lead mining in the North Pennines. Existing work on the industrial processes related to the lead industry should be supplemented by further research into the wider social landscape. We should investigate the relationship between industry and other economic aspects of society, for example, in the miner-farmer landscapes of the North Pennines. It is important to develop a better understanding of the variation within industrial areas, for example, the difference between Blakett-Beaumont and London Lead Company lead mining areas, and with those lead-mining areas not dominated by any big company.

Basic work is required on the industrial processes associated with the industry, particularly an appreciation of pre-19th-century technology. Chronologies of various forms of lead-processing technology could be improved. Within the archaeology of technology, there are two major research themes: the development of ore-processing methods from the 16th to the late 19th centuries and the development of smelting technologies over the same period. In both cases, the outline is (or appears to be) relatively clear from current historically-led research, but archaeological and archaeo-metallurgical (and other scientific) research is lacking; these themes have considerable potential to contribute to wider academic understanding of the processes of invention, innovation and incremental development, and of the relationship between the historical and archaeological records.

Compared with the coal and lead industries, relatively little work has been undertaken on the region's important iron and steel industry. Further work on early (18th-century or earlier) industrial technology is a priority, as is a better understanding of ironstone mining, particularly in Cleveland. This should include research into the wider social infrastructure, including housing and social provision. As regards smelting, the 19th-century furnaces of Northumberland, and the remaining evidence for the 19th/20th-century Cleveland industry, are of particular value. The development of urban foundries in the 18th century, and forges, rolling mills and engineering works in the later 18th and 19th centuries is also of considerable interest.

More research is needed on ceramic production sites, including documentary work to locate them (for example, through field- and place-names). Early local pottery industries (16th/17th-centuries) are particularly poorly known and there is an apparent gap between local medieval production and the known 18th/19th-century industries. It is important to increase our knowledge of kilns and their associated buildings.

Archaeological research into 18th/early-19th-century steam engines is essential. Although the major documented inventions occurred elsewhere, a high proportion of early engines were on the North-East Coalfield, and important elements of the much less well-documented processes and working practice may have occurred within the region.

Coastal salt production was also an important local industry from the medieval period until the 18th century. Medieval production sites, presumably initially using the 'sleeching' process, were widespread according to documentary evidence, though with the exception of the Tees estuary very few have been identified archaeologically. The development of the 'direct boiling' process (using coal fuel and iron pans to produce salt from seawater without prior concentration) is generally held to have occurred on Tyneside in the early 15th century, though scattered mentions of coal fuel in salt-making indicate that the development was more widespread both geographically and chronologically. The development of 'direct boiling' on Tyneside, along the North-East coast more generally, and in adjacent regions (southern Scotland and Cumbria) in the late Middle Ages, was the first major coal-fuelled industry and is therefore vital in understanding coal-based industrialisation both nationally and internationally. The Tyneside salt industry remained of considerable regional importance until the end of the 17th century, but a separate rocksalt/brine-based industry also developed on Teesside in the mid 19th century, a regional variant of the national salt industry which made an important contribution to the growth of the chemical industry on Teesside.

Strategic

Where practical, DEFRA Environmental Stewardship schemes should be used to manage small-scale elements of the industrial heritage not deemed important enough for statutory protection.

There is a requirement for the preservation of 18th-century coke ovens and for the survey of the surviving

wagon-way and pre-1850 locomotive-hauled railway infrastructure. Where necessary, appropriate protection should be put in place. Documentary research must be carried out to establish the extent of peat cutting - can this be related to the distribution of 'stack stands'?

Excavation should be undertaken in the backlands of urban sites to try and identify small-scale semi-domestic industrial activity (Matthews 1999, for a non-local example). Excavation on backlands will also recover material culture that can be related to individual properties. Retention and analysis of post-medieval assemblages from even small-scale interventions is essential. Opportunities to obtain assemblages from rural contexts should be seized.

Watching briefs to record possible early coal workings revealed during opencast operations should be routine and there should be regular take-up of specialist metallurgical advice during fieldwork, and analysis of residues where appropriate. Long-term protection of sites of a range of metallurgical interest, particularly those of 18th-century date and earlier, should be ensured.

Major surveys of lead mining landscapes should be undertaken, not only remains specifically related to mining and lead processing but also smallholdings, access routes, tracks and agricultural features. There is a need for an assessment of the impact of the *Countryside and Rights of Way Act* on remains relating to the lead industry. The removal of buildings from the *Buildings at Risk Register* is one of the proxy condition indicators for the North Pennines AONB Management Plan 2004-2009 (North Pennines AONB 2004, 90-91). Many of these buildings in the North Pennines are associated with the lead industry (Brandon Walls Lead Mine, Stanhope; Middle Level Lead Mine, Daddry Shield; Low Slit Lead Mine, Westgate).

For salt production, the first requirement is for field identification and entry into HERs/SMRs of coastal salt-making sites; familiarity with the field and documentary evidence of both sleeching and direct boiling is required for this. A specific identification survey would be desirable. Once entered into the HERs/SMRs, salt-making sites (especially those with potential for research on the late medieval development and adoption of direct boiling) should be a high priority for academic and development-related research.

Education

It is essential that any archaeological work on the colliery industry be integrated into the range of on-going local historical research undertaken by local societies and projects, such as Durham County Council's Durham Miner project (now completed www.durham-miner.org.uk).

All interpretation on lead mining sites in the North Pennines should be carried out in accordance with the *North Pennines AONB Interpretation Strategy* (North Pennines AONB 2004, 87, TS2).

Infrastructure

All industrial sites shown on the 1st edition OS map should be entered onto the region's HERs/SMRs. Greater regional

consistency is needed in the recording of railway and wagon-way infrastructure.

A catalogue of brick and tile manufacturers should be created from records of related brick stamps. This could prove an important resource for dating post-medieval sites in the region, examining the development of refractory materials and researching trade patterns.

Increased training of finds specialists is needed, as well as the establishment of regional reference collections. Publication of all artefact assemblages from development-driven excavation is essential.

A type series of slags should be developed.

Links to other agendas

English Heritage notes the need to synthesise the considerable amount of data gathered from urban centres on a thematic basis, including intra-site spatial analysis of settlements highlighting the importance of multivariate analysis to explore spatial and temporal change in butchery, local environment, craft and industrial residues, building form and decoration, functional attributes of pottery and glass (English Heritage 1997, 51-52, T2). The same agenda suggests the need for increased research into patterns of deposition and discard and highlights the definition of urban and rural poor as a theme for further research, including such topics as diet and marginal economic exploitation, rarity and re-use within material culture and urban space and built environment (English Heritage 1997, 53, T5).

Huntley and Stallibrass (1995, 247) prioritise the collection of faunal remains from industrial sites to assess the exploitation of animal resources.

The Historical Metallurgical Society notes the need for research into fuels, including peat and coke production, as well as more analysis of refractory materials (Blick *et al* 1991, 5). *The Society for Post-Medieval Archaeology* (SPMA) *Research Agenda* emphasises the recovery of assemblages of pottery and other artefacts from a range of buildings of various social contexts (SPMA 1988, 2.2, iii).

Gilchrist and Morris (1996, 115) have noted the need to improve our understanding of the impact of industrialisation on the spread of non-conformity.

Railways The SPMA stresses the need to explore how towns coped with rapidly expanding populations from the late 16th century (SPMA 1988, II, 2.1, iii).

Linsley (2002, 208-209) notes the need for more work on the region's railways. Further research is required on wagon-ways, including the extent of deployment of cuttings and embankments and their forms of construction, and a better understanding of acceptable gradients with and against the load. Significant work on rope-worked railways should be undertaken, with candidates for thorough archival and archaeological study including the Hetton Colliery railway, the Rainton and Seaham railway, the Stanhope and Tyne railway, and the Earl of Durham's railway. Again, a better understanding is needed of limiting alignments and gradients,

rail-bed engineering and location determinants for stationary haulage engines. Further research topics for locomotive-hauled railways include the development of lime depots, coal depots, signal and level crossing boxes, linesman's cabins, bridges and viaducts, as well as the conversion from rope-worked railways to locomotive-hauled railways (for example, Stanhope and Tyne railway). Finally, Linsley notes the wider context of railways, including their routes and their influence on the surrounding area. Morris (2003) develops similar points on a national basis and provides a starting-point for a national research agenda for railways.

Coal Linsley (2002, 210) notes the importance of detailed interpretation of the field evidence for coal mining, especially the chronology and technology of bell-pits, and suggests a programme of survey and selected excavation. He also suggests recording at a level similar to the RCHM survey of the Scremerston and Stublick coal measures, particularly for the Lumley and Pontop areas of Durham. The SPMA (1997, 2, 3.3, iii) notes the lack of archaeological research into early coal workings, and the need to maximise the opportunities presented by opencast extraction.

Lead Linsley (2002, 210) explores the need for further research into the lead mining and processing industry, in particular the precise mode of smelting used in the early post-medieval period. He suggests excavation of bole-smelting sites, but more generally, archaeological work is still required on dressing floors and smelt mills, on chronology generally, as well as on various technologies of washing and dressing, detailed variations and individual chronologies of smelt-mill flues, networks of carriers' ways and on the impact of the industry on land improvements.

The Historical Metallurgical Society presents a range of topics related to mining industries, including characterisation of mining remains, a better understanding of hushing, pre-18th-century ore-processing techniques and landscape survey of upland mining palimpsests (Blick *et al* 1991, 2).

Among research topics related to smelting and refining are later 16th-17th century lead ore hearths and early-18th-century reverberatory furnaces (Blick *et al* 1991, 3). The SPMA (1997, 2, 3.2, iii) notes the potential for research into lead-smelting sites.

Other metalworking Linsley (2002, 210) notes the requirement for further research into the region's iron and steel industries, including known 18th-century blast furnaces, as well as the larger-scale integrated iron and steel works of the 19th century. He particularly mentions the potential of Ridsdale, Brinkburn and Lemmington. The national importance of these 19th-century sites, and of the later 19th/20th-century Cleveland industry, was stressed in the MPP coverage of the iron and steel industry.

The SPMA (1997, 2, 3.2, I) highlights the need for research into the primary manufacture of iron, including charcoal blast furnaces and water-powered bloomeries, together with secondary metal trades and smithing (*ibid*, 2, 3.2, iv, v). The Historical Metallurgical Society presents a range of research topics related to post-medieval iron and steel

production, including iron-ore mining, smelting and refining, incorporating blast furnace technology forge technology and early steel production (Blick *et al* 1991, 2, 3). Research related to secondary processing should include the development of iron foundries, rolling and slitting mills, wire drawings and finishing trades.

Linsley (2002, 210-211) has also noted the need for further research into clay products industries. The SPMA (1988, 6, 3.5, ii, vi) have prioritised research into the development of kilns and their associated buildings and noted the need for further work into the transition from late medieval to post-medieval pottery industries.

PMiii. The North-East in its national and international context

Academic

The North-East has long had widespread links with other parts of Britain and across the North Sea into Europe. The advent of industrialisation, the expansion of Empire and technological innovations, such as steam locomotion, had an important influence on the way in which the region interacted with both its neighbours and those further afield. New fashions and ideas entered the North-East, just as quickly as technological advances disseminated outwards.

Research topics include the impact of new international markets (colonial and other) on industrial production, and the recognition of commercial and trade links through material culture, for example ceramics and wood.

A better understanding of the region's towns would be welcome. Are they 'Scottish' or 'English', or something else (see PMi. Above)? A particular focus for further research should be Berwick-upon-Tweed. Topics include its fortifications, architecture (recognising the need for internal examination) and Anglo-Scottish identity.

Strategic

n/a

Education

n/a

Infrastructure

Research must be integrated with colleagues outside the region, particularly in southern Scotland and around the North Sea. The establishment of regular colloquia or seminars should be explored to cover a range of topics including architecture (high status and vernacular) and material culture.

Links to other agendas

n/a

PMiv. Chronology

Academic

Despite excellent historical records and a large quantity of highly diagnostic material culture there are still gaps in our chronological understanding of the period, particularly in the dating of buildings.

Strategic

More dendrochronological work should be undertaken on softwoods, notably imported Baltic and North American timber. Where necessary, appropriate funds should be made available to carry out this work.

Education

n/a

Infrastructure

A regional register of brick stamps should be established. This might be a suitable on-line project.

The regional dendrochronology sequence should be tied into the national master.

Links to other agendas

English Heritage prioritises the re-definition of archaeological chronologies through scientific dating techniques (English Heritage 1997, 61, MTD13).

PMv. The growth of civil life

Academic

The post-medieval period saw the growth of civil life with the increased provision of a range of institutions relating to self-help and education as well as to leisure. This includes reading rooms and mechanics' institutes, as well as parks, museums and theatres.

Strategic

Many buildings relate to social provision, among them reading rooms and miners' institutes, and these are increasingly threatened by redevelopment. Where necessary, suitable re-ordering should be undertaken, particularly of surviving internal fittings.

Education

n/a

Infrastructure

A survey of various categories of public building including libraries, reading rooms, mechanic institutes and theatres should be added to the region's HERs and, where appropriate, inscribed into Local Lists backed by development plan policies.

Links to other agendas

n/a

PMvi. The Reformation

Academic

The Reformation and the Dissolution of the Monasteries had an impact on life and society in the region which went far beyond the confines of religious belief and practice.

To what extent were the medieval church fittings of the region subject to deliberate destruction? Is there any evidence for resistance to this? How did forms of patronage and benefaction, traditionally expressed through donations to the church, find alternative means of expression?

The 'afterlife' of ecclesiastical houses, particularly for smaller and urban establishments requires study: what happened to Blanchland Priory in the 16th and 17th centuries? What was the impact of the redistribution of monastic land and estates, for example, the post-Reformation reorganisation of Durham Priory land?

Strategic

The recording and survey of 17th-century church furnishing should be a matter of priority.

Education

n/a

Infrastructure

Where practical, the results of the diocesan quinquennial reviews should be disseminated (for example, Ryder 1997).

Links to other agendas

Morris and Gilchrist (1996, 113-114) highlight the impact of the Reformation on church architecture and fittings, including the reception of Protestant reform and the survival of 'Catholic' popular religious practices.

The SPMA (1997, 7) prioritises the post-Reformation adaptation of ecclesiastical buildings as a major theme for future research.

PMvii. Civil War (1639-51)

Academic

What was the impact of the English Civil War on the region? A thorough survey should be undertaken of surviving earthworks related to military operations. What was the impact of the war on the region's castles? How many were re-defended and how many were slighted? Was the level of slighting in the North-East very low compared to other regions, and if so why?

The Civil War within the region involved considerable Scottish military intervention. Can this be distinguished archaeologically? Is the material culture of Scottish troops distinct in any way from that of contemporary English troops, and what are the implications of this for English identity and Border/defensive mindset?

The wider impact of the war should also be explored with a greater awareness of the building campaigns of the mid 17th century. For example, was the post-war building boom in Newcastle a campaign to repair war damage, or was it a response to the upswing of the city's economy?

Strategic

Surveys should be undertaken of possible surviving siege-works and defences at Corbridge, Sunderland, Hylton and Newcastle.

Survey and detailed analysis could be carried out of major battles, such as Newburn, perhaps in co-operation with local metal-detecting groups.

Education

n/a

Infrastructure

Not only Registered Battlefields, but details of all battles and skirmishes during the Civil War should be added to the region's HERs,

Links to other agendas

The SPMA (1988, 6, i) highlights research into defensive and offensive works from the Civil War, including those of 'relatively ephemeral military objectives'.

PMviii. Industrial intensification 1790-1830

Academic

The period between 1790 and 1830 was the peak for industrial intensification and innovation (for example, cast iron rails, rope-worked inclines, locomotives, pumping technology). There was also important agricultural innovation, including the adoption of the first gin-gangs and later stationary steam engines. The introduction of specific new breeds was a feature of livestock innovation from 1780 to 1820, with work by the Collings of Darlington and Culleys of North Northumberland greatly influencing world agriculture, leading to the world's first herd book in 1822 on Durham shorthorn cattle. These technological changes, however, did not come without profound impacts and rupture in traditional society. This period must be a focus for in-depth research, not only into industrial production and manufacture, but also into major contemporary developments in agriculture, including stockbreeding, enclosure and vernacular architecture.

Strategic

Detailed survey of farm buildings and associated infrastructure, such as stock pens and enclosures should be a priority. Where necessary, good examples of early-19th-century farm buildings should be added to Local Lists and backed by development plan policies. Detailed surveys of remaining gin-gangs and stationary engine houses should be carried out, building on the work of Stafford Linsley and Susanna Wade-Martins.

Education

n/a

Infrastructure

Historic Landscape Characterisation will allow differing patterns of rural landscape to be recognised; it is essential that identical or similar methodologies be used in each county to ensure effective comparison.

Links to other agendas

English Heritage prioritises further study of the Industrial Revolution (c. 1700-1850 AD), noting the need for research into the landscape of agricultural industry, coal and water power, industrial processing of metals, distribution and retails, water and sewage and the interiors of and services to working class housing (English Heritage 1997, 45, PC8). 'Industrial archaeology' is also highlighted as a major thematic research priority noting the need to place industrial activity in the wider context of ecological impact, upland landscape development and industrial housing (English Heritage 1997, 53, T6). Finally, English Heritage prioritise further research

into patterns of craftsmanship and industry, including greater efforts to summarise 'site-based interventions into more synthetic considerations of the development and change of specific industries and crafts' (English Heritage 1997, 53-54, T7). Particular topics include sources and distribution of stone, survey and excavation of coastal industry, waste and processed material from industrial sites and changes in agricultural practice.

The SPMA underline the need for excavation, survey and research on rural sites, in particular the importance of excavation to supplement structural survey; other topics are the investigation of mills, and animal and plant breeding, highlighting the potential of waterlogged deposits (SPMA 1988, II, 1.1, i, v, 1.2, ii).

Huntley and Stallibrass (1995, 247) also note the need for further work on specialist breeding of plants and animals. They suggest targeting gardens, orchards and farms to recover evidence for specialist plant breeding, and note the need to date developments in livestock breeding.

Mix. Environmental evidence

Academic

Despite often being associated with earlier periods and questions of long-term environmental change, environmental archaeology has much to offer the post-medieval period. Work on human skeletal populations and faunal assemblages can offer important insights into the day-to-day lives of the population of the region.

The lack of pollen diagrams covering the post-medieval period should be tackled by locating well-preserved peat beds with intact upper layers.

There is a need for more human osteological studies, including research into basic information relating to stature, diet and pathologies.

Further work is also necessary on the presence of heavy metals in peat as an indicator of mining and industrial processes (Mighall *et al* 2004).

Strategic

It is essential that adequate provision is made for the

recording and analysis of skeletal material excavated on church sites, following the recent *Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England* (Church of England/English Heritage 2005).

Education

n/a

Infrastructure

Adequate dissemination of metrical palaeoenvironmental data is essential, particularly results derived from development-driven research work.

Links to other agendas

Johnson (2002b, 204) underlines the need to consider subsistence and management practices in faunal and plant assemblages, using this research as a means of addressing patterns of consumption.

Hall and Huntley (2002, 158-159) note the value of environmental sampling from rural sites and the need to improve sampling from urban contexts. Imported fruits and seeds are recognised for their importance in interpreting the status of deposits. The same authors also prioritise the taking of samples from industrial sites. Urban material, much of which is derived from planning interventions, must be synthesised, particularly that from Newcastle and Berwick.

English Heritage notes the importance of environmental data as a key mechanism in developing an understanding of trades and crafts, as well as for wider patterns of consumption (English Heritage 1997, 51-52, T2).

The Historical Metallurgical Society highlights the environmental impact of metal industries via their fuel demands on woodland, the impact on the environment of heavy metal emissions from non-ferrous mining (via the analysis of peat and alluvial sediments) and the impact of prospecting, mining and ore-processing on river and stream morphologies (Blick *et al* 1991, 6).

The SPMA (1988, II, 1.2, ii) stresses the need for more research into animal and plant breeding, particularly the potential of waterlogged deposits.

19. Twentieth-century research agenda

From the beginning of the process to create this research agenda the 20th century has proved the most problematic period to address. Despite increased interest in many aspects of the historic environment of the 20th century, it is still difficult to pinpoint those components which will, in the long term, come to be valued as 'heritage'. For many people, even those within the historic environment sector, remains of this period have neither research nor amenity value, and this is particularly the case for those monuments which post-date World War II (Figure 70). Nonetheless, this period cannot be ignored, not least because the large-scale structural changes associated with late-20th-century processes of de-industrialisation and regeneration threaten the survival of so many other earlier elements of the existing resource.

The study of this period is also complicated by the highly fragmented nature of its research community. The range of groups and individuals involved is diverse and includes architectural historians, social historians, archaeologists and special interest groups. Regrettably, there is little feedback and information exchange amongst them, and the meetings held as part of the Research Framework process provided a rare opportunity to bring researchers together with a defined purpose in mind.

The future for the study of the 20th century is, however, far from bleak. Many feel that it is important to seize the moment and tackle the challenges raised by the threat to the resource, as well as to maximise the potential provided by the excellent documentary and oral history background. There is also an increased determination to record what remains, particularly industrial structures, before they are decommissioned, and so save much information that would otherwise be lost.



Figure 71 Post-World War II prefabricated houses at Witton Gilbert (Co. Durham) © Durham County Council

Gaps in knowledge

Much of what might be deemed 'gaps in knowledge' stems from this uncertainty as to what might be thought to have heritage value at some point in the future. Certainly, the

general absence of 20th-century sites on HERs/SMRs, with the exception of some aspects of military archaeology, is noticeable. Only a handful of 20th-century sites or monuments are currently protected by Scheduling or Listing.

Industrial archaeology has dominated the study of the post-medieval period, and it is perhaps surprising to find that similar work on the 20th century is rather less advanced. One of the most obvious absences, considering its former economic and social importance in the region, is the lack of surviving colliery architecture. Although the coal-mining industry declined over a long period, it was the later 20th century that saw its final dismantling. Due to the demands of regeneration most pitheads were demolished, and political hostility to the industry in the government at the time did not encourage detailed preservation by record. In the North Pennines, a smaller mining industry also existed, focusing mainly on minerals, such as barytes and witherite. The remains associated with this industry still stand, but have largely been ignored in favour of the structures associated with the lead industry in the same area, which mainly date to the 18th and 19th centuries. In addition to these extractive industries, the North-East was home to many important manufacturing industries, such as iron- and steel-making and shipbuilding as well as extensive light engineering works. Again, while work has been carried out on 18th- and 19th-century remains, little has been undertaken on the 20th-century aspects of these industries.

Railways are also an important aspect of the more recent heritage in the region, though the century saw an on-going reduction in the extent of the network and the removal of trackside infrastructure. Again, there has been extensive work on the 19th-century rail network, but little of note so far on 20th-century railways, particularly for the period following the end of steam power. The other major change in the 20th-century communication network was the advent of the petrol and diesel engines, but, once again, the impact of the many miles of new road constructed has not been assessed, and the recording of its related infrastructure, for example bus shelters, petrol stations and road signage has barely begun. In general, it is only the earliest examples of such remains that have been protected.

The extent to which wider patterns of settlement have been studied varies immensely. Whereas sociologists and historical geographers have researched patterns of urban regeneration, there has been less exploration of the architecture and landscapes destroyed and created as part of this process (Figure 71). Despite wider national interest in new towns, north-eastern examples (e.g. Washington and Peterlee County Durham) have been relatively under-researched; this is particularly true of the several important planned suburbs and dormitory villages in the region, such as Darras Hall and Gosforth Garden Village (Tyne and Wear).

Many smaller settlements have also seen tremendous change over the course of the 20th century, although not

on the scale of urban centres. Lack of work on villages reflects a dearth of research on the 20th-century rural landscape generally. The impact of the end of horse- and steam-power is largely unappreciated as is the advent of the internal combustion engine as the main source of motive power in the countryside, with the consequent redundancy of gin-gangs, engine houses and stabling, as they have been replaced by a need for garaging. The lack of substantial and detailed recording work on agricultural sites is disturbing in the light of the current popularity of farm conversion schemes.

One of the most active areas of research for special interest groups has been the military remains of World War I and World War II. The larger coastal defence batteries from World War I are well known, although there has been less work on the more ephemeral remains from 1914-18, such as practice trenches, early industrial sites and damage from enemy action. In general, the remains of the 1939-45 conflict have attracted the greatest interest, reflecting both the greater number of surviving features and of course the fact that action is still within living memory for some members of the population. The Defence of Britain project led to the recording of much of value, though there is still information in private hands that was not submitted to the project. Less work has been undertaken on other remains relating to the war, such as air raid shelters and ordnance factories.

Despite the process of secularisation during the 20th century there has been extensive church building in response to shifts in population. Although some of the more important, architect-designed buildings, such as St Andrew's, Roker, are listed, there has been no systematic recording of surviving structures, particularly those related to the post-War church building boom, which provided churches for the new towns of Aycliffe, Cramlington, Killingworth, Peterlee and Washington. Despite surveys by Peter Ryder of non-Conformist chapels in the North Pennines and Darlington, there has been little work on this important sector of religious belief in other areas of the region. This is particularly significant in the light of the increased threat to chapels as they are converted to residences or for industrial purposes. Despite the burgeoning of studies on post-medieval mortuary practices, little is known about changing patterns of 20th century burial rites, such as shifting fashions in gravestones and the impact of the rise of cremation. Of course, Christianity is not the only religion to have been practiced in the 20th century, but apart from the *Survey of Jewish Built Heritage in the United Kingdom and Ireland* there has been little recording or research into the practice of these faiths.

Potential of the resource

Despite these gaps in our knowledge for the 20th century environment, there is still an overwhelming abundance of surviving evidence. The sheer magnitude of the surviving resource is considered by some to be as much a curse as it is a blessing, particularly when the parallel documentary resource is included too. It is not practical in this section to list the surviving building stock or landscape elements for

the simple reason that the resource is too voluminous. Unlike the other periods under consideration in this project, the 20th century is also blessed with the potential for oral testimony. Although rapidly diminishing for the earlier half of the century, as yet this is still an important resource, which needs urgently to be exploited.

There are still many standing industrial remains, although, as noted above, some industrial remains, such as collieries, have been cleared; in other areas, particularly in the North Pennines, extensive elements of the infrastructure still survive, due to the lack of any perceived need to regenerate their sites. Some areas marginal to urban centres also still retain a good stock of 20th-century industrial remains, including mines and quarries. The low value of land in upland areas, as well as the extensive farming regimes practiced, there has also preserved many elements of the agricultural landscape. Here the conservation plans for Northumberland National Park, the North Pennines AONB and individual Countryside Stewardship schemes may provide protection for many buildings, particularly earlier structures which incorporate 20th-century alterations.

Despite the sheer quantity of surviving material, there have been initiatives that have tried to get to grips with the data. The *Tyne and Wear Historic Town Survey* and the *Northumberland Extensive Urban Survey* both provide information on the smaller towns of the region, and the *Northumberland National Park Historic Village Atlas* and the forthcoming Weardale survey will also provide similar information about settlement changes in upland rural sites. Other survey projects include subject specific overviews such as Peter Ryder's non-Conformist chapels survey, the Defence of Britain project and the Imperial War Museum's War Memorial Recording project.

Research Agenda

Key research themes

The 20th century group drew up a list of five key research themes which have the greatest potential for moving forward the study of the 20th century historic environment of the North-East over the next five years. The choices made in selecting this handful of key areas were based on the threat to the resource, their potential for significant research, and their ability to stimulate wider debates about the study of the 20th century. Several of these topics have a wider resonance and demonstrate the potential for research in the region to move forward the national agenda.

M01. World War I military remains

Military remains from World War I are a fast disappearing resource. Although events from the Great War may not have had the same impact on the region's environment as those of World War II, there are still many surviving remains, ranging from the batteries at Hartlepool and Blyth, to rifle ranges and practice trenches, but these features are often ephemeral, and in many cases their origins have been forgotten.

A desk-based assessment would gain a better overview of the extent of the resource which requires extensive documentary work, as well as fieldwork. All recorded sites should be added to the region's HERs/SMRs. Funding from this project could come from English Heritage or, because of the wider public interest in military archaeology, it may make a suitable project for the Heritage Lottery Fund, though any such project should be managed through a local authority.

M02. Shipbuilding

Shipbuilding was once one of the iconic industries of the North-East, with important foci around the Tyne, Wear and the Tees. The industry, however, had almost completely disappeared by the end of the 20th century. Whereas coalmining has become the focus for community history, there has been less interest in the history and surviving remains of the region's shipyards even though the industry was of national, indeed international, importance, and ships from the North-East were integral to the international tradelinks of the British Empire and other globalising institutions. A study of the shipbuilding of the North-East would inform us not only about a local industry, but would also have a direct link to wider issues, such as the rise and fall of Empire, and the development of international shipping routes.

A desk-based assessment is required of all remains of shipbuilding in the North-East. This should include not just a record of shipyards themselves, but associated industries and facilities, such as engine makers and design and testing facilities (Figure 72). Such a project could take

place at the regional or county level, and it will require extensive documentary work, as well as fieldwork. All recorded sites should be added to the region's HERs/SMRs. There is still also a surviving, but inevitably diminishing, workforce who used to be directly involved in the ship-construction industry. There is scope to combine research into the historic remains of shipbuilding with a detailed programme of oral history.

Further study of the products of these shipyards is required. There are many 20th-century wrecks along the coast of the region. The well-preserved wrecks of 19th- and 20th-century steel wrecks are generally more attractive to the region's active sports diving community than are the earlier wooden wrecks which survive less well. The research potential offered by the regular diving of these decks must be harnessed and the retrieval of artefacts from them better regulated and recorded.

M03. Settlement and planning

From small estates to entire new towns, a significant development in settlement patterns in the 20th century was an increase in their planning. The construction of new residential areas was often carried out with a wider agenda of social engineering, although there was frequently a 'reality gap' between the vision behind their developments and the actuality of life within them.

Unlike some areas of Britain, the areas of new, planned development and new towns are discrete, and provide legible units for study. There is an extensive archive of plans,



Figure 72 Aerial view of Albert Edward Dock, Howdon (Tyne and Wear). © Museum of Antiquities, Newcastle

maps and aerial photographs in the region's record offices, clearly demonstrating the development of these planned settlements. These sources could be combined with fieldwork and oral history to explore how planned space was used and organised by those who lived within them.

Research into this topic would make a good research project at postgraduate level, exploring the wider motivation and processes behind patterns of urban planning. There is also substantial scope for community involvement in the collection of material related to life in the new towns, including archive photographs and oral history; this could be funded through the Heritage Lottery Fund. There is particular potential for some research projects to feed into English Heritage's Change and Creation project on landscapes 1950-2000.

MO4. Transport infrastructure and technology

The North-East saw a transport revolution in the 20th century. The railways grew to their greatest extent before being substantially cut back, particularly following the Beeching cuts of the 1960s. The advent of the internal combustion engine also led to a massive expansion in the road infrastructure of the region. This embraced the construction of dual carriageways and motorways, the spread of out-of-town shopping centres and changes in the planning of housing including the widening of residential roads and the provision of garages and off-road parking. Other important changes included the rise of other forms of public transport, from trams to the metro, and the development of air travel. In addition to the rise of public transport systems, there was also a rise and then fall in the spread of purpose-built industrial communication infrastructure, including light railways and shipping. The mundane nature of much of the surviving resource coupled with constant redevelopment mean, however, that this infrastructure is increasingly threatened.

A series of base level desk-based assessments should gauge the extent of the survival of transport-related features, including 20th-century railways (particularly focusing on those lines cut by Beeching), civilian airports, road infrastructure (for example, early bus stops, road signage, railway crossings, etc) and the small ports along the coast. These assessments should be used to evaluate the threat to the resource and to direct further research and management decisions.

There is extensive, popular, specialist interest in many aspects of 20th-century transport infrastructure, particularly railways. The potential for community involvement in related survey projects should be explored, and may provide opportunities for Heritage Lottery funded project work. It is essential that there is some local authority or other official overview or management of such projects to ensure adequate recording and safeguard the incorporation of the material into the region's HERs.

MO5. Creating heritage

The 20th century saw the development of a distinct discourse relating to heritage. Initially, with the

establishment of National Trust and the process of sites of archaeological, historical and architectural importance being taken into public guardianship (i.e. Ministry of Works; Department of Environment; English Heritage) a clearly defined stock of visitor attractions of 'historic' importance developed. Tourism is now one of the region's major industries, but there has yet to be a study of the landscape of tourism itself.

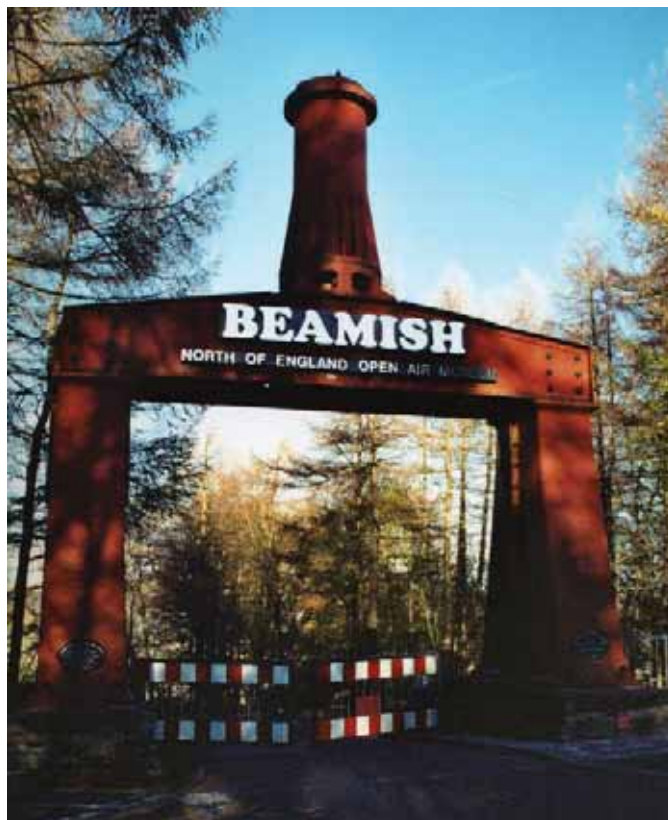


Figure 73 An 1880 steam hammer used to forge ship's rudders at Darlington forge, now the entrance to the Beamish, the North of England Open Air Museum (Co. Durham). © David Petts

There is a need to develop a better understanding of the changing physical, social and legal processes related to the development of the heritage sector in the North-East. Topics of particular importance include the development of the heritage industry, the impact of legislation (PPG16/PPG15) on the survival of the historic environment, the impact of planning law and the development of Conservation Areas on the appearance of the region's towns and villages and the relationship between historic and natural heritage, especially in the North Pennines AONB and the Northumberland National Park. The physical impact of tourism on the region's historic visitor attractions should also be explored, for example, the provision of car parks, visitor centres, the impact of visitor numbers on the resource etc. Very little work has been done on this topic, and there is scope for the region to make a significant contribution to national research.

Finally, the process through which sites and places are deemed as having heritage value requires scrutiny. Fifteen years ago, sites which are now being carefully recorded, such as World War II air-raid shelters and post-War industrial remains, would have been ignored and yet today they are seen as part of the region's heritage. A better understanding of the processes through which this

happens is desirable; who decides heritage value, the heritage sector or the general public? Should decision makers be following public opinion or striving to lead it? These issues have profound consequences for the making of policy by national and local bodies, such as English Heritage, DEFRA, and local authorities.

Key research priorities

MOi. Industry

Academic

Twentieth-century industrial archaeology has often been ignored in preference to work on earlier periods. However, there are important gaps in our knowledge and sites must be recorded now to avoid the appearance of further lacuna (Badcock and Malaws 2004).

The most notable gap is a good understanding of the landscape of the 20th-century coal industry, particularly social aspects of colliery society, for example, miner's institutes. In addition, the mining and processing of fluorspar and barytes in the North Pennines requires research, especially to develop a wider appreciation of life in lead-mining settlements after the decline of the major lead companies.

The coastal industries of the region also saw major changes in this period. The shipbuilding industry once dominated most of the region's major river mouths, but from the 1960s the shipyards began to close following competition from Asia. Despite these closures, there are still many surviving remains relating to the industry, particularly along the Tyne.

The fishing industry, with its major ports at Blyth, Amble, North Shields, Sunderland, Hartlepool and Redcar, has also seen a similar decline in its fortunes and the region's smaller harbours have been transformed. Many today are used for leisure boating rather than commercial purposes.

Other industries requiring major surveys of extant remains include quarrying, the brick and tile industry, and light industries (for example, light engineering, manufacturing, etc).

Wider trends that characterise 20th-century industry could also be researched, for example, changes in the spatial organisation of industry, such as the switch from light industry in urban centres to the creation of specialist industrial and retail estates on the edge of towns. The North-East saw some of the earliest developments of such estates, among them Team Valley, and this gives research on this topic in the region a wider national context.

The decline of heavy industry also changed the relationship between employers and employees. As towns and villages became less dominated by single employers so there was a decline in the extent of social provision, such as clubs, libraries and institutes. The little studied colliery bath houses designed by Frizzell in the 1930s and 1940s were of importance to the Modern Movement; they merit further research. In the second half of the century the provision of such services was taken up by the state. This is also a topic

for further exploration, particularly the rise of distinct styles of modernist, municipal architecture.

Strategic

Where conservation work is being carried out on lead-mining sites, any later phases of later activity related to extraction of lead, barites or witherite should be recorded. Industrial processes too, should be detailed before demolition or redevelopment of significant industrial sites. Recording must not be limited to building structures, but include a detailed assessment of industrial processes before the removal of machinery and other internal fittings.

Miner's institutes, working men's clubs and other social buildings relating to the coal industry are increasingly being demolished and converted. Where threatened, these buildings should be recorded, including internal fittings.

Education

The recent industrial heritage of the North-East is of great local interest. There is significant potential for the exploitation of oral history to record details of industrial sites. This should be undertaken as soon as possible. The Durham County Council Coal Mining Oral History project, for example, demonstrates the potential of community educational projects, building on local knowledge and experience of 20th-century industry.

Infrastructure

There should be regionally agreed policies for the inclusion of 20th-century industrial remains on the region's HERs/SMRs.

Miner's institutes, working men's clubs and mining disaster memorials should be included on HERs/SMRs.

There is a need for detailed surveys of 20th-century quarrying, brick and tile industry, light industry and shipbuilding. These should build, where relevant, on existing material gathered as part of the Monument Protection Programme.

Links to other agendas

The Historical Metallurgical Society notes the importance of the survey of the upland landscapes of mineral extraction (Blick *et al* 1991, 1.1). English Heritage prioritises further research into industrial archaeology, particularly that which places industrial activities in the broader context, including their ecological impact, the provision of housing and the impact of industry on uplands (English Heritage 1997, 53, T6). The English Heritage document *Change and creation: historic landscape character 1950-2000* highlights the landscape elements of post-WWII industrialisation and de-industrialisation (Bradley *et al* 2004).

MOii. Transport and communication

Academic

The 20th century saw a transport revolution, with the advent of internal combustion engines, and a commensurate decline in the importance of the railways. Railway trackside features and infrastructure would benefit from further investigation.

The rapid expansion of the road network has also had a profound effect on the landscape of the 20th century. Pre-WWII motoring remains including garages, petrol stations, road signage, and should be surveyed. In the early 20th century roadside inns had an important role in the development of popular motoring. These too are little investigated, though English Heritage is preparing a national study.

In addition to exploring the surviving physical infrastructure of 20th-century transport, access to cars has fundamentally changed patterns of contemporary life, including the spread of out-of-town shopping and leisure centres, the decline of local shops and the design of housing (e.g. the increased use of *cul de sacs*). The local impact of these changes could be examined.

Strategic

A major survey of historic trackside features and infrastructure on active railway lines is a priority, as is a detailed survey of pre-WWII motoring remains, including garages, petrol stations, and road signage. Where appropriate, protection needs to be put into place.

Education

The new outstation of the National Railway Museum at Shildon (Co. Durham) offers the potential for important collaborative projects on the rail system of the North-East.

Infrastructure

Dialogue between curators and Network Rail should be developed to ensure protection or recording of vulnerable elements of the historic railway infrastructure.

Links to other agendas

Linsley (2002, 209) notes the need for further research on the field remains of locomotive-hauled railways, including line depots, coal depots, signals and level crossing boxes, linesman's cabins, bridges and viaducts.

English Heritage highlight the need for research into the expansion of the road system in the late-20th-century landscape (Bradley *et al* 2004).

MOiii. Agriculture

Academic

The 20th century saw a profound change in the rural landscape. One of the most significant developments was the rise of tractors and other agricultural machinery, the subsequent construction of new storage sheds and major alterations to earlier structures for garaging and storage, as well as modifications such as the widening of field gates, farm tracks and the removal of hedges. These changes in the landscape are worthy of recording in their own right.

Elsewhere, patterns of forestry have changed profoundly. Although the collapse of the colliery industry meant a decline in the demand for pit props, there has since been an expansion in the use of softwoods for wood pulp and chipboard. The industry is now more mechanised with a commensurate decline in the size of the work force. Major forests, such as Kielder and Hamsterley, also have a significant role as leisure areas. Modern forest landscapes

demand proper recording, with particular notice being taken of evidence for the infrastructure of the forestry industry, such as forest rides, fences, fire towers, etc. Other major changes to the landscape include the construction of reservoirs which provide water for major conurbations. Like the region's forests, these too have significant amenity value.

Strategic

All farm buildings should be fully recorded before their conversion or demolition. Early examples of purpose-built machine sheds should be considered for inclusion on the DEFRA Environmental Stewardship schemes.

Education

Recent changes in the agricultural landscape should be highlighted in interpretative material provided by local authorities, the North Pennines AONB and the Northumberland National Park

Infrastructure

There is need to ensure full recording of reservoir and forestry infrastructure on the region's SMRs/HERs.

Links to other agendas

n/a

MOiv. Religion and belief

Academic

Although increasingly recognised as a period of secularisation, religion remained an important part of 20th-century life, particularly with the increasingly multi-cultural nature of North-East society. Better recording of 20th-century non-Conformist churches and chapels is essential. There is also a need for more information on post-WWII church building. Further research and recording of non-Christian places of worship would be welcome, similar to the *Survey of Jewish Built Heritage in the United Kingdom and Ireland*.

Strategic

The *Jewish Heritage UK Code of practice for recording synagogues in imminent danger of closure* (Kadish 2004) should be adhered to.

Non-Conformist places of worship threatened with development should have a full structural survey, including a photographic record of all internal fittings.

Education

n/a

Infrastructure

There is need for low-level survey of non-Christian places of worship.

Links to other agendas

n/a

MOv. Death and burial

Academic

Although ritual and belief have become increasingly

disengaged from many people's lives, burial or cremation are still major events that continue to involve most people in the wider world of religion and belief.

A better understanding of changing fashions in 20th-century burial rites should be developed. What has been the impact of secularisation on funerary traditions?

The increased popularity of cremation has led to the introduction of a new architectural form: the crematoria. A regional survey of crematoria structures should be undertaken.

Strategic

When dealing with Jewish cemeteries the *Jewish Heritage UK Code of Practice for Burial Sites* must be followed (Kadish 2005a). There is a considerable threat to gravestones due to pressure on space in the region's cemeteries and the practice of laying down gravestones and memorials for health and safety reasons.

Education

n/a

Infrastructure

There is the need to survey 20th-century crematoria in the region, with inclusion of significant sites on the region's HERs.

Links to other agendas

n/a

MOvi. Military and defence

Academic

Although some aspects of military archaeology are well known, others remain poorly understood. Remains relating to World War I must be recorded, including defence measures and especially coastal features and damage from enemy action (see MO1).

Features of the WWII still need recording; not only military sites, but also elements of the wider infrastructure related to the Home Front, such as air raid shelters. These sites are increasingly under threat, as is the potential for exploiting oral history as a means of better understanding the period.

Post-war military sites are also becoming a focus of research (for example, Cocroft and Thomas 2003). The expansion of commercial airports, often on the site of post-War airbases, and the closure of military bases, such as RAF Boulmer, is now threatening many remains of this date. It is also important to develop a better understanding military training infrastructure, for example, practice trenches, temporary training camps, etc.

Strategic

Full recording is necessary of all 20th-century military and defence remains where they are affected by development work; this includes the recording of air raid shelters and post-WWII features. Basic survey is required of all Royal Observer Corps establishments and related civil defence

infrastructure in the region, and where necessary, full recording will be needed.

Education

There is an urgent need for oral history projects recording the experiences of those who were involved in the construction and use of WWII and Cold War facilities in the region. They are a diminishing resource, and swift action is essential.

Infrastructure

There is still much evidence relating to WWII defensive features which was not included within the Defence of Britain project. This should be incorporated into the region's HERs/SMRs. A project could usefully fill out and add resolution to existing Defence of Britain data.

Links to other agendas

Modern military matters points out the importance of further research into the surviving remains of WWI, noting the need for a synthesis of current evidence; it also lists further research into anti-invasion defences, building on the work of the Defence of Britain projects and training areas as priorities (Schofield 2004, 41-43, B2, B4, B7). English Heritage highlights the need for further work on the recent defence heritage (English Heritage 1997, 50, H6).

MOvii. Sports and leisure

Academic

There are whole classes of sites relating to sports and leisure in the 20th century which have remained relatively little researched in the region, including public houses, cinemas, and bingo halls. Whereas there is increased interest in pre-war sites, less research has been done on post-war structures. As well as general surveys of basic stylistic and architectural trends, it is important to consider their wider social context. For example, how did the provision of public houses in new towns compare with areas which developed more organically? Finally, in the late 20th century, leisure facilities followed industry and retail to out-of-town locations. What have been the consequences of this spatial shift for leisure activities in the region?

This subject is still greatly under-researched. It is particularly important to ensure that remains related to regionally distinctive leisure activities, such as quoits, pigeon racing and greyhound racing, are preserved. There is also a need for a better understanding of nationally popular sports, such as football, cricket and tennis. Whereas the stadia of the major regional teams are unlikely to preserve much original infrastructure, lower level league and non-league clubs may retain early pavilions and stands. The wider social context of sport might usefully be explored, particularly its spatial location, its works' teams and the provision of facilities by employers.

Finally, the later 19th and early 20th century saw the development of settlements specialising in the leisure industry: the seaside town. The rise of foreign travel has had an adverse affect on the region's coastal resorts, such

as Redcar, Saltburn, Seaton Carew and Whitley Bay. Further work could usefully define and describe the novel elements of their landscape.

Strategic

There should be basic surveys of pre-WWII cinemas, public houses and sporting facilities. A record should also be made of all surviving quoits pits and pigeon lofts. Historic public house interiors should be protected and recorded.

Education

There is a clear opportunity for substantial community involvement in the recording of sporting and leisure sites, for example, pigeon lofts and quoits pitches. These projects would make ideal candidates for the Heritage Lottery Fund.

Infrastructure

There is a need to develop projects recording the sporting heritage of the North-East, similar to the pilot project Played in Manchester (Inglis 2004) as part of the English Heritage collaborative project Played in Britain (www.playedinbritain.co.uk).

Similar research onto changing landscapes of leisure should be linked into the English Heritage Change and Creation project.

Links to other agendas

The English Heritage document *Change and creation: historic landscape character* highlights the need for research into post-1950 landscapes (Bradley *et al* 2004).

MOviii. Housing

Academic

The 20th century saw many changes in patterns of local housing in response to a range of factors, including the decline of heavy industries with its associated demands for regeneration and the rise of the car. One important development in the North-East was the establishment of planned settlements. There are a number of early estates in the region, such as Darras Hall and Gosforth Garden Village, and the Garden City Movement in the North-East is a key research topic. Thomas Sharp, the influential inter-war town planner had strong North-East links and his career merits further biographical investigation.

The region also saw the founding of post-war new towns, such as Peterlee and Killingworth. The form and long-term

development of these towns have very different fortunes. The role of artists like Victor Passmore at Peterlee deserves more attention, as do public area landscape schemes. More generally the development of social and private housing, especially post-WWII council estates, should be a research priority.

Strategic

Basic work should characterise variations in 20th-century housing in terms of use of space, road networks and public space. This might be incorporated directly into the Historic Landscape Characterisation projects or related schemes such as Change and creation (Bradley *et al* 2004).

Education

n/a

Infrastructure

n/a

Links to other agendas

English Heritage stress the need for research into post-1950 landscapes (Bradley *et al* 2004).

MOix. Architectural style

Academic

The 20th century saw the development of a suite of architectural styles used across industrial, commercial and domestic buildings. The local emergence and development of Art Nouveau, Art Deco, Modern Movement, Brutalism and Post-Modernism requires further research. The implementation of regionally distinctive sub-styles should be examined.

Strategic

The adequate recording of buildings could contribute towards this research topic through appropriate use of PPG15 and PPG16.

Education

These research topics would make useful subjects for postgraduate dissertations.

Infrastructure

n/a

Links to other agendas

n/a

20. Science and environmental agenda

The central position of environmental archaeology and the use of scientific techniques for all periods of archaeological study is axiomatic. Crucially, much of the potential data crosses conventional period divisions. For this reason, the scientific and environmental research agenda has been kept separate from the period agendas.

Gaps in knowledge

The process of creating the Research Assessment and consultations within the specialist groups exposed many gaps in our understanding of the environmental record, both in terms of period coverage and particular forms of evidence. The major aggravating factor was the inadequacy of resources available for the full analysis of samples from development-control archaeological fieldwork. Even when funding has been available, there have been major problems with subsequent dissemination.

Pollen and macrofossils

There is pollen evidence for much of the region, though there are regional and chronological weaknesses. These sequences are mainly associated with upland regions, though even some of these now require re-analysis and re-dating, and there are some gaps in coverage, most notably in the Cheviots, where most existing work has taken place to the south of Redesdale. Coverage for the lower-lying areas of the region, such as east Durham and the Northumberland coastal zone, is generally poor. In terms of chronological coverage, the major gaps are in the medieval and post-medieval period, due to the truncation of the relevant layers by peat cutting. It is noticeable that there have been few works of wider synthesis (but see Pratt 1996).

Relatively few assemblages of macrofossils date to the earlier prehistoric period. They become more common into the Bronze Age and Iron Age, though the lack of chaff has consequences for the identification of cereal grains by species (Jacqui Huntley pers comm). In the Roman period, although there is reasonable coverage of native and civilian sites, there are few plant remains from military sites, particularly away from Hadrian's Wall; there are no major assemblages from forts to the north or south of the frontier, for example. Early medieval assemblages are dominated by ecclesiastical sites, with little known from secular settlements. This reflects the lack of work generally on this aspect of early medieval archaeology across the region. Macrofossils are known from rural and urban settlement in the later medieval period, but these sites are mainly confined to Durham and Cleveland, and little has been recovered from upland sites or Northumberland. There is a general lack of macrofossil evidence from post-medieval sites.

Bone assemblages

Our understanding of bone assemblages from the North-East, whether human or animal, is hampered by the poor survival of bone in the region's generally acid soils. There are few earlier prehistoric bone assemblages, though recovery has been better on Iron Age sites, even if faunal collections of this date are mainly confined to sites in the south-east of the region. Despite some assemblages from

Roman sites, many of these have yet to be fully analysed, and analysis has often been limited to specific classes of material or discrete groups. Inevitably, some older analyses also suffer from the inadequate recording of context information. In contrast to the pattern of macrofossils, there are few surviving faunal assemblages from civilian sites. Early medieval assemblages are again few, and mainly from ecclesiastical sites or sites associated with them. For the later medieval period, material from rural and ecclesiastical sites is lacking in contrast to the large assemblages from well-preserved deposits in urban contexts, a pattern which continues for the post-medieval period. In general, faunal assemblages from all periods are largely absent from the uplands.

The same concerns apply to human bone. There are very few early assemblages, either prehistoric or Roman, and when human bone does survive, it tends to be calcined. As a consequence, very little is known about even the most basic aspects of human remains, such as sex, stature and pathology. There is reasonable survival from the early medieval and medieval periods, but far less is known about post-medieval populations. This is as much due to limited work on skeletal assemblages of this date for practical reasons, as it is to bone preservation. Some existing bone reports are wholly inadequate and require further work.



Figure 74 Dendrochronological dating. Slices are removed from timbers for ring counting, measurement and dendrochronological analysis - hopefully providing precise dates at which the tree was felled. Roman material, Vindolanda (Northumberland). © Jacqui Huntley.

Survey and prospecting

Geophysical techniques are widely used, but there are limitations to their application in this region due to poor magnetometry results over igneous geologies, most notably the Whin Sill and much of the Cheviots. At present these techniques seem to be of limited value in much of

the north of the region. Projects have so far made little use of remote sensing techniques such as LIDAR (Light Detection And Radar) and satellite imaging.

Dating techniques

A range of dating techniques has been used across the region. The major gap is dendrochronology, for which there is no overall regional, master chronology and few working means (Robert Howard pers comm) (Figure 74). Most tree-ring work has focused on hardwoods, despite the increased use of softwoods for building from the 17th century onwards.

Potential of the resource

Environmental archaeology

There are three main ways which the the environmental archaeological resource can be further exploited: the recognition of sites with good preservation, the adequate analysis of samples and the dissemination of the results. Specific classes of evidence, however, would also respond to further study.

The major area of potential for pollen evidence is the exploitation of lowland peat assemblages. The intensive study of sequences from lowland meres, moors and ponds would fill a major spatial gap in the pollen record. Smaller deposits of peat like these are also less likely to have been exploited as a fuel source in the post-medieval period, so that the important medieval and post-medieval layers are may not have been truncated.

Evidence from the Mesolithic settlement site at Howick has illustrated the potential for macrofossil preservation, even at a very early date, and in the sand dune contexts typical of the Northumberland coast (Waddington *et al* 2003). The other major avenue for advancing our knowledge of prehistoric macrofossils is the recent large-scale excavation of a series of late prehistoric and Roman sites, including Pegswood (Northumberland), Faverdale (Durham), Ingleby Barwick (Teesside) and the Newcastle Great Park sites (Tyne and Wear). All the environmental assemblages from these sites must be fully analysed. The preservation from medieval and post-medieval urban deposits is ideal for macrofossils, but it is vital that time and budgets allow for their full analysis.

Further work on bone assemblages is partly at the mercy of taphonomic factors, though again, when important assemblages are discovered through PPG16 work, it is crucial that they are adequately analysed and the information fully disseminated. Although it may prove difficult to identify areas of good bone preservation, it is apparent from both the faunal preservation at Howick and the human bones from the early medieval cemetery at Bowl Hole, Bamburgh, that the sand dunes of the Northumberland coast are a relatively benign environment. The absence of human skeletal populations is mainly due to poor bone preservation, though for some periods, such as the Roman era, this is exacerbated by a lack of research on suitable sites. Due to our good general understanding of the spatial contexts of Roman burial sites, it should be possible to identify the location of probable Roman cemeteries. The widespread use of cremation in the Roman period in the North-East, even into the 3rd and 4th centuries, may mean that it is possible to recover significant samples of cremated human remains. The early medieval period is the one era

which has significant skeletal material. This will allow scholars to move beyond the basic groundwork required for other periods and ask more advanced questions of the record, for example through the development of new techniques such as isotope analysis.

Scientific techniques

Though there is sometimes a time lag in the uptake of new scientific techniques by the archaeological community, innovative techniques are constantly being developed, opening up new possibilities. They rely, however, on appropriate bodies of data on which they can be used. A clear example from the region is the advance of work on isotope analysis of bones which, due to variable bone survival, has mainly been applied to early medieval material.

Geophysical techniques are also constantly being improved, especially the resolution of images and the ability to process complex data. It is often worth repeating surveys, even on sites that have already been surveyed once. The development of new remote sensing technologies is important. For example, the data created by the recent DEFRA survey using LIDAR technology has much to offer archaeologists and Quaternary geographers.

There are many developments too in scientific dating techniques, including the application of Bayesian statistics to radiocarbon results and the use of thermoluminescence on bricks and optical luminescence. These all offer the potential to refine existing archaeological chronologies, something which is particularly important for some periods, such as the Iron Age, where other traditional dating techniques based around settlement morphology have increasingly been shown to be unreliable.

Research Agenda

Key research themes

SE1. Archaeological science in HERs

One major challenge for those researching archaeological science is to identify previous local work, particularly that carried out as part of the development control process, which may only be published in 'grey literature'. There is a need to ensure full recording of archaeological science in the region's HERs. It is crucial that nationally agreed terms (MIDAS compatible) are used to ensure consistency in metadata across the region.

SE2. Human remains

There are important assemblages of human skeletal material locally despite poor preservation of bone in the acid soils of the region. Much of this material has never been adequately analysed. A review of the bone assemblages similar to those carried for plant remains (Huntley and Stallibrass 1995) and invertebrates (Kenward forthcoming) would provide a platform for a major re-working of these data.

SE3. Pollen

The extent and quality of pollen coverage in the region is variable. The priority area for further sampling must be lowland Northumberland.

It is essential to ensure careful targeting of sites to secure coverage for key periods. All sampled sites should have

large catchment areas. It may be possible to identify appropriate lowland peat deposits in a number of ways. A thorough review of 1st edition Ordnance Survey maps for place-names with potential (for example, mere, moss) is essential. This should be combined with more technological approaches including prospection techniques such as LIDAR.

A central repository for pollen data would facilitate future synthesis. These data should be recorded digitally on a GIS-based system and build on existing work undertaken by Katherine Pratt for her PhD (Pratt 1996).

SE4. Dendrochronology

Dendrochronology has shown its value in identifying the medieval and post-medieval buildings in the North-East, but there is still no regional master chronology for the region. This is of great concern and might be addressed through a large-scale sampling programme on one or more large buildings.

SE5. Metallurgy in the North Pennines

The North Pennines have been a centre for a wide range of metal extraction and working industries, including lead, zinc and iron production. The earliest datable evidence is of medieval date, but earlier exploitation is highly likely.

Scientific techniques must be employed when exploring these processes, particularly their impact on the environment. Geochemical analysis of peat sediments to identify heavy metal minerals indicative of mineral working is but one example (Mighall *et al* 2004). This work should be supplemented by extensive campaigns of radiocarbon dating to ensure a high-resolution chronology. Funding for such work might be achieved in partnership with the North Pennines AONB, which has now been designated Britain's first European Geopark.

SE6. Review of chronology

A review of all scientifically derived dates from archaeological and palaeoenvironmental contexts would be welcomed. In addition to recording all radiocarbon dates, this review should also log all thermoluminescence, optically stimulated luminescence and archaeo-magnetic dates. Subsequently gaps in coverage could be identified and sampling techniques improved. All dates should be adequately recorded on the region's HERs/SMRs using terminology compatible with MIDAS.

Research priorities

SEi. Invertebrates

Academic

Waterlogged deposits need more thorough examination of their biological contents, although the questions asked must be well directed. Invertebrates should not be ignored simply because their analysis is perceived as expensive. If the material merits the questions and the questions are at least of regional importance, then funds should be included in the estimate. Marine invertebrates have not been well studied and assemblages are likely to exist that could be further analysed.

Strategic

There is a need for environmental assessments produced as part of the development process to be written to a

standard higher than is currently generally accepted. In addition to quantitative data, there must be statements regarding site nature and location. Specifications for environmental archaeology need also to be more precise.

Education

n/a

Infrastructure

A detailed assessment and synthesis of maritime invertebrate remains in the region is needed. The dissemination of metrical data from environmental assessments must be improved.

Links to other agendas

English Heritage notes the need for increased research into taphonomy and fragmentation of animal bone (English Heritage 1997, MTD5). Huntley (2002, 88) notes the need for improved specifications for environmental work and more precise excavation specifications.

SEii. Palaeoenvironmental evidence

Academic

The lack of lowland palynological evidence has been noted repeatedly. New work to identify possible sites of pollen survival is sorely needed.

Recent geochemical work on industrial residues has been important in understanding the development of early industry, and could be further developed. This work includes physical, geochemical and palaeobotanical analysis of peat alluvial sequences as indicators of both industrial and agricultural activity (Mighall *et al* 2004).

Synthetic work would bring together scattered material, particularly that from small-scale development-driven archaeological work. Important groups of information include macroplant and animal/fish remains from Berwick and Durham City.

Strategic

Environmental assessments produced as part of the development process should be written to a higher specification than is currently generally accepted. In addition to quantitative data, statements regarding site nature and location should be included. Specifications for environmental archaeology need to be more precise.

The use of geochemical techniques on industrial residues as part of development-driven archaeological work should be more common.

The identification of areas of possible palaeoenvironmental importance in lowland areas is essential. Management agreements, such as the DEFRA Environmental Stewardship Schemes, should preserve these important resources.

Education

n/a

Infrastructure

There should be a major project to identify lowland sources of pollen data, for example, moor humus in hollows in woodland. This might involve field survey and map-based

work to identify potential sites. Dissemination of metrical data from environmental assessments must be improved.

It is important to develop a body of specialists with adequate regional knowledge and access to good reference collections.

Links to other agendas

English Heritage notes the need for increased research into sampling and retrieval techniques (English Heritage 1997, 58, MTD3).

Huntley (2002, 88) demands the need for improved specifications for environmental work and more precise excavation specifications. She has also noted the need for synthetic work on the material from Berwick and Durham.

SEiii. Chronology

Academic

Bayesian statistics offer real potential to refine the dating of sequences of radiocarbon assays, but appropriate sampling techniques must be followed. Where funds are available sequences of radiocarbon samples should be taken in stratigraphic order.

Dendrochronological work is important, but there is still no regional master chronology. This might be addressed by a major tree-ring dating project on one or two significant buildings, such as Durham Cathedral or Bishop Auckland Castle. There are also other related questions that must be asked. Is the failure to match tree rings to existing master chronologies merely a function of a lack of major dating projects in the region or are there other issues at play? Is it our microclimate or are timbers being imported from further afield?

Many of the period agendas highlight the issue of chronology. There must be more use made of absolute dating techniques in development-control fieldwork. Can scientific techniques, such as luminescence, be used to develop more easily accessible dating technologies?

Strategic

Funding is needed for dendrochronological dating in order attempt to create a full local tree-ring sequence and then to tie it into national master chronologies.

Education

n/a

Infrastructure

The application of thermoluminescence to brick has been an important innovation in the region. There needs to be continued development of this technique.

Links to other agendas

English Heritage lists the refinement of archaeological chronologies through scientific dating techniques as one of its priorities, noting its application to the 5th-7th centuries AD (English Heritage 1997, 61, MTD13).

The same agenda also notes the importance of the development and application of statistical theories, including those relating to the calibration of radiocarbon and other forms of dating (English Heritage 1997, 59, MTD7).

SEiv. Prospecting techniques

Academic

Technological advances in remote sensing techniques offer real potential for understanding the archaeological record, particularly at a landscape scale. The potential for infrared cameras in locating subsurface structures and landscape features, and the use of high-resolution satellite imaging and of LIDAR (Light Detection And Radar) to identify palaeochannels and other features should both be explored.

Increased research is required into the use of prospecting techniques in foreshore and maritime contexts.

Strategic

The full range of available prospecting techniques must always be considered as part of archaeological field evaluation.

Education

n/a

Infrastructure

The geophysical potential of the sub-regions of the North-East deserves detailed assessment. A large-scale pilot project to assess the viability of geophysical survey should be carried out in support.

Links to other agendas

English Heritage prioritises the development of site detection and investigation techniques, including their role in archaeological field evaluation (English Heritage 1997, 57, MTD2). It specifically notes the need for an assessment of regional geophysical potential, the development of expertise in techniques for in-shore marine prospecting and research into prospecting techniques for use in alluvial, colluvial cover, wetlands and foreshores.

SEv. Human burial

Academic

In general, the survival of human bone assemblages in the region is poor. Due to the lack of evidence, there are still many basic research questions to be answered relating to age, sex, stature and pathology from all periods. Where skeletal populations do survive scientific analysis of bone should be used to its full potential to investigate dietary and population mobility patterns.

It is important to characterise burial environments in the region to help clarify patterns of bone survival.

Strategic

Due to the acid soil conditions of much of the region all skeletal assemblages are of the greatest importance. All excavated skeletal material must be fully analysed and published.

Education

n/a

Infrastructure

More existing human bone analyses should be advanced for publication.

Links to other agendas

n/a

21. Maritime and coastal archaeology

The sea has played a fundamental role in the history of the North-East, acting as a communication link between the region and other ports in Britain and with other countries on the North-Sea littoral. Ports thrived at the mouths of the major rivers and a range of industries, from ship-building to fishing, relied on their contact with the sea. Other important ports, such as Yarm, developed a considerable distance up river.

The archaeological resource can be divided into two main categories: those remains found in off-shore contexts, but which are not inherently related to maritime activity (for example, evidence for settlement found on sunken land surfaces), and remains of activity directly related to maritime life, which can be found both off-shore (for example, wrecks) (Figure 75) and on-shore (for example, lighthouses).

The archaeological resource can be further subdivided by location, which can be characterised as on-shore, foreshore (i.e. the beach between mean higher high water and mean lower low water) and off-shore. Each location will have a distinct range of related research, management and conservation issues.



Figure 75 Framed against a backdrop of heavy industry, this foreshore shipwreck is something of a mystery. No details of its date or manner of loss have been recorded; not even its name is known. © Tees Archaeology

Ship-building techniques

A number of log boats has been found in the region, but they have received little attention. Usually assumed to be prehistoric in date, recent discoveries elsewhere in the country date them as late as the early medieval period. Indeed, elsewhere in Europe, their use continued into the post-medieval period. Further research should employ scientific dating techniques and the detailed recording of the boats themselves to establish the tools (e.g. flint tools, bronze axes, etc) and techniques used to build them. The region has a number of distinctive ship types, such as cobsles, smacks and colliers. In addition to exploring their archaeological remains, other sources must be included in their study, such as early pictures, graffiti and tombstones.

The impact of foreign technology derived from ship-building traditions elsewhere in the North Sea also requires further investigation.

Recommendations

MT1. The relationship between the development of quay and dock structures and the parallel development of ship technology should be explored. When was the move from beach sites to permanent quaysides? Is there a relationship between ship-building technology and the development of deep-sea fishing? This research must include not only ships themselves, but also associated developments, such as fibre and rope technology and how the vessels were actually sailed. Different fish species were caught in different ways, each having a distinct set of vessels, equipment and tradition of fishing.

MT2. The location of medieval and early post-medieval ship-building sites should be established. Further research is also required into the social impact of the construction of bigger vessels. How were they financed? What were the social implications of bigger crews?

MT3. The preservation and record of any identified medieval wrecks should be of the highest priority.

MT4. An assessment of the region's log boats should establish the conservation techniques used on them, and assess whether the use of radiocarbon-dating techniques would be now be feasible.

Wrecks

Since virtually all known wrecks from the region are of post-medieval date or later, any medieval wrecks identified should be the focus for detailed recording. The number of wrecks rises after the 18th century, as a result of the increase of shipping due to the rise of coal industry. Despite their number, very few have been investigated. Some important work has already been carried out on the documentary evidence for these wrecks, particularly from Lloyd's Lists, but there is still potential for further investigation into newspaper reports and other hitherto unexploited archives.

From the mid 19th century shipping increasingly used steam power and steel construction. The region was at the forefront of the development of marine engines. Due to their better preservation, these wrecks have had a higher profile amongst sports divers. The Nautical Archaeology Society (North-East) recently carried out a pilot study looking at material recovered from wrecks by sports divers and recorded hundreds of objects from only three or four dive clubs (Figure 76).

Shipwrecks are also of great significance in material culture studies; they comprise sealed and well-dated artefactual assemblages. There is a need for further research on the objects recovered from wrecks in the region.



Figure 76 Some of the many items recovered by divers, recorded as part of the Nautical Archaeology Society NE / English Heritage 'For the Record' project. © Nautical Archaeology Society NE

Recommendations

MT5. A maritime SMR covering the coast from Whitby in the south to Seaham Harbour in the north currently exists. This should be extended to cover the coastline of the entire region.

MT6. The existing maritime SMR needs enhancing, with further research to establish the identity of known wreck sites.

MT7. There should be a complete appraisal of all known wrecks in the region, and where necessary new protection and management regimes.

MT8. Estuaries and creeks appear offer great potential for the survival of wrecks, particularly medieval and earlier vessels, as many have now silted up or been reclaimed. Any development work on reclaimed sites should be evaluated for the survival of wrecks.

MT9. There must be a detailed survey of surviving river estuaries and coastal inlets to identify surviving wrecks, and, where necessary, for appropriate conservation/ protection measures to be put into place.

MT10. Continued awareness among sports divers must be encouraged as to the historical and archaeological value of the region's wrecks, building on important work by the Nautical Archaeology Society.

MT11. Much of the current research on wrecks has been carried out on an emotional/reactive basis. A detailed, specialist, research agenda should be established for the region's wrecks.

MT12. A coastal GIS system could be established, recording the location of wrecks and other recorded off-shore objects, in addition to information relating to currents, navigational hazards and coastal topography. This has the potential to improve our understanding of patterns in shipping and to act as a predictive tool for locating more wrecks.

Maritime infrastructure

A better understanding of the development of dock and harbour installations is needed. Topics for research include changes in ship design and harbour facilities, evidence for coal staithes and coal drops and the construction of moles and harbour walls.

Early navigational features would benefit from fuller consideration, particularly lighthouses and sea marks. Although most such features were built in the 19th century or later, medieval beacons and lighthouses may survive. This research could combine documentary research and GIS-based predictive modelling. The possibility of the survival of Roman lighthouses and signal stations should also be explored.

More investigation is needed into the construction and provisioning of ships during the medieval and post-medieval period. This includes the identification of shipyards, but also more research into roperies, sail manufacture and ironworks producing ship's fittings. Many of these sites may be pinpointed both archaeologically and in the documentary record.

Recommendations

MT13. The North-East saw some of the earliest developments in the institutional provision of life-saving facilities. Early coastguard stations, rocket posts and lifeboat stations are shown on all editions of the Ordnance Survey maps, but surveys should record the extent of their preservation. Early Admiralty charts (copies of which are held at National Monument Record in Swindon) should also be used.

MT14. A record of the wide range of other related official and private structures related to the maritime world in the region should be compiled, including seamen's missions, warehousing, smokehouses and customs and excise buildings.

MT15. Any development-driven evaluation of coastal sites should include an examination of nautical charts, pilot manuals, etc, in addition to the usual range of documentary material.

MT16. An extensive body of documentary material could feed directly into the archaeological exploration of the maritime history of the region, and help to identify important sites. Port authority documents, charts and material related to a range of corporate bodies, such as Trinity House and the Keelmen of Newcastle are among the material to be examined.

Submerged prehistoric landscapes

Recent work off Hartlepool, Redcar and Tynemouth has demonstrated the survival of prehistoric (Mesolithic) land surfaces off-shore (e.g. Waughmann 2005). Whilst the three examples mentioned above are close to the coast, there is the potential for the survival of deposits further off-shore. However, little is known about the extent and

condition of such archaeological remains. Natural erosion seems to be the biggest threat, but with the increased likelihood of off-shore aggregate extraction, oil and gas drilling and the construction of off-shore windfarms, there is a growing need for basic research (Flemming 2002). As much of the impact on the archaeology is from aggregate extraction, the English Heritage Aggregates Levy Sustainability Fund provides an important source of possible funding.

Recommendations

MT17. Where off-shore peat deposits exist, their potential for environmental data should be explored. The British Geological Survey and commercial cores, which have been archived, are an important though untapped resource.

MT18. The taphonomy of underwater deposits is under-researched, yet has the potential to improve our understanding of their survival and the impacts of drilling and dredging and other development threats.

MT19. A campaign of 'sensitivity mapping' of the region's coast should be carried out to identify areas of high archaeological potential, drawing on the criteria established by Fleming (2002).

MT20. Dialogue could profitably be initiated with the region's fishermen in order to record any archaeological material they may have recovered.

MT21. Commercial activity off-shore, including dredging and fishing, is likely to be the main source of information about off-shore prehistoric remains. There ought to be a recognised channel of communication between these groups and the region's archaeologists to ensure their adequate recording.

MT22. Co-operation with off-shore industries might lead to the sharing of survey results, including data from swath bathymetry, side-scan sonar and conventional shallow sub-bottom profiling, and coring and sampling of seabed sediments. Further research into the archaeological potential of such technologies would be welcome.

MT23. There should be collaboration with archaeologists working on similar sites around the North Sea littoral, including Denmark, Germany, the Netherlands and Norway. Amongst other issues, research might embrace comparison in boat-building techniques and shared specialist dialect vocabulary.

The changing coastline

The pattern of erosion in the North-East coastline is complex due to the region's situation on an important hinge point, with coastal uplift occurring to the north of the area around Lindisfarne, and downwarping/inundation to the south. The coastal zone is of particular importance for several periods, such as the Mesolithic, when it appears to have been a significant ecological niche for early populations. The recent

discoveries at Howick have shown both the potential of what can survive in these areas, and what may be lost without adequate understanding of coastal erosion and appropriate monitoring. The wider importance of coastal archaeology has been recognised by national bodies (RCHME 1996), and local archaeological curators have responded to this by commissioning archaeological assessments and surveys of coastal archaeology (for example, ASUD 1998; Buglass 1994a; Gale 1992; Hardie 1992), though these remain largely unpublished.

Some work has been done on erosion along the region's coastline (e.g. Hydraulics Research 1986; Posford Duvivier 1993), however, there has been no comprehensive survey of contemporary patterns of erosion and existing earlier work could usefully be re-examined in the light of predicted climate change.

Recommendations

MT24. Detailed research should be undertaken on the historic pattern of coastal change along the coast of the region. This must include research into inundations as well as erosive phases.

MT25. A wider understanding of long-term coastal change would help understand patterns of distribution of the archaeological resource. An up-to-date survey of coastal erosion could usefully be mapped against the archaeological evidence (Hardie 1992).

Dune systems

Sea-level change and the shift in the coastline are not the only geomorphological events to occur in a coastal context. Along much of the north Northumberland coast lies a complex system of sand dunes which contain important archaeological remains (for example, the early medieval cemetery at Bowl Hole, Bamburgh); these have been highlighted as an area of high archaeological potential (Hardie 1992). It is clear, however, that sand dunes systems are complex entities prone to instability and sudden, large-scale shifts. This may have important consequences for recognising, dating and conserving sites in these areas. Further research on the geomorphology of these sand dunes and their movements should be a priority.

Recommendations

MT26. Dune formation and destruction can be rapid; there is a need to ensure regular re-survey of dunes for archaeological remains, particularly after major storm events.

MT27. A regression map showing changing patterns of sand dune distribution, based on Ordnance Survey maps and aerial photographs, should be constructed. This may indicate areas of rapid change and significant stability and should be supplemented by a campaign of coring and palaeoenvironmental investigation.

BLANK

22. Settlement and urbanism

The human landscape of North-East England is immensely varied. Today, the settlement pattern ranges from extensive urbanism in Teesside and Tyne and Wear, to rural landscapes of small market towns and nucleated villages in much of County Durham and Cleveland, and scatters of dispersed upland farms in Northumberland and the North Pennines. This pattern of regional variation has its roots deep in the history of the region and the challenge to improve our understanding of settlement is one which is central to all archaeological and historical periods. Each period has its own specific research topics, but there are wider issues that cross-cut chronological divides. This section of the Research Agenda and Strategy aims to highlight some of these and suggest how these challenges might be tackled.

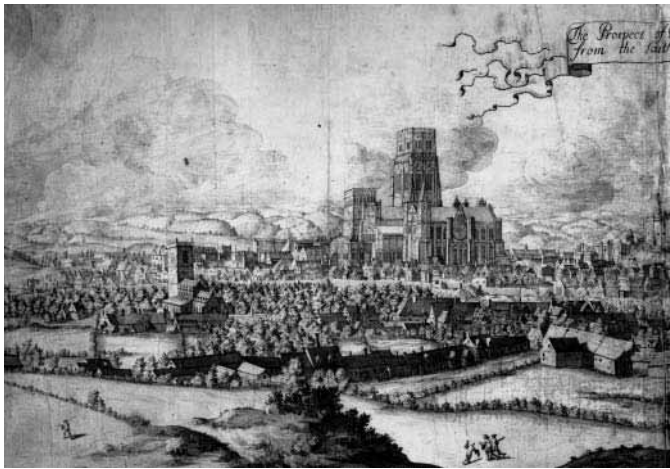


Figure 77 Bok's *Prospect of Durham* c. 1665.

Recognising settlements

It is clear from the period overviews that our knowledge of settlement patterns from some areas and periods is much better than for others. For example, there is very little to be said of early medieval rural settlement outside the Milfield Basin. In other cases, although large numbers of occupation sites are recorded in upland areas, usually surviving as earthworks, their dating is far from certain. Once more, although it is usually assumed that round houses date from between the Bronze Age and the Roman period and rectangular structures are early medieval or later, there is very little firm dating evidence for many house forms, and it is becoming increasingly clear that dating sites on simple morphological grounds is dangerously simplistic.

Whether the chronological and spatial lacunae in settlement are real patterns or merely features of archaeological visibility or the intensity of fieldwork is questionable. These factors are frequently connected. For example, whilst the Milfield Basin is clearly an area of high archaeological importance, this has led to intensive fieldwork in the area. This is, no doubt, why there is such an apparent focus of early medieval sites there.

Broadly speaking there are two ways in which historic settlement can be located, through surviving structural remains (whether as cropmarks, earthworks, or

upstanding fabric) and through its material culture (for example, pottery, flint scatters, etc). Periods which are low in material culture or have more ephemeral building traditions are inherently likely to have a less robust archaeological signature. This question of site visibility needs to be taken into account when carrying out archaeological evaluation. In the south-east of England, the work of the Planarch project demonstrates the varying abilities of different forms of evaluation to recognise archaeological remains (Hey and Lacey 2001).

Recommendations

SU1. Any conclusions about the presence or absence of archaeological sites, particularly those made in the evaluation stage of development-driven archaeology, should be fully informed by the Planarch report.

SU2. Although the Planarch report made an effort to assess sites on a range of different geological background and chronology, their conclusions should be re-assessed in the very different context of the North-East.

Defining settlements

The notion of a 'settlement' as a discretely defined occupation entity is ultimately an arbitrary one. Frequently decisions relating to the extent of a settlement, whether archaeologically or historically, relate more to the need to define useful units of analysis than to any contemporary definitions of where the boundaries of a settlement once lay. This is not merely an abstract question of semantics; assumptions about the extent of a settlement may well impact on excavation and investigation strategy. For example, some Mesolithic archaeologists are challenging the entire notion of a Mesolithic site or settlement, preferring instead to see hunter-gatherers carrying out a range of activities across a wider landscape which can be mapped to show patterns of higher- or lower-density of activity. This approach interprets the archaeological records as reflecting a network of activities, rather than sites or settlements as more traditionally understood.

Equally, changing notions of the definition of a 'site' can be seen to have direct implications for the way in which Iron Age occupation has been studied. Enclosures were traditionally seen as marking the edge of settlements; this definition fed through into explicit and implicit research designs, and much earlier excavation work focused purely on the internal area of enclosed settlements, along with investigation of the enclosure boundary itself. However, this approach is increasingly being seen as too limiting. This is due partly to developing theoretical approaches to settlement archaeology (for example, Hingley 1984), but also the increasing use of open area, strip and record approaches to excavation used in large-scale development archaeology. This work has shown that enclosures could be just one component of a complex network of occupation with important activity also taking place outside the formal boundaries of the site. A good example of such activities is the disposal of refuse; it is possible that middens could have built up beyond the central focus of activity. These would

clearly be of great importance, but could easily be missed. Although both these examples have been drawn from prehistory, the same broad principles apply to the study and definition of settlement of all periods. For example, although bastles may survive as discrete entities today, they were often the core of farmsteads which may have left surviving sub-surface deposits.

Recommendations

SU3. The boundaries of many Scheduled Ancient Monuments must be re-considered. Do they really mark the extent of the archaeological remains, or merely the most visible component of settlements? A representative sample of Scheduled settlement types should be investigated, with particular consideration given to activity on their peripheries. Where necessary the constraint area should be redrawn to provide maximum protection.

SU4. Where practical, strip and plan techniques should be used on large, development-driven excavations. Aerial photography and geophysical survey often only record larger archaeological features, and in many areas may record little or nothing. Whilst these techniques are important evaluation tools, they should not be relied upon to define the extent of a settlement.

Settlement in the landscape: morphology

Settlements do not exist in a spatial void, they are embedded within complex human landscapes. A better understanding is needed of the extent of regional variation in these patterns. This variation has been clearly demonstrated in the work of Brian Roberts on medieval rural settlement (for example, Roberts 1990; Roberts and Wrathmell 2000). The provincial boundaries noted by Roberts, however, are relatively coarse-grained. For example, the Cheviots and the North Pennines are lumped into one main province (WCPVN = Cheviots and West Pennines), although these areas in fact show immense variation in settlement planning, even between individual dales. At the very least, there is a need to differentiate between upland areas which were involved in lead mining and those which were not. Roberts' work was based on the First Series Ordnance Survey maps and thus does not tackle the changing nature of settlement since the mid-late 19th century. Since the 1850s, however, the region has seen many changes in settlement form, including the growth of distinctive regional settlement types such as the colliery villages of the Durham coalfield.

Recommendations

SU5. Historic Landscape Characterisation (HLC) has real potential for teasing out variation at a micro-regional level, but for true regional comparisons to be drawn there must be broad consistency in methodology. The Northumberland Landscape Characterisation project is already underway, and other projects in the region must liaise and consult closely.

SU6. Although current consensus suggests that HLC work uses First Edition 6 inch OS maps as the base from which to work (Rippon 2004, 144), in areas which have seen extensive industrial activity it may be appropriate to use later maps or create a series of regression maps covering the late 19th and 20th centuries, possibly at 25-year intervals.

SU7. There is a recognised need for more large-scale landscape and settlement projects, similar to those carried out elsewhere in the country, for example, at Shapwick and the Whittlewood Project. It is essential that these are at a scale greater than individual settlements; parishes or groups of townships being potentially useful units of analysis. Such work is unlikely to take place in a development context, except in the case of exceptionally large infra-structure projects. They are, however, ideal long-term research projects for local universities and archaeological societies and should be a priority for funding (see R1, MD1).

Rural settlement in the landscape: hinterlands

Even the smallest settlements would have had a hinterland, a sphere of influence in which economic and social exchanges took place. These patterns of interaction are of great interest to the archaeologist and social historian and must be explored. Material culture studies are one useful way of assessing patterns of economic exchange. Due to the sheer quantity of artefacts, however, assemblages from urban contexts have tended to dominate scholarship.

Recommendations

SU8. Existing type-series and chronologies of artefacts, usually derived from urban sites, should be integrated with less well-dated rural assemblages, both to highlight potential economic interaction and to provide a more secure chronological framework for rural sites.

SU9. A better understanding of patterns of refuse disposal in small towns and rural settlements is desirable. This should be used to improve recovery rates of material culture.

SU10. Controlled use of metal detectors should be made routine in archaeological fieldwork in order to improve the recovery of metal artefacts.

SU11. Adequate analysis of even small rural artefactual and environmental assemblages is essential. Although individual suites of material may have little obvious value in their own right, there is clear academic gain to be derived from cumulative assemblages from the same region.

Towns

The region's urban areas are of crucial importance to the archaeological, architectural and historical study of the North-East. They comprise a huge resource, both in terms of surviving building stock and archaeological deposits, but unlike other regions in the country, these major towns have no significant Roman or Anglo-Saxon predecessors. Even without extensive earlier urban deposits, the later medieval and post-medieval architectural and archaeological fabric of the North-East's most important towns, including Berwick, Durham (Figure 75), Hartlepool and Newcastle, is of great value. They offer real potential for the scholar, and it is possible to identify a series of research topics that cross-cut traditional chronological periods. The sheer embarrassment of riches presented by the architectural and archaeological record, however, can itself present a real challenge.

Towns: chronological changes

The towns and cities of the region all have their own individual character. Like all landscapes, whether urban or rural, their development has been marked not only by

phases of accumulation of buildings and occupation deposits, but also by their destruction. In towns these phases of accumulation and destruction occur on vastly larger scales than in the countryside, ranging from the construction and then clearance of vast areas of 'slum' housing to the construction of post-medieval town houses with their deep cellars which destroy earlier remains. The density of activity in urban contexts often makes it difficult to assess the survival of earlier phases of urban activity, whether medieval cores of apparently post-medieval buildings or as buried archaeological deposits (Figure 78).



Figure 78 Excavation of post-medieval stone buildings at Tuthill Stairs, Newcastle upon Tyne (Tyne and Wear). ©Tyne and Wear Museum Services

Recommendations

SU12. Extensive Urban Surveys should be completed for the entire region and then adequately disseminated.

SU13. Our understanding of the spatial development of the region's towns must be improved. Whilst the existing extensive urban surveys offer an initial base point for this work, more detailed work should draw on methodological techniques developed for Historic Landscape Characterisation, but be tailored to tackle the complexities and rate of change in urban contexts and ensure that they cover the 20th century. These urban mapping projects should take advantage of GIS technology.

SU14. As well as mapping the major horizontal spatial development of towns, better understanding of the survival of vertical stratigraphy is required. All the region's major towns would benefit from detailed urban deposit models, highlighting areas of significance. These should be based on existing fieldwork and, where necessary, newly commissioned investigations. These models should include basic data about the extent and period of known deposits, as well as qualitative data recording information such as waterlogging.

SU15. Monitoring of the quality of buried urban archaeological deposits should be on-going. These data should feed into any deposit models (Davis *et al* 2001).

Towns: production and consumption

The model of towns as consumers, drawing on their hinterlands to fulfil their resource needs, is a powerful and popular one. It is the basis for an important recent research agenda which has focused on the impact of urban needs on rural systems (Perring *et al* 2002). There

are important practical challenges to be faced, particularly the need for standardised approaches to the collection of data to encourage comparison of material across the region, and even within the same town. At the same time, the role of towns as producers in their own right, whether of agricultural produce or industrially manufactured items, must not be overlooked. Research into urbanism must tackle both elements.

Recommendations

SU16. There should be standardisation in sampling strategies and data collection for urban sites. Urban excavations should record the volume of excavated spoil to allow comparisons in the measurement of material culture assemblages. Such data would also offer the potential to explore issues of refuse disposal and taphonomic processes, including residuality (Evans and Millett 1992). The potential of the use of 'recovery levels' should be considered (Carver 1987, 130), and would allow standardised approaches to sampling and retrieval. Where practical, suites of faunal material should be described by minimum animal units (MAU) and pottery by estimated vessel equivalents (VEs).

SU17. Full analysis and publication of all major urban ceramics and small finds assemblages are important. This should include both the creation of pottery type-series and easily accessible reference collections.

SU18. Urban back lots must be targeted. These areas were often the location for small-scale industrial manufacture, as well as sites for small-scale rubbish disposal. The opportunity to recover domestic refuse which can be related to individual properties must be seized.

SU19. Urban industrial structures should be recorded routinely. Structures which may have had industrial use should be identified through the existing and forthcoming *Extensive Urban Surveys*.

Towns: space and the city

Towns and cities are more than simply central points in the production and consumption of material culture. An improved understanding of the use of space and architecture within towns is vital for moving forward our analysis of urbanism in the region (Graves 2002, 183-184). The control of urban space was central to social reproduction; further investigation is needed into patterns of investment, patronage and control of space.

Recommendations

SU20. Increased use should be made of maps, topographic images and documentary resources to explore subjective 'townscapes'.

SU21. The possibility for heritage-led urban regeneration projects should be explored, combining a drive for economic renewal with the opportunity for conservation-led research. An example of good practice is the Grainger Town Project, carried out by a partnership including One North-East, English Heritage and Newcastle City Council.

SU22. Increased use should be made of 'sensuous' GIS to explore topics such as sightlines, inter-visibility and the soundscapes of urban areas.

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23. Landscape and environmental change

The environment of the region has been transformed since the retreat of the ice sheets and the arrival of human settlers. Changes can be recognised in many different ways, including gross geomorphological shifts, evolving patterns of vegetation, and trends in the domestication of crops and animals. Some of these changes occur over a long period of time, others over a very short span. Despite much work in the region, which has shed new light on the development of the environment, there is still much potential to fill gaps in our knowledge, as well as to build on earlier research (for recent reviews see Huntley and Stallibrass 1995; Huntley 2002; Hall and Huntley 2002).

Environmental research can be divided into four main areas: geomorphology, palynology, faunal material, and plant macrofossils (Figure 79). For faunal material and plant macrofossils the reader is referred to the relevant period agendas and the science agenda (Chapter 20).

Geomorphology

Most work on geomorphological changes in the environment has focused on very long-term change, and usually tackled issues related only to earliest prehistory. Work in the Milfield Basin, however, has shown the potential for using geomorphological techniques to improve our understanding of the distribution and preservation of deposits bearing possible archaeological material (for example, Passmore *et al* 2002). Recent years have also seen the development of new non-invasive techniques with much to offer archaeologists and geomorphologists. For example, Airborne Laser Altimetry (LIDAR) data, obtained from the Environment Agency, has been used to great effect in the Vale of York (Challis 2004). The very fine resolution achievable with LIDAR offers great potential for a range of research topics, including recognising palaeochannels and monitoring erosion (for example, Rosser *et al* 2004).

Recommendations

L1. Research is needed into the use of LIDAR to monitor erosion in the North-East, particularly those contexts where human or natural erosion may threaten the archaeological resource, for example coastal erosion and the impact of the *Countryside and Rights of Way Act* (2000) in remote upland areas. It has been suggested elsewhere in the strategy that the identification of active erosion scars in upland areas may be of great value in recognising Mesolithic activity (see M4).

L2. Further research into the possibilities afforded by satellite imaging should be carried out. This would probably be best used to improve our understanding of upland areas, such as the North Pennines and the Cheviots.

L3. More detailed research into the evolution of the region's major river basins, building on the approaches developed for the Milfield Basin (Passmore *et al* 2002) should include the mapping of landform elements and peat deposits, and aim to provide the basis for management frameworks.

Pollen studies

The North-East has seen much research into early pollen, although there are two distinct biases. First, more cores have been taken from upland contexts, as a result of the better survival of the peat beds in these locations. Second, there has been an emphasis on studying earlier periods, with less research into pollen sequences of medieval and later date. This is partly due to research interests, which have tended to explore long-term landscape change and prehistoric topics, but also to practical reasons; the upper layers of peat deposits, which retain material of later date, are the most vulnerable to peat cutting or dewatering. In addition to the need to fill in these gaps in the record, it is also necessary to revisit some areas using improved techniques. The advent of Accelerated Mass Spectrometry (AMS) dating and improved calibration techniques means that it is now possible to date pollen cores far more tightly.



Figure 79 Archaeological material is identified by comparison with modern reference material of known identification. Here a range of *Prunus* (sloes, damsons, plums) stones from Roman deposits in Carlisle (dark colour) are compared to modern samples. Not to scale. © Jacqui Huntley

Recommendations

L4. A project to locate and analyse pollen assemblages from lowland peat deposits is a high priority. Possible ways to identify such sites include a map search (using 1st edition OS maps) to highlight place-names implying likely waterlogged deposits (for example, moor, mire, bog, carr, etc) and examination of LIDAR survey data and aerial photographs to locate possible palaeochannels. Specific possible areas for further research include Prestwick Carr (Northumberland) and the carrlands of Cleveland.

When located, these deposits must be recorded on the local HER, and where necessary management agreements should be put in place to secure their long-term survival.

L5. AMS dating of pollen cores should be standard.

L6. A high priority should be given to the recording and analysis of potential peat or waterlogged deposits of medieval or later date in PPG16 excavation specifications.

L7. There should be an accessible archive of all peat cores taken in the region, including base-line data, such as

location, date, chronological information, basic metrical data and location of related archive material. It should be possible to build on this basic archive in the longer term to include more advanced data. This database should be integrated with a GIS system. The possibility of including these data in the region's HERs/SMRs should be explored.

Landscape

Besides the objective study of the environment through scientific techniques, it is also possible to explore more subjective aspects of the environment through the notion of 'landscape'. As long as there has been human occupation in the region, the landscape has had an important symbolic and ideological component, in addition to its function as an economic resource. Many of these issues have been picked up in the individual period-based agendas, but it is possible to recognise certain broader, crosscutting themes.



Figure 80 Saltwell Park, Gateshead (Tyne and Wear).
© English Heritage

Approaches to landscapes

Archaeologists, historians and geographers have explored all aspects of the landscapes of the North-East, ranging from Mesolithic taskscapes, Roman farms, medieval parks to post-medieval industrial landscapes. In addition to the more detailed thematic suggestions outlined below there are basic recommendations relating to research into landscapes in the region and management of the resource.

Recommendations

L8. A common methodological approach should be taken to Historic Landscape Characterisation projects being carried out in the region. This is essential to ensure effective comparison of patterns in landscape use.

L9. With the forthcoming statutory status of HERs, the range of data that may be recorded will expand significantly. Consistency in recording must be ensured. ALGAO should take the lead in this.

L10. There are several areas within the region that are still in need of basic research. Significant gaps include an aerial photographic survey of the North Pennines and publication of the English Heritage North Cheviots National Mapping

Programme. In lowland areas, the major area that has been highlighted for further landscape research is the east Durham limestone plateau.

Natural places

Significant natural places in the landscape have long been recognised as the focus for ritual activity (Bradley 2000). Rocky outcrops, caves, major hills and watery places all appear to have attracted repeated ritual activity. Although some topics, such as prehistoric rock art, have attracted significant levels of research, others such as votive deposition in wetland contexts, have attracted less. There is a particular need for research into the long-term continuity of such sites, and it should not be forgotten that major landscape features might impact on the layout and location of ritual monuments in their hinterland.

Recommendations

L11. Further research into the role of natural sites as a focus for ritual activity would be an appropriate subject for a PhD thesis or MA dissertation. Specific topics might include the landscape context of rock art, the long-term use of natural sites for ritual activity and votive deposition in watery contexts.

L12. The role of Simonside and Yeavinger Bell as a focus for surrounding prehistoric and later ritual activity should be a topic for further research.

L13. Advanced GIS techniques should examine the symbolic component of early landscapes. Issues such as inter-visibility might be constructively explored using viewshed analysis, as well as more novel approaches to exploring social landscapes (for example, soundscapes; Mlekuz 2004).

L14. Digital datasets generated during research into the landscape, including digitised maps, aerial photographs, crop marks plots and field-walking data, should be archived in an accessible fashion. The Archaeological Data Service would make an appropriate location for any archive.

Planned landscapes

Planned landscapes, including parks, gardens and cemeteries, form an important element of the landscape of the North-East (Figure 80). There is a need for increased research into all aspects of these important elements of the region's countryside and urban townscapes.

Recommendations

L15. The existing Register of Historic Parks and Gardens should be supplemented by a 'local list' of sites of regional, rather than national, importance.

L16. The major archival holdings relating to historic gardens in the North-East need to be identified. The most significant prints, maps and plans should be digitised in a format suitable for incorporation on GIS systems.

L17. An assessment of the potential for geophysical techniques for recording relict park and garden features is desirable.

L18. Environmental material relating to parks and gardens should be integrated into their study.

24. Defence and fortification

The North-East, perhaps more so than any other region in Britain, has a long history of violence and conflict. From the Roman period onwards it has been an important border zone, and its east-facing coast has been seen as a vulnerable flank, open to attack from both elsewhere in Britain and from across the North Sea. Although many of the individual threats have been period specific and contingent on the ebb and flow of political events, it is possible to identify a series of cross-cutting research issues. This section aims to highlight some of these topics and put forward practical ways in which research into the defence and fortification of the North-East might be implemented.

Fortifications: function versus symbolism

Traditional interpretations of fortification, from Iron Age hillforts to medieval castles, have frequently been functional, focusing on their role as defensive structures and treating symbolic associations as merely incidental. Modern discussions of fortification, however, are increasingly analysing their ideological impact (for example, Johnson 2002a). Powerful defences can be symbols of domination, indicators of cohesive or divisive social identities, markers of corporate power, or simply indications of high status. The construction of defensive structures cannot be analysed simply in terms of strategy and tactics.

Recommendations

F1. There is a need to explore a range of fortification types, including hillforts, bastles, medieval city walls and even Hadrian's Wall, to assess their visual impact on their hinterlands. Attention must be given to stylistic elements of fortification, for example, the type of stone used, inclusion of spolia and depiction of heraldic symbolism or marks of ownership.

F2. A more detailed analysis of the setting of fortified sites would be welcome. Do their locations indicate that aesthetic or symbolic considerations have been privileged over purely tactical matters? Do surrounding structures compromise the defensive integrity of the fortified unit? Is there evidence for parks, gardens or other elements of designed landscape within the curtilage of the fortification?

F3. The analyses mentioned above should employ a GIS platform which might assess issues such as inter-visibility of sites and the extent to which apparent networks of defensive structures really do support each other tactically. Analysis of the use of internal space and arrangement of rooms within castle structures remains a priority where phased plans are available (Matthews 2000; Richardson 2003).

F4. A survey of the re-use of earlier sites by later defences is needed. How many medieval castles re-use earlier Roman or Iron Age fortifications? Do their locations indicate functional or ideological adoption of these sites?

Military technology

Despite a requirement to consider ideological issues when analysing fortifications a more detailed analysis of the impact of changing military technology on the design and location of fortifications is also needed. The impact of new forms of military technology relies not just on scientific advances, but also upon the adoption of new forms of weaponry; this is related to social aspects of warfare and the development of new tactics.

Recommendations

F5. A more refined chronology of late architectural developments in the region's castles is required. How closely can these changes be related to the adoption of gunpowder? Is there any indication that defensive structures of varying status reacted to the increased use of guns and artillery at different times and in different areas?

F6. What is the relationship between new forms of naval technology (ranging from the advent of steam power to the adoption of advances in naval artillery, including industrial production of ordnance, breach-loading guns and rifling) and changing tactical approaches to coastal defence?

F7. The recovery and analysis of any battle cemeteries should be a priority. Detailed analysis of combat injuries will provide important information about modes of warfare.

Coastal defence

The long eastern coast of the region has had a profound impact on defence (Figure 81). It has been seen variously as a potentially weak flank, an important means of communication, and the main route for moving men and material. There is a need for close analysis of shifting tactical approaches to defending the coastline and sea lanes of the North-East.

Recommendations

F8. A GIS-based model of the coastline and inshore waters of the region including major known navigational channels should be developed. A detailed picture of shipping routes can be built up from existing charts, pilot manuals and the evidence from wrecks. This analytical model of the coastline could be used as a base for exploring varying responses to perceived sea-based threats, and how they relate to naval technologies.

F9. The recovery of naval vessels of 18th-century date or earlier is a priority. The recovery and conservation of small arms and personal weapons from wreck assemblages is also of great importance.

F10. A conservation audit of coastal defences of all periods should be undertaken, particularly those in areas where there are high levels of coastal erosion.

Battlefields and siege works

Battlefield archaeology is now recognised as a subject worthy of detailed research. There is a need to address how the region's battlefields can be explored archaeologically, and the ways in which the frequently ephemeral surviving remains can be sensitively treated as a cultural heritage resource (Carman and Carman 2001; Carman 2005; Coad 2005).

Recommendations

F11. There are currently six battlefields in the region recorded on the English Heritage *Register of Historic Battlefields* (Hallidon Hill 1333; Neville's Cross 1346; Otterburn 1388; Homildon Hill 1402; Flodden 1513; Newburn 1640). All these sites require the creation of a conservation plan and a detailed research agenda.

F12. A 'local list' of battlefields that might be important on a regional, rather than national, scale (e.g. Heavenfield 635; Carham 1018; Piperdean 1435; Hedgely Moor 1464; Grindon 1558) should be established.

F13. A pilot project exploring all aspects of the archaeology of a major battlefield in the region is needed. Flodden is a strong candidate for such a detailed survey.

F14. An exploration of the afterlife of battlefields, and their role as sites of commemoration and pilgrimage, would make a strong MA dissertation.

F15. An audit of surviving English Civil War siege works and defensive structures should be undertaken. This should draw extensively on the excellent documentary resources available.

'Debateable land': fluctuating borders

Over much of the region's history the land between the Tyne and Forth has been a border zone. This is a theme for the Roman period (Hadrian's Wall) (Figure 82), the early medieval period (with the growth of the states of England and Scotland), the later medieval period (Anglo-Scottish wars) and the post-medieval period (reiving and the 1715 and 1745 Rebellions). Responses to fighting over, and living in, this disputed territory should be reviewed. Topics of particular importance include the extent to which there was ever a 'border' identity, the varying forms of conflict (state sponsored versus private initiative) and architectural responses to insecurity.

Recommendations

F16. Peter Ryder has carried out an important survey of defensive structures in Northumberland. A similar project needs to be carried out in Durham and southern Scotland. Only then can questions about the similarities and differences in 'reiver society' on both sides of the border be addressed.

F17. A cross-period analysis of the location of fortified structures and battlefields should assess the strategic and



Figure 81 Coastal erosion has taken its toll on these World War II pillboxes at Crimdon Dene (Co. Durham). © Tees Archaeology

tactical responses to warfare in the hostile upland landscape which characterises much of the border zone.

F18. How far did the Solway-Tyne line mark the southern edge of the border zone? To what extent were the North Pennines also a border zone? A survey of defensive structures in County Durham would be an important element in exploring this question.

Communication networks

All military forces require communication networks. Some may be ephemeral leaving little significant traces, others are likely to be more permanent and leave archaeological evidence.

Recommendations

F19. Detailed GIS modelling of networks of signal stations and beacons for all periods should explore inter-visibility between known sites. There is scope for using this model as a predictive tool to locate gaps in the distribution of known sites. GIS-based modelling has particular potential for exploring the network of beacons established as a system

to warn of border raids by reivers, and for understanding the distribution of Roman signal stations up the east coast and across the Pennines via the Stainmore Pass.

F20. Comparisons should be made between the known routes of armies moving through the areas. To what extent is there consistency in the routes used by military forces heading both south and north? What factors influence the choices made?

Provisions and logistics

The supply of military forces in the region must be explored. One useful approach would be to compare between military forces of the State and those more 'embedded' in local society. The role of armies as producers and consumers should be considered.

Recommendations

F21. Full analysis of assemblages of faunal remains and plant macrofossils from military sites of all periods (including Roman forts, medieval castles, and post-medieval barracks) is required.



Figure 82 Cheek piece from Roman helmet discovered at South Shields (Tyne and Wear). © Museum of Antiquities, Newcastle

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25. Origin and development of the agrarian economy

Despite the high profile of industry in the region from the medieval period onwards, it was only in the 19th century that the proportion of people employed in industry outnumbered those working on the land. Even today, farming and agriculture dominate large areas of the North-East; Northumberland is one of the least urbanised counties in England.

Although many elements of the rural environment are increasingly under threat, these threats lie outside the remit of the town and country planning system, the main tool for conserving the archaeological resource. This has implications for future research into the historical environment, for which alternative networks of investigation and funding must be established.

Another challenge for research into agricultural landscapes is the tendency for archaeological management and conservation measures to be site- or monument-based. When exploring the agrarian economy, however, the unit of analysis is often the 'landscape'. While Historic Landscape Characterisation has much potential for furthering post-medieval and early modern research, it is also limited in its potential for exploring earlier landscapes.

Origin of agriculture in the region

The development and spread of farming had a profound impact on the landscape of the region, although the details of this revolutionary development are still remarkably poorly understood.

Recommendations

AG1. All future pollen sampling requires extensive use of AMS carbon dating techniques to ensure a more refined chronology for the environmental record.

AG2. Further pollen sampling from lowland areas should be undertaken to offset the current focus on pollen samples from upland areas.

AG3. Development control officers must ensure that a high priority is given to adequate environmental sampling from potential early prehistoric sites; the specifications should include full analysis, not merely assessment.

Field Systems

Field systems, whether surviving as upstanding hedges, walls and fences, or as archaeological features, such as cropmarks or earthworks, form the structural backdrop for all arable and pastoral farming in the region, except perhaps in the highest upland areas (Figure 83).

Whereas the individual components of these field systems may be relatively short lived, it is clear that wider networks of fields may be in use for extremely long periods, showing clear signs of development and evolution over centuries. Equally, major periods of rupture and agricultural change may lead to ancient networks of field systems being removed wholesale.

Recommendations

AG4. Surviving examples of ridge and furrow should be mapped on the ground and from aerial photographs and the results integrated into the region's HERs/SMRs. This would be an excellent research project for local archaeological and history groups who have the detailed knowledge to survey their regions adequately.

AG5. More research must be carried out on variability in ridge and furrow. How much variation in morphology and distribution is there within the region? How does this vary according to soil, drift geology, chronology? Is all ridge and furrow medieval, or did it continue to be formed into the post-medieval period? Such specific research questions would be ideal topics for undergraduate or MA dissertations or research projects by local archaeological groups.

AG6. Local typologies are needed for dry-stone walling. This will require a combination of documentary research to establish possible dates of the walls, and extensive fieldwork. Particular care should be taken to note areas of probable quarrying for stone and features built into the walls, such as sheep creeps and gates. Such typologies will be highly localised due to variations in geology. This project would be suitable for local archaeology and history groups. Once typologies have been created, their use in farm surveys for DEFRA Environmental Stewardship schemes should be encouraged. Funding for such projects might be available through the HLF where there is adequate community involvement, and bodies such as the North Pennines AONB and the Northumberland National Park may also provide sponsorship.

AG7. Research into the long-term evolution of prehistoric field systems is required. Although prehistoric field systems are known from cropmarks in lowland contexts, the survival of upstanding earthworks means that this research is likely to take place in upland contexts. Detailed survey is needed of well-preserved field systems, mapping terraces, field boundaries and clearance cairns. This should be supplemented with targeted excavation to recover dating evidence. The wider context of the field system should be explored through supplementary pollen analysis.

AG8. Further fieldwork is required to record known lowland pre-Enclosure landscapes (Figure 84). It may be possible to identify such areas through the Historic Landscape Characterisation process. Recording field boundaries (for example, banks, ditches, hollow ways, etc) is also essential. Collaboration with local naturalists/wildlife groups should be sought to carry out research on ecological aspects of early field boundaries, including plant and invertebrate species types and frequencies and evidence for woodland management.

Developments in crop and animal breeding

The range of crop types and animal breeds used by the North-East's farmers was influenced both by selective breeding of existing species and the introduction of new

ones. The greatest changes occurred during the Roman period, where there is evidence for the introduction of new animal and crop species, and during the post-medieval period, when there was intense experimentation and investment in agricultural practices. Future research is required into the factors that influenced the uptake of new crop and animal types, including social factors, investment and environmental issues.



Figure 83 Romano-British field system at East Mellwaters (Co. Durham). © Durham County Council

Recommendation

AG9. Metrical material from environmental plant and faunal assemblages should be better disseminated.

Agriculture and industry

Agriculture is often conceptualised as being the opposite of industry, but it is clear that developments often went hand in hand. The use of a range of motive power sources, such as water, wind, steam and horses, varied widely across the region. Further research is required into their technological development and the social context of their adoption.

Recommendations

AG10. Up-to-date condition surveys of all known watermill and windmill sites in the region are needed.

AG11. Gin-gangs and engine houses are increasingly threatened with demolition or structural alteration. In these cases there should be a full structural record carried out, particularly of any remaining machinery.

AG12. Farm-scale mineral extraction, including quarrying, peat cutting and lime burning, needs more intensive research in conjunction with a survey of surviving limekilns in Durham, Cleveland and Tyne and Wear.

Woodland management

Forests and woodlands were an important part of the agrarian landscape from earliest times, but relatively little is known about varying patterns of woodland

management and forestry techniques in the North-East. Basic research should be carried out to establish historic patterns of woodland.

Recommendations

AG13. There is scope for detailed analysis of well-preserved samples of charcoal from archaeological contexts. Particular attention should be given to the retrieval of tree species information, and any evidence for types of wood (for example, brush wood, coppiced timber).



Figure 84 Aerial photograph of a medieval grange at Fox Covert, near Dinnington (Tyne and Wear) in the final stage of excavation. The crater was caused by the excavation of the well and the open-cast site is visible on the right of the picture. © Tyne and Wear Museums

AG14. Historic Landscape Characterisation should be used as a basis for mapping historic woodland. Where available, this should be supplemented by earlier cartographic evidence (estate and enclosure maps) and place-name evidence. All areas of historic woodland should be recorded on the HERs/SMRs.

AG15. Parish-level field surveys of surviving areas of local woodland could be carried out, drawing on the data recorded above. These should record evidence about range and distribution of species within woodlands, evidence for forest management (coppicing, pollarding, etc), routes and tracks through the woods, evidence for woodland boundaries (banks, ditches) and other features related to woodland management (for example, charcoal platforms, saw pits). Such woodland surveys would make excellent projects for local archaeology societies, possibly working in collaboration with wildlife groups. All relevant archaeological and bio-cultural data should be recorded on the region's HERs/SMRs.

AG16. There is an increasing commitment to returning plantations on Ancient Woodland Sites (PAWS) to native woodland; this may have implications for historic land use. Any programme of PAWS restoration would benefit from archaeological survey in advance.

AG17. A project should explore the relationship between the coal industry and the demand for wood for pit props. This should build on the model developed by the HLF-funded *Fuelling a Revolution* project, which explored the relationship between woodlands and the Sheffield steel industry.

26. Ethnicity and cultural identity

Issues relating to cultural identity and ethnicity currently lie at the fore of much archaeological thinking (for example, Allason-Jones 2001b; Hicks 2000; Jones 1997) and are especially of interest for the history of the North-East. The strategies by which groups forged their own sense of belonging can be traced archaeologically back into prehistory. However, it is clear that the relationship between material culture and cultural identity is not a simple one; future research must be alive to the theoretical and methodological challenges of exploring this important aspect of the past.

Roman

The advent of Roman control of Britain led to new modes for expressing cultural identities. These included strategies of resistance, the desire to emulate Roman modes of power, and even indifference. The strong presence of the Roman army in the North introduced a larger proportion of ethnic groups to the region than in civilian areas of Britain. Despite the high profile of more exotic groups, such as the Tigris bargemen stationed at South Shields, most of these intrusive groups came from Gaul and Germany.

Recommendations

ET1. The tendency for many Roman burials to include dress items as grave goods means that mortuary rituals are a particularly powerful way of exploring cultural identities. This potential has been recently demonstrated in the analysis of the Roman cemetery at Brougham (Cool 2004). Few Roman burials have been excavated in the North-East, and the full excavation of a substantial Roman cemetery must be a priority (see Rviii).

ET2. Ceramic evidence can be used to explore variation in food preparation and diet (Swan 1992; 1999). Further research exploring this topic should be carried out on dated assemblages. This would make a suitable topic for postgraduate archaeological dissertations.

Early medieval

The extent and nature of the *adventus saxonum* has been at the heart of recent debates in early medieval archaeology in Britain, but there is still no broad consensus. The realisation that people's origin cannot be related directly to their material culture has ultimately led to an impasse. The potential ethnic mix in the North-East is even more complex than in other parts of England, as population groups may include Picts, Scots, British, Anglians and the Vikings.

Recent technological developments, such as oxygen isotope analysis (Budd *et al* 2004), have shown great potential in identifying the geographical origins of individuals, which will ultimately help to explore questions relating to migration, exogamy and slavery.

Recommendation

ET3. Isotope analysis has already been attempted on skeletal material from the Bowl Hole cemetery at Bamburgh. Similar work is now required on other buried populations.

Medieval and post-medieval

The expansion of urbanism and industry in the later medieval and post-medieval periods has had a profound impact on the region's cultural identity. Some industrial communities, such as the coal-mining communities of the east Durham coalfield, even developed their own distinctive 'Pitmatic' dialect. The burgeoning of international trade led to the influx of communities of foreigners, some transient, some settling permanently such as the German swordmakers at Shotley Bridge and the shifting communities of first German and Baltic and later South Arab sailors in South Shields (Figure 85).



Figure 85 German hunting scenes painted by Prisoners of War held at the camp at Low Harperley (Co. Durham). © Durham County Council

In addition to these urban and industrial communities, rural areas also developed their own regional characteristics, such as the 'Borders' identity that developed across Northumberland and Southern Scotland. The 18th and 19th centuries also saw the development of wider, overarching cultural values relating to national identity and class.

Recommendations

ET4. An extensive body of vernacular material culture related to rural life in the North-East includes furniture tools (for example, knitting sheaths), craft items and cloth and fabric items. All these have potential for exploring micro-regional identities and are currently under-exploited. Undergraduate and postgraduate students should be encouraged to use the region's museum's collections as a source of material for dissertations.

ET5. More 18th- and 19th-century domestic ceramic assemblages must be analysed and published, particularly those sources related to individual family units, and where supported by documentary and cartographic sources.

ET6. A further project might consider the recording of streetscapes with large ethnic communities. This should be incorporated into the English Heritage *Creation and Change* project.

There are a few exceptions, such as the World Heritage Sites of Hadrian's Wall and Durham Cathedral, the cultural flowering associated with early Christianity in the region, and the role the region held as a crucible of technological innovation, particularly in the creation of early railways. Nonetheless, this perception of the region as a geographical and intellectual outlier has been noted by many scholars (for example, Barker 1981, 1; Frodsham 2000; Haselgrove 1999).

27. The North-East in its national and international context

National context

The North-East has long been seen as a peripheral region, particularly by those who live further south. This is as true for the study of the archaeology and history as for other areas of research. Unlike some areas of the country, such as Wessex or the Western Isles of Scotland, the region has a relatively low profile in archaeological literature nationally. There are a few exceptions, such as the World Heritage Sites of Hadrian's Wall and Durham Cathedral, the cultural flowering associated with early Christianity in the region, and the role the region held as a crucible of technological innovation, particularly in the creation of early railways. Nonetheless, this perception of the region as a geographical and intellectual outlier has been noted by many scholars (for example, Barker 1981, 1; Frodsham 2000; Haselgrove 1999).

The apparently peripheral nature of the archaeology and historic environment in the region is in part a reflection of patterns of academic research and the presence of arbitrary boundaries, rather than being a faithful indication of any inherent paucity in its historic environment. As Frodsham has pointed out, geographically the region is at the centre of the British Isles and, far from being a periphery, it is in fact spatially a core region (Frodsham 2000, 16). For a large part of its history, the North-East has not been a significant border zone, and whilst some cultural boundaries may have run through the area, these were no more nationally significant than those running through other parts of the country.

Recommendations

NT1. The CBA North (-East) group should act as a point for collaboration with other CBA groups and CSA groups in the wider 'Central British' region.

NT2. A concerted attempt must be made to move away from interpretative models derived from the south of England and other areas geographically remote to the North-East.

The region's borders

The North-East/North-West border

There are two significant border zones along the boundary between County Durham and South Northumberland and Cumbria: the North Pennines and the Hadrian's Wall corridor.

The North Pennines AONB area covers three different counties: County Durham, Northumberland and Cumbria, but has a distinctive and coherent landscape and history. Currently there is closer collaboration between researchers exploring the archaeology of the Durham and Northumberland than with those working in Cumbria. Although the North Pennines AONB has played an important role in managing the historic environment of this region, it has had less of an impact in bringing together academic and community research. Due to its national

and international importance, there has been a much more unified approach to the management and study of Hadrian's Wall through the World Heritage Site and English Heritage.

Recommendations

NT3. A research agenda for the archaeology and historic environment of the North Pennines (defined by the area of the AONB) should be created.

NT4. A full-time Historic Environment Officer should be appointed by the AONB. Their remit might include both provision of management and conservation advice, as well as encouraging academic and local community research.

The North-East/Yorkshire border

The historic border between County Durham (now County Durham and Teesside) and Yorkshire was the north bank of the Tees. In 1974, however, there was a slight re-adjustment leading to the movement southwards of the boundary in the south-west of the region to include all of Teesdale, Lunedale and Stainmore.

The south-west of County Durham is contiguous with the upland areas of the Yorkshire Dales, and it shares a similar landscape and history, but there is relatively little interaction between researchers working in these two areas.

The area between the edge of the North Pennines and the North York Moors is a broad lowland zone. Although the Tees acts as a natural border, it is easily bridged and fordable and has never acted as a significant historical or cultural boundary. It is clear that sites such as Stanwick and Catterick, which are just outside the North-East region would have had a zone of influence that extended across the Tees. Some research projects, such as the Yorkshire Quern Survey, recognise this and have an expanded area of study that covers parts of South Durham and Cleveland.

In the east of the region the northern scarp of the Yorkshire Moors extends into Cleveland. Important industries, such as the ironstone mining and alum production straddle both counties.

Recommendations

NT5. A new initiative should bring together researchers from along the entire Pennines chain. This could comprise a single day-school or a series of period-specific seminars.

NT6. A research agenda for the archaeology and historic environment of the North York Moors (defined by the area of the National Park) should be created.

The Anglo-Scottish border

Despite the arbitrary and contingent nature of these borders, it is also important not to underplay their significance, both locally and nationally. Hadrian's Wall

undoubtedly had a profound impact on the native inhabitants of the region, politically, socially and economically. Equally, the establishment of the national border between England and Scotland and the related political and military instability in the later medieval and early modern period was fundamental. It is not possible to explore the medieval archaeology and history of the North-East without being aware of these events and processes.

Recommendations

NT7. Increased co-operation between researchers and curators in the North-East and lowland Scotland should explore collaborative projects.

NT8. There should be joint funding by Historic Scotland and English Heritage for projects crossing the national boundary. Possible projects include an exploration of Roman military sites both sides of the border, the comparative archaeology of the early medieval Kingdom of Northumbria, and the comparison of 16th/17th-century Border society, exploring the creation of a 'Border' identity.

NT9. Finds specialists in North-East England and southern Scotland should have the opportunity to compare material culture from both sides of the Anglo-Scottish border. This could be achieved through full publication of important assemblages, and encouraging specialist research bodies, such as the Roman Finds Research Group, the Medieval Pottery Research Group and the Medieval Finds Research Group, to hold day schools exploring this issue. This could be encouraged by financial support from English Heritage and Historic Scotland.

NT10. A conference should explore the creation of Anglo-Scottish identities in the medieval and post-medieval period, including both archaeological and architectural data. Amongst possible bodies to take a leading role in organising this are the Society for Medieval Archaeology, Society for Post-Medieval Archaeology and the CBA/CSA.

The North-East in its international context

The North-East has a long North Sea façade. Due east lie Denmark and Northern Germany, and to the north-east Norway, Sweden and shipping lanes into the Baltic. The region was not just open to the influences from the countries of the North Sea and Baltic Littoral; the sea also provided access for influences from further afield, perhaps most spectacularly the Roman Empire, and allowed products from the region to reach beyond their immediate economic hinterland and into Europe and beyond.

In addition to these historical and archaeological links, there are ongoing connections between modern researchers and curators. A good example is the international project on the *Kings of the North Sea AD250-850* supported by the European Union's Interreg IIC North Sea Region programme, which included participants from the North-East (Tyne and Wear Museum), the Netherlands, Germany, Norway and Denmark. This project shared expertise on heritage management issues (Green and Bidwell 2002) and

academic knowledge (Kramer *et al* 2000). Other points in time when international links are of interest are:

Early prehistory

In the late Pleistocene and early Holocene low sea levels meant that substantial parts of the north-west European continental shelf were dry land. Early prehistoric settlement is likely to have focused on these coastlines, leaving many settlements now submerged beneath the waters of the North Sea (Coles 1998; Flemming 2004). Not all these remains need be far off-shore, as discoveries in the submerged forest at Hartlepool and off Tynemouth have shown. The historic presence of these large areas of dry land off the modern coastline and the existence of a land bridge between Britain and the Continent has a major impact for the modelling of the process of post-glacial recolonisation of the north of Britain.

With the development of new prospecting techniques it is now possible to explore the submarine archaeology of the North Sea, although there has also been an increase in threats to the long-term survival of the resource, including the laying of pipelines, bottom trawling and aggregate dredging.

Recommendations

NT11. International collaboration should be encouraged in the development of off-shore prospection techniques and other techniques for fieldwork in the challenging conditions presented by the North Sea.

NT12. A working group comprising representatives from the countries with a significant North Sea coastline should be established to address the management of the off-shore archaeological resource.



Figure 86 Excavations on the line of Hadrian's Wall immediately south of Shields Road, Byker (Tyne and Wear), looking southwest. The foundation of the Wall is visible in the middle of the picture, while to the right are three lines of defensive pits on the berm (the Wall ditch, here unexcavated, would lie immediately out of shot to the right). © Tyne and Wear Museums

Hadrian's Wall

The international importance of Hadrian's Wall is acknowledged by its inscription as a World Heritage Site, but it is just one of a series of important Roman defended frontiers (Figure 86). There is already a strong international tradition of sharing information about recent research on

these frontiers through the Roman Limes Congress. This needs to be encouraged and strengthened.

Recommendations

NT13. Funding needs to be made available to allow young scholars working on Hadrian's Wall and its associated structures to attend the Limes Congress.

NT14. There must be full publication and dissemination of the forthcoming English Heritage *Hadrian's Wall Research Framework*.

The North Sea zone in the early medieval period

For much of the early medieval period the North-East lay on the very edge of the Anglo-Saxon/Frankish North Sea zone (Kramer *et al* 2000). Although the Deiran areas of the Kingdom of Northumbria appear to have been integrated into this trading network, Bernicia may have been excluded, though the reasons for this are not well understood. From the late 8th century, however, there was a re-alignment of key communication routes with increased numbers of Vikings from Scandinavia, both as raiders and then settlers. This is attested in documentary records, the development of a rich Anglo-Scandinavian sculptural tradition and the increasing presence of material culture that could only be derived from the Northern Sea or the Atlantic, such as the walrus ivory recently discovered at Bamburgh. A better understanding of the links between the North-East and Scandinavia should be promoted, particularly to understand how these laid the ground for later medieval trading connections with Scandinavia and the Baltic.

Recommendations

NT15. The North-East currently has very few scholars undertaking active research into the early medieval archaeology of the region. The Department of Archaeology at the Universities of Newcastle and Durham should encourage students to carry out dissertations on the international context of the early medieval Kingdom of Northumbria.

NT16. The Nordic Graduate School for Archaeology (<http://www.dialpast.dk/index.htm>) is becoming an important focal point for archaeological work in Scandinavia, the North Sea and the Baltic. Currently, two non-Nordic countries, Estonia and Russia, are also involved; at least one of the region's university archaeology departments should seek to become affiliated to the initiative.

Medieval trade with Scandinavia and the Baltic

Historical sources show that the North-East enjoyed trading links with Scandinavia and the Baltic, particularly through its involvement with the Hanseatic League (Clephan 1892). Regrettably, there has been little research into the material expression of these contacts. Pam Graves notes the need to explore the extent to which the

'Hanseatic' material culture and lifestyle, identified elsewhere in England, is expressed in Newcastle and how far the North-East was integrated into a Hanseatic cultural network (Graves 2002; Gaimster 1999; 2005; Gaimster and Nenck 1997, 172). The archaeological presence of the trading links known from the textual evidence might also be explored in other ways, such as identifying the use of imported raw materials (cf. HILLAM and TYERS 1995; HOARE *et al* 2002; MILLS 2000) and through technological and stylistic developments (for example, Goodburn 1997; Perry 1894).

Recommendations

NT17. Newcastle City Council should explore the possibility of participating in the DIE HANSE project (www.hanse.org), a network of towns which formerly belonged to the Hanseatic trading network. It intends to develop public relations activities underscoring aspects common to Hanseatic towns and cities, especially to carry out exchange of culture and tradition and facilitate the transfer of knowledge, social activities and information.

NT18. Dendrochronological sampling from medieval and early post-medieval buildings from Newcastle and Hartlepool should be encouraged with a view to identifying possible imported wood.

NT19. A conference should be organised to bring together archaeologists working on the archaeology of other towns with Hanseatic links in Britain, including Coventry, Hull, King's Lynn, London, Southampton and the Shetlands. The proceedings should be fully published.

The expansion of Empire

The discovery of lead ingots from the North Pennines in a late-18th-century wreck off the coast of Tamil Nadu, India, illustrates the extent to which the North-East was integrated into the global economic trading system (Tripathi *et al* 2003). Many other industries in the region produced goods specifically intended for the Empire market. The rise of the global economy also led to the appearance of new ethnic communities in cities and towns, such as the Arab and Lascar seamen settling in South Shields in the late 19th and early 20th centuries (see also Chapter 26).

Recommendations

NT20. The extent and nature of mass production specifically for export by the region's manufacturers requires investigation. This research should utilise the nationally significant collection of trade catalogues held at Beamish Museum.

NT21. The uptake and consumption of luxury consumables, such as cocoa, coffee, sugar and tobacco is under-researched at present. Further work should explore material culture from 17th- and 18th-century deposits. Such a project would make an ideal research topic for postgraduate study.

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28. Industry and transport

Industry

The North-East is internationally celebrated for its industrial heritage (Figure 87). It lays claim to be the home of the railway, while its collieries, shipyards, lead mines and iron and steel works fuelled the expansion of the British Empire. In addition to these high-profile heavy industries, many of which date to the post-medieval and modern periods, the region has seen a range of industries, from Roman quarrying to medieval pottery production, operating at all scales, from individual households to extensive industrial complexes. Although many industry-specific research topics appear in the individual period research agendas, there are also a range of wider, cross-cutting issues to be considered.



Figure 87 Newport Bridge, Middlesbrough (Teesside). © Tees Archaeology

Long-term history of extractive industries: coal, lead and iron

Although the region's major extractive industries, coal and lead mining and iron and steel production, reached their peak in the post-medieval period their roots go back much earlier. Little is known, however, about the long-term development of coal and lead mining. It is assumed that Roman products were manufactured from local sources, but there is little hard evidence for their extraction. Some early mining sites have undoubtedly been destroyed by later working, though evidence from other parts of Britain indicates that early sites can survive even in areas of intensive later exploitation.

Recommendations

ID1. An overview is needed of the evidence for coal from archaeological sites of medieval date and earlier. A campaign of provenance studies on coal from these early contexts should be carried out.

ID2. Where early coal workings are exposed during opencast mining, recording should be undertaken. The potential for early coal workings should be a priority for development control in any applications for opencasting or other deep-ground disturbance within the historic coalfield areas.

ID3. There is a need for a campaign of radiocarbon dating of material from bole hills.

ID4. Pollen samples from the North Pennines should be analysed for evidence of atmospheric pollution indicating lead extraction.

ID5. The surface archaeology of all pre-19th-century lead mining (including any Roman mining, and the nationally important 12th-century silver/lead mining) and ore dressing remains poorly characterised and virtually undated. The first priority is for high-quality landscape survey of 'early' mining landscapes (especially where more easily dateable non-mining features may assist with dating), augmented by excavation where appropriate.

ID6. As in other regions, the archaeology of iron mining of all periods remains seriously under-recorded, and in many cases has probably gone unrecognised. The potential for early iron mining should be a priority for development control in any applications for opencasting or other deep-ground disturbance within the historic coalfield areas, and for archaeological recording on any sites/landscapes where its existence is suspected.

ID7. Existing HER/SMR records for bloomeries are partial at best, to judge by the continuing rate of discovery of 'new' high-quality upstanding sites (Figure 88). Their date range is also poorly understood. Site identification should be augmented by survey recording, archaeometallurgy and research on iron-making in its landscape context (including the tenorial context, where this can be established).



Figure 88 Excavation of a medieval bloomery at Glantlees (Northumberland). © David Cranstone

Industrial landscapes

The study of industrial archaeology is far more than a detailed analysis of industrial processes. It must be situated within wider period-based studies of archaeology and include an exploration of the social context of industrial activity, for example housing and social provision, as well as the wider economy of the area.

Recommendation

ID8. Large-scale landscape survey should be undertaken of an area of significant industrial activity as an example of what might be achieved. This should include targeted excavation, building recording and field survey. The project should aim to record all aspects of society, not simply industrial processes.

Archaeometallurgy

The region has a long tradition of metalworking, including iron and steel making, and non-ferrous manufacture. There is a need for a better understanding of these metalworking processes, particular those carried out on a domestic or craft scale.

Recommendations

ID9. The recovery of archaeological material indicative of metalworking should be fully analysed, including archaeometallurgical analyses. There should be systematic availability and regular take-up of specialist metallurgical advice.

ID10. Metallurgical and industrial sites detected on early maps should be recorded in the region's HERs/SMRs.

ID11. A type series of slag and other metallurgical residues should be developed.

Harnessing power

One of the most important stories in the process of the

industrialisation in the North-East is the harnessing of new forms of power. Although best known as one of the crucibles for the development of steam power, the North-East witnessed wind and water power, as well as the use of horses. During the 20th century, the internal combustion engine and the marine turbine became increasingly important.

Recommendations

ID12. The excavation of the horizontal-wheeled Anglo-Saxon watermill at Corbridge has shown the potential for sophisticated water engineering projects in this period (Snape 2003). There is need for more work on the archaeology of early watermills. This might include field survey on rivers near known important early medieval and medieval centres with the aim of identifying likely sites.

ID13. All forms of leats, millraces and broader water management in the region require further research.

ID14. All surviving gin-gangs and steam engine houses should be fully recorded and, where possible, protected.

Industry and environment

Industrial activity can have a profound effect on the environment, causing atmospheric and ground pollution. It also impacts on the health of those involved.

Recommendations

ID15. Skeletal assemblages of populations likely to have been involved in industrial activity should be analysed for



Figure 89 Stublick Colliery (Northumberland). © David Cranstone

evidence of the impact of their work on health. This should include evidence of work-induced pathologies (for example, lead poisoning), stress (for example, squatting facets) and the impact of diet.

ID16. Many industrial activities produce some form of environmental pollution. Opportunities should be taken to carry out further research into their impact using palaeoecological techniques (for example, Mighall *et al* 2004).

Industry, innovation and development

As well as research on industry and technology in its own right, and within its social context, there is a need for targeted research on the process of invention, both innovation and incremental development. Even for relatively late periods, most information for the latter will come from archaeology and archaeometallurgy rather than from historical records. In the light of current research on modern links between diet, behaviour and intelligence, the possibility of exploring such links in the past should be a priority.

Transport and communication

Long-term continuities in the communication infrastructure of the region have been little explored, yet the basic network of roads in the region appears to show significant levels of consistency over history. These similarities may be due to basic environmental factors, such as the limited number of passes through upland areas, though social and economic influences also merit investigation.

Recommendations

ID17. The relationship between prehistoric communication routes and Roman roads is poorly understood. Were the Roman roads an imposition, cutting across earlier roads, or do they reflect existing track ways? This could be elucidated through the relationship of dated prehistoric settlements to Roman roads.

ID18. Known Roman road patterns in the region show intriguing differences from more recent major-route patterns, notably the apparent absence of any equivalent of the modern A1 route through the lowland plains in Northumberland. Long-term changes in the major land communications routes of the region, and the reasons for these changes, need to be investigated.

ID19. What was the origin of the long-distance droveways crossing the Pennines and the Cheviots (Cowper 1970-71)? Is it possible to date them, either historically or archaeologically? To what extent did an associated infrastructure develop, for example, cross-dykes, inns, watering places, etc?

ID20. What is the relationship between toll roads and earlier medieval and post-medieval roads (for example, Elliot 1994)?

ID21. What was the impact of enclosure on local and informal routeways in the 18th and 19th centuries? This could be explored through parish-level surveys of local communication routes, and would make a suitable small-scale project for local history and archaeology groups.

ID22. In a region dominated by a series of major west-east rivers (Tees, Wear, Tyne, Tweed,) river crossings attain considerable importance. Who was responsible for constructing bridges? Do the remains of medieval and Roman bridges still survive in rivers and river banks?



Figure 90 Mural commemorating the closure of South Hetton Colliery (Co. Durham) in 1993. Originally painted on the gable end of a terrace of houses, it is now repositioned on the gable wall of a community centre. © David Petts

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29. Religion and ritual

Religious belief and ritual activity permeated all aspects of life in the historic North-East. Despite the broad trend towards secularisation in contemporary society, religious belief continues to be an important element in the lives of many within the region. The physical remains of earlier belief systems also continue to resonate strongly, and many of the iconic symbols of North-East regional identity, such as Durham Cathedral and the Lindisfarne Gospels, are intimately bound up with its history.

Despite the importance of religion and ritual, there has been a tendency for scholars to emphasise historically contingent factors in their study. Many significant research topics are either period-specific or else linked to individual short-term historical events, such as the influence of Roman political power, the rise of Christianity or the impact of the Reformation. There is, however, an increasing interest in long-term patterns, which transcend the traditionally drawn boundaries of scholarship. These approaches have been primarily developed by those working on the Neolithic and Bronze Age (for example, Bradley 1990; 2000; 2002), but they are notions that can usefully be applied to periods outside prehistory (for example, Frodsham 1999).

Votive deposition

Deposition and discard practices can have significant ideological elements. Ritually informed deposition practices occur both within settlements, using typically domestic material (for example, Hill 1995), or involve high-status items in distinctive landscape contexts, such as caves or rivers (Figure 91). This phenomenon has been thoroughly explored in the south and east of England and in Scotland, but it remains to be considered in any depth in the North-East.



Figure 91 Roman pipeclay figurine recovered from the Tees at Piercebridge (Co. Durham). Not to scale © Philippa Walton / Frances McIntosh

Recommendations

R1. The Portable Antiquities Scheme is already proving an important channel for the recognition and recording of items from votive deposits or hoards. There should be provision for adequate archaeological back-up for both supplementary fieldwork and documentary research in order to explore further the contexts from which such objects are recovered, in addition to supplementary research on the objects themselves.

R2. A major review of long-term votive deposition practices should be conducted, focusing particularly on the extent of continuity in votive deposition from the Iron Age into the Roman period. This would be the ideal subject for a PhD thesis. This project should include comparative practices to the north of the Scottish Border.

R3. Awareness of possible votive deposition within settlements, particularly in ditch fills and terminals must be enhanced. Development control officers should require the complete excavation of all ditch terminals within the development area of settlements of Bronze Age, Iron Age and Roman date, as well as adequate sampling of other parts of ditch systems.

R4. Forms of ritual deposition continued beyond the Roman period, whether as the careful burying of old fonts, the hiding of shoes in thatch or the dropping of pins in wells. A regional synthesis of such medieval and post-medieval practices would make an ideal project for an MA thesis or for a local society.

Site continuity

In addition to continuity in ritual practices, some locations in the landscape were also the long-term foci for a range of ritual activities, whether monument building, ritual activity or simply as important sites in folk tales and local traditions. There is now a large body of work exploring the nature of long-term site continuity and patterns of monument re-use (for example, papers in Bradley and Williams 1998; Bradley 1993; Petts 1998). Despite some intriguing examples of probable long-term monument re-use (Coggins and Fairless 1997), however, there has been disappointingly little discussion of this phenomenon in the regional context (though see Frodsham 1999).

Recommendations

R5. An in-depth study should be undertaken of one or more sites with clear evidence for long-term, ritual activity (for example, Simonside; Yeavering Bell). This could take the form of a community archaeology project or a postgraduate dissertation, and include both detailed survey of the chosen site itself, and wider analysis of its focus for monument building in the surrounding area. The use of GIS systems for viewshed analysis would prove particularly valuable here.

R6. A regional survey of sites of medieval and post-medieval ritual activity beyond the boundaries of formal religious sites could usefully be conducted. This should include surveys of all surviving and recording wayside cross sites (building on the Monuments Protection Programme work; Rimmington 1999) (Figure 92) and all known and recorded holy wells. Both surveys should involve field survey and documentary/map research. This would make an ideal project for independent researchers or local archaeology/history groups.

Death and burial

Research and study into death and burial in the North-East has long been hampered by the poor preservation of bone across much of the region due to the largely acid soils. As the increasingly substantial assemblage of early medieval skeletal material from the region has shown, the situation is not entirely negative, however, and the possibility of retrieving good-sized bone assemblages should not be dismissed.

Burial studies have had a relatively low profile in the North-East compared with other areas. Even the Neolithic and Bronze Age periods, where good survival of upstanding earthwork remains in upland areas has led to extensive excavation, still require much basic synthetic work to elucidate chronological developments and regional patterns. Knowledge of Iron Age mortuary traditions is almost completely lacking and even Roman period burial rites are poorly understood, with no substantial cemetery excavations

in the region, despite an extensive corpus of funerary epigraphy. Although there has been an increasing number of excavations on early medieval burial sites, the overall number is still extremely low compared with East Anglia or southern England. There is also a clear regional bias for this period, with most cemeteries being known from the south and east of the region, where the artefact-rich, early Anglo-Saxon burial rite was most widely spread. These sites are inherently more archaeologically visible than contemporary early medieval British graves, which contained fewer grave-goods. Study of medieval and post-medieval burial rites are less well understood mainly because of the lack of excavation on cemeteries due to their continued use. Excavation of sites such as the Newcastle Infirmary cemetery do show, however, that important sites can occasionally become available for archaeological investigation.

Recommendations

R7. Much basic research on human populations from the region is still required, including an improved understanding of patterns of stature, diet, pathology and demography. All opportunities should be taken to ensure that when skeletal populations are uncovered there is provision of adequate funds and time for detailed analysis. All metrical data should be appropriately disseminated.

R8. Due to the poor understanding of burial rites from many periods, isolated human burials should be fully dated using AMS dating techniques. There should be a contingency fund available for such work.



Figure 92 Nineteenth century cross placed at the boundary between County Durham and Cumbria close to Killhope. © David Petts

30. Research strategy

Management infrastructure, archives and conservation

Conservation versus research

Unlike many other areas of England, the North-East has seen few major infrastructure developments with associated large-scale archaeological fieldwork, such as the Channel Tunnel Rail Link or Heathrow Terminal Five. The presumption in favour of preservation *in situ* enshrined in PPG16 means that most development-control archaeology is relatively small scale. As a consequence the advance of archaeological knowledge in the region, for many periods, is more likely to occur in the context of research-driven projects than as part of the development process. Many of those consulted felt that there was need to open out the debate about the balance between preservation *in situ* and the need to move forward archaeological knowledge. Ultimately, curatorial decisions can only be made on the basis of an informed understanding of the architectural and archaeological resource and minimalist approaches to archaeological intervention must not impede the development of academic knowledge and new field techniques.

Recommendation

MG1. A seminar could explore the implications of preservation *in situ*, and explore the balance between this and the demands of a vibrant research culture.



Figure 93 Conservation work on the tower of St Brandon's, Brancepeth (Co. Durham), following the catastrophic fire of 1998. © Peter Ryder

Training

Some maintain that there is a lack of skills in the heritage sector in the North-East, but this is not strictly true; there is an existing body of individuals with relevant skills and expertise. The major problem is that they are thinly spread allowing work on only a limited number of projects at any one time. With a continued increase in development-control fieldwork and survey, it is important to ensure that appropriate skills are available where and when they are required. The demand to carry out analysis and publish reports on a range of backlog projects, and to re-assess and synthesise the large amount of data published in 'grey literature', all issues which have been underlined in this volume, magnifies this need for an improvement in the strength-in-depth of the North-East's skills-base.

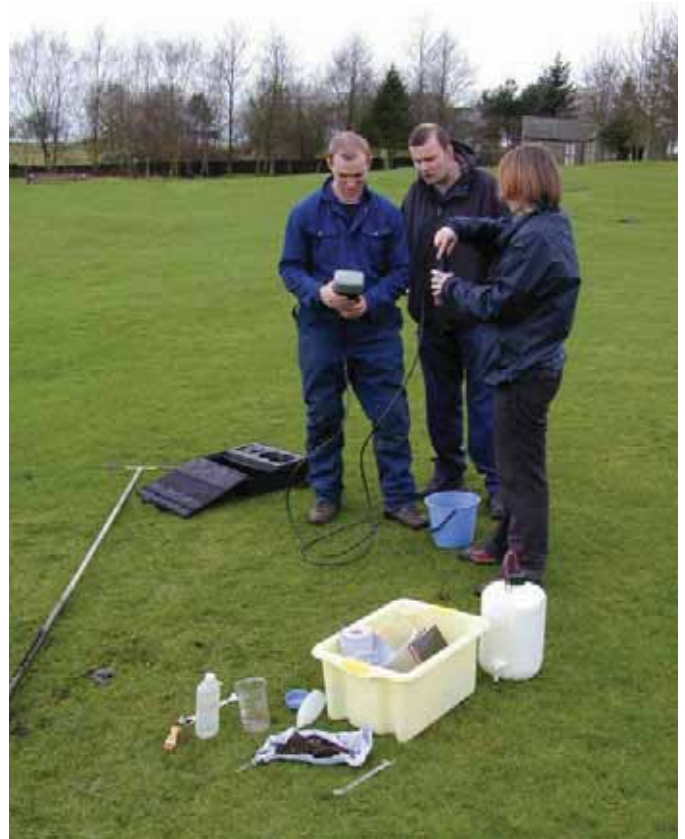


Figure 94 Monitoring the chemical and physical properties of water in dipwells inserted into known archaeological deposits can provide information regarding preservation conditions underground, which in turn can help to preserve sites for future generations. Vindolanda, 2004. © Jacqui Huntley

It is not only a question of ensuring adequate training for new entrants to the profession. The historic environment is also a rapidly developing area in which to work (Figures 93 and 94). There are constant changes in the legislative framework, administrative context and new techniques continue to develop. The workforce must have adequate opportunity for Continued Professional Development (CPD), a requirement which is increasingly being recognised by the profession; the Institute of Field Archaeologists (IFA) now recommends at least 50 hours CPD over a two-year period, and the Standing Committee of Archaeological Unit Managers (SCAUM) has also acknowledged a commitment



Figure 95 Nautical Archaeology Society members try out commercial diving equipment as part of the NAS Training Programme. © Nautical Archaeology Society NE

Recommendations

MG2. There should be an audit to identify the region's training needs, and to assess the best ways in which these might be met (Figure 95).

MG3. Universities and other Higher and Further Education establishments in the region should be encouraged to carry out more significant fieldwork projects in the North-East, and to provide student training not just in fieldwork techniques, but in all stages of the archaeological process. Universities should be encouraged to collaborate with commercial field archaeology units to ensure that students are being trained in the latest techniques and approaches.

MG4. The IFA has been awarded a project-planning grant from the Heritage Lottery Fund to develop a funding bid for workplace learning bursaries in archaeology. If successful, local organisations should be encouraged to host these placements.

MG5. English Heritage should be encouraged to provide bursaries for students to participate in vocational postgraduate courses in heritage skills. Students might carry out dissertations based on material or sites from the North-East.

MG6. Universities and other bodies in the regions should be encouraged to take advantage of AHRC Collaborative Doctoral Awards, which involve collaboration between universities and non-academic institutions. These should be tailored to provide practical vocational training, as well as a context for academic research.

MG7. CPD training opportunities should be provided for existing staff. These might include training courses, delivered either through existing commercial units, universities or a third party. The current main source of professional training in the sector is through the Professional Training in the Historic Environment courses run by English Heritage and the Department of Continuing Education at Oxford University. The development of a similar series of courses based in the North-East (or elsewhere in the North) should be encouraged.

New approaches to field archaeology

PPG16 has now been in force for nearly 15 years, and a vast increase in the quantity of archaeological fieldwork has been reported. In the North-East, this ranges from large open-area excavations (Figure 96) to small-scale watching briefs. In general though, due to the lack of large development or infrastructure projects, development-control archaeology in the region has tended towards the smaller-scale.

The completion of this Research Framework is an appropriate moment to assess the approaches used in commercial fieldwork, which range from evaluation techniques to publication. Recent years have seen more detailed assessments of the efficacy of standard archaeological evaluation techniques by, for example, the Planarch consortium (Hey and Lacey 2001), who are carrying out further assessment to produce recommendations for best practice in archaeological evaluation for the Planarch area. The initial research, however, was carried out on sites within a limited area of south-east England, and the report admits that there was no opportunity to assess the impact of variations in topography, geology and depth of overlying soils. The extent to which recommendations made by the Planarch report are applicable to the North-East should be assessed.



Figure 96 Excavation of the medieval grange complex at Fox Covert, near Dinnington (Tyne and Wear). © Tyne and Wear Museum

Recommendation

MG8. A joint consortium project involving English Heritage, local contractors and local government should now assess the applicability of the Planarch project to the North-East. This should include intensive and problem-orientated

analysis, including transects across different geologies and topographical conditions (Hey and Lacey 2001, 63). The East of England Association of Local Government Archaeology Officers is embarking on a project (Re-engineering the Archaeological Process) which aims to modernise strategies for the archaeological process in the eastern region. Again, conditions in East Anglia are very different to those in the North-East.

Recommendation

MG9. ALGAO North-East should organise a series of seminars, including contractors and local government curators, to assess all aspects of the archaeological process, including desk-based evaluation, evaluation, excavation, field survey, finds analysis, post-excavation analysis and dissemination. This should result in the publication of a set of standards for fieldwork across the region (Gurney 2003).

Monitoring the archaeological resource

The archaeological resource of the region is under constant threat from natural processes, such as the dewatering of peat and animal burrowing, and human intervention, including illicit metal detecting and footpath erosion. Frequently these human and natural processes can interact, aggravating their effect.

A particular challenge in upland areas is the implementation of the *Countryside and Rights of Way Act 2000* (CRoW). This may potentially lead to erosion and damage to archaeological sites which have hitherto remained inaccessible. There is also the possibility that the increased access to previously private land may take some strain off existing areas. Although the commitment to public access is laudable, there is a need to assess the long-term impact on the archaeological resource.

Recommendation

MG10. The impact of CRoW on the archaeological resource must be monitored. A pilot project should explore the best way of assessing this new challenge.

There is a need to assess the long-term stability of archaeological deposits. Although PPG16 and the *IFA Code of Conduct* firmly promote the concept of *in situ* preservation of archaeological deposits, insufficient is known about the long-term stability of buried archaeological remains (though see Davis *et al* 2001). For example, potential damage may arise as a result of dewatering of previously waterlogged, anaerobic deposits in towns, while the corrosion of metalwork in the plough soil might be caused by the frequent application of chemicals to fields or the simple poor survival of bone can be the result of the acid nature of much of the region's soils.

Recommendations

MG11. Urban deposit models should be created for the historic cores of the main towns in the region. These need to be supplemented by regular monitoring of basic variables, such as water level (Davis *et al* 2002).

MG12. A pilot project should assess the best way to measure the impact of agricultural chemicals on archaeological material in the plough soil.

MG13. The impact of modern deep-ploughing techniques on the region's archaeological resource could be assessed. Management regimes should be routinely agreed with the region's farmers to prevent damage to both Scheduled and unprotected monuments. The DEFRA Environmental Stewardship scheme is one way in which this might be achieved.

Research culture

For the *North-East Regional Research Framework* to succeed fully, a 'research culture' must be fostered in the region. This should bring together all parts of the heritage sector, including curators, commercial contractors, academics and local societies and independent researchers. The success of the North-East Regional Research Framework day school held in November 2004, and the commitment of those involved in the consultation process for this project testify to the vitality of the local research community.

That said, the heritage sector is still fragmentary; there is not enough communication between the universities, commercial contractors and amateur archaeologists. This fragmentation can also be seen in the lack of communication between different disciplines, something which is particularly evident on the boundary between archaeologists and other specialists working in the historic environment. Groups must make greater strides to share information about their research, though this will inevitably be hindered by the geography and size of the region; the distance from the Tweed to the Tees is nearly 100 miles.

Recommendations

MG14. The Council for British Archaeology North (-East) should be revived immediately to act as an umbrella body for all sectors of the heritage environment community.

MG15. Students at all levels of education should be encouraged to research local topics; at postgraduate level this might be encouraged by the provision of bursaries for specific projects.

MG16. A bi-annual regional conference addressing specific themes in historic environment research should be established.

MG17. An easily accessible register of current research interests should be created.

Publication and dissemination

If archaeological and historical research is to have any lasting value the results, whether a synthetic overview or detailed list of archives, must be made accessible to both the research community and the general public. This responsibility is acknowledged by those working in the heritage sector, but it presents many challenges.

Despite a number of reports exploring the best ways of publishing archaeological material (for example, Cunliffe 1983; Carver *et al* 1992), and the importance of publication enshrined in MAP2, the vast increase in archaeological material over the last fifteen years, mainly generated through development-driven archaeological fieldwork, can seem insuperable. PPG16 notes that the responsibility for the publication of archaeological fieldwork should be with the developers (DoE 1990, para 25), but a detailed specification of what such publications might comprise means that it has been 'exposed to minimalist interpretation in the competitive world of contract archaeology' (Jones *et al* 2001, 2.3.1). Only a tiny proportion of the archaeological data generated through such fieldwork has been published, the vast majority languishes in filing cabinets and box files as 'grey literature'. This problem was repeatedly raised by all the period groups; a particular concern being the lack of basic indexing and metadata.

The *Online Access to the Index of Archaeological Investigations* (OASIS) project, a partnership between English Heritage, the Archaeological Data Service and the Archaeological Investigation Project is currently being rolled out across the region to provide on-line indexing for information relating to recent archaeological fieldwork and to facilitate access to 'grey literature'.

Recommendations

MG18. Currently, the use of the OASIS system is limited to development-control archaeology. Its use should be encouraged for all types of archaeological investigation in the region, including research work and projects carried out by local archaeology groups.

MG19. Local authorities should demand that all archaeological reports are submitted in an appropriate digital format. This will allow this material to be made available via the OASIS website. The format of these reports should follow the guidelines laid down by the OASIS project.

MG20. A campaign of retrospective digitisation should target reports already held by local government curators. This should aim initially at digitising material acquired since the advent of PPG16, but could be extended to include earlier material.

Much of this fieldwork is limited to individual sites and, despite the cumulative impact of large quantities of small amounts of information, no provision is currently made for the synthesis of these data or placing them into a wider context (Thomas 1991, 823). An interesting example of one possible approach can be seen in Sweden, where the state archaeological service, the *Riksantikvarieämbetet*, has published an overview of the prehistoric archaeology of Scania, specifically based on the results of recent contract archaeology (Andersson *et al* 2004).

There is also a substantial body of non development-control 'grey literature', including unpublished reports by local archaeology groups, unpublished academic theses

and unpublished field notes. Some of these would be of great value if they could be made more widely available.

Recommendations

MG21. Much valuable archaeological work is carried out by postgraduate students, but too often this important work is never published. The Archaeological Data Service offers the facility to host digital versions of PhD theses (<http://ads.ahds.ac.uk/catalogue/library/theses/>). Students carrying out work on subjects of local interest should be encouraged to make their work available in this form, or to be published with the British Archaeological Reports (BAR) series.

MG22. The possibility of a similar digital distribution of MA/MSc dissertations of suitable quality should also be explored. As the ADS only hosts PhD theses, an alternative host would be required.

In addition to the difficulty of keeping track of recent archaeological fieldwork, there was a wider feeling amongst the consultees that even though the North-East had a relatively small research community, it was extremely difficult keeping track of on-going archaeological and historical research, including synthetic, documentary and finds research.

Recommendations

MG23. An index of current research interests in the region should be created. This should be multi-disciplinary and on-going. This index should be hosted on the internet.

MG24. There should be a simple e-mail based round-up of on-going projects and events in the region. This could be circulated periodically (monthly/quarterly). This could be achieved at very little expense, but would require a body, such as a revived CBA North, to take ownership of the project.

MG25. Local societies, either individually or as a consortium, should endeavour to digitise early runs of their publications, and make them available over the internet. An example of a similar project is the digitisation of the Society of Antiquaries of Scotland's entire run of its proceedings, *Archaeologia Scotica* and the Society's out-of-print monographs, which are now available via the website of the Archaeological Data Service (<http://ads.ahds.ac.uk/catalogue/library/psas/>).

MG26. The production of digital versions of on-going publications should also be encouraged. This could be made available on-line, either immediately with membership-only access, or publicly with a 'moving wall'.

MG27. The possibility of digitising major, but now out of print, publications should also be explored. Possible candidates include work by George Tate, William Greenwell and J. Collingwood Bruce's *Descriptive catalogue of antiquities, chiefly British, at Alnwick Castle* (1880).

The internet offers great potential for publication of large bodies of archaeological data. The most notable recent

examples in the region have been the on-line SMRs for Durham, Northumberland, and Tyne and Wear made available through the *Keys to the Past* and *Sitelines* projects. These have allowed public access to these important sources of archaeological information, which are significant research tools and educational resources. Other important projects aiming to disseminate archaeological data include the *Northumberland Rock Art: Web Access to the Beckensall Archive* project (<http://rockart.ncl.ac.uk/>). These on-line archives and gazetteers are considered by some to be superior to paper ones because of the ease of search. The ability to carry out complex text and map-based queries is also of great value, and of course, they are also easy to update and should, in theory, never be superseded by new data.

All these projects suffer, however, from the challenge of their long-term maintenance. Many had fixed funding released for their creation, with no funds available for their future upkeep, monitoring and upgrading. Without on-going work on these sites there is a danger that in the long-term they will become redundant. For example, with the move from SMRs to HERs, and the inclusion of new forms of data, sites such as *Keys to the Past*, will become increasingly difficult to update. Even though basic record information may be refreshed, it may not be easy to display new data formats, such as Historic Landscape Character information and other GIS line- and polygon-data.

Recommendations

MG28. Where necessary, funds should be made available

for the upgrading and reworking of the region's major internet resources.

MG29. All future projects should work closely with the Archaeology Data Service or the Arts and Humanities Data Service to ensure the long-term security of the data.

MG30. There is clear potential for the creation of further on-line gazetteers of suitable bodies of data. One strong candidate is the epigraphic material from Hadrian's Wall, building on the basic data already available in the RIB, but including more recent discoveries.

The publication of archaeological excavation remains a concern for many. The limited number of available outlets for publication through local journals has an impact on the speed at which archaeological fieldwork sees the light of day. One possible alternative is the increased use of web-publication. This has been used recently with great success by the York Archaeological Trust to publish some of their recent sites (<http://www.yorkarchaeology.co.uk/ayw.htm>). Web publication, however, should not be seen as a 'cheap and cheerful' alternative to paper publication. The costs involved and expertise needed in creating a good web publication are as great as that for traditional publication strategies. Not all contractors have the available skills to achieve quality publication in this way.

Recommendation

MG31. Local fieldwork contractors should be encouraged



Figure 97 Excavation of a Roman kiln at East Park, Sedgfield (Co. Durham) by *Time Team*. © Durham County Council



Figure 98 Volunteers looking at rock art in the snow on Barningham Moor (Co. Durham) as part of the Northumberland and County Durham Rock Art Project. © Northumberland County Council

to explore the use of the internet for publication of their fieldwork. English Heritage might provide a financial contribution to an initial pilot project. Agreement should be reached about hosting and long-term survival of on-line publications.

The use of the internet as a source of publication has profound implications for the ways in which archaeological data are published. The distinction between different levels of archiving from Level II (records produced on-site) to Level IV (synthetic descriptions) made by the *Frere Report* (Ancient Monuments Board 1975) has broken down entirely; it is now possible to provide access simultaneously to digitised copies of the original field notes, computer databases used for finds analysis, complex site matrices, huge numbers of colour photographs and illustrations, interim statements and on-going synthesis, with different levels of interpretation available for specialists and the general public. There is real scope for exploring new and novel ways of archaeological publication in the region.

Recommendation

MG32. Funding should be made available for pilot project to explore alternative ways of publishing a major archaeological project in the region. This needs to be added into the project design from an early stage to allow appropriate time and funds to be written into the project and so maximise the potential of new forms of recording and IT.

Public communication and outreach

Archaeology and history currently has a high public profile (Figure 97). This wide public interest has been influenced by a series of factors, including the success of television programmes such as *Time Team*, *Meet the Ancestors* and *Restoration*. Fortuitously, this increase in the public appetite for finding out about their past has coincided with the advent of an important new funding stream for community-based heritage projects via the various grant award schemes, such as the Local Heritage Initiative and Awards for All, made available through the Heritage Lottery Fund.

Cultural agencies have become aware that many members of the public are still excluded from participating in finding out about their past, whether socially, physically or intellectually. This has led to the publication of statements and policies addressing the issue of inclusion, including *People and Places: Social Inclusion Policy for the Built and Historic Environment* (Department of Media, Culture and Sport, 2002), *Broadening the Horizons of Heritage* (Heritage Lottery Fund 2002) and *England's Heritage: Your Heritage* (English Heritage 2003).

In the North-East there is already a significant level of public involvement in the archaeology and historic environment, although the level and extent of this involvement does vary. Any policies concerning public education and outreach will need to be tailored to the needs of a diverse interest group, which includes

- independent researchers, operating outside the professional sector, but carrying out significant academic research, often of regional and national importance,
- local archaeology, history or community groups carrying out research into their immediate localities, often funded via the Heritage Lottery Fund,
- people with an informed and active interest in the past, but who have a more passive involvement, such as attending day schools, belonging to societies or reading relevant books and journals.

In addition to these groups, there is a vast public audience who, although they would not characterise themselves as having an active interest in the past, do visit National Trust and English Heritage properties and watch occasional history and archaeology programmes on television. Beyond this is another large group of people who have little access to their historic environment; this includes those from socially disadvantaged backgrounds and some people with disabilities.

Local archaeology societies

The North-East is well provided with special interest groups for local history and archaeology. The three main regional archaeology societies are the Society of Antiquaries of Newcastle, the Durham Archaeological and Architectural Society, and the Tees Archaeology Group. In addition there are several smaller but important local groups including the Northern Archaeology Group, Northumberland Archaeology Group, and the Arbeia Society. These groups undertake a range of functions, including putting on lectures and day schools, organising field trips, issuing publications and in some cases organising fieldwork. Some of these groups have also carried out historic building recording, and the North-East Vernacular Architecture Group are especially active here. Although membership of most societies is buoyant, practical contributions could still be made to encourage their continued active engagement.

There is great public enthusiasm for fieldwork, although in the past there has been some ambivalence in the professional sector towards excavation by amateur groups, due to perceived deficiencies in the quality of excavation, recording and publication. Nonetheless, the region has seen a number of highly successful and rigorous research excavations organised by or with the co-operation of local groups, including the Bamburgh Research Project and the Bondington Project (Berwick-upon-Tweed).

Recommendations

MG33. Professional training in basic archaeological techniques should be provided for local societies, including field-walking, excavation recording, surveying, documentary research, finds identification and analysis, and publication.

This could be either provided via the major archaeological societies or through the establishment of a full-time community archaeologist/s covering part of or the entire region. Schemes that may provide suitable models include the *City of York Community Archaeology Project*

(based at York Archaeological Trust: <http://www.yorkarchaeology.co.uk/community.htm>) or the *Heritage Trust of Lincolnshire's Community Archaeology Project* (<http://www.lincsheritage.org/work/work.html#ca>).

There are a range of funding possibilities including the Heritage Lottery Fund and contributions from local authorities.

Local groups should be encouraged to allow their fieldwork to be monitored in order to ensure that standards are met.

MG34. Local authorities should compile a basic specification of expected standards for fieldwork carried out by local groups. This should include contact information for specialist advice, and standards for the reporting of all fieldwork.

MG35. Due to the rise of developer-driven archaeology and the decline in the number of university research excavations there has been a reduction in opportunities for people to take up fieldwork. The establishment of one or more long-term research excavations providing public participation must be a priority. The precise nature and location of such excavations should articulate with the academic research priorities laid down elsewhere in the *North-East Regional Research Framework*. The work of Tees Archaeology at Catcote and the Hartlepool Headland Project are excellent examples of the kind of scheme required elsewhere in the region.

MG36. There is currently no regional Council for British Archaeology group for the North-East. It is essential that this is revived to provide a focus for local groups and the wider archaeological community.

The role of local authorities

In the professional heritage sector, local authorities are among the most significant provider of public information and outreach. Notable recent examples include internet projects, such as the joint Durham County Council/Northumberland County Council *Keys to the Past* and *Past Perfect*, Tyne and Wear's *Sitelines*, schools outreach projects such as Durham County Council's *Time Detectives*, opportunities for structured fieldwork such as Tees Archaeologies community excavations and Durham and Northumberland County Council's *Rock Art* project (Figure 98) and publications such as Northumberland County Council's *Archaeology in Northumberland*.

Most of these projects are externally funded through funding sources such as the New Opportunities Fund and the Heritage Lottery Fund. Some schemes, such as *Archaeology in Northumberland* and some day schools are, however, reliant on local authority funding or self-supporting. These schemes are the most vulnerable to cuts in the local authority funding stream.

Recommendation

MG37. English Heritage should ideally be in a position to provide small injections of cash, where necessary, to

ensure short-term continuity of threatened capacity-building schemes, though this should not be seen as a long-term funding stream.

The majority of archaeological fieldwork in the region is development-driven and there is often considerable frustration amongst local communities that so little information is available about archaeological work in their area. Although funding for outreach in this kind of situation is always restricted, with both developers and archaeological contractors seeking to minimise overheads, it is possible to develop events which allow some modest level of public access. A good example is the recent excavation work at Faverdale (Darlington), where a highly successful Open Day was attended by 500-700 visitors. Local authority archaeologists have an important role to play in this process because they maintain links with the developer, consultants and contractors, and are in a position to encourage such events.

Recommendation

MG38. In all situations where large-scale excavation is likely, the developer should be encouraged to consider some form of publicity relating to the archaeology. A leaflet highlighting the advantages for the developer in terms of public relations and including examples of best practice should be created.

Although local authority archaeologists have good knowledge of regional archaeology, it is not practical for them to have detailed on-the-ground knowledge of every parish, but it is often precisely this kind of detailed local knowledge which highlights threats to known archaeological sites and recognises new one. The challenge is to articulate this detailed knowledge and understanding of local historic landscapes with the skills and expertise of the local authority archaeology services.

Recommendations

MG39. Local authority archaeology services should contact all parish councils in their region, highlighting their services and expertise, where necessary drawing their attention to useful resources such as on-line SMRs/HERs.

MG40. The possibility should be explored of setting up networks of parish archaeology wardens, perhaps through parish councils, who could provide detailed local knowledge, highlight threats to the historic environment and note any new sites of importance for inclusion on SMRs/HERs. Similar schemes have been tried out elsewhere in the country, with those in Leicestershire and Lincolnshire providing examples of best practice.

Disability and the historic environment

People with physical or intellectual disabilities in the North-East may not only be excluded from involvement in exploring the historic environment of the region but also

from visiting and getting full value from surviving historic and archaeological sites.

The Historic Environment sector has a pressing moral and legal obligation to remove as many of these barriers as possible, and open up access where practical. Although there is currently much goodwill towards fulfilling such obligations, further research is required into what disabled people themselves actually want.



Figure 99 Excavation of the road ramp leading up to the Roman Bridge, located on the southern bank of the River Tyne at Corbridge (Northumberland), looking west. © Tyne and Wear Museums

Recommendations

MG41. A visitor's guide to historic sites in the region, specifically highlighting those which provide easy access for the physically disabled, should be compiled. This could be either a printed document or an internet site. This should be created in consultation with a user group of people with a range of disabilities to ensure that their needs are met.

MG42. Information technology provides an important means by which educational and physical barriers can be challenged. Although the series of important heritage-related internet sites already created for the region are all in compliance with the requirements for accessibility, there has been no attempt to create a website specifically aimed at those with disabilities. A range of disability groups should be canvassed for feedback on their needs from such sites.

MG43. The disabled are often excluded from involvement in fieldwork, whether as university students or simply members of the public. There is a need for the removal of barriers towards participation. Although in its early days, the recommendations of the *Inclusive, Accessible, Archaeology* project (based in the Department of Archaeology, University of Reading), which aims to increase access to fieldwork for the disabled, should be implemented once they became available.

31. Conclusion and long-term future

The *North-East Regional Research Framework for the Historic Environment* has been a successful and invigorating project. Although the region has a small historic environment sector, support for the process of creating the Framework has been uniformly positive in all areas, including universities, museums, local government archaeology officers, and independent researchers.

The tri-partite structure of the project (resource assessment, research agenda, research strategy) proved an effective way of approaching the project, though in practice there was a tendency for work on the agenda and strategy to blend into the consultation phases. This was not, however, a problem, and is partly a reflection of the enthusiasm with which the groups devoted themselves to the task in hand.

Common themes

Despite the diversity in the material covered by the *Research Framework*, ranging from Mesolithic flint scatters to Cold War bunkers, several broad themes emerged from the groups.

One of these was the relationship between development-control (PPG15/PPG16) and research-driven investigation. Development-control fieldwork is limited when compared with other areas in the country. There have been few large infrastructure projects to compare with the CTRL project or the Framework Archaeology Heathrow Terminal 5 project, and this kind of work is also limited (geographically) to the lowlands between the Tees and the Tyne, with some projects also taking place in south-east Northumberland. In general, development-control work in the west and north of the region is insignificant, particularly in the uplands, where the presence of the North Pennines AONB and the Northumberland National Park strongly restricts development. The consensus among participating groups was that, while the potential for achieving research aims through development-control work could be honed through better targeting of excavation and improved dissemination of results, major research questions were still most likely to be answered through research projects.

Most groups called for the revival of large-scale, long-term research projects. Although the precise parameters of such projects varied according to each group, it was clear that for those working in earlier prehistory there was a demand for a project focusing on an upland area which contained a multi-period landscape of diverse monument types, with an emphasis on the inter-relationship between monuments of different periods and the long-term relationship between farming landscapes and monumental landscapes. For later periods there is a real appetite for substantial projects exploring entire landscapes rather than individual sites. Repeated parallels were drawn with projects such as the Shapwick Project and the Whittlewood Project (and not by contributors to those projects!). There was a strong feeling that such projects would primarily involve extensive survey, including field-walking, aerial photography, geophysical survey and shovel pitting, with only limited, strictly targeted,

excavation. Such a project would have real potential for bringing together professional and community groups in a collaborative venture. Inevitably, such large-scale projects require commensurate funding, and the challenge is for interested parties to put together a package bringing in money from a variety of funding streams, rather than seeking money from a single source.

A third common theme addressed repeatedly during the course of this project, was the question of dissemination of data. Although there has been an upsurge in the amount of archaeological and recording work carried out since the early 1990s, the results of this endeavour mostly languish as 'grey literature'. Every single group felt that at the very least there needed to be improved indexing of this material and adequate dissemination of the metadata. Ideally, the reports themselves should be made more widely available too. Publication digitally, either as PDFs or more complex websites, was felt to be one possible solution. Not all problems, however, related to development-control work, there is still a significant backlog of major excavations from the region from as far back as the 1970s which requires full analysis and publication. Where necessary, adequate funding must be sought to ensure publication of key sites highlighted in the period research strategies.

A final priority which came through in all period groups was the issue of training. It was widely felt that there was inadequate provision of training for archaeologists at all levels and specialities. Students may receive limited fieldwork training, often outside the UK, before graduation. This means that the burden of basic fieldwork training often falls on the shoulders of commercial contractors, who in turn do not recognise this as their primary role. There was also a lack of specialist finds training, with few students electing to carry out basic material culture-based research projects at either undergraduate or postgraduate level. There are acute shortages in a number of categories including pottery and flint specialists, early medieval coinage and environmental specialists in maritime fauna. A major challenge for the profession in the North-East is to explore practical ways of providing improved training, both at entry level and through continued professional development.

Long-term future

The response from the region to the NERRF project has been uniformly positive, particularly to public events such as the day school held in November 2004. There was a genuine sense from the participants that the opportunity for researchers in the field, both amateur and professional, to come together to discuss topics of common interest was a valuable one. Throughout its life the project has also provided the opportunity for cross-fertilisation both within and between period groups, as research communities who would not normally share ideas grasped their chance to see what other research was being carried out in the region. It is important not to lose this sense of common interest created through the project and to foster a sense of identity.

Conclusion and long-term future

One practical way for this to be achieved is for the Research Strategy to continue as a dynamic structure, rather than being 'put to bed' once the results of this project are published. In response, the steering group has created a framework for the medium-term review of the framework. The group has agreed to meet annually (convened by the Archaeology Section of Durham County Council) to review the implementation and progress of the Strategy. In year 3 plans will be put into progress for the holding of a day school in year 4, with a view to holding a more formal quinquennial review of the information contained in this volume.

Bibliography

Abbreviations

ASUD: Archaeological Services, University of Durham (now Archaeological Services Durham University)
 AML: Ancient Monuments Laboratory
 BAR: British Archaeological Reports (British Series unless otherwise stated)
 DoE: Department of Environment
 HMSO: Her Majesty's Stationary Office
 MSRG: Medieval Settlement Research Group
 NAA: Northern Archaeological Associates
 NEVAG: North East Vernacular Architecture Group
 OAN: Oxford Archaeology North
 RCHME: Royal Commission on the Historical Monuments in England
 SPMA: Society for Post-Medieval Archaeology
 TWM: Tyne and Wear Museums Archaeology
 WYAS: West Yorkshire Archaeological Service

References

- Aberg, A, and Smith, A, 1988 'Excavations on the castle site, Stockton-on-Tees', in T G Manby (ed), *Archaeology in Eastern Yorkshire: Essays in honour of T. C. M. Brewster*, University of Sheffield, Sheffield, 176-188
- Adams, M, 1996 'Setting the scene: the Mesolithic in northern England', *Northern Archaeology* 13/14, 1-5
- Addyman, P, 2003 *Urban archaeology: where now?* Lecture given to the Society of Antiquaries, London
- Agar, R, 1954 'Glacial and post-glacial geology of Middlesbrough and the Tees Estuary', *Proceedings of the Yorkshire Geological Society* 29, 237-253
- Agar, R, 1960 'Post-glacial erosion of the North Yorkshire coast from the Tees Estuary to Ravenscar', *Proceedings of the Yorkshire Geological Society* 32, 409-427
- Ainsworth, S, Oswald, A, and Pearson, T, 2002 *An Iron Age hillfort on Staw Hill, Northumberland*, unpublished English Heritage survey report for Northumberland National Park Authority
- Allason-Jones, L, 1984 'A lead shrine from Wallsend', *Britannia* 15, 231-232
- Allason-Jones, L, 1985 'Bell-shaped studs?', in M R Bishop (ed), *The production and distribution of Roman military equipment, Proceedings of the Second Roman Military Equipment Research Seminar*, BAR International Series 275, Oxford, 95-108
- Allason-Jones, L, 1988 'Small finds from turrets on Hadrian's Wall', in J C Coulston (ed), *Military equipment and the identity of Roman soldiers, Proceedings of the 4th Roman Military Equipment Conference*, BAR International Series 394, Oxford, 197-233
- Allason-Jones, L, 1991 'Roman and native interaction in Northumberland', in V Maxfield and M Dobson (eds), *Roman frontier studies 1989: 15th International Congress of Roman Frontier Studies*, Exeter University Press, Exeter 1995, 1-6
- Allason-Jones, L, 1995 '«Sexing» small finds', in P Rush (ed), *Theoretical Roman Archaeology: Second Conference Proceedings*, Avebury Press, Aldershot, 22-32
- Allason-Jones, L, 1996 'Roman military and domestic artefacts from Great Chesters', *Archaeologia Aeliana* (5th series) 24, 187-214
- Allason-Jones, L, 2001a 'What is a military assemblage?', *Journal of Roman Military Equipment Studies* 10, 1-4
- Allason-Jones, L, 2001b 'Material culture and identity', in S James and M Millett (eds), *Britons and Romans: advancing an archaeological agenda*, Council for British Archaeology Research Report 125, York, 19-25
- Allason-Jones, L, 2002a 'The material culture of Hadrian's Wall', in P Freeman, J Bennett, Z T Fiema and B Hoffman (eds), *Limes XVIII: Proceedings of the XVIIIth International Congress of Roman Frontier Studies held in Amman, Jordan (September 2000)* BAR International Series 1084 (II), Oxford, 821-824
- Allason-Jones, L, 2002b 'Review of Roman small finds research', in C Brooks, R Daniels and A Harding (eds), *Past, present and future: the archaeology of Northern England*, Architectural and Archaeological Society of Durham and Northumberland Research Report 5, Durham, 113-119
- Allason-Jones, L, 2003 'The jet industry and allied trades in Roman Britain', in P Wilson and J Price (eds), *Aspects of industry in Roman Yorkshire and the North*, Oxbow Books, Oxford, 125-132
- Allason-Jones, L, 2004 'Mithras on Hadrian's Wall', in M Martens and G de Boc (eds), *Roman Mithraism: the evidence of the small finds: Papers of the international conference/ Bijdragen van het internationaal congres, Tienen 7-8 November 2001*, Archeologie in Vlaanderen Monografie 4, Brussels, 183-189
- Allason-Jones, L, and Bishop, M, 1988 *Excavations at Roman Corbridge: the hoard*, Historic Buildings and Monuments Commission Monograph 7, London
- Allason-Jones, L, and Dungworth, D, 1997 'Metalworking on Hadrian's Wall', in W Groenman-van Waateringe, B L van Beek, W J H Willems and S L Wynia, *Roman frontier studies 1995. Proceedings of the XVIth International Congress of Roman Frontier Studies*, Oxbow Monograph 91, Oxford, 317-321
- Allason-Jones, L, and Jones, J M, 1994 'Jet and other materials in Roman artefact studies', *Archaeologia Aeliana* (5th series) 22, 265-272
- Allason-Jones, L, and Mackay, B, 1985 *Coventina's well: a shrine on Hadrian's Wall*, Trustees of the Clayton Collection, Hexham
- Allason-Jones, L, and Miket, R, 1984 *The catalogue of small finds from South Shields Roman fort*, Society of Antiquaries of Newcastle Monograph 2, Newcastle
- Allen, A, and Roberts, M, 1994 'Excavations at Old Durham Gardens, Durham City, 1989-92', *Durham Archaeological Journal* 10, 69-92
- Alexander, C, 1999 *Ironsides's line*, Historic Military Press, Storrington
- Allison, E, 1987 *Bird bones from the Quayside, Queen Street, Newcastle-upon-Tyne*, AML Report 96/87, English Heritage, London
- Allison, E, 1988 'The bird bones', in C O'Brien, L Bown, S Dixon, and R Nicholson, *The origins of Newcastle Quayside: excavations at Queen Street and Dog Bank*, Society of Antiquaries of Newcastle-upon-Tyne Monograph 3, Newcastle, 133-137
- Allison, E, 1990 'The bird bones', in R Daniels, 'The development of medieval Hartlepool: excavations at Church Close, 1984-85', *Archaeological Journal* 147, 395-396 (337-410)
- Allison, E, Locker, A, and Rackam, D J, 1985 'The animal remains', in D O'Sullivan, 'An excavation in Holy Island village', *Archaeologia Aeliana* (5th series) 13, 27-116
- Ancient Monuments Board (England), 1975 *Principles of publication in rescue archaeology*, Department of the Environment, London,
- Anderson, J, Willis, R, and Rushworth, R, 1992 'Geophysical examination of three sites in Northumberland', *University of Durham and Newcastle Archaeological Report* 15, 34-39
- Andersson, M, Karsten, P, Knarrström, B. and Svensson, M, 2004

Bibliography

- Stone Age Scania: significant places dug and read by contract archaeology*, Riksantikvarieämbetets Skrifter 52, Lund
- Annis, R, 1996 'Bonny Grove Farm and Dixon's Bank: two Romano-British settlement sites in Cleveland', *Durham Archaeological Journal* 12, 41-60
- Annis, R, 2001a 'Hareshaw dam', *Archaeology in Northumberland* 2000-2001, 17
- Annis, R, 2001b 'The Stainmore "signal stations" or tower chain', in B E Vyner (ed), *Stainmore: the archaeology of a North Pennine pass*, Tees Archaeology Monograph Series 1, English Heritage, London, 98-110
- Anon, 1951 'Gifts and donations', *Proceedings of the Society of Antiquaries of Newcastle* (4th series) 11, 84
- Anon, 1958 'Medieval Britain in 1957', *Medieval Archaeology* 2, 87-102
- Anon, 1968 'Roman Britain in 1969', *Journal of Roman Studies* 58, 179-181
- Anon, 1971 'Roman Britain in 1970', *Britannia* 2, 251
- Anon, 1986 *Excavations at Dalden Tower, Dalton-le-Dale, 1987*, unpublished typescript report, Durham County Council
- Anon, 2003 'Tree ring dates: Tyne and Wear', *Vernacular Architecture* 33, 133
- Archaeological Practice, 1996 *Middle Warren: field walking assessment Phases 1 and 2*, unpublished report, Department of Archaeology, University of Newcastle
- Arnold, A J, Howard, R E, and Litton, C D, 2004 *Tree-ring analysis of timbers from Rock Farm, Front Street, Wheatley Hill*, English Heritage Centre for Archaeology Report
- ASUD, 1994 *Darlington Market Place: archaeological excavations, unpublished report*, Archaeological Services, University of Durham
- ASUD, 1997 *Ingleby Barwick villages 5 and 6. Land near Quarry Farm and Barwick Farm: an archaeological evaluation*, unpublished report, Archaeological Services, University of Durham
- ASUD, 1998 *Turning the tide: archaeological assessment*, unpublished report, Archaeological Services, University of Durham
- ASUD, 2000a *Cropmark complex at Picktree, geophysical survey*, unpublished report, Archaeological Services, University of Durham
- ASUD, 2000b *Seaton Holme, Easington. Architectural recording and archaeological excavation*, unpublished report, Archaeological Services, University of Durham
- ASUD, 2000c *Quarry Farm, Ingleby Barwick, Stockton-on-Tees*, unpublished report, Archaeological Services, University of Durham
- ASUD, 2001 *Standing Stones Farm, geophysical and topographical surveys*, unpublished report, Archaeological Services, University of Durham
- ASUD, 2005 *Binchester Hall, Bishop Auckland, County Durham: archaeological evaluation*, unpublished report, Archaeological Services, University of Durham
- Atkinson, F, 1968 'A pencil mill at Cronkley Scar', *Industrial Archaeology Society: North-East Bulletin* 5, 17
- Atkinson, F, 1974 *Industrial archaeology of North-East England*, David and Charles, Newton Abbot
- Austin, D, 1979 'Barnard Castle, Co. Durham. First interim report: Excavations in the Town Ward 1974-6', *Journal of the British Archaeological Association* 132, 50-72
- Austin, D, 1980 'Barnard Castle, Co. Durham. Second Interim report: excavation in the Inner Ward 1976-8: the later medieval period', *Journal of the British Archaeological Association* 133, 86-96
- Austin, D, 1989 *The deserted medieval village of Thrislington, Co Durham: Excavations 1973-74*, Society for Medieval Archaeology Monograph 12, Leeds
- Austin, D, 1990 'Medieval settlement in the North-East of England. Retrospect, summary and prospect', in B E Vyner (ed) *Medieval rural settlement in North-East England*, Architectural and Archaeological Society of Durham and Northumberland, Durham, 141-150
- Austin, D, and O'Mahoney, C, 1987 'The medieval settlement and landscape of Castle Eden, Peterlee, Co. Durham: Excavations 1974', *Durham Archaeological Journal* 3, 57-78
- Aylett, M, and Miket, R, 2003 'Interim report 2003: a horned cairn at Scald Hill, Northumberland', *Border Archaeological Society Bulletin* 24, 3-5
- Ayris, I, and Linsley, S M, 1994 *A guide to the industrial archaeology of Tyne and Wear*, Newcastle City Council, Newcastle
- Ayris, I, Nolan, J, and Durkin, A, 1998 'The archaeological excavation of wooden wagonway remains at Lambton D Pit, Sunderland', *Industrial Archaeology Review* 20, 5-22
- Badcock, A and Malaws, J, 2004 'Recording people and processes at large industrial structures', in D Barker and D Cranstone (eds), *The archaeology of industrialisation*, Society for Post-Medieval Archaeology Monograph 2, Leeds, 269-281
- Bailey, R, 1993 'An Anglo-Saxon strap-end from Wooperton', *Archaeologia Aeliana* (5th series) 21, 87-91
- Baker, J C, 1984 *Sunderland Pottery* Tyne and Wear County Council Museums, Newcastle
- Barker, D and Cranstone, D, 2004 *The archaeology of industrialisation*, Society for Post-Medieval Archaeology Monograph 2, Leeds
- Barker, G, 1981 'Approaches to prehistoric man in Northern England', in G Barker (ed), *Prehistoric communities in Northern England*, University of Sheffield Press, Sheffield, 1-10
- Barnett, T, Chalmers, A, Díaz-Andreu, M, Longhurst, P, Ellis, G, Sharpe, K, and Trinks, I, 2005 '3D laser scanning for recording and monitoring rock art erosion', *International Newsletter on Rock Art* 14, 25-29
- Barnett, T, and Díaz-Andreu, M, 2005 'Knowledge capture and transfer in rock art studies: results of a questionnaire on rock art decay in Britain', *Conservation and management of archaeological sites* 7, 35-48
- Barnwell, P, 2000 'Rural industrial revolutions: the evidence of agricultural buildings in Northumberland and Cheshire', *Essays on Northern History in honour of Maurice W Beresford*, *Northern History* 28, 157-177
- Barrett, J H, Locker, A M. and Roberts, C M, 2004 'The origin of intensive marine fishing in medieval Europe: the English evidence', *Proceedings of the Royal Society of London Series B* 271, 2417-2421
- Batey, C, 1990 'A tenth-century, carved bone strip from Ferryhill, County Durham', *Durham Archaeological Journal* 6, 31-33
- Beavitt, P, O'Sullivan, D, and Young, R, 1985 'Recent fieldwork on Lindisfarne', *University of Leicester, Department of Archaeology Occasional Paper* 1, Leicester
- Beavitt, P, O'Sullivan, D, and Young, R, 1986 *Holy Island: a guide to current archaeological research*, School of Archaeological Studies, Leicester
- Beavitt, P, O'Sullivan, D, and Young, R, 1988 *Archaeology on Lindisfarne*, Leicester
- Beavitt, P, O'Sullivan, D, and Young, R, 1990 'Fieldwork on Lindisfarne 1980-88', *Northern Archaeology* 8, 1-23
- Beckensall, S, 1976 'The excavation of a rock shelter at Corby's Crag, Edlingham', *Archaeologia Aeliana* (5th series) 4, 11-16
- Beckensall, S, 1983 *Northumberland's prehistoric rock carvings*, Pendulum Publications, Rothbury
- Beckensall, S, 1992 *Prehistoric rock art of Northumberland*, Stan, Hexham
- Beckensall, S, 1999 *British Prehistoric rock art*, Tempus, Stroud

- Beckensall, S, 2001 *Prehistoric rock art in Northumberland*, Tempus, Stroud
- Beckensall, S, 2003 *Prehistoric Northumberland*, Tempus, Stroud
- Beckensall, S, and Laurie, T, 1998 *Prehistoric rock art of County Durham, Swaledale and Wensleydale*, County Durham Books, Durham
- Bell, R C and Gill, M A V, 1973 *The potteries of Tyneside* Frank Graham, Newcastle
- Bellhouse, R, 1969 'Roman sites on the Cumberland coast', *Transactions of the Cumberland and Westmorland Antiquarian and Archaeological Society* 69, 54-101
- Bennett, G, Clavering, E, and Rounding, A, 1990 *A fighting trade - rail transport in Tyne Coal 1600-1800*, Portcullis Press, Gateshead
- Bennet, J, 1998 'The Roman frontier from Wallsend to Rudchester Burn Reviewed', *Archaeologia Aeliana* (5th series) 26, 17-37
- Bennet, J, and Turner, R, 1983 'The Vallum at Wallhouses, Northumberland: excavations in 1980 and 1981 [including pre-Vallum ard-marks]', *Archaeologia Aeliana* (5th series) 11, 61-78
- Berry, J, and Taylor, D J A, 1997 'The Roman fort at Halton Chesters: a Geophysical Survey', *Archaeologia Aeliana* (5th series) 25, 51-60
- Bersu, G, and Wilson, D, 1966 *Three Viking graves in the Isle of Man*, Society for Medieval Archaeology Monograph 1, London
- Biddle, M, Goodall, I, and Hinton, D, 1990 *Object and economy in medieval Winchester: artefacts from medieval Winchester part ii*, Winchester Studies 7(ii), Clarendon Press, Oxford
- Bidwell, P, 1985 *The Roman fort of Vindolanda at Chesterholm*, Northumberland, English Heritage, London
- Bidwell, P (ed), 1999 *Hadrian's Wall 1989-1999: a summary of recent excavation and research prepared for the 12th Pilgrimage of Hadrian's Wall*, Cumberland and Westmorland Antiquarian and Archaeological Society and the Society of Antiquaries of Newcastle-upon-Tyne, Carlisle
- Bidwell, P, 2001 'A probable Roman shipwreck from the Herd Sand at South Shields', *Arbeia Journal* 6-7 (for 1997-98), 1-23
- Bidwell, P, 2003 'The original eastern terminus of Hadrian's Wall', *Archaeologia Aeliana* (5th series) 32, 17-24
- Bidwell, P, and Croom, A, 2002 'The Roman pottery', in P Bidwell and M Snape, 'The Roman fort at Newcastle-upon-Tyne', *Archaeologia Aeliana* (5th series) 31, 139-172 (1-245)
- Bidwell, P, and Hodgson, N, 1999 'Arbeia - Death and destruction at the Roman fort of South Shields', *Current Archaeology* 14 (8), 313-317
- Bidwell, P, and Holbrook, N, 1989 *Hadrian's Wall bridges*, English Heritage Archaeological Report 9, London
- Bidwell, P, and Speak, S C, 1994 *Excavations at South Shields Roman fort, vol 1*, Society of Antiquaries of Newcastle Monograph 4, Newcastle-upon-Tyne
- Bidwell, P, and Watson, M, 1996 'Excavations on Hadrian's Wall at Denton, Newcastle-upon-Tyne, 1986-89', *Archaeologia Aeliana* (5th series) 24, 1-56
- Biggins, J A, Biggins, J, Coxon, R, and Watson, M, 1997 'Survey of the prehistoric settlement at Gardener's Houses Farm, Dinnington', *Durham Archaeological Journal* 13, 43-53
- Birkett, D, 1992 'The skeletal pathology', in S Sherlock and M Welch (eds), *An Anglo-Saxon cemetery at Norton, Cleveland*, Council for British Archaeology Research Report 82, York, 118-119
- Birley, E, 1930 'Excavations on Hadrian's Wall west of Newcastle-upon-Tyne', *Archaeologia Aeliana* (4th series) 7, 143-175
- Birley, E, 1935a 'Excavations per lineam valli', *Durham University Journal* 29, 97-98
- Birley, E, 1935b 'Fourth report on excavations at Housesteads', *Archaeologia Aeliana* (4th series) 12, 204-259
- Birley, E, 1937 'Fifth report on excavations at Housesteads', *Archaeologia Aeliana* (4th series) 14, 172-184
- Birley, E, 1954 'The Castles, Hamsterley', *Archaeological Journal* 111, 223
- Birley, E, 1961 *Research on Hadrian's Wall*, Titus Wilson, Kendal
- Birley, E, 1963 'Roman bronze arm-purses', *Archaeologia Aeliana* 41 (4th series), 5-17
- Birley, E, 1976 'The Thorngraftern find', *Numismatic Chronicle* 7(3), 61-66
- Birley, R, 1977 *Vindolanda: a Roman frontier post on Hadrian's Wall*, Thames and Hudson, London
- Birley, R, 1995 *The making of modern Vindolanda with the life and work of Anthony Hedley 1777-1835*, Carvoran
- Birley, R, 2000 *Chesterholm 1830-2000*, Roman Army Museum Publications, Greenhead
- Birley, R, 2002 *Garrison life at Vindolanda: a band of brothers*, Tempus, Stroud
- Birley, E, Birley, R, and Birley, A, 1993 *Vindolanda vol II. The early wooden forts. Reports on the auxiliaries, the writing tablets, inscriptions, brands and graffiti*, Vindolanda Trust, Bardon Mill
- Birley, R, Birley, A, and Blake, J, 1999 *The 1998 excavations at Vindolanda: the praetorium site, interim report*, Roman Army Museum Publications for the Vindolanda Trust, Carlisle
- Bishop, M, 1991 *Recent excavations on the Roman fort at Chester-le-Street (Church Care 1990-91)*, Tyneside Free Press, Newcastle
- Bishop, M, 1993 'Excavations in the Roman fort at Chester-le-Street (Concangis), Church Chare 1990-1', *Archaeologia Aeliana* (5th series) 21, 29-85
- Blackburn, A, 1992 'Life on the lead ways', in B Chambers (ed), *Men, mines and minerals in the North Pennines* Friends of Killhope, Killhope, 58-70
- Blackburn, A, 2004 'From pick to powder: phases of change in a North Pennine landscape', in D Barker and D Cranstone (eds), *The archaeology of industrialisation*, Society for Post-Medieval Archaeology Monograph 2, Leeds, 103-118
- Blacker, J G, and Mitchell, M, 1999 'The use of Egglestone marble in Durham Cathedral', *Durham Archaeological Journal* 14/15, 119-130
- Blair, J, 1996 'Churches in the early English landscape: social and cultural contexts', in J Blair and C Pyrah (eds), *Church archaeology: research directions for the future*, Council for British Archaeology Research Report 104, York, 7-18
- Blair, J, and Pyrah, C (eds), 1996 *Church archaeology: research directions for the future*, Council for British Archaeology Research Report 104, York
- Blanchard, I S W, 1981 'Lead mining and smelting in medieval England and Wales', in D W Crossley (ed), *Medieval industry*, Council for British Archaeology Research Report 40, London, 72-84
- Blick, C, Cranstone, D, and Standing, I, 1991 *Metallurgical sites in Britain: priorities for research and preservation*, Historical Metallurgy Society, London
- Bond, C J, 2004 *Monastic landscapes*, Tempus, Stroud
- Bonsall, C, 1984 'Low Hauxley, Northumberland. NU284018. Mesolithic/Bronze Age coastal site', *Proceedings of the Prehistoric Society* 50, 398
- Bosanquet, R C, 1899 'Excavations at Housesteads', *Proceedings of the Society of Antiquaries of Newcastle-on-Tyne* 8, 247-252
- Bosanquet, R C, 1904 'Excavations on the line of the Roman wall in Northumberland: the Roman camp at Housesteads', *Archaeologia Aeliana* (3rd series) 25, 193-300
- Bosanquet, R C, and Charlton, J, 1936 'Excavations at Dunstanburgh Castle in 1931', *Archaeologia Aeliana* 13 (4th series) 13, 279-292
- Bostwick, D, 1993 *Decorative plasterwork of the Yorkshire region, 1570-1670*, unpublished PhD thesis, Department of Continuing Education, University of Sheffield

Bibliography

- Bosworth, M T, 1999 *Stonework, mason, mason's marks and tool scars at Durham Castle and Cathedral*, unpublished MA thesis, University of Durham
- Boulter, S, Robertson, D, and Start, H, 1998 *The Newcastle infirmary at the Forth, volume II: the osteology. People, disease and surgery*, Archaeological Research and Consultancy at the University of Sheffield, Sheffield
- Bowden, M, and Blood, K, 1991 'The Roman fort at Rudchester: an analytical field survey', *Archaeologia Aeliana* 1(5th series) 9, 25-31
- Bowes, P, 1990 *Weardale: clearing the forest. An evolution of rural life from early settlement to the end of Victorian times*, Peter Bowes, Bishop Auckland
- Bowman, A K, and Thomas, J D, 1983 *Vindolanda. The Latin writing tablets*, Britannia Monograph Series 4, Society for the Promotion of Roman Studies, London
- Bowman, A K, and Thomas, J D, 1994 *The Vindolanda writing tablets (Tabulae Vindolandenses II)*, British Museum Press, London
- Bowman, A K, and Thomas, J D, 1996 'New writing tablets from Vindolanda', *Britannia* 27, 299-328
- Bown, L, 1985 'The pottery', in D M O'Sullivan, 'An excavation in Holy Island Village', *Archaeologia Aeliana* (5th series) 13, 47-80 (27-117)
- Bown, L, 1988 'The Queen Street pottery', in C O'Brien, L Bown, S Dixon, and R Nicholson, *The origins of Newcastle Quayside: excavations at Queen Street and Dog Bank*, Society of Antiquaries of Newcastle-upon-Tyne Monograph 3, Newcastle, 41-77
- Boylston, A, Coughlan, J, and Roberts, C A, 1998 *Report on the analysis of the human skeletal remains from Chevington Chapel, Northumberland*, unpublished report, Department of Archaeology, University of Bradford
- Bradley, A, Buchli, V, Fairclough, G, Hicks, D, Miller, J, and Schofield, J, 2004 *Change and creation: historic landscape character 1950-2000*, English Heritage, London
- Bradley, R, 1990 *The passage of arms: an archaeological analysis of prehistoric hoards and votive deposits*, Cambridge University Press, Cambridge
- Bradley, R, 1993 *Altering the Earth: the origins of monuments in Britain and Continental Europe*, Society of Antiquaries of Scotland, Edinburgh
- Bradley, R, 1996 'Learning from places: topographical analysis of Northern British Rock Art', *Northern Archaeology* 13/14, 87-100
- Bradley, R, 1997 *Rock art and the Prehistory of Atlantic Europe. Signing the land*, Routledge, London
- Bradley, R, 2000 *An archaeology of natural places*, Routledge, London
- Bradley, R, 2002 'The Neolithic and Bronze Age Periods in the North - some matters arising', in C Brooks, R Daniels and A Harding (eds), *Past, present and future: the archaeology of Northern England*, Architectural and Archaeological Society of Durham and Northumberland Research Report 5, Durham, 37-41
- Bradley, R, and Williams, H (eds), 1998 *The Past in the Past: the re-use of ancient monuments*, *World Archaeology* 30 (1)
- Breeze, D, 1972 'Excavations at the Roman fort of Carrawburgh 1967-69', *Archaeologia Aeliana* (4th series) 50, 81-144
- Breeze, D, 2003 'John Collingwood Bruce and the study of Hadrian's Wall', *Britannia* 34, 1-18
- Breeze, D, forthcoming *Handbook to the Roman Wall*, 14th edition
- Breeze, D J, and Dobson, B, 2000 *Hadrian's Wall*, Penguin, London
- Breihan, J R, 1990 'Army barracks in the North East in the era of the French Revolution', *Archaeologia Aeliana* (5th series) 18, 165-176
- Brewis, P, 1928 'A Bronze Age burial at Kyloe, Northumberland', *Archaeologia Aeliana* (4th series) 5, 26-29
- Brewis, P, 1932 'Conjectural construction of Turret 18a on Hadrian's Wall', *Archaeologia Aeliana* (4th series) 9, 198-204
- Brewis, P, and Buckley, F, 1928 'Notes on prehistoric pottery and a bronze age pin from Ross Links, Northumberland', *Archaeologia Aeliana* (4th series) 5, 13-25
- Brickstock, R, 2002 'The coins', in M Snape and P Bidwell, *The Roman fort at Newcastle-upon-Tyne*, Society of Antiquaries of Newcastle, Newcastle-upon-Tyne, 175-209
- Britnell, R, 2004 'Fields, farms and sun-division in a moorland region, 1100-1400', *Agricultural History Review* 52 (2004), 20-37
- Brodie, A, Croom, J, and Davies, J O, 2002 *English prisons: an architectural history*, English Heritage, London
- Brodie, A, Porter, S, and Winter, G, 2003 *Law courts of England: an architectural history*, English Heritage, London
- Brogan, G, 2003 *Wylam waggonway, Wylam, Northumberland. Archaeological evaluation and watching brief*, unpublished report, Tyne and Wear Museums
- Brooke, C, 2000 *Safe sanctuaries: security and defence in Anglo-Scottish Border churches 1290-1690*, John Donald, Edinburgh
- Brooks, A, 2003 'Crossing Offa's Dyke: British ideologies and late eighteenth- and nineteenth-century ceramics in Wales', in S Laurence (ed), *Archaeologies of the British: explorations of identity in Great Britain and its colonies 1600-1945*, *One World Archaeology* 46, Routledge, London, 119-137
- Brooks, C, Daniels, R, and Harding, A, (eds) 2002 *Past, present and future: the archaeology of Northern England*, Architectural and Archaeological Society of Durham Northumberland Research Report 5, Durham
- Brown, A, 1996 'The late medieval English church: parish devotion in buildings and the landscape', in J Blair and C Pyrah (eds), *Church archaeology: research directions for the future*, Council for British Archaeology Research Report 104, York, 63-68
- Brown, A G, Crane, S, O'Sullivan, D, Walsh, K, and Young, R, 1998 'Marginality, multiple estates and environmental change: the case of Lindisfarne' in C Mills and G Coles (eds), *Life on the edge: human settlement and marginality*, Oxbow Monograph 100, Oxford, 139-148
- Brown, H D, 1995 'Colliery cottages 1830-1915: the great northern coalfield', *Archaeologia Aeliana* (5th series) 23, 291-306
- Brown, N, and Glazebrook, J, 2000 *Research and archaeology: a framework for the Eastern Counties 2. Research agenda and strategy*, East Anglian Archaeology Occasional Papers 8, Norwich
- Brown, P and Linsley, S M, 1979 'Allensford Blast Furnace' *Journal of Historical Metallurgy Society* 13/1, 42
- Bruce-Mitford, R, 1950 'The Castle Eden vase', *British Museum Quarterly* 15, 73-74
- Brunskill, R W, 1975 'The vernacular architecture of the Northern Pennines', *Northern History* 11 (2), 107-142
- Buchli, V, and Lucas, G (eds), 2001 *Archaeologies of the contemporary past*, Routledge, London
- Buckley, F, 1922a 'A pygmy industry on the Northumberland Coast', *Antiquaries Journal*, 11, 376
- Buckley, F, 1922b 'Early Tardenois remains at Bamburgh', *Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne* (3rd series) 10, 319-323; (4th series) 50, 42-47
- Budd, P, Millard, A, Chenery, C, Roberts, C, and Lucy, S, 2004 'Investigating population movement by stable isotope analysis: a report from Britain', *Antiquity* 78, 127-141
- Buglass, J, 1994a *Lost at sea: maritime archaeology of the North-East of England*, Cleveland County Archaeology Section, Middlesbrough
- Buglass, J, 1994b *Museums in the North-East and maritime finds*, North of England Museums Service, Newcastle
- Buglass, J, 1994c *Marine archaeology resources plan*, Cleveland Archaeology and North of England Museum's Service,

- Middlesbrough
- Burgess, C, 1968a *Bronze Age metalwork in Northern Britain c.1000-700BC*, Oriel Press, Newcastle
- Burgess, C, 1968b 'Bronze Age dirks and rapiers as illustrated by examples from Durham and Northumberland', *Transactions of the Architectural and Archaeological Society of Durham and Northumberland* 1, 3-26
- Burgess, C, 1972 'Goatscrag: a Bronze Age rock shelter cemetery', *Archaeologia Aeliana* (4th series) 50, 15-69
- Burgess, C B, 1976 'Meldon Bridge: a Neolithic defended promontory complex near Peebles', in C B Burgess and R Miket (eds), *Settlement and economy in the third and second millennia BC*, BAR 33, Oxford, 151-179
- Burgess, C, 1980 'Excavations at Houseledge, Black Law, Northumberland, 1979, and their implications for earlier Bronze Age settlement in the Cheviots', *Northern Archaeology* 1 (1), 5-12
- Burgess, C, 1984 'The prehistoric settlement of Northumberland: a speculative survey', in R Miket and C Burgess (eds), *Between and beyond the walls: essays in honour of George Jobey*, John Donald, Edinburgh, 126-175
- Burgess, C, 1990 'The chronology of cup and ring marks in Britain and Ireland', *Northern Archaeology* 10 (1989-90), 21-26
- Burgess, C, 2004 'Going, going, Guano!', *Archaeology in Northumberland* 14, 18-19
- Burl, A, 1988 *Four posters. Bronze Age stone circles of Western Europe*, BAR 195, Oxford
- Burl, A, and Jones, N, 1972 'The excavation of the Three King's stone circle, Northumberland', *Archaeologia Aeliana* (4th series) 50, 1-14
- Burnham, B, Collis, J, Dobinson, C, Haselgrove, C, and Jones, M, 2001 'Themes for urban research: c.100BC to AD200', in S James and M Millett (eds), *Britons and Romans: advancing an archaeological agenda*, Council for British Archaeology Research Report 125, York, 67-76
- Butler, D M, 1999 *The Quaker meeting houses of Britain*, Friends Historical Society, London
- Butlin, R A, 1964 'Northumberland field systems', *Agricultural History Review* 12, 99-120
- Butlin, R A, 1967 'Enclosure and improvement in Northumberland in the 16th century', *Archaeologia Aeliana* (4th series) 45, 149-160
- Butlin, R A. (ed), 2004 *Historic atlas of North Yorkshire*, Westbury, Otley
- Cambridge, E, 1984 'The early church in County Durham: a reassessment', *Journal of the British Archaeological Association* 137, 65-85
- Cambridge, E, 1994 'Early Romanesque architecture in North-East England: a style and its patrons', in D Rollason, M Harvey and M Prestwich (eds), *Anglo-Norman Durham 1093-1193*, Boydell, Woodbridge, 141-160
- Cambridge, E, Gates, T, and Williams, A 2001 'Berwick and beyond: medieval religious establishments on the north-western margin of Berwick-upon-Tweed: problems of identity and context', *Archaeologia Aeliana* (5th series) 29, 33-94
- Cambridge, E, and Williams, A, 1995 'Hexham Abbey: a review of recent work and its implications', *Archaeologia Aeliana* (5th series) 23, 51-138
- Camden, W, 1610 *Britannia* (trans Philimon Holland), Thoemmes, Bristol (republished 2003)
- Caple, C, and Clogg, P, 2001 'Saxon Shakudo', *Durham Archaeological Journal* 16, 27-32
- Carlton, R, and Rushworth, A, 2004 'Low Cleughs: a bastle in its landscape', in P Frodsham (ed), *Archaeology in Northumberland National Park*, Council for British Archaeology Research Report 136, York, 295-305
- Carman, J, 2005 'Battlefields as cultural resources' *Post Medieval Archaeology* 39/2, 215-223
- Carman, J, and Carman, P, 2001 'Beyond military archaeology: battlefields as a research resource', in P W M Freeman and A Pollard (eds), *Fields of conflict: progress and prospects in battlefield archaeology. Proceedings of a conference held in the Department of Archaeology, University of Glasgow, April 2000*, BAR International Series 958, Oxford, 275-281
- Carne, P, 1996 'Excavations at Durham Cathedral north door 1991-2', *Durham Archaeological Journal* 12, 89-98
- Carne, P, 1997 *Ingleby Barwick villages 5 and 6. Land near Quarry Farm and Barwick Farm: an archaeological evaluation*, unpublished report, Archaeological Services, University of Durham
- Carter, S, 1998 'Wooperton Quarry', *Archaeology in Northumberland 1997-8*, 25
- Carter, S, 1999 'Wooperton Quarry', *Archaeology in Northumberland 1998-9*, 29
- Carver, M, 1979 'Three Saxo-Norman tenements in Durham City', *Medieval Archaeology* 23, 1-80
- Carver, M, 1980 'Early medieval Durham: the archaeological evidence', in N Coldstream and P Draper (eds), *Medieval art and architecture at Durham Cathedral*, British Archaeological Association, London, 11-19
- Carver, M, 1987 *Underneath English towns: interpreting urban archaeology*, London, Batsford
- Carver, M, Chapman, H, Cunliffe, B, Hassall, T, Hebditch, M, Lawson, A, Longworth, I, Morris, R, Phillipson, D, Schofield, J, and Wainwright, G, 1992 *Archaeological publication, archives and collections: towards a national policy*, British Archaeological News Supplement 7 (2), Council for British Archaeology, York
- Casey, P J, 1989 'A votive deposit from the River Tees at Piercebridge, County Durham', *Durham Archaeological Journal* 5, 37-42
- Casey, P J, 1993 'The end of garrisons on Hadrian's Wall: an historico-environmental model', in D F Clark, M Roxan and J J Wilkes (eds), *The Later Roman Empire today*, Institute of Archaeology, London, 69-80
- Casey, P J, and Hoffman, B, 1998 'Rescue excavations in the Vicus of the fort at Greta Bridge, Co. Durham, 1972-4', *Britannia* 29, 111-183
- Casey, P J, Wright, J, and Noel, M, 1993 'The Roman fort at Lanchester, Co. Durham: a geophysical survey and discussion of garrisons', *Archaeological Journal* 149, 69-81
- Cessford, C, 2001 'The archaeology of the clay pipe and the study of smoking', *Assemblage* http://www.shef.ac.uk/assem/issue6/Cessford_text_web.htm
- Challis, K, 2004 'Airborne laser altimetry. Looking at the archaeology of river valleys in Yorkshire and beyond', *Yorkshire Archaeology Today* 6, 8-10
- Chamberlain, A, 1999 'Teaching surgery and breaking the law', *British Archaeology* 48, 6-7
- Charlesworth, D, 1967 'Excavations on the Carrawburgh car park site, 1964', *Archaeologia Aeliana* (4th series) 45, 1-16
- Charlesworth, D, 1973 'The Aesica hoard', *Archaeologia Aeliana* (5th series) 1, 225-234
- Charlesworth, D, 1975 'The commandant's house, Housesteads', *Archaeologia Aeliana* (4th series) 3, 17-42
- Charlesworth, D, 1976 'The hospital, Housesteads', *Archaeologia Aeliana* (5th series) 4, 17-30
- Charlesworth, D, 1977 'The turrets on Hadrian's Wall', in M Apted, R

Bibliography

- Gilyard-Beer and A D Saunders (eds), *Ancient monuments and their interpretation*, Phillimore, Chichester, 13-26
- Charlton, D B, 1982 'A Bronze Age settlement on Todlaw Pike, Otterburn, Northumberland', *Northern Archaeology* 3, 3-5
- Charlton, D B, and Day, J C, 1979 'Excavation and field survey in Upper Redesdale', *Archaeologia Aeliana* (5th series) 7, 207-233
- Charlton, D B, and Mitcheson, M, 1983 'Yardhope [Northumberland]. A shrine to Cocidius?', *Britannia* 14, 143-153
- Charlton, J, and Birley, E, 1934 'Third report on excavations at Housesteads', *Archaeologia Aeliana* (4th series) 11, 185-205
- Charlton, J, Hedley, W P, and Birley, E, 1933 'Excavations at Housesteads in 1931', *Archaeologia Aeliana* (4th series) 9, 222-236
- CHAT, 2003 *Contemporary Historical Archaeology in Theory Conference*, Department of Archaeology, Bristol University (November 2003)
- Church of England/English Heritage, 2005 *Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England*, Church of England, London
- Clack, P, 1979 'Excavations at Esp Green, Co. Durham', *University of Durham and University of Newcastle-upon-Tyne Archaeological Report* 3, 36-37
- Clack, P, 1980 'A Stamford Ware lamp from Saddler Street, Durham City', *Archaeologia Aeliana* (5th series) 8, 163-164
- Clack, P, 1986 'An excavation at St Michael's Church, Heighington', *Durham Archaeological Journal* 2, 73-76
- Claughton, P, 2003 'Production and economic impact: Northern Pennine (English) silver in the 12th century', *Proceedings of the 6th International Mining History Conference Sept. 26th-29th 2003 Akabira City, Hokkaido* <http://www.exeter.ac.uk/~pfclaugh/mhinf/claugh.doc>
- Clephan, R C, 1892 'The Hanseatic Confederation, with special reference to the rise and progress of the English factories and trading connection with Newcastle-upon-Tyne', *Archaeologia Aeliana* (1st series) 16, 211-248
- Clogg, P, Díaz-Andreu, M, and Larkman, B, 2000 'Digital image processing and the recording of rock art', *Journal of Archaeological Science* 27 (3), 837-843
- Clogg, P and Ferrell, G, 1993 'Geochemical survey in Northumberland', *Northern Archaeology* 11, 43-50
- Clough, T H McK, and Cummins, W A, 1979 *Stone axe studies*, Council for British Archaeology Research Report 2, London
- Coad, J 2005 'Warfare and defence: what next?' *Post-Medieval Archaeology* 39/2, 224-232
- Cocroft, W, and Thomas, R, 2003 *Cold War: building for nuclear confrontation 1946-89*, English Heritage, London
- Coggins, D, 1986 *Upper Teesdale: the archaeology of a North Pennine Valley*, BAR 150, Oxford
- Coggins, D, 1992 'Shielings and farmsteads: early rectangular buildings in Upper Teesdale', *Durham Archaeological Journal* 8, 77-83
- Coggins, D, and Fairless, K, 1983 'The Bronze Age settlement site of Bracken Rigg, Upper Teesdale, Co. Durham', *Durham Archaeological Journal* 1, 5-21
- Coggins, D, and Fairless, K, 1997 'Ritual succession? Excavations at the multi-period site of Middle Hurth, Upper Teesdale, Co. Durham, 1978-79', *Durham Archaeological Journal* 13, 1-19
- Coggins, D, and Fairless, K, 1999 'Wayside crosses', *Durham Archaeological Journal* 14-15, 101-106
- Coggins, D, Fairless, K, and Batey, C, 1983 'Simy Folds: an early medieval settlement site in Upper Teesdale, Co Durham', *Medieval Archaeology* 27, 1-26
- Coggins, D, Laurie, T, and Young, R, 1989 'The Late Upper Palaeolithic and Mesolithic of the North Pennine Dales in the light of recent discoveries', in C Bonsall (ed), *Mesolithic in Europe*, Edinburgh, 164-174
- Coggins, D, and Tylecote, R, 1983 *A hoard of Late Bronze Age metalwork from Gilmonby, near Bowes, County Durham*, Bowes Museum, Barnard Castle
- Coles, B J, 1998 'Doggerland: a speculative survey', *Proceedings of the Prehistoric Society* 64, 45-82
- Collingwood Bruce, J, 1851 *The Roman Wall*, J R Smith, London
- Collingwood Bruce, J, 1863 *A walletbook of the Roman Wall*, Longman, Roberts and Green, London
- Collingwood Bruce, J, 1875 *Lapidarium Septentrionale*, B Quaritch, London
- Collingwood Bruce, J, 1880 *Descriptive catalogue of antiquities, chiefly British, at Alnwick Castle*, Andrew Reid, Newcastle
- Collingwood, R G, and Wright, R P, 1995 *The Roman inscriptions of Britain. Vol 1. Inscriptions on stone*, Tempus, Stroud
- Collins, M, 2002 'Roman "anti-Picts pits" discovered at Throckley', *Archaeology in Northumberland* 12, 23
- Collins, R, 2002 *The Castles, Hamsterley: survey project report*, unpublished report, Durham SMR
- Colquhoun, I, and Burgess, C, 1988 *The swords of Britain*, Prähistorische Bronzefunde IV/5, Munich
- Conlin Cassella, E, and Symonds, J, 2005 *Industrial Archaeology: Future Directions*, Springer, Berlin
- Connell, B, and Roberts, C, 1996 'Human remains', in I M Ferris and R F J Jones (eds), *Binchester Roman fort: revised assessment and research design*, unpublished report, 41-44
- Constable, C, 2003 *Aspects of the archaeology of the castle in the north of England c.1066-1216*, unpublished PhD thesis, University of Durham
- Conzen, M R G, 1960 *Alnwick, Northumberland: a study in town plan analysis*, Institute of British Geography Monograph 27, London
- Cool, H, Price, J, and Cottam, S, 2002. 'The glass from Catterick', in P Wilson (ed) *Cataractonium: Roman Catterick and its hinterland* CBA Research Report 129, York, 212-258
- Cool, H, 2004 *The Roman cemetery at Brougham Cumbria: excavations 1966-67*, Society for the Promotion of Roman Studies Monograph 21, London
- Coupland, G, 1948 *A Mesolithic industry at the Beacon, south-east Durham*, J Bellows, Gloucester
- Cousins, S, 1993 'Roman vicus at Lanchester: a resistivity survey', *Archaeology North* 6, 19-21
- Cowen, J D, 1966 'The gold ear-ring from Kirkhaugh, near Alston, and its associated pottery', *Archaeologia Aeliana* (4th series) 44, 219-222
- Cowen, J D, 1967 'The Hallstatt sword of bronze: on the Continent and in Britain', *Proceedings of the Prehistoric Society* 33, 377-455
- Cowen, J D, 1971 'A note on the Eastgate Hoard', *Archaeologia Aeliana* (4th series) 59, 29-35
- Cowper, R A S, 1970-71 'Northumbrian drove roads', *Journal of the University of Newcastle Agricultural Society* 24, 30-33
- Cox, M, and Roberts, C, 2003 *Health and disease in Britain: prehistory to the present*, Sutton, Stroud
- Cramp, R J, 1969 'Excavations at the Saxon monastic sites of Wearmouth and Jarrow, Co. Durham: an interim report', *Medieval Archaeology* 13, 21-66
- Cramp, R J, 1970 'Decorated window-glass and millefiori from Monkwearmouth', *Antiquaries Journal* 50, 327-335
- Cramp, R J, 1976 'Window glass from the Monastic Site at Jarrow: Problems of Interpretation', *Journal of Glass Studies* 17, 88-96
- Cramp, R J, 1984 *Corpus of Anglo-Saxon stone sculpture*.

- Vol 1, *County Durham and Northumberland*, Oxford University Press, Oxford
- Cramp, R J, 1988 'Northumbria: the archaeological evidence', in S Driscoll and M Niekke (eds), *Power and politics in early medieval Britain and Ireland*, Edinburgh University Press, Edinburgh, 69-78
- Cramp, R J, 1994 'Monkwearmouth and Jarrow in their continental context', in K Painter (ed), *Churches built in ancient times: recent studies in Early Christian Archaeology*, Society of Antiquaries, London, 279-294
- Cramp, R J, 2002 'Introduction', in C Brooks, R Daniels and A Harding (eds), *Past, present and future: the archaeology of Northern England*, Architectural and Archaeological Society of Durham and Northumberland Research Report 5, Durham, 124-126
- Cramp, R J, 2005. *Wearmouth and Jarrow monastic sites*, English Heritage, London
- Cramp, R J, and Daniels, R, 1987 'New finds from the Anglo-Saxon monastery at Hartlepool, Cleveland', *Antiquity* 61, 424-432
- Cramp, R J, and Miket, R, 1982 *Catalogue of the Anglo-Saxon and Viking antiquities in the Museum of Antiquities, Newcastle-upon-Tyne*, Department of Archaeology, University of Newcastle
- Cranstone, D, 1989 'The archaeology of washing floors: problems, potentials and priorities', *Industrial Archaeology Review* 12 (1), 40-49
- Cranstone, D, 1991a *Metallurgical sites in Britain: priorities for research and preservation*, Historical Metallurgy Society, London
- Cranstone, D, 1991b 'Winlaton Mill Ironworks: an interim report', *Archaeology North* 2, 22-24
- Cranstone, D, 1992 'To hush or not to hush: where, when, and how?', in B Chambers (ed), *Men, mines and minerals in the North Pennines* Friends of Killhope, Killhope, 41-48
- Cranstone, D, 1993 *Monuments Protection Programme: minor metals and vein minerals. Step 1 report*, English Heritage, London
- Cranstone, D, 1995 'Steps 2 and 3 in the Monuments Protection Programme: a consultant's view', in M Palmer and P Neaverson (eds), *Managing the industrial heritage: its identification, recording and management*, Leicester Archaeology Monograph 2, Leicester, 115-117
- Cranstone, D, 1997 *Derwentcote steel furnace: an industrial monument in County Durham*, Lancaster Imprints 6, Lancaster
- Cranstone, D, 2004 'The archaeology of industrialisation: new directions', in D Barker and D Cranstone (eds), *The archaeology of industrialisation*, Society for Post-Medieval Archaeology Monograph 2, Leeds, 313-320
- Cranstone, D, and Hedley, I, 1994 *A689 Road Improvements, Killhope lead mine*, unpublished report, Cranstone Consultancy
- Craster, H H E, 1909 'Note on Backworth Find', in H H E Craster, *History of Northumberland vol 9*, Andrew Reid, Newcastle-upon-Tyne
- Craster, H H E, 1914 *A history of Northumberland, vol 10*, Andrew Reid, Newcastle-upon-Tyne
- Crawford, O G S, and Richmond, I, 1949 'The British Section of the Ravenna Cosmography', *Archaeologia* 93, 1-50
- Creighton, J, 2001 'The Iron Age-Roman transition', in S James and M Millett (eds), *Britons and Romans: advancing an archaeological agenda*, Council for British Archaeology Research Report 125, York, 4-11
- Croom, A, and Snape, M, 1996 'Lost small finds from the South Shields Roman fort and vicus', *Arbeia Journal* 5, 19-47
- Croucher, T and Richardson, J, 2003 *The Craven Museum lithics collections: a virtual catalogue of the lithics collections held by the Craven Museum, Skipton, North Yorkshire*, CD-ROM catalogue, Skipton Museum
- Crow, J, 1988 'An excavation of the north curtain wall at Housesteads, 1984', *Archaeologia Aeliana* (5th series) 16, 61-124
- Crow, J, 1989 *Housesteads Roman fort*, Batsford, London
- Crow, J, 1991a 'Construction and reconstruction in the central sector of Hadrian's Wall', in V A Maxfield and M J Dobson (eds), *Roman frontier studies 1989: 15th international congress of Roman frontier studies*, Exeter University Press, Exeter, 44-47
- Crow, J, 1991b 'A review of current research on the turrets and curtain of Hadrian's Wall', *Britannia* 22, 51-63
- Crow, J, 1995 *English Heritage book of Housesteads*, Batsford, London
- Crow, J, 2002 'Roman military sites', in C Brooks, R Daniels and A Harding (eds), *Past, present and future: the archaeology of Northern England*, Architectural and Archaeological Society of Durham and Northumberland Research Report 5, Durham, 99-104
- Crow, J, 2004 'Survey and excavation at Brementium Roman Fort, High Rochester 1992-98', in P Frodsham (ed), *Archaeology in Northumberland National Park*, Council for British Archaeology Research Report 136, York, 213-223
- Crow, J, and Jackson, M, 1997 'The excavation of Hadrian's Wall at Sewingshields and the discovery of a long cist burial', *Archaeologia Aeliana* (5th series) 25, 61-69
- Cullen, F, and Lovie, D, 2003 *Newcastle's Grainger Town: an urban renaissance*, English Heritage, London
- Cumberpatch, C, 2001 'The pottery', in P Carne (ed), 'Durham City, Leazes Bowl, Archaeological Excavations 1996', *Durham Archaeological Journal* 16, 59-63 (35-118)
- Cunningham, J, 1995 *Buildings and patrons: early Gothic architecture in the Diocese of Durham, c.1150-c.1300*, unpublished PhD thesis, University of London
- Cunliffe, B W, 1983 *The publication of archaeological excavations. Report of the Joint Working Party of the Council for British Archaeology and the Department of the Environment*, Department of Environment, London
- Daniels, C, 1962 'Mithras Saecularis, the Housesteads Mithraeum and a fragment from Carrawburgh', *Archaeologia Aeliana* (4th series) 40, 105-115
- Daniels, C, 1970 'Problems of the Roman northern frontier', *Scottish Archaeological Forum* 1970, 91-101
- Daniels, R, 1985 'Excavated rural medieval buildings of the Tees Lowlands', *Durham Archaeological Journal* 4, 37-44
- Daniels, R, 1986 'The medieval defences of Hartlepool, Cleveland: the results of excavation and survey', *Durham Archaeological Journal* 2, 63-72
- Daniels, R, 1986b 'The excavation of the church of the Franciscans, Hartlepool, Cleveland', *Archaeological Journal* 143, 260-304
- Daniels, R, 1988 'The Anglo-Saxon monastery at Church Close, Hartlepool, Cleveland', *Archaeological Journal* 145, 158-210
- Daniels, R, 1990a 'Kilton: a survey of a moorland fringe landscape', in B E Vyner (ed), *Medieval rural settlement in North East England*, Architectural and Archaeological Society for Durham and Northumberland, Durham, 33-57
- Daniels, R, 1990b 'The development of medieval Hartlepool: excavations at Church Close, 1984-85', *Archaeological Journal* 147, 337-410
- Daniels, R, 1991 'Medieval Hartlepool: evidence of and from the Waterfront', in G L Good, R H Jones and M W Ponsford (eds), *Waterfront archaeology: Proceedings of the Third International Conference, Bristol*, Council for British Archaeology Research Report 74, York, 43-50

Bibliography

- Daniels, R, 1993 *Archaeological evaluation: Skelton Park Pit Mine*, unpublished report, Cleveland County Archaeological Section
- Daniels, R, 2002 'Medieval boroughs of northern Europe', in C Brooks, R Daniels and A Harding (eds), *Past, present and future: the archaeology of Northern England*, Architectural and Archaeological Society of Durham and Northumberland Research Report 5, Durham, 185-200
- Daniels, R, 2003 'A Late Bronze Age hoard from Low Throston, Hartlepool', *Archaeology North* 21, 63
- Daniels, R, forthcoming 'Hartlepool: an archaeology of the medieval town', Tees Archaeology
- Daniels, R, Brewster, L, and Jones, J, 1998 'An eighth century pin from Hartlepool', *Archaeological Journal* 154, 214-220
- Daniels, R, Lakin, M, and Thornes, R, nd *The 13th century residence of the Archdeacon of Durham at Seaton Holme, Easington, County Durham*, unpublished report, Durham SMR
- Daniels, R, Marlow, M, Vyner, B E, and Jelley, D, 1987 'A Romano-British double burial at Hartlepool, Cleveland', *Durham Archaeological Journal* 3, 1-4
- Dark, K R, 1992 'A sub-Roman re-defence of Hadrian's Wall', *Britannia* 23, 111-120
- Dark, K R, and Dark, S P, 1996 'New archaeological and palynological evidence for a sub-Roman reoccupation of Hadrian's Wall', *Archaeologia Aeliana* (5th series) 24, 61-69
- Darvill, T, and Russell, B, 2002 *Archaeology after PPG16: archaeological investigations in England 1990-1999*, Bournemouth University School of Conservation Sciences Research Report 10, Bournemouth
- Davies, G, and Turner, J, 1979 'Pollen diagrams from Northumberland', *New Phytologist* 82, 783-804
- Davies, J, 1983 'The Mesolithic sites of Northumberland', *Northern Archaeology* 4 (2), 18-24
- Davies, J, 1995 'Bolam and Shaftoe: a second survey', *Northern Archaeology*, 12, 51-77
- Davies, J, 2004 'Lithics and small finds of the Bolam and Shaftoe region of southern Northumberland', *Northern Archaeology* 20, 1-132
- Davies, J, and Davidson, J, 1990 'A survey of Bolam and Shaftoe Aea, Northumberland', *Northern Archaeology* 9, 57-96
- Davis, M, Hall, A, Kenward, H, Oxley, J, 2001 'Preservation of urban archaeological deposits: monitoring and characterisation of archaeological deposits at Marks and Spencer, 44-45 Parliament Street, York', *Internet Archaeology* 11, http://intarch.ac.uk/journal/issue11/oxley_index.html
- Davis, S, 1987 *Prudhoe Castle: a report on the animal remains*, AML Report 162/87, English Heritage, London
- Davis, S, 1991 *Faunal remains from Closegate I and II, Newcastle, Tyne and Wear, 1988 and 1990 excavations*, AML Report 81/91, English Heritage, London
- DEFRA, 2002 *North East: England Rural Development Programme* <http://www.defra.gov.uk/erdp/docs/nechapter/necontentsindex.htm>
- Desmond, S, 1994 *The landscape of Gibside*, unpublished MA thesis, University of York
- Desmond, S, nd *Historic landscape survey and restoration management plan for Hardwick Park, Sedgfield, County Durham*, unpublished conservation plan commissioned by Durham County Council
- Dixon, P J, 1979 'Towerhouses, pelehouses and Border Society', *Archaeological Journal* 136, 240-252
- Dixon, P J, 1984 *The deserted medieval village of North Northumberland*, unpublished PhD thesis, University of Wales
- Dixon, P J, and Marshall, P, 1993 'The great tower in the twelfth century: the case of Norham Castle', *Archaeological Journal* 150, 410-432
- Dixon, P J, and Crowdy, A, 2001 'A medieval pottery kiln-clamp, possible workshop and settlement at Eshott, Northumberland', *Medieval Ceramics* 25, 27-45
- Dobinson, C, 2000 *Fields of deception: Britain's bombing decoys of World War II*, English Heritage/Methuen, London
- Dobinson, C, 2001 *AA Command: Britain's anti-aircraft defences of the Second World War*, English Heritage/Methuen, London
- Dobinson, C, 2003 *Building radar*, English Heritage/Methuen, London
- Dobney, K, 2001 'A place at the table: the role of vertebrate zooarchaeology within a Roman research agenda for Britain', in S James and M Millett (eds), *Britons and Romans: advancing an archaeological agenda*, Council for British Archaeology Research Report 125, York, 36-45
- Dobney, K, forthcoming *Northern Regional Review of Environmental Archaeology: non-human vertebrates*
- Dobney, K, and Jacques, D, 1993 'Animal bone', in J Nolan (ed), 'The Town Wall, Newcastle-upon-Tyne. Excavations at Orchard Street and Croft Street, 1987-89', *Archaeologia Aeliana* (5th series) 21, 126-130 (93-149)
- Dobson, B, 1970 'Roman Durham', *Transactions of the Architectural and Archaeological Society of Durham and Northumberland* 2, 31-43
- Dobson, B, 1986 'Seventh Horsley Lecture (1985): The function of Hadrian's Wall', *Archaeologia Aeliana* (5th series) 14, 1-30
- Dobson, B, and Jarrett, M G, 1958 'Excavations at Binchester, 1955', *Transactions of the Architectural and Archaeological Society of Durham and Northumberland* 11, 115-124
- DoE, 1990 *Planning Policy Guidance: Archaeology and Planning (PPG16)*, Department of Environment, London
- DoE, 1994 *Planning Policy Guidance: Planning and the Historical Environment (PPG15)*, Department of Environment, London
- Donaldson, A, 1976 *Thrislington medieval village: botanical evidence*, AML Report 2160, English Heritage, London
- Donaldson, A, 1977a *Botanical report on material from Berwick-upon-Tweed*, AML Report 2366, English Heritage, London
- Donaldson, A, 1977b *Palace Street East and Ravensdowne, Berwick-upon-Tweed*, AML Report 2198, English Heritage, London
- Donaldson, A, 1982 'Botanical report', in D B Charlton and J C Day, 'Excavation and field survey in Upper Redesdale, Part IV', *Archaeologia Aeliana* (5th series) 10, 163-164 (149-170)
- Donaldson, A, 1983 'Botanical report', in M Ellison and B Harbottle, 'The excavation of a seventeenth century bastion in the Castle of Newcastle-upon-Tyne', *Archaeologia Aeliana* (5th series) 11, 256-258 (135-263)
- Donaldson, A, Jones, A, and Rackham, D J, 1980 'Barnard Castle, Co. Durham. A dinner in the Great Hall: Report on the contents of a 15th century drain', *Journal of the British Archaeological Association*, 133, 86-96
- Dore, J N, and Bishop, M C, 1989 *Corbridge: excavations of the Roman fort and town, 1947-80*, English Heritage Archaeological Report 8, London
- Douet, J, 1998 *British barracks 1600-1914: their architecture and role in society*, English Heritage, London
- Drury, J L, 1966 'Early settlement in Stanhope Park, Weardale, c. 1406-79', *Archaeologia Aeliana* (4th series) 4, 139-149
- Drury, J L, 1987 'The Anker's House, Chester-le-Street', *Durham Archaeological Journal* 2, 79-82
- Dumayne, L, 1992 *Late Holocene palaeoecology and human impact on the environment of Northern Britain*, unpublished PhD thesis, University of Southampton
- Dumayne, L, 1993a 'Invader or native: vegetation clearance in

- Northern Britain during Romano-British times', *Vegetation History and Archaeology* 2, 29-36
- Dumayne, L, 1993b 'Iron Age and Roman vegetation clearance in Northern Britain: further evidence', *Botanical Journal of Scotland* 46.3, 382-392
- Dumayne, L, 1994 'The effect of the Roman occupation on the environment of Hadrian's Wall: a pollen diagram from Fozy Moss, Northumbria', *Britannia* 25, 217-224
- Dumayne, L, and Barber, K, 1994 'The impact of the Romans on the environment of northern Britain. Pollen data from three sites close to Hadrian's Wall', *The Holocene* 4, 165-173
- Dungworth, D, 1995 *Iron Age and Roman copper alloys from Northern Britain*, unpublished PhD thesis, University of Durham
- Dungworth, D, 1996 'The production of copper alloys in Iron Age Britain', *Proceedings of the Prehistoric Society* 62, 399-421
- Dungworth, D, 1997 'Roman copper alloys: analysis of artefacts from Northern Britain', *Journal of Archaeological Science* 24 (10), 901-910
- Dunn, C. and Lax, C, 2001 *The medieval and later landscape at Egglestone Abbey* Unpublished English Heritage report
- Dunsford, H M, and Harris, S J, 2003 'Colonization of the wasteland in County Durham', *Economic History Review* 56, 34-56
- Ecclesiastical History, 1990 *Ecclesiastical History of the English People* (trans L Sherley-Price) by Bede, Penguin Books, London
- Edwards, B J W, 1985 'Viking silver ingots from Bowes Moor, Yorkshire', *Antiquaries Journal* 65, 457-458
- Edwards, L, 1987 'The clay tobacco pipes', in B Harbottle and R Fraser, 'Black Friars, Newcastle-upon-Tyne, after the dissolution of the monasteries', *Archaeologia Aeliana* (5th series) 15, 105-120 (23-149)
- Edwards, L, 1988 *The archaeology of the clay tobacco pipe, 11: 17th and 18th century Tyneside tobacco pipe makers and tobacconists*, BAR 192
- Egan, G, and Pritchard, F, 1991 *Dress Accessories c.1150-c.1450*, HMSO, London
- Egglestone, W M, 1909-1910 'Neolithic flint implements in Weardale', *Proceedings of the Society of Antiquaries of Newcastle* (3rd series) 4, 205-208
- Egglestone, W M, 1911-1912a 'Neolithic flint implements: Weardale', *Proceedings of the Society of Antiquaries of Newcastle* (3rd series) 5, 106-107
- Egglestone, W M, 1911-1912b 'Neolithic flint implements in Weardale', *Proceedings of the Society of Antiquaries of Newcastle* (3rd series) 5, 115-117
- Egglestone, W M, 1917 'Two inscribed bronze skilllets and a ladle of Roman date, found in a peat bog in Upper Weardale', *Proceedings of the Society of Antiquaries of Newcastle* (3rd series) 7, 9-11
- Elliot, C, 1994 *The North Pennine orefield turnpikes and their improvements in the 1820s under John Loudon McAdam*, unpublished dissertation, University of Newcastle
- Ellison, M, 1976 'An archaeological survey of Berwick-upon-Tweed', in P A G Clack and P F Gosling (eds), *Archaeology in the North: report of the Northern Archaeological Survey*, Northern Archaeological Survey, Durham, 147-164
- Ellison, M, 1979 'The glass', in M Ellison, 'The excavation of a 17th century century pit at Black Gate, Newcastle-upon-Tyne', *Post-Medieval Archaeology* 13, 167-174 (153-182)
- Ellison, M, 1981 'The glass', in M Ellison, 'An excavation in the Castle Ditch, Newcastle-upon-Tyne 1974-6', *Archaeologia Aeliana* (5th series) 11, 180-186 (75-250)
- Ellison, M, 1983a 'The pottery', in M Ellison and B Harbottle, 'The excavation of a seventeenth century bastion in the Castle of Newcastle-upon-Tyne', *Archaeologia Aeliana* (5th series) 11, 150-180 (135-263)
- Ellison, M, 1983b 'The glass', in M Ellison and B Harbottle, 'The excavation of a seventeenth century bastion in the Castle of Newcastle-upon-Tyne', *Archaeologia Aeliana* (5th series) 11, 180-186 (135-263)
- Ellison, M, 1992 'The finds', in P F Ryder, 'The Cow Port at Berwick-upon-Tweed', *Archaeologia Aeliana* (5th series) 20, 108-115 (99-116)
- Ellison, M, 1993a 'An evaluation of the glass', in P Lowther, L Ebbatson, M Ellison, and M Millett, 'The City of Durham Archaeological Survey', *Durham Archaeological Journal* 9, 104-105 (27-119)
- Ellison, M, 1993b 'Clay tobacco pipes', in M Ellison, G McCombie, A MacElvaney, A Newman, C O'Brien, N Taverner, and A Williams, 'Excavations at Newcastle quayside: waterfront development at the Swirle', *Archaeologia Aeliana* (5th series) 21, 206-211 (151-234)
- Ellison, M, and Harbottle, B, 1983 'The excavation of a seventeenth century bastion in the Castle of Newcastle-upon-Tyne', *Archaeologia Aeliana* (5th series) 11, 135-263
- Ellison, M, McCombie, G, MacElvaney, Newman, A, O'Brien, C, Taverner, N, and Williams, A, 1993 'Excavations at Newcastle quayside: waterfront development at the Swirle', *Archaeologia Aeliana* (5th series) 21, 151-234
- EMCF, 2005 *Early medieval corpus of coin finds*, website at <http://www.fitzmuseum.cam.ac.uk/coins/emcf/>
- Emery, A, 1996 *Greater medieval houses in England and Wales 1300-1500*, Cambridge University Press, Cambridge
- Emery, N, 1986 'Fell Close Farm and the use of «black thatch»', *Durham Archaeological Journal* 2, 91-96
- Emery, N, 1990 'Corrugated iron buildings of County Durham', *Durham Archaeological Journal* 6, 59-73
- Emery, N, 1999 'Earthworks at Rowley Farm, County Durham', *Durham Archaeological Journal* 14-15, 161-177
- Emery, N, 2004 *The remains and relics of St Cuthbert*, Durham Cathedral, Durham
- Emery, N, Langston, J, and Leyland, M, 1997 'St Nicholas', Church and Cemetery, Durham City', *Durham Archaeological Journal* 13, 67-86
- Emery, N, Warner, J and Pearson, A 1990 'Causeway House, Northumberland' *Durham Archaeological Journal* 18, 131-149
- English Heritage, 1991 *Exploring our past: strategies for the archaeology of England*, English Heritage, London
- English Heritage, 1997 *English Heritage Archaeology Division Research Agenda*, <http://www.eng-h.gov.uk/resagend/resagen.pdf>
- English Heritage, 2004 *Heritage Counts 2004: The State of the North East's Historic Environment*, English Heritage, Newcastle
- English Heritage, 2005a *English Heritage Research Agenda: an Introduction to English Heritage's Research Themes and Programmes*, English Heritage, London
- English Heritage, 2005b *Discovering the Past: Shaping the Future. Research Strategy 2005-2010*, English Heritage, London
- Esmonde Cleary, S, 2001 'The Roman to medieval transition', in S James and M Millett (eds), *Britons and Romans: advancing an archaeological agenda*, Council for British Archaeology Research Report 125, York, 90-97
- Evans, D H, and Heslop, D H, 1985 'Two medieval sites in Yarm', *Yorkshire Archaeological Journal* 57, 43-77
- Evans, D H, and Jarrett, M G, 1987 'The deserted village of West Whelpington: Northumberland: third report, part 1', *Archaeologia Aeliana* (5th series) 15, 199-308

Bibliography

- Evans, D H, Jarrett, M G, and Wrathmell, S, 1988 'The deserted village of West Whelpington, Northumberland: third report, part 2', *Archaeologia Aeliana* (5th series) 16, 139-192
- Evans, J, 1995 'Later Iron Age and "native" pottery in the North East', in B E Vyner (ed), *Moorland monuments: studies in the archaeology of north-east Yorkshire in honour of Raymond Hayes and Don Spratt*, Council for British Archaeology Research Report 101, York, 46-68
- Evans, J, 2001 'Material approaches to the identification of different Romano-British site types', in S James and M Millett (eds), *Britons and Romans: advancing an archaeological agenda*, Council for British Archaeology Research Report 125, York, 26-35
- Evans, J, and Millett, M, 1992 'Residuality revisited', *Oxford Journal of Archaeology* 11 (2), 225-240
- Evans, J, Jones, R F J, and Turnbull, P, 1991 'Excavations at Chester-le-Street, Co. Durham', 1978-79', *Durham Archaeological Journal* 7, 5-48
- Evans, J, and Willis, S, 1997 *Research framework for the study of Roman pottery in the North of Britain*, Study Group for Roman Pottery, <http://www.sgrp.org/Rfwork/N/1.htm>
- Fairclough, G, 1984 'Edlingham Castle, Northumberland: an interim account of excavations, 1978-82, Part I; Part II', *Transactions of the Ancient Monuments Society* 28, 40-60
- Fairclough, G, 1992 'Meaningful constructions: spatial and functional analysis of medieval buildings', *Antiquity* 66, 348-366
- Fairless, K J, 1989 *Aspects of the archaeology of the Brigantes*, unpublished PhD thesis, University of Durham
- Fairless, K J, and Coggins, D, 1980 'Excavations at the early settlement of Forcgarth Pastures North 1972-4', *Transactions of the Architectural and Archaeological Society of Durham and Northumberland* 5, 31-38
- Fairless, K J, and Coggins, D, 1986 'Excavations at the early settlement site of Forcgarth Pasture South 1974-5', *Durham Archaeological Journal* 2, 25-40
- Fawcett, B, 2001 *A history of North-Eastern railway architecture*, North Eastern Railway Association, Hull
- Feachem, R W, 1956 'The fortifications on Traprain Law', *Proceedings of the Society of Antiquaries of Scotland* 89, 284-289
- Feachem, R W, 1960 'The palisaded settlements at Harehope, Peebleshire', *Proceedings of the Society of Antiquaries of Scotland* 93, 174-191
- Featherstonehaugh, W, 1855 'Chester-le-Street', *Archaeologia Aeliana* (1st series) 4, 289-295
- Fell, C, and Hildyard, E J W, 1953 'Prehistoric Weardale: a new survey', *Archaeologia Aeliana* 31, 98-115
- Fell, C, and Hildyard, E J W, 1956 'More flints from Weardale. A post-script', *Archaeologia Aeliana* (4th series) 34, 131-137
- Fennell, J, 1996 *The Allendale turnpike and its significance in the history of the turnpike building in the North Pennines*, unpublished dissertation, University of Newcastle-upon-Tyne
- Fenton-Thomas, C, 1992 'Pollen analysis as an aid to the reconstruction of patterns of land-use and settlement in the Tyne-Tees region during the first millennia BC and AD', *Durham Archaeological Journal* 8, 51-62
- Ferrell, G, 1990 'A reassessment of the prehistoric pottery from the 1952-62 excavations at Yeavinger', *Archaeologia Aeliana* (5th series) 18, 29-49
- Ferrell, G, 1992 *Settlement and society in the later Prehistory of the North-East of England*, unpublished PhD thesis, University of Durham
- Ferrell, G, 1997 'Space and society in the Iron Age of north-east England', in A Gwilt and C Haselgrove (eds), *Reconstructing Iron Age societies*, Oxbow Monograph 71, Oxford, 228-238
- Ferris, I, and Jones, R, 1980 'Excavations at Binchester 1976', in L Keppie and W Hanson (ed), *Roman frontier studies 1979: papers presented to the 12th international congress of Roman frontier studies*, BAR International Series 71, Oxford, 233-254
- Ferris, I, and Jones, R F (eds), 1996 *Binchester Roman fort: revised assessment and research design*, unpublished report
- Ferris, I, and Jones, R F, 2000 'Transforming an elite: re-interpretation late Roman Binchester', in T Wilmott and P Wilson (eds), *The Late Roman transition in the North: Papers from the Roman Archaeology Conference, Durham 1999*, BAR 299, Oxford, 1-13
- Fitts, R L, Haselgrove, C, Lowther, P, and Turnbull, P, 1994 'An Iron Age farmstead at Rock Castle, Gilling West, North Yorkshire', *Durham Archaeological Journal* 10, 13-42
- Fitzpatrick, A R, and Scott, P R, 1999 'The Roman bridge at Piercebridge, North Yorkshire-County Durham', *Britannia* 30, 111-132
- Flemming, N, 2002 *The scope of the Strategic Environmental Assessment of North Sea areas SEA3 and SEA2 in regard to prehistoric archaeological remains*, Report SEA3-TR014, Department of Trade and Industry http://www.offshore-sea.org.uk/consultations/SEA_3/TR_SEA3_Archaeology.pdf
- Flemming, N, 2004 *Submarine archaeology of the North Sea*, Council for British Archaeology Research Report 141, York
- Flinn, M W, 1962 *Men of iron: the Crowleys in the early iron industry*, Edinburgh University Press, Edinburgh
- Ford, B, Deakin, P, and Walker, M, 2002 'The tri-radial cairns of Northumberland', *Current Archaeology* 182, 82-85
- Fox, H S A, 2001 *The evolution of the fishing village: landscape and society along the South Devon Coast 1086-1550*, Leopard's Head Press, Oxford
- Fraser, R, Jamfrey, C, and Vaughan, J E, 1995 'Excavation on the site of the Mansion House, Newcastle, 1990', *Archaeologia Aeliana* (5th series) 23, 145-213
- Fraser, R, Maxwell, R, and Vaughan, J, 1994 'Excavation adjacent to the Closegate', *Archaeologia Aeliana* (5th series) 22, 85-153
- Fraser, R, Speed, G, and Costley, S, 1995 'Excavations at 19/20 New Elvet, Durham', *Durham Archaeological Journal* 11, 67-76
- Friends of Hardwick Park, nd *The reawakening of Hardwick Park*, Sedgefield
- Frodsham, P, 1995a 'Monuments in the landscape: some thoughts on the practical management of the historic environment', *Northern Archaeology* 12, 78-89
- Frodsham, P, 1995b 'Investigations at Gibb's Hill «Stone Circle»', *Archaeology in Northumberland* 1994-1995, 33
- Frodsham, P, 1999 'Forgetting Gefrin', in P Frodsham, P Topping and D Cowley (eds), *We were always chasing time*, papers presented to Keith Blood, *Northern Archaeology* 17/18, 191-207
- Frodsham, P, 2000 'Worlds without ends: towards a new prehistory for Central Britain', in J Harding and R Johnston (eds), *Northern pasts: prehistory of northern England- Southern Scotland*, BAR 302, Oxford, 15-37
- Frodsham, P (ed), 2004 *Archaeology in Northumberland National Park*, Council for British Archaeology Research Report 136, York
- Frodsham, P, Hedley, I, and Young, R, forthcoming 'Putting the neighbours in their Place? Displays of position and possession in northern Cheviot "hillfort" design', in C Haselgrove and T Moore (eds), *The Later Iron Age in Britain and Beyond*, Oxbow Books, Oxford
- Frodsham, P, and Waddington, C, 2004 'The Breamish Valley Archaeological Project 1994-2002', in P Frodsham (ed),

- Archaeology in Northumberland National Park*, Council for British Archaeology Research Report 136, York, 171-201
- Fyfe, R, and Rippon, S, 2004 'A landscape in transition? Palaeoenvironmental evidence for the end of the "Romano-British" period in southwest England', in R Collins and J Gerrard (eds), *Debating Late Antiquity in Britain AD300-700*, BAR 365, Oxford, 33-42
- Gaimster, D, 1999 'The Hense in the Baltic: the archaeology of a cultural network', *Fennoscandia Archaeologica* 16, 59-69
- Gaimster, D, 2005 'A parallel history: the archaeology of Hanseatic urban culture in the Baltic c.1200-1600' *World Archaeology* 37/2, 408-423
- Gaimster, D, and Gilchrist, R (eds), 2003 *The archaeology of Reformation 1480-1580*, Society for Post-Medieval Archaeology Monograph 1, Leeds
- Gaimster, D, and Nenck, B, 1997 'English households in transition c.1450-1550: the ceramic evidence', in D Gaimster and P Stamper (eds), *The age of transition: the archaeology of English Culture 1400-1600*, Society for Medieval Archaeology Monograph 15, 171-195
- Gale, F, 1992 *Catching the tide: the status and future of maritime collections in North East museums*, North East of England Museums Service, Newcastle-upon-Tyne
- Gale, F, 1994 *Fuel for thought*, North East of England Museums Service, Newcastle-upon-Tyne
- Gallagher, B, 2004 *Sedgefield, County Durham. An archaeological investigation 8-10 April 2002*, unpublished report, Time Team
- Gallagher, D B, 1987 'The Anglo-Saxon cemetery of Hob Hill, Saltburn', *Yorkshire Archaeological Journal* 59, 9-29
- Gates, T, 1979 *Field survey in Northumberland*, unpublished report
- Gates, T, 1982 'A long cairn on Dod Hill, Ilderton, Northumberland', *Archaeologia Aeliana* (5th series) 10, 210-211
- Gates, T, 1983 'Unenclosed settlements in Northumberland', in J Chapman and H Mytum (eds), *Settlement in North Britain 1000BC-AD1000*, BAR 118, Oxford, 103-148
- Gates, T, 1997 *Air photography and the archaeology of the Otterburn training areas*, unpublished report for the Northumberland National Park
- Gates, T, 1999 *The Hadrian's Wall landscape from Chesters to Greenhead: an air photographic survey*, unpublished report for the Northumberland National Park
- Gates, T, 2000 *The archaeology of the College Valley Estate: an air photographic survey*, unpublished report for the Northumberland National Park
- Gates, T, 2004 'Flying on the frontier: recent archaeological air photography in the Hadrian's Wall corridor', in P Frodsham (ed), *Archaeology in Northumberland National Park*, Council for British Archaeology Research Report 136, York, 236-245
- Gates, T, and O'Brien, C, 1988 'Cropmarks at Milfield and New Bewick and the recognition of Gröbenhauser in Northumberland', *Archaeologia Aeliana* (5th series) 16, 1-10
- Gear, A, and Turner, J, 2001 'Palynological evidence for changing patterns of land-use', in B E Vyner (ed), *Stainmore: the archaeology of a North Pennine pass*, Tees Archaeology Monograph Series 1, Hartlepool, 24-33
- Gem, R, 1996 'Church buildings: cultural location and meaning', in J Blair and C Pyrah (eds), *Church archaeology: research directions for the future*, Council for British Archaeology Research Report 104, York, 1-6
- Geoquest, 2004 *Geophysical survey of areas of land adjacent to Binchester Roman fort (Vinovia)*, Bishop Auckland, Co. Durham, Geoquest Associates, unpublished report
- Gernaey, A M, Minnikin, D E, Copley, M S, Power, J J, Ahmed, A M S, Dixon, R A, Roberts, C A, Robertson, D J, Nolan, J, and Chamberlain, A, 1998 'Detecting ancient tuberculosis', *Internet Archaeology* 5, <http://intarch.ac.uk/journal/issue5/gernaey/index.html>
- Gerrard, C, and Marter, P, 2003 *National database of medieval pottery production centres in England*, Department of Archaeology, University of Winchester
- Gibson, A, 1978 *Bronze Age pottery in the North East of England*, BAR 67, Oxford
- Gibson, A, 1986 'Diatom analysis of clays and late Neolithic pottery from the Milfield Basin, Northumberland', *Proceedings of the Prehistoric Society* 52, 89-103
- Gibson, A, 2002 'A matter of pegs and labels: a review of some of the prehistoric pottery from the Milfield Basin', *Archaeologia Aeliana* (5th series) 30, 175-180
- Gibson, J P, 1903 'On excavations at Great Chesters (Aesica) in 1894, 1895 and 1897', *Archaeologia Aeliana* (2nd series) 26, 19-63
- Gidney, L J, 1987 *The animal bones from Hanover Street, Newcastle-upon-Tyne*, unpublished archive report, Department of Archaeology, University of Durham
- Gidney, L J, 1989a 'The animal bone', in J Nolan, B Harbottle, R Fraser, and F C Burton, 'The medieval town defences of Newcastle-upon-Tyne: excavation and survey 1986-7', *Archaeologia Aeliana* (5th series) 17, 49-50 (29-78)
- Gidney, L J, 1989b 'The mammal and bird bone', in C O'Brien, L Bown, S Dixon, L Donel, L J Gidney, J P Huntley, R Nicholson, and P Walton, 'Excavations at Newcastle Quayside: the Crown Court Site', *Archaeologia Aeliana* (5th series) 17, 182-188 (141-205)
- Gidney, L J, 1989c *The mammal and bird bones from the 1986 excavations at Crown Court, Newcastle-upon-Tyne*, Tyne and Wear, Parts 1 and 2, AML Report 10/89, English Heritage, London
- Gidney, L J, 1991a *The animal bones from the 1990 excavations at Hartlepool sea front, Cleveland*, unpublished archive report, Department of Archaeology, University of Durham
- Gidney, L J, 1991b 'The animal bones', in J Evans, R Jones and P Turnbull, 'Excavations at Chester-le-Street, Co. Durham 1978-1979', *Durham Archaeological Journal* 7, 40, fiche 1:131-142 (5-48)
- Gidney, L J, 1994 *Newcastle-upon-Tyne BG90 and BG92, animal bone assessment*, unpublished archive report, Department of Archaeology, University of Durham
- Gidney, L J, 1995 *The animal bones from 1994 excavations at Darlington Market Place*, Durham Environmental Archaeology Report 15/95, Department of Archaeology, University of Durham
- Gidney, L J, 1997 'The animal bone', in D Cranstone, *Derwentcote steel furnace: an industrial monument in County Durham*, Lancaster Imprints 6, Lancaster, 102
- Gidney, L J, and Coggins, D, 1988 'A late Prehistoric site at Dubby Sike, Upper Teesdale, Co. Durham', *Durham Archaeological Journal* 4, 1-12
- Gilchrist, R, and Morris, R, 1996 'Continuity, reaction and revival: church archaeology in England c1600-1880', in J Blair and C Pyrah (eds), *Church archaeology: research directions for the future*, Council for British Archaeology Research Report 104, York, 112-126
- Giles, C, 1998 *Industrial archaeology in North-East England: priorities for research*, North East Industrial Archaeology Panel, unpublished paper
- Gilks, J A, 1993 'Francis Buckley and the discovery and excavation of a beaker occupation site on Ross Links, Bamburgh, Northumberland, 1924', *Durham Archaeological Journal* 9, 1-7
- Gillam, J P, and Daniels, D M, 1961 'The Roman mausoleum on Shorden Braew, Beaufront, Corbridge, Northumberland', *Archaeologia Aeliana* (4th series) 39, 37-61
- Gillam, J P, and Dore, J M, 1979 *The Roman fort at South Shields*

Bibliography

- [*Tyne and Wear*]: excavations 1875-1975, Society of Antiquaries of Newcastle-upon-Tyne Monograph 1, Newcastle
- Gillam, J P, and MacIvor, I, 1954 'The temple of Mithras at Rudchester', *Archaeologia Aeliana* 32 (4th series), 176-219
- Gillam, J P, and Tait, J, 1968 'The Roman fort at Chester-le-Street', *Archaeologia Aeliana* (4th series) 46, 75-96
- Glazebrook, J, 1997 *Research and Archaeology: a Framework for the Eastern Counties 1. Resource Assessment*, East Anglian Archaeology Occasional Papers 3, Norwich
- Gledhill, T, 2002 *Investigation of early iron working in Upper Teesdale Phase 1: survey of charcoal pits*, unpublished assessment report
- Goodburn, D M, 1997 'Reused medieval ship planks from Westminster, England, possibly derived from a vessel built in the cog style', *International Journal of Nautical Archaeology* 26 (1), 26-38
- Goodrick, G, and Williams, A, 1998 *Excavations at West Chevington, Northumberland*, unpublished excavation report, The Archaeological Practice, Newcastle-upon-Tyne
- Gould, S, 2001 'The identification, recording and management of the more recent archaeological and architectural heritage of Essex', *Industrial Archaeology Review* 23 (1), 11-24
- Gould, S, and Ayris, I, 1995 *Colliery landscapes*, English Heritage, London
- Gould, S, and Cranstone, D, 1993 *Monuments Protection Programme: the coal industry. Step 1 Report*, English Heritage, London
- Graves, C P, 2002 'The development of towns in the North', in C Brooks, R Daniels and A Harding (eds), *Past, present and future: the archaeology of Northern England*, Architectural and Archaeological Society of Durham and Northumberland Research Report 5, Durham, 177-184
- Graves, C P, 2003 'Civic ritual, townscape and social identity in seventeenth- and eighteenth-century Newcastle-upon-Tyne', in S Lawrence (ed), *Archaeologies of the British: explorations of identity in Great Britain and its colonies 1600-1945*, One World Archaeology 46, Routledge, London, 31-54
- Graves, P, and O'Connor, A, 2003 'Canon Greenwell (1820-1918) and his contribution to archaeological research', *Bulletin of the History of Archaeology* 13 (2), 28-30
- Gray, H St George, 1925 'A gold ornament found at Castle Cary, Somerset', *Antiquaries Journal* 5, 141-144
- Green, A, 1998 'Tudhoe Hall and Byers Green Hall, County Durham: seventeenth and early eighteenth century social change in houses', *Vernacular Architecture* 29, 33-41
- Green, A, 2000 *Houses and households in County Durham and Newcastle-upon-Tyne c.1570-1730*, unpublished PhD thesis, University of Durham
- Green, A, 2003 'Houses in north-eastern England: Regionality and the British beyond, c.1600-1750', in S Lawrence (ed), *Archaeologies of the British: explorations of identity in Great Britain and its colonies 1600-1945*, One World Archaeology 46, Routledge, London, 55-74
- Green, F, 1995 *A guide to the historic parks and gardens of Tyne and Wear*, Tyne and Wear Conservation, Newcastle
- Green, L M, and Bidwell, P T, 2002 *Heritage of the North Sea region: conservation and interpretation*, Donhead, Shaftsbury
- Green, K, 1978 'Apperley Dene [Northumberland] "Roman fortlet": a re-examination, 1974-5', *Archaeologia Aeliana* (5th series) 6, 29-59
- Greenwell, W, 1877 *British barrows: a record of the examination of sepulchral mounds in various parts of England*, Clarendon Press, Oxford
- Greenwell, W, 1894 'The Heathery Burn and other Irish-British Buckets', *Archaeologia* 54, 87-114
- Griffiths, W B, 1999 'Excavations at the New Quay, Berwick upon Tweed 1996', *Archaeologia Aeliana* (5th series) 27, 75-108
- Grundy, J, McCombie, G, Ryder, P, Welfare, H, and Pevsner, N, 1992 *The buildings of England: Northumberland*, Penguin, London
- Gurney, D, 2003 *Standards for field archaeology in the East of England*, East Anglian Archaeology Occasional Paper 14, <http://www.eaareports.demon.co.uk/Regional%20Standards.pdf>
- Guy, A, and Cranstone, D, 2001 *Moorhouse Woods, Co. Durham: assessment of documenation*, unpublished report, Cranstone Consultants
- Guy, A, and Rees, J (eds), 1998 *Early railways*, Newcomen Press, London
- Gwilt, A, and Heslop, D, 1995 'Iron Age and Roman querns from the Tees Valley', in B E Vyner (ed), *Moorland monuments: studies in the archaeology of north-east Yorkshire in honour of Raymond Hayes and Don Spratt*, Council for British Archaeology Research Report 101, York, 38-45
- Hall, A, and Huntley, J, 2002 'Environmental archaeology: Mesolithic to Roman period', in C Brooks, R Daniels and A Harding (eds), *Past, present and future: the archaeology of Northern England*, Architectural and Archaeological Society of Durham and Northumberland Research Report 5, Durham, 155-162
- Hall, A, and Huntley, J, forthcoming *Northern Regional Review of Environmental Archaeology: Macrofossil Plant Remains*
- Hall, D, Haggerty, G, and Murray, C, 2000 'Scottish pottery studies 25 years on', *Medieval Ceramics* 24, 49-55
- Hall, G R, 1879 'Account of researches in ancient circular dwellings, near Birtley, Northumberland', *Archaeologia* 45, 355-374
- Hambleton, E, 1999 *Animal husbandry regimes in Iron Age Britain: a comparative analysis of faunal remains from British Iron Age sites*, BAR 282, Oxford
- Hamerow, H, and Pickin, J, 1995 'An Early Anglo-Saxon cemetery at Andrew's Hill, Easington, Co. Durham', *Durham Archaeological Journal* 11, 35-66
- Hanson, W S, Daniels, C, Dore, J N, and Gillam, J P, 1979 'The Agricola supply base at Red House, Corbridge', *Archaeologia Aeliana* (5th series) 7, 1-98
- Harbord, N H, 1996 'A North York Moors Mesolithic marginal site on Highcliffe Nab, Guisborough', *Durham Archaeological Journal* 12, 17-26
- Harbottle, B, 1966 'Excavations at the south curtain wall of the castle, Newcastle-upon-Tyne, 1960-61', *Archaeologia Aeliana* (4th series) 44, 79-145
- Harbottle, B, 1968 'Excavations at the Carmelite Friary, Newcastle-upon-Tyne, 1965 and 1967', *Archaeologia Aeliana* (4th series) 46, 163-223
- Harbottle, B, 1978 'An early cemetery at Tynemouth', *Archaeologia Aeliana* (5th series) 6, 159
- Harbottle, B, 1981 'An excavation in the Castle ditch, Newcastle-upon-Tyne 1974-6', *Archaeologia Aeliana* (5th series) 9, 75-250
- Harbottle, B, 1987 *A guide to Newcastle-upon-Tyne blackfriars*, Society of Antiquaries of Newcastle, Newcastle
- Harbottle, B, forthcoming 'Excavations at Newcastle Castle', *Archaeologia Aeliana*
- Harbottle, B, and Ellison, M, 2001 'An excavation at Etal Castle, Northumberland, in 1978', *Archaeologia Aeliana* 29 (5th series), 235-252
- Harbottle, B, and Fraser, R, 1987 'Black Friars, Newcastle-upon-Tyne, after the dissolution of the monasteries', *Archaeologia*

- Aeliana* (5th series) 15, 23-149
- Harbottle, B, and Newman, T G, 1973 'Excavations and survey on the Starsley Burn, North Tynedale', *Archaeologia Aeliana* (5th series) 1, 137-175
- Harbottle, B, and Newman, T G, 1977 'Excavation and survey in North Tynedale 1973-5', *Archaeologia Aeliana* (5th series) 5, 121-154
- Hardie, C, 1992 *A strategy for coastal archaeology in Northumberland*, Northumberland County Council
- Hardie, C, 2001 'Fun at The Palace', *Archaeology in Northumberland 2000-2001*, 20-21
- Hardie, C, and Rushton, S, 2000 *The tides of time: archaeology on the Northumberland coast*, Northumberland County Council, Morpeth
- Harding, A F, 1981 'Excavations in the prehistoric ritual complex near Milfield, Northumberland', *Proceedings of the Prehistoric Society* 47, 87-135
- Harding, D W, 1979 'Air survey in the Tyne-Tees Region 1969-79', in N J Higham (ed), *The changing past*, University of Manchester, Manchester, 21-30
- Harding, D W, 1984 *Holme House Piercebridge: excavations 1969-70*. A summary report, University of Edinburgh, Department of Archaeology Project Paper 2, Edinburgh
- Harding, J, Frodsham, P, and Durden, T, 1996 'Towards an agenda for Neolithic studies', *Northern Archaeology* 13/14, 189-201
- Harding, V, 1998 'Research Priorities: an historian's perspective', in M Cox (ed), *Grave concerns: death and burial in Post Medieval England 1700 -1850*, Council for British Archaeology Research Report 113, York, 205-212
- Harper, R P, 1965-68 'Excavations at Piercebridge', *Transactions of the Architectural and Archaeological Society of Durham and Northumberland* (2nd series) 1, 27-44
- Harper, R P, Reed, R, and Dodds, W, 1964 'Excavations at Ebchester in 1962-63', *Archaeologia Aeliana* (4th series) 42, 173-185
- Harris, J, 1979 *The artist and the country house*, Sotheby's, London
- Harrison, B, and Hutton, B, 1984 *Vernacular houses in North Yorkshire and Cleveland*, John Donald, Edinburgh
- Harrison, S A, and Heslop, D H, 1999 'Archaeological survey at the Augustinian priory of Gisborough, Cleveland', *Yorkshire Archaeological Journal* 71, 89-127
- Hart, C W, 1988 *Linthorpe art pottery*, Aisling, Cleveland
- Hart, C R, and Okasha, E, 2003 'Early medieval stone bowls from Sunderland, Dalden and Durham', *Durham Archaeological Journal* 17, 13-15
- Hartley, B, 1967 'Bowes', *Yorkshire Archaeological Journal* 42, 110
- Haselgrove, C, 1999 'Iron Age societies in central Britain: Retrospect and Prospect', in B Bevan (ed), *Northern exposure: interpretative devolution and the Iron Ages in Britain*, Leicester Archaeological Monograph 4, Leicester, 253-278
- Haselgrove, C, 2002 'The Later Bronze Age and the Iron Age in the Lowlands', in C Brooks, R Daniels and A Harding (eds), *Past, present and future: the archaeology of Northern England*, Architectural and Archaeological Society of Durham and Northumberland Research Report 5, Durham, 49-69
- Haselgrove, C, forthcoming *Cartmandua's Capital? Excavations and fieldwork at the Iron Age and early Roman site at Stanwick, North Yorkshire 1984-89*, Yorkshire Archaeological Monograph Series, Leeds
- Haselgrove, C, and Allon, V, 1982 'An Iron Age settlement at West House, Coxhoe, County Durham', *Archaeologia Aeliana* (5th series) 10, 25-51
- Haselgrove, C, Armit, I, Champion, T, Creighton, J, Gwilt, A, Hill, J D, Hunter, F, and Woodward, A, 2001 *Understanding the British Iron Age: an agenda for action*. A report for the Iron Age Research Seminar and the Council of the Prehistoric Society, Trust for Wessex Archaeology, Salisbury
- Haselgrove, C, Ferrell, G, and Turnbull, P, 1988 *The Durham Archaeological Survey 1983-1987*, Department of Archaeology, University of Durham Occasional Paper 2, Durham
- Haselgrove, C, Fitts, R, and Turnbull, P, 1991 'Stanwick, North Yorkshire, part 1: recent research and previous archaeological investigations', *Archaeological Journal* 147, 1-15
- Haselgrove, C, and Healey, E, 1992 'The prehistory of the Tyne-Tees Lowlands: some recent flint finds', *Durham Archaeological Journal* 8, 1-24
- Haselgrove, C, Turnbull, P, and Lowther, P, 1991 'Stanwick, North Yorkshire, part 3: excavations on earthworks sites 1981-86', *Archaeological Journal* 147, 37-90
- Haverfield, F, 1914a 'An account of the Roman remains in the parish of Corbridge', in H H E Craster, *A history of Northumberland Vol X: the parish of Corbridge*, Andrew Reid, Newcastle-upon-Tyne, 455-522
- Haverfield, F, 1914b 'Roman silver in Northumberland', *Journal of Roman Studies* 4, 1-12
- Hawkes, C F C, and Smith, M A, 1957 'Late Bronze Age finds in the Heathery Burn Cave, County Durham', *Antiquaries Journal* 37, 148-160
- Hayes, R H, 1967 *The chambered cairn and adjacent monuments on Great Aydon Moor*, NE Yorkshire Scarborough District Archaeological Society Research Report 7, Scarborough
- Hayes, R H, and Rutter, J G, 1974 *Rosedale mines & railway*, Scarborough District Archaeological Society Research Report 9, Scarborough
- Healey, E, 1988 'The Flint', in B E Vyner, 'The Street House Wossit: the excavation of a Late Neolithic and Early Bronze Age palisaded ritual monument at Street House, Loftus, Cleveland', *Proceedings of the Prehistoric Society* 54, 182-189 (173-202)
- Healey, E, and Jelley, D, 1988 'The flint', in B E Vyner, 'The Hill-fort at Eston Nab, Eston, Cleveland', *Archaeological Journal* 145, 79-83 (60-98)
- Hedley, W P, Birley, F, and Charlton, J, 1933 'Excavations at Housesteads in 1932', *Archaeologia Aeliana* (4th series) 10, 82-96
- Hedley, I, 2004 'Metal hills and Kelties: signposts to the industrial past', in P Frodsham (ed), *Archaeology in Northumberland National Park*, Council for British Archaeology Research Report 136, York, 306-323
- Heley, G, forthcoming *The material culture of the tradesmen of Newcastle-upon-Tyne 1545-1642: the Durham probate record evidence*, unpublished PhD thesis, University of Durham
- Henig, M, 1978 *A corpus of Roman engraved gemstones from British sites*, BAR 8, Oxford
- Heppell, E, and Clack, P, 1991 'The enclosures of the townfields of Sherburn and Shadforth', *Durham Archaeological Journal* 7, 135-142
- Heslop, D (ed), 1987 *The excavation of an Iron Age settlement at Thorpe Thewles, Cleveland 1980-2*, Council for British Archaeology Research Report 65, London
- Heslop, D, 1988 'The Study of Beehive Querns', *Scottish Archaeological Review* 5, 59-65
- Heslop, D, 1995 'Excavation within the church at the Augustinian priory of Gisborough, Cleveland 1986-6', *Yorkshire Archaeological Journal* 67, 51-126
- Heslop, D, and Harbottle, B, 1999 'Chillingham Church, Northumberland: the south chapel and the Grey tomb', *Archaeologia Aeliana* (5th series) 27, 123-134

Bibliography

- Heslop, D and McCombie, G, 1996 "Alderman Fenwick's house" - a late seventeenth century house in Pilgrim Street, Newcastle', *Archaeologia Aeliana* (5th Series) 24, 129-169
- Hewitt, I, 1995 'Prehistoric artefacts from North Northumberland Forests', *Northern Archaeology* 12, 3-9
- Hewitt, I, and Beckensall, S, 1996 'The excavation of cairns at Blawearie, Old Bewick, Northumberland', *Proceedings of the Prehistoric Society* 62, 255-274
- Hey, G, and Lacey, M, 2001 *Evaluation of archaeological decision-making processes and sampling strategies*, English Heritage/Kent County Council
- Hicks, D, 2000 'Ethnicity, race and the archaeology of the Atlantic slave trade', *Assemblage* 5, <http://www.shef.ac.uk/~assem/5/hicks.html>
- Higgins, J, 2004 *The human skeletal remains from Bishopmill School, Norton, Stockton-on-Tees*, unpublished report, Tees Archaeology
- Higgs, E, and Jarman, M, 1977 'Yeavinger faunal report', in B Hope-Taylor (ed), *Yeavinger. An Anglo-British centre of early Northumbria*, HMSO, London, 325-332
- Hildyard, E J W, 1947 'A medieval site in Weardale', *Archaeologia Aeliana* (4th series) 25, 181-195
- Hill, J D, 1995 *Ritual and rubbish in the Iron Age of Wessex: a study on the formation of a specific archaeological record*, BAR 242, Oxford
- Hill, J D, 2001 'Romanisation, gender and class: recent approaches to identity in Britain and their possible consequences', in S James and M Millett (eds), *Britons and Romans: advancing an archaeological agenda*, Council for British Archaeology Research Report 125, York, 12-18
- Hill, P R, 1991 'Hadrian's Wall: some aspects of its execution', *Archaeologia Aeliana* (5th series) 19, 33-39
- Hill, P R, 1997 'The stone wall turrets of Hadrian's Wall', *Archaeologia Aeliana* (5th series) 25, 27-49
- Hill, P R, 2001 'Hadrian's Wall from MCO to MC9', *Archaeologia Aeliana* (5th series) 29, 3-18
- Hill, P R, and Dobson, B, 1992 'The design of Hadrian's Wall and its implications', *Archaeologia Aeliana* (5th series) 20, 27-52
- Hillam, J, 1991 *Tree-ring dating of oak timbers from Aydon Castle, Corbridge, Northumberland*, AML Report 42/91, English Heritage, London
- Hillam, J, and Tyers, I, 1995 'Reliability and repeatability of dendrochronological analysis: tests using the Fletcher archive of panel-painting data', *Archaeometry* 37 (2), 395-405
- Hillelson, D, 1983 'Barney Byre: a farmstead in Upper Teesdale', *Durham Archaeological Journal* 1, 51-61
- Hingley, R, 1984 'Towards social analysis in archaeology: Celtic society in the Iron Age of the Upper Thames valley (400-0BC)', in B Cunliffe and D Miles (eds), *Aspects of the Iron Age in central southern Britain*, Institute of Archaeology, Oxford, 72-88
- Hingley, R, 2004 'Rural settlement in Northern Britain', in M Todd (ed), *A companion to Roman Britain*, Blackwell, Oxford
- Hinton, D, 1987 'Archaeology and the Middle Ages: recommendations by the Society for Medieval Archaeology to the Historic Buildings and Monuments Commission for England', *Medieval Archaeology* 31, 1-12
- Historic Scotland, 1996 *Coastal Zone Assessment Survey*, Procedure Paper 4, Historic Scotland, Edinburgh
- Historic Scotland 1999 *Conserving the underwater heritage*, Policy Paper HP6, Historic Scotland, Edinburgh
- HLF NE, 2004 *Its Your Heritage: ten years of Heritage Lottery Funding in the North East*, Heritage Lottery Fund, London
- Hoare, P, Vinx, R, Stevenson, C R, and Ehlers, J, 2002 'Re-used bedrock ballast in King's Lynn's "town wall" and the Norfolk port's medieval trading links', *Medieval Archaeology* 46, 91-105
- Hodges, R, 1982 *Dark Age economics: the origins of towns and trade: AD 600-1000*, Duckworth, London
- Hodgkin, T, 1891 'Discovery of a Roman vessel at Prestwick Carr', *Archaeologia Aeliana* (2nd series) 15, 159-166
- Hodgson, G, 1967 *A comparative analysis of faunal remains from some Roman and native sites in northern England*, unpublished MSc thesis, University of Durham
- Hodgson, G, 1968 'A comparative account of the animal remains from Corstopitum and the Iron Age site of Catcote near Hartlepool, County Durham', *Archaeologia Aeliana* (4th series) 46, 127-162
- Hodgson, G, 1977 *The animal remains from excavations at Vindolanda 1970-5: Vindolanda II*, Vindolanda Trust, Bardon Mill
- Hodgson, J C, 1827 *History of Northumberland. Part 2, volume1*, Andrew Reid, Newcastle-upon-Tyne
- Hodgson, J C, 1887 *A History of Northumberland. Volume 4*, Andrew Reid, Newcastle-upon-Tyne
- Hodgson, J C, 1904 *A history of Northumberland. Volume 7*, Andrew Reid, Newcastle-upon-Tyne
- Hodgson, N, 1999 'Arbeia-South Shields', in P Bidwell (ed), *Hadrian's Wall 1989-1999: a summary of recent excavation and research prepared for the 12th Pilgrimage of Hadrian's Wall*, Cumberland and Westmorland Antiquarian and Archaeological Society and the Society of Antiquaries of Newcastle-upon-Tyne, Carlisle, 73-82
- Hodgson, N, 2000 'The Stanegate: a frontier re-habilitated', *Britannia* 31, 11-22
- Hodgson, N, 2003 *The Roman fort at Wallsend: excavations in 1997-98*, Tyne and Wear Museums Archaeological Monograph 2, Newcastle-upon-Tyne
- Hodgson, N, and Bidwell, P, 2004 'Auxiliary barracks in a new light: recent discoveries on Hadrian's Wall', *Britannia* 35, 121-157
- Hodgson, N, Stobbs, G C, and van der Veen, M, 2001 'An Iron-Age settlement and remains of earlier prehistoric date beneath South Shields Roman Fort, Tyne and Wear', *Archaeological Journal* 158, 62-160
- Hodgson, R I, 1979 'The progress of enclosure in County Durham, 1550-1870', in H S A Fox and R A Butlin (eds), *Change in the countryside: essays on rural England, 1500-1900*, Institute of Geographers, London, 83-102
- Hogg, A, 1942 'Excavations at Ingram Hill', *Archaeologia Aeliana* (4th series) 20, 110-133
- Hogg, A, 1956 'Further excavations at Ingram Hill', *Archaeologia Aeliana* 34 (4th series), 150-160
- Hogg, S, 1972 *Post-weichselian history of the Northumberland coastal zone*, unpublished MSc thesis, University of Durham
- Holbrook, N, 1991 'A watching brief at the Roman fort of Benwell - Condersum 1990', *Archaeologia Aeliana* (4th series) 19, 41-45
- Holbrook, N, and Speak, S, 1994 'Washingwells Roman fort: a transcription of the APs and an assessment of the evidence', *Arbeia Journal* 3, 33-45
- Honeyman, H L, 1955 'Mitford Castle', *Archaeologia Aeliana* (4th series) 33, 27-34
- Hoole, K, 1985 *Railway stations of the North East*, David and Charles, Newton Abbott
- Hoopell, R, 1879 *On the results of the exploration of the Roman station of Vinovium, Binchester, in the county of Durham, in the year 1878*, W J Cummins, Barnard Castle
- Hope, W H St J, 1936 'On the Premonstratensian abbey of St Mary, at Alnwick, Northumberland', *Archaeologia Aeliana* (4th series) 13, 1-10
- Hope-Taylor, B, 1977 *Yeavinger. An Anglo-British centre of early Northumbria*, HMSO, London

- Hornsby, F, 1912 'An Anglian cemetery at Hob Hill, Saltburn', *Yorkshire Archaeological Journal* 22, 131-137
- Horsley, J, 1732 *Britannia Romana*, printed for John Osborn and Thomas Longman, London
- Hudson, K, 1981a *The archaeology of consumer society: the second Industrial Revolution*, Heinemann, London
- Hudson, K, 1981b *A social history of archaeology*, MacMillan, London
- Hull, M R, 1927 'Excavations at Aseica 1925', *Archaeologia Aeliana* (4th series) 4, 197-202
- Humphrey, J, in press 'Simple tools for tough tasks or tough tools for simple tasks? Analysis and experiment in Iron Age flint utilisation', in C Haselgrove and R Pope (eds), *The Earlier Iron Age in Britain and the Near Continent*, Oxbow Books, Oxford
- Hunt, C J, 1970/84 *The lead miner's of the Northern Pennines*, Manchester University Press, Manchester
- Hunter, F, 1997 'Hoarding in Scotland and Northern England', in A Gwilt and C Haselgrove (eds), *Reconstructing Iron Age societies*, Oxbow Monograph 71, Oxford, 108-133
- Hunter Blair, C H, 1929 'Medieval effigies in Durham', *Archaeologia Aeliana* (4th series) 6, 1-51
- Hunter Blair, C H, 1930 'Medieval effigies in Northumberland', *Archaeologia Aeliana* (4th series) 7, 1-32
- Huntley, J, 1987a *Botanical remains from Hartlepool: Church Close 1984/5*, AML Report 74/78, English Heritage, London
- Huntley, J, 1987b *Botanical remains from Hartlepool: Southgate 1981*, AML Report, English Heritage, London
- Huntley, J, 1987c 'Summary report on the plant remains', in G A B Young (ed), 'Excavations at South gate, Hartlepool, Cleveland, 1981-2', *Durham Archaeological Journal* 3, 53-55
- Huntley, J, 1988a 'The botanical remains', in R Daniels (ed), 'The Anglo-Saxon monastery at Church Close, Hartlepool, Cleveland', *Archaeological Journal* 145, 201-202 (158-210)
- Huntley, J, 1988b *Plant remains from Middlegate, Hartlepool, Cleveland 1987*, AML Report 86/88, English Heritage, London
- Huntley, J, 1989a *Plant remains from Peel Gap, Northumberland*, AML Report 114/89, English Heritage, London
- Huntley, J, 1989b 'The plant remains', in B E Vyner and R Daniels (eds), 'Further investigations of the Iron Age and Romano-British settlement site at Catcote, Hartlepool, Cleveland, 1987', *Durham Archaeological Journal* 5, 29-31 (11-34)
- Huntley, J, 1989c 'The plant remains', in C O'Brien, L Bown, S Dixon, L Donel, L J Gidney, J P Huntley, R Nicholson, and P Walton, 'Excavations at Newcastle Quayside: the Crown Court Site', *Archaeologia Aeliana* (5th series) 17, 180-182 (141-205)
- Huntley, J, 1990 *Carbonised plant remains from the Anglo-Saxon site at Morrison Hall, Hartlepool, Cleveland*, AML Report 66/89, English Heritage, London
- Huntley, J, 1993 *An assessment of environmental samples from Sadberge, Cleveland: SAD93*, archive report to Northern Archaeological Associates, Barnard Castle, Durham
- Huntley, J, 1994a *Darlington Market Place: DMP94. The plant remains*, Durham Environmental Archaeology Report 19/94, Department of Archaeology, University of Durham
- Huntley, J, 1994b 'The plant remains', in D Heslop, L Truman, and J E Vaughan, 'Excavations on Westgate Road, Newcastle 1991', *Archaeologia Aeliana* (5th series) 22, 182 (177-182)
- Huntley, J, 1998 *Black Carts, Northumberland: CAS-623. Assessment of bulk environmental samples and pollen monoliths from sections across Hadrian's Wall*, Durham Environmental Archaeology Report 18/98
- Huntley, J, 1999 'Environmental evidence from Hadrian's Wall', in P Bidwell (ed), *Hadrian's Wall 1989-1999: a summary of recent excavation and research prepared for the 12th Pilgrimage of Hadrian's Wall*, Cumberland and Westmorland Antiquarian and Archaeological Society and the Society of Antiquaries of Newcastle-upon-Tyne, Carlisle, 48-64
- Huntley, J, 2002 'Environmental archaeology: Mesolithic to Roman', in C Brooks, R Daniels and A Harding (eds), *Past, present and future: the archaeology of Northern England*, Architectural and Archaeological Society of Durham and Northumberland Research Report 5, Durham, 79-93
- Huntley, J, and Daniell, J, 2002 'The charred plant remains', in M Snape and P Bidwell, *The Roman fort at Newcastle-upon-Tyne*, Society of Antiquaries of Newcastle, Newcastle, 239-244
- Huntley, J P, and Stallibrass, S, 1995 *Plant and vertebrate remains from archaeological sites in northern England: data reviews and new directions*, Architectural and Archaeological Society of Durham and Northumberland Research Report 4, Durham
- Huntley, J, and Stokes, P, 1994 *Claxton Quarry Extension, Cleveland CXQ93*. Assessment of the environmental evidence, Durham Environmental Archaeology Report 23/94, Department of Archaeology, University of Durham
- Hydraulics Research, 1986 *A macro-review of the coastline of England and Wales 1: the north-east, St Abb's head to the Tees*, Institute for Hydraulics Research, Wallingford
- Inglis, S, 2004 *Played in Manchester: the architectural heritage of a city at play*, English Heritage, London
- Innes, J B, 2001 'The results of pollen analysis on Ravock Moor', in B E Vyner (ed), *Stainmore: the archaeology of a North Pennine pass*, Tees Archaeology Monograph Series 1, English Heritage, London, 41-47
- Innes, J B, and Shennan, I, 1991 'Palynology of archaeological and mire sediments from Dod, Borders Region, Scotland', *Archaeological Journal* 148, 1-45
- Instone, E, and Cranstone, D, 1994 *Monuments Protection Programme: the coal industry. Introduction to Step 3 site assessments*, English Heritage, London
- Irby-Massie, G, 1999 *Military religion in Roman Britain*, Brill, Leiden
- Issitt, M, Kenward, H, and Milles, A, 1995 *Invertebrate remains from excavations at Low Hauxley, Northumberland (site code: LH94): an assessment*, unpublished report, Reports from the Environmental Archaeology Unit, York 95/16, York
- Jackson, K H, 1982 'Brigomaglos and St Briog', *Archaeologia Aeliana* (5th series) 10, 61-65
- Jackson, M, 1993 *Engineering a cathedral: Proceedings of the Conference Engineering a Cathedral Held at Durham Cathedral on September 9-11, 1993 as Part of the 900th Anniversary Celebrations of Durham Cathedral*, Thomas Telford, London
- Jacobi, R M, 1976 'Britain inside and outside Mesolithic Europe', *Proceedings of the Prehistoric Society* 42, 67-84
- Jakob, B, 2004 *Prevalence and patterns of disease in early medieval populations: a comparison of skeletal samples from 5th to 8th century AD Britain and Germany*, unpublished PhD thesis, University of Durham
- James, S, 2001 'Soldiers and civilians: identity and interaction in Roman Britain', in S James and M Millett (eds), *Britons and Romans: advancing an archaeological agenda*, Council for British Archaeology Research Report 125, York, 77-89
- James, S, 2003 'Writing the legions: the development and future of Roman military studies in Britain', *Archaeological Journal* 159, 1-58
- James, S, and Millett, M (eds), 2001 *Britons and Romans: advancing an archaeological agenda*, Council for British Archaeology Research Report 125, York
- Jarrett, M G, 1959 'The defences of the Roman fort at Halton Chesters', *Archaeologia Aeliana* (4th series) 37, 177-190

Bibliography

- Jarrett, M G, 1960 'The Roman fort at Ebchester, County Durham', *Archaeologia Aeliana* (4th series) 38, 193-219
- Jarrett, M G, 1962 'The deserted village of West Whelpington', *Archaeologia Aeliana* (4th series) 40, 189-225
- Jarrett, M G, and Mason, H, 1995 '«Greater and more splendid»: some aspects of Romanesque Durham Cathedral', *Antiquaries Journal* 75, 189-233
- Jenner, A, 1999 'The pottery', in W B Griffiths, 'Excavations at the New Quay, Berwick upon Tweed 1996', *Archaeologia Aeliana* (5th series) 27, 83-91 (75-108)
- Jenner, A, and Cooper, D, 2001 'The pottery', in L Truman, 'Excavations at Stockbridge, Newcastle-upon-Tyne 1995', *Archaeologia Aeliana* (5th series) 29, 163-191 (95-221)
- Jervoise, E, 1931 *The ancient bridges of the north of England*, The Architectural Press, London
- Jessop, O, 1996 'The medieval hospital of St Mary Magdalene, Durham', *Archaeologia Aeliana* (5th series) 24, 119-127
- Jobey, G, 1959 'Excavations at the native settlement at Huckhoe, Northumberland, 1955-7', *Archaeologia Aeliana* (4th series) 57, 217-278
- Jobey, G, 1960 'Some rectilinear settlements of the Roman period in Northumberland', *Archaeologia Aeliana* (4th series) 37, 1-38
- Jobey, G, 1962 'An Iron Age homestead at West Brandon, Durham', *Archaeologia Aeliana* (4th series) 40, 1-34
- Jobey, G, 1963 'Excavation of a native settlement at Marden, Tynemouth', *Archaeologia Aeliana* (4th series) 41, 19-35
- Jobey, G, 1967 'Excavation at Tynemouth Priory and castle', *Archaeologia Aeliana* (4th series) 45, 33-104
- Jobey, G, 1968 'Excavations of cairns at Chatton Sandyford, Northumberland', *Archaeologia Aeliana* (4th series) 45, 5-50
- Jobey, G, 1970 'An Iron Age settlement and homestead at Burradon, Northumberland', *Archaeologia Aeliana* (4th series) 48, 51-96
- Jobey, G, 1971 'Excavations at Brough Law and Ingram Hill', *Archaeologia Aeliana* (4th series) 6, 1-28
- Jobey, G, 1973a 'A native settlement at Hartburn and the Devil's Causeway, Northumberland, 1971', *Archaeologia Aeliana* (5th series) 1, 11-53
- Jobey, G, 1973b 'A Romano-British settlement at Tower Knowe, Wellhaugh, Northumberland, 1972' *Archaeologia Aeliana* 1 (5th series), 55-79
- Jobey, G, 1977 'Iron Age and later farmsteads on Belling Law, Northumberland', *Archaeologia Aeliana* (5th series) 5, 1-38
- Jobey, G, 1978 'Iron Age and Romano-British settlements on Kennel Hall Knowe, North Tynedale, Northumberland (1976)', *Archaeologia Aeliana* (5th series) 6, 1-29
- Jobey, G, 1982 'The settlement at Doubstead and Romano-British settlement on the coastal plain between Tyne and Forth', *Archaeologia Aeliana* (5th series) 10, 1-23
- Jobey, G, 1983 'Excavation of an unenclosed settlement on Standrop Rigg, Northumberland and some problems related to similar settlements between Tyne and Forth', *Archaeologia Aeliana* (5th series) 11, 1-21
- Jobey, G, 1984 'The Cartington coffin: a radiocarbon date', *Archaeologia Aeliana* (5th series) 12, 235-237
- Jobey, G, 1992 'Cock-fighting in Northumberland and Durham during the eighteenth and nineteenth centuries', *Archaeologia Aeliana* (5th series) 20, 1-25
- Jobey, G, and Maxwell, D, 1957 'A square-headed brooch from Benwell', *Archaeologia Aeliana* (4th series) 35, 282-284
- Jobey, G, and Tait, J, 1966 'Excavations on palisaded settlements and cairnfields at Alnham, Northumberland', *Archaeologia Aeliana* (4th series) 44, 5-48
- Johnson, G A L, and Dunham, K A C, 1963 *The geology of Moor House*. A National Nature Reserve in north-east Westmoreland, Nature Conservancy Council Monograph 2, HMSO, London
- Johnson, G A L, and Dunham, K, 1982 'The stones of Durham Cathedral: a preliminary note', *Transactions of the Architectural and Archaeological Society of Durham and Northumberland* 6, 53-56
- Johnson, M, 2002a *Behind the castle gate: from castle to the Renaissance*, Routledge, London
- Johnson, M, 2002b 'An archaeology of medieval to early modern in northern Britain', in C Brooks, R Daniels and A Harding (eds), *Past, present and future: the archaeology of Northern England*, Architectural and Archaeological Society of Durham and Northumberland Research Report 5, Durham, 201-205
- Joint Nautical Archaeology Policy Committee, 1989 *Heritage at sea*, London
- Joint Nautical Archaeology Policy Committee, 1995 *Code of Practice for seabed developers*, London
- Jones, A K G, and Rackham, D J, 1979 *Hartlepool town wall excavations 1978*, AML Report 2933, English Heritage, London
- Jones, R, Sly, J, Simpson, D, Rackham, J, and Locker, A, 1985 *The terrestrial vertebrae remains from the Castle, Barnard Castle*, AML Report 4630, English Heritage, London
- Jones, S, 1997 *The archaeology of ethnicity: constructing identities in the past and present*, Routledge, London
- Jones, S, MacSween, A, Jeffrey, S, Morris, R, and Heyworth, M, 2001 *From the ground up: the publication of archaeological projects, a user needs survey*, Council for British Archaeology, York
- Kadish, S, 2004 *Code of practice for recording synagogues in imminent danger of closure*, Jewish Heritage UK, Manchester (<http://www.jewish-heritage-uk.org/codes/codesyn.pdf>)
- Kadish, S, 2005a *Code of practice for burial grounds*, Jewish Heritage UK, Manchester (<http://www.jewish-heritage-uk.org/codes/codebg.pdf>)
- Kadish, S 2005b '«Bey Hayim - House of Life»: an introduction to Jewish funerary art and architecture', *Transactions of the Ancient Monuments Society* 31-58
- Kay, D, and Young, R, 1988 'Discriminant function analysis (DFA) of mixed lithic scatters in the north-east of England: a case of misclassified identity', *Lithics* 9, 9-14
- Kear, D, 1986 'Clifford's fort and the defence of the Tyne', *Archaeologia Aeliana* (4th series) 14, 99-134
- Keeley, H C M, 1981 *Soil columns from Throckley*, AML Report 3401, 16/81, English Heritage, London
- Keeney, G S, and Richmond, I A, 1937 'The Roman works at Chew Green, Coquetdalehead', *Archaeologia Aeliana* (4th series) 14, 129-150
- Kenward, H, 1979 'Five insect assemblages', in M O H Carver, 'Three Saxo-Norman tenements in Durham City', *Medieval Archaeology* 23, 60-67 (1-80)
- Kenward, H, 2001 *Insect remains from the Romano-British ditch terminal at the Flodden Hill rectilinear enclosure*, Reports from the Environmental Archaeology Unit, York 2001/49, unpublished report for English Heritage, London
- Kenward, H, forthcoming *Northern Regional Review of Environmental Archaeology: Invertebrates*
- Kenyon, J R, 1977 'Wark Castle (Northumberland) and its artillery defences in the reign of Henry VIII', *Post-Medieval Archaeology* 11, 50-60
- Kenyon, J R, 1981 'Early artillery fortifications in England and Wales: a preliminary survey', *Archaeological Journal* 138, 205-240
- Kiernan, D, 1989 *The Derbyshire lead industry in the sixteenth century*. Derbyshire Record Society, Derby

- Kilbride-Jones, H, 1938 'The excavation of native settlement at Milking Gap, High Shield, Northumberland', *Archaeologia Aeliana* (4th series) 15, 303-350
- King, A, 2004 'Post-Roman upland architecture in the Craven Dales and the Dating Evidence', in J Hines, A Lane and M Redknap (eds), *Land, sea and home*, Society for Medieval Archaeology Monograph 20, Leeds, 335-345
- Kinnes, I A, and Longworth, H, 1985 *Catalogue of the excavated prehistoric and Romano-British material in the Greenwell Collection*, British Museum Publications, London
- Knight, S, and Keen, L, 1977 'Medieval floor tiles from Gisborough Priory, Yorkshire', *Yorkshire Archaeological Journal* 49, 65-75
- Knowles, D, and Hadcock, R N, 1953 *Medieval religious houses. England and Wales*, Longmans, London
- Knowles, W H, and Forster, R H, 1908 'Corstopitum: report on the excavations in 1908', *Archaeologia Aeliana* (3rd series) 5, 305-421
- Kramer, E, Stoumann, I, and Greg, A, 2000 *Kings of the North Sea AD250-850*, Tyne and Wear Museums, Newcastle
- Lang, J T, 1977 'St Helena Cross, Church Kelloe, Co. Durham', *Archaeologia Aeliana* (5th series) 5, 105-119
- Lang, J T, 2001 *Corpus of Anglo-Saxon stone sculpture. Vol. 1, North Yorkshire*. Oxford University Press, Oxford
- Langston, J, 2001 'Human skeletal remains', in E Cambridge, T Gates and A Williams, 'Berwick and beyond: medieval religious establishments on the north-western margin of Berwick-upon-Tweed: problems of identity and context', *Archaeologia Aeliana* (5th series) 29, 59-63 (33-94)
- Larkman, B, 2000 'The use of non-immersive virtual reality technologies to record, navigate and analyse artefact-rich landscapes', *Internet Archaeology* 8, http://intarch.ac.uk/journal/issue8/larkman_toc.html
- Laurie, T, 1985 'Early settlement and land division in Swaledale and on the eastern approaches to the Stainmore Pass', in D Spratt and C Burgess (eds), *Upland settlement in Britain: the second millenium BC and after*, BAR 143, 135-162
- Laurie, T, 2004 'Spings, woods and transhumance: reconstructing a Pennine landscape during late prehistory', *Landscape* 5 (1), 73-102
- Leach, P, 1988 *James Paine* Zwimmer, London
- Lee, G E, and Harding, A F, 1987 *Henge monuments and related sites of Great Britain: air photographic evidence and catalogue*, BAR 175, Oxford
- Lees, M, 1997 'There's more to Lindisfarne...', *Archaeology in Northumberland 1996-1997*, 6-7
- Lewis, M, 1970 *Early wooden railways*, Routledge and Kegan Paul, London
- Lewis, M, 2003 *Early Railways 2*, Newcomen Society, London
- Leyland, M, 1994 *The origins and development of Durham Castle to AD1217: the archaeological and architectural record*, unpublished PhD thesis, University of Durham
- Lilburn, A J, 1986 'Seventeenth century accounts relating to the forts on Holy Island and the mouth of the Tyne 1675 to 1681', *Archaeologia Aeliana* 14 (5th series), 135-142
- Linsley, S, 1985 'The fixed barn threshing machine and its influence on farmstead layout in Northumberland', in P Clack and J Ivy (eds), *Making sense of building*, Council for British Archaeology Group 3 Publication, Durham, 117-135
- Linsley, S, 1992 'The road past Killhope and some other orefield turnpikes', in B Chambers (ed), *Men, mines and minerals in the North Pennines* Friends of Killhope, Killhope, 71-80
- Linsley, S, 2002 'Overview of the industrial period', in C Brooks, R Daniels and A Harding (eds), *Past, present and future: the archaeology of Northern England*, Architectural and Archaeological Society of Durham and Northumberland Research Report 5, Durham, 206-213
- Linsley, S, and Hetherington, R, 1978 'A seventeenth century blast furnace at Allensford, Northumberland', *Historical Metallurgy* 12/1, 1-11
- Locker, A, 1990 'The fish bones', in R Daniels (ed), 'The development of medieval Hartlepool: excavations at Church Close, 1984-85', *Archaeological Journal* 147, 396 (337-410)
- Locker, A, and Rackham, D J, 1987 'Summary report on the vertebrate remains', in G A B Young (ed), 'Excavations at South gate, Hartlepool, Cleveland, 1981-2', *Durham Archaeological Journal* 3, 53 (15-55)
- London Archaeology, 2002 *A research framework for London archaeology 2002*, London Archaeology, London
- Long, A, Bridgland, D, Innes, J, Mitchell, W, Rutherford, M, and Vyner, B E, 2004 *The Swale-Ure washlands: landscape history and human impacts*, University of Durham
- Long, C, 1988 'Iron Age and Romano-British settlement at Catcote, Hartlepool', *Durham Archaeological Journal* 4, 13-36
- Longstaffe, W H D, 1972. *The History and Antiquities of the Parish of Darlington Patrick and Shotton*, Stockton-on-Tees
- Looker, A, 1991 'Fish bones', in R Daniels 1991 'The development of medieval Hartlepool: excavations at Church Close, 1984-85' *Archaeological Journal* 147, 396-398 (337-410)
- Loveluck, C, 1990 *A re-interpretation of the Sprouston cropmark palimpsest in relation to the Yeavinger and Milfield types of site*, unpublished BA dissertation, University of Durham
- Loveluck, C, 1995 'Acculturation, migration and exchange: the formation of an Anglo-Saxon society in the English Peak District AD 400-700', in J Bintliff and H Hamerow (eds), *Europe between Late Antiquity and the Middle Ages: recent archaeological and historical research in Western and Southern Europe*, BAR International Series 617, Oxford, 84-97
- Loveluck, C, 2002 'The Romano-British to Anglo-Saxon Transition: social transformations from the Late Roman to Early Medieval Period in Northern England AD400-700', in C Brooks, R Daniels and A Harding (eds), *Past, present and future: the archaeology of northern England*, Architectural and Archaeological Society of Durham and Northumberland Research Report 5, Durham, 127-148
- Lowther, P, Ebbatson, L, Ellison, M, and Millett, M, 1993 'The City of Durham Archaeological Survey', *Durham Archaeological Journal* 9, 27-119
- LUAU/NUAP, 1997 *Otterburn training area, Northumberland: report on second archaeological evaluation*, unpublished report for the Ministry of Defence
- Macaulay, J, 1975 *The Gothic revival 1745-1845*, Blackie, Glasgow
- Macdonald, F, 2000 'Excavations on an Anglo-Saxon inhumation cemetery at Seaham', *Teesside Archaeology Society Bulletin*, Spring 2000, 1-5
- Macdonald, G, 1931 'The bath-house at the fort of Chesters', *Archaeologia Aeliana* (4th series) 8, 219-304
- MacGregor, M, 1976 *Early Celtic art in North Britain*, Leicester University Press, Leicester
- MacIvor, R, 1965 'The Elizabethan fortifications of Berwick', *Archaeological Journal* 45, 64-96
- MacIvor, R, 1976 'Ravensdowne Barracks, Berwick-upon-Tweed', *Archaeological Journal* 133, 184-185
- Mackenzie, E, and Ross, M, 1834 *An historical, topographical, and descriptive view of the county palatine of Durham*, Mackenzie and Dent, Newcastle
- MacLauchlan, H, 1852 *Memoir written during a survey of the Watling Street, from the Tees to the Scotch border, in the years*

Bibliography

- 1850 and 1851, made by direction of His Grace the Duke of Northumberland, on the occasion of the meeting of the Archaeological Institute, at Newcastle-upon-Tyne, privately printed, London
- MacLauchlan, H, 1864 *Memoir written during a survey of the Watling Street, from the Tees to the Scotch border, in the years 1850 and 1851, made by direction of His Grace the Duke of Northumberland, on the occasion of the meeting of the Archaeological Institute, at Newcastle-upon-Tyne*, privately printed, London
- MacLauchlan, H, 1919-22 'Notes on camps in the parishes of Branxton, Carham, Ford, Kirknewton and Wooler in Northumberland', *History of the Berwickshire Naturalists Club* 24, 451-470
- Macklin, M G, Passmore, D G, and Rumsby, B T, 1992 'Climatic and cultural signals in Holocene alluvial sequences: the Tyne basin, northern England', in S Needham and M G Macklin (eds), *Alluvial archaeology in Britain*, Oxbow Books, Oxford, 123-139
- Manby, T, 1999 'Grooved Ware sites in Yorkshire and northern England 1974-1994', in R Cleal and A MacSween (eds), *Grooved Ware in Britain and Ireland*, Neolithic Studies Group Seminar Papers 3, Oxford, 57-75
- Manchester, M, 2001 *Radiocarbon date from Bollihope Common*, unpublished report
- Manchester, M, Webster, J, and Young, R, nd *Archaeological survey and excavation on Bollihope Common, Weardale, Co. Durham*, unpublished report
- Manders, F W D, 1973 *A history of Gateshead*, Gateshead Corporation, Gateshead
- Manning, W, 1976 *Catalogue of Romano-British ironwork in the Museum of Antiquities*, Newcastle-upon-Tyne, Department of Archaeology, University of Newcastle
- MAP2, 1991 *Management of Archaeological Projects*, Historic Buildings and Monuments Commission for England, London
- Margary, I, 1973 *Roman roads in Britain*, J Baker, London
- Marlow, M, 1992 'The population', in S Sherlock and M Welch (eds), *An Anglo-Saxon cemetery at Norton, Cleveland*, Council for British Archaeology Research Report 82, York, 107-118
- Maryon, H, 1937 'The gold ornaments from Cooper's Hill, Alnwick', *Archaeologia Aeliana* (4th series) 16, 101-108
- Masters, L, 1984 'The Neolithic long cairns of Cumbria and Northumberland', in R Miket and C Burgess (eds), *Between and beyond the walls: essays in honour of George Jobey John Donald*, Edinburgh, 52-73
- Matthews, J, 2000 'New methods on old castles: generating new ways of seeing', *Medieval Archaeology* 43, 115-142
- Matthews, K, 1999 'Familiarity and contempt: the archaeology of the 'modern'', in S Tarlow and S West (eds), *The familiar past?* Routledge, London, 155-179
- Mays, S, 1998 *The archaeology of human bones*, Routledge, London
- McCarthy, M, 1995 'Archaeological and environmental evidence for the Roman impact on vegetation near Carlisle, Cumbria', *The Holocene* 5, 491-495
- McCarthy, M, 1997 'Archaeological and environmental evidence for the Roman impact on vegetation near Carlisle, Cumbria: a reply to Dumayne-Peaty and Barber', *The Holocene* 7, 491-495
- McCarthy, M, 2002 'The archaeology of Roman non-military sites', in C Brooks, R Daniels and A Harding (eds), *Past, present and future: the archaeology of Northern England*, Architectural and Archaeological Society of Durham and Northumberland Research Report 5, Durham, 105-112
- McCord, N, 1971 *Durham history from the air*, Durham County Local History Society, Durham
- McCord, N, 1991 *North-east history from the air*, Phillimore, Chichester
- McCord, N, and Thompson, R, 1998 *The northern counties from AD1000*, Longmans, London
- McDonnell, G, 1987 'The metalworking debris', in D Heslop (ed), *The excavation of an Iron Age Settlement at Thorpe Thewles, Cleveland 1980-2*, Council for British Archaeology Research Report 65, London, 92
- McDonnell, G, 1997 'The slags and residues', in D Cranstone, *Derwentcote Steel Furnace: an Industrial Monument in County Durham*, Lancaster Imprints 6, Lancaster, 93-102
- McDonnell, G and Cranstone, D, 1991 'Steelmaking at Derwentcote', *English Heritage Conservation Bulletin* 15, English Heritage, London, 6-8
- McDonnell, G, and Webb, J, 1992 *X-ray diffraction analysis of mortar samples from Derwentcote furnace, Co Durham*, AML Report 31/92, English Heritage, London
- McHugh, M, 1992a *Soils, vegetations and landuse change in the Stainmore area of the Northern Pennines*, AML Report New Series 45/92, English Heritage, London
- McHugh, M, 1992b *Notes on soils from the Ravock field system above Deepdale in Western County Durham*, AML Report New Series 85/92, English Heritage, London
- McKelvey, J, 2003 'Recent discoveries of defensive features at the eastern end of Hadrian's Wall, Newcastle', *Archaeology North* 21, 12-13
- Meaney, A, 1964 *A gazetteer of Early Anglo-Saxon burial sites*, Allen and Unwin, London
- MSRG, 1996 *Medieval rural settlements: a policy on their research, survey, conservation and excavation*, http://www.britarch.ac.uk/msrg/policy_statement.htm
- Mellers, P, 1970 'An antler harpoon-head of "Obanian", affinities from Whitburn, County Durham', *Archaeologia Aeliana* 48 (4th series), 337-346
- Mellor, M, 1994 *Medieval ceramic studies in England: a review for English Heritage*, English Heritage, London
- Merriman, P, 2005 '«Operation Motorway»: landscapes of construction on England's M1 motorway', *Journal of Historical Geography* 31 (1), 113-133
- Mighall, T M, Dumayne-Peaty, L, and Freeth, S, 2004 'Metal mining and vegetational history of the upper Rookhope valley, Weardale, UK', in D Barker and D Cranstone (eds), *The archaeology of industrialisation*, Society for Post-Medieval Archaeology Monograph 2, Leeds, 119-136
- Miket, R, 1974 '«Undoubted Anglian burials» from Hepple', *Archaeologia Aeliana* (5th series) 2, 275-280
- Miket, R, 1976 'The evidence for Neolithic activity in the Milfield Basin, Northumberland', in C B Burgess and R Miket (eds), *Settlement and economy in the third and second millennia BC*, BAR 33, 113-142
- Miket, R, 1978 'Two early Anglo-Saxon brooches from Chesters and Chesterholm', *Archaeologia Aeliana* (5th series) 6, 177-180
- Miket, R, 1980 'A restatement of evidence from Bernician Anglo-Saxon burials', in P Rahtz, T Dickinson and L Watts (eds), *Anglo-Saxon cemeteries* 1979, BAR 82, 289-305
- Miket, R, 1981 'Pit alignments in the Milfield Basin and the excavation of Ewart 1', *Proceedings of the Prehistoric Society* 47, 137-146
- Miket, R, 1982 'An Anglo-Saxon small-long brooch from Hylton', *Archaeologia Aeliana* (5th series) 10, 209-211
- Miket, R, 1983 *The Roman fort at South Shields: excavation of the defences 1977-1981*, Tyne and Wear County Council Museums, Newcastle-upon-Tyne

- Miket, R, 1984a 'An Anglo-Saxon small-long brooch from Cleadon, Tyne and Wear', *Archaeologia Aeliana* (5th series) 12, 245
- Miket, R, 1984b *The prehistory of Tyne and Wear: an inventory of prehistoric discoveries in the Metropolitan County of Tyne and Wear*, Northumberland Archaeological Group in association with the Cheviot Museum and Field Centre
- Miket, R, 1985a 'Two Anglo-Saxon brooches: provenance to near Corbridge', *Archaeologia Aeliana* (5th series) 13, 214-216
- Miket, R, 1985b 'Ritual enclosures at Whitton Hill, Northumberland', *Proceedings of the Prehistoric Society* 51, 137-148
- Miket, R, and Cramp, R, 1982 *Catalogue of the Anglo-Saxon and Viking antiquities in the Museum of Antiquities, Newcastle-upon-Tyne*, Museum of Antiquities of Newcastle, Newcastle-upon-Tyne
- Miket, R, and Pocock, M, 1976 'An Anglo-Saxon cemetery at Greenbank, Darlington [Durham]', *Medieval Archaeology* 20, 62-74
- Miller, I (ed), 2002 *Steeped in history: the alum industry of North-East Yorkshire*, North York Moors National Park Authority, Thirsk
- Millett, M, 2001 'Approaches to urban societies', in S James and M Millett (eds), *Britons and Romans: advancing an archaeological agenda*, Council for British Archaeology Research Report 125, York, 60-66
- Mills, C M, 2000 'Dendrochronology of oak timbers from historic buildings in St Andrews, Fife', *Tayside and Fife Archaeological Journal* 6, 200-210
- Mills, S, and Webster, L, 1991 'Selected finds from the Anglo-Saxon monastery at Jarrow, Tyne and Wear', in L Webster and J Backhouse (eds), *The making of England: Anglo-Saxon art and culture AD600-900*, British Museum Press, London, 138-140
- Mitcheson, M, and Charlton, B, 1984 'The Roman cemetery at Petty Knowes, Rochester, Northumberland', *Archaeologia Aeliana* (5th series) 12, 1-31
- Mlekuz, D, 2004 'Listening to landscapes: modelling past soundscapes in GIS', *Internet Archaeology* 16, http://intarch.ac.uk/journal/issue16/mlekuz_index.html
- Monaghan, J M, 1994 'An unenclosed Bronze Age house site at Lookout Plantation, Northumberland', *Archaeologia Aeliana* (5th series) 22, 29-41
- Monkton, A, 2003 'An archaeological resource assessment and research agenda for environmental Archaeology in the East Midlands', *East Midlands Archaeological Research Framework* http://www.le.ac.uk/ar/pdf_files/emidenv.pdf
- Moores, A J, 1998 *Palaeoenvironmental investigations of Holocene landscapes in the North Tyne Basin, northern England*, unpublished PhD thesis, University of Newcastle
- Moores, A J, and Passmore, D, 1999 *Holocene vegetation histories and human activity in Upland Coquetdale: pollen records from Bloody Moss, Otterburn Training Area and Caudhole Moss, Simonside Hills*, unpublished report to Northumberland National Park
- Moorhouse, S, 1982 'The pottery', in J R Hunter, 'Medieval Berwick-upon-Tweed', *Archaeologia Aeliana* (5th series) 10, 99-122 (67-124)
- Moorwood, G, and Hodgson, N, 1992 'Roman Bridges on the Devil's Causeway?', *Britannia* 23, 241-245
- Morley, B, and Speak, S, 2003 'Excavation and survey at Hylton Castle, Sunderland', *Archaeological Journal* 159, 258-265
- Morris, C, 1995 *The Illustrated Journeys of Celia Fiennes* Sutton, Stroud
- Morris, R, 2003 *The archaeology of railways*, Tempus, Stroud
- Morris, R W B, 1981 *The prehistoric rock art of south Scotland*, BAR 86, Oxford
- Mulville, J, 1993 *Fellow's Garden, Durham Castle. Animal bone archive report*, West Yorkshire Archaeology Services, Wakefield
- Myres, J N L, 1977 *A corpus of Anglo-Saxon pottery of the Pagan period*, Cambridge University Press, Cambridge
- NAA, 1996 *An archaeological evaluation at Burns Cottage, Greta Bridge*, unpublished report, Northern Archaeological Associates
- NAA, 1997 *Assessment of medieval pottery kilns, Aldin Grange, Durham*, unpublished report, Northern Archaeological Associates
- NAA, 1999 *Excavation of a Cemetery at Seaham Hall Lodge, C.o Durham*, unpublished report, Northern Archaeological Associates
- NCAS, 2001 *Air raid shelters at the Royal Grammar School, Eskdale Terrace, Newcastle-upon-Tyne. Archaeological survey and recording*, unpublished report, Northern Counties Archaeological Services, Newcastle
- NCAS, 2003 *Greenesfield railway works, Gateshead. Recording and watching brief, unpublished report prepared for Bellway Homes North East*, Northern Counties Archaeological Services, Newcastle
- NEVAG, 1997 *North East Vernacular Architecture Group 1997. Building Studies, Volume 1*, North East Vernacular Architecture Group, West Auckland
- Newbigin, N, 1933 'Cup-marked rocks on Chirnell's Moor, Rothbury', *Proceedings of the Society of Antiquaries of Newcastle-on-Tyne* 6, 345-344
- Newbigin, N, 1935a 'The "Devil's Lapful" Long Cairn, near Kielder', *Proceedings of the Society of Antiquaries of Newcastle-on-Tyne* 7, 166-167
- Newbigin, N, 1935b 'Neolithic A pottery in Northumberland', *Archaeologia Aeliana* (4th series) 12, 148-157
- Newbigin, N, 1936 'Excavations of a long and a round cairn on Bellshiel Law, Redesdale', *Archaeologia Aeliana* (4th series) 13, 293-308
- Newman, R, 2002 'Anglo-Saxon Christianity', in C Brooks, R Daniels and A Harding (eds), *Past, present and future: the archaeology of northern England*, Architectural and Archaeological Society of Durham and Northumberland Research Report 5, Durham, 149-154
- Newman, R, 2005 'Farmers and fields: developing a research agenda for post-medieval agrarian society and landscape,' *Post-Medieval Archaeology* 39/2, 205-214
- Newman, T G N, and Harbottle, B, 1973 'Excavation and survey [of a bastle-house and farmsteads] on the Starsley Burn, North Tynedale, 1972', *Archaeologia Aeliana* (5th series) 1, 137-175
- Newman, T G, 1976 'A crop-mark site at Hasting Hill, Tyne and Wear', *Archaeologia Aeliana* (5th series) 4, 183-184
- Newman, T G, Gillam, J P, and Harrison, R M, 1973 'Interim report on excavations at the Roman fort of Rudchester, 1972', *Archaeologia Aeliana* (5th series) 1, 81-85
- Nichol, R J, 2004 *Stanhope Park archaeological survey*, unpublished report
- Nicholson, O, 1995 'The Corbridge lanx and the Emperor Julian', *Britannia* 26, 312-315
- Nicholson, R, 1988 'The fish remains', and 'The marine molluscs and crustaceans', in C O'Brien, L Bown, S Dixon, and R Nicholson, *The origins of Newcastle Quayside: excavations at Queen Street and Dog Bank*, Society of Antiquaries of Newcastle-upon-Tyne Monograph 3, Newcastle, 139-147 and 148-149
- Nicholson R, 1989 'The biological analyses', in C O'Brien, L Bown, S Dixon, L Donel, L J Gidney, J P Huntley, R Nicholson, and P Walton, 'Excavations at Newcastle Quayside: the Crown Court Site', *Archaeologia Aeliana* (5th series) 17, 141-205, Fiche M2/A13 (141-205)
- Nicholson, R, 1993 *Fish remains from excavations at the Fellow's*

Bibliography

- Garden, Durham (FG91), unpublished archive report, Northern Archaeological Associates
- Noddle, B, 1987 *Animal bones from Jarrow, 3rd Report*, AML Report 80/87, English Heritage, London
- Noddle, B, 1992 *Animal bone from Monkwearmouth*, unpublished archive report for R J Cramp, Department of Archaeology, University of Durham
- Nolan, J, 1990 'The Castle of Newcastle-upon-Tyne after c.1600', *Archaeologia Aeliana* (5th series) 19, 79-126
- Nolan, J, 1993 'The town wall, Newcastle-upon-Tyne. Excavations at Orchard Street and Croft Street, 1987-89', *Archaeologia Aeliana* (5th series) 21, 93-149
- Nolan, J, Harbottle, B, Fraser, R, and Burton, F C, 1989 'The medieval town defences of Newcastle-upon-Tyne: excavation and survey 1986-7', *Archaeologia Aeliana* (5th series) 17, 29-78
- Nolan, J, and Harbottle, B, forthcoming 'The early medieval cemetery at the castle of Newcastle-upon-Tyne', *Archaeologia Aeliana*
- Nolan, J, and Vaughan, J, 2002 *Excavations at the site of the Regional Music Centre, Gateshead* ARCUS, unpublished report
- North Pennines AONB, 2004 *North Pennines Management Plan 2004-2009*, North Pennines AONB
- Northumberland Coast AONB, 2004 *Northumberland Coast Management Plan 2004-9*, Northumberland Coast AONB Partnership
- Northover, P, 1988 'The analysis and metallurgy of British Bronze Age swords', in I Colquhoun and C Burgess, *The swords of Britain*, Prähistorische Bronzefunde IV/5, Munich, 130-146
- Norton, S, and Boylston, A, 1997 *Binchester Roman Fort, County Durham: report on the human skeletal remains*, unpublished report, Bradford University
- OAN 2003 *Excavations at Bottle Bank, Gateshead* Oxford Archaeology North, Unpublished Archive Report
- O'Brien, C, 1991 'Newcastle-upon-Tyne and its North Sea Trade', in G L Good, R H Jones, and M W Ponsford (eds), *Waterfront archaeology: Proceedings of the Third International Conference*, Bristol, Council for British Archaeology Research Report 74, York, 36-42
- O'Brien, C, 2000 'Thirlings Building C: a Pagan shrine?', *Archaeologia Aeliana* (5th series) 28, 47-49
- O'Brien C, Bown L, Dixon S, Donel L, Gidney, L J, Huntley J P, Nicholson, R, and Walton P, 1989 'Excavations at Newcastle Quayside: the Crown Court Site', *Archaeologia Aeliana* (5th series) 17, 141-205
- O'Brien, C, Bown, L, Dixon, S. and Nicholson, R, 1988 *The origins of Newcastle Quayside: excavations at Queen Street and Dog Bank*, Society of Antiquaries of Newcastle-upon-Tyne Monograph, Newcastle
- O'Brien, C, and Miket, R, 1991 'The early medieval settlement of Thirlings, Northumberland', *Durham Archaeological Journal* 7, 57-91
- Olivier, A, 1996 *Frameworks for our past: a review of research frameworks, strategies and perceptions*, English Heritage, London
- Oram, R, Griffiths, W B, and Hodgson, N, 1998 'The excavations at Wallsend Colliery B Pit 1997', *Archaeologia Aeliana* (5th series) 26, 115-160
- Osborne, P J, 1994 'The insects', in P Bidwell and S Speak (eds), *Excavations at South Shields Roman fort, vol 1*, Society of Antiquaries of Newcastle Monograph 4, Newcastle-upon-Tyne, 266
- O'Sullivan, D, 1985 'An excavation in Holy Island village 1977', *Archaeologia Aeliana* (5th series) 9, 8-11
- O'Sullivan, D, and Young, R, 1991 'The early medieval settlement at Green Shiel, Northumberland', *Archaeologia Aeliana* (5th series) 19, 55-69
- O'Sullivan, D, and Young, R, 1995 *Book of Lindisfarne Holy Island*, English Heritage, London
- Oswald, A, 2004a 'Field survey at Dunstanburgh', *Archaeology in Northumberland* 14, 25
- Oswald, A, 2004b 'An Iron Age hillfort in an evolving landscape: analytical field survey on West Hill, Kirknewton', in P Frodsham (ed), *Archaeology in Northumberland National Park*, Council for British Archaeology Research Report 136, York, 202-212
- Oswald, A, Jecock, M, and Ainsworth, S, 2000 *An Iron Age hillfort and its environs on West Hill, Northumberland*, unpublished English Heritage survey report for Northumberland National Park Authority
- Oswald, A, and McOmish, D, 2002a *An Iron Age hillfort on Mid Hill, Northumberland*, unpublished English Heritage survey report for Northumberland National Park Authority
- Oswald, A, and McOmish, D, 2002b *An Iron Age hillfort and its environs on St Gregory's Hill, Northumberland*, unpublished English Heritage survey report for Northumberland National Park Authority
- Ottaway, P, Rogers, N, and Addyman, P V, 2002 *Craft, industry and everyday life: finds from medieval York* Archaeology of York 17/15, York Archaeological Trust/ Council for British Archaeology, York
- Oxford Archaeology North, 2003 *Excavations at Bottle Bank, Gateshead*, unpublished report
- Pagan, H E, 1966 'The Gainford hoard', *British Numismatic Journal* 35, 190-191
- Pagan, H E, 1974 'Anglo-Saxon coins found at Hexham', in D P Kirby (ed), *Saint Wilfrid at Hexham*, Oriel Press, Newcastle-upon-Tyne, 185-190
- Page, W (ed), 1905 *Victoria History of County Durham 1*, Constable, London
- Pallister, A, and Wrathmell, S, 1990 'The deserted village of West Hartburn, third report: excavation of Site D and discussion', in B E Vyner (ed), *Medieval rural settlement in North East England*, Architectural and Archaeological Society of Durham and Northumberland, Durham, 59-75
- Parsons, J E, 1964 'The archaeology of the clay tobacco pipe in North-East England', *Archaeologia Aeliana* (4th series) 42, 231-254
- Passmore, D G, and Macklin, M G, 1997 'Geoarchaeology of the Tyne basin: Holocene river valley environments and the archaeological record', in C Tolan-Smith (ed), *Landscape Archaeology in Tynedale*, Tyne-Solway Ancient and Historic Landscapes Research Programme Monograph, Department of Archaeology, University of Newcastle, Newcastle, 11-27
- Passmore, D, Waddington, C, and Houghton, S, 2002 'Geoarchaeology of the Milfield Basin, northern England; towards an integrated archaeological prospection, research and management framework', *Archaeological Prospection* 9 (2), 71-91
- Pattinson, T, 1981 'Excavation of the Magdalene Chapel, Warkworth, Northumberland', *Archaeologia Aeliana* (5th series) 9, 251-265
- Paynter, S, 2001 *Analysis of lead slag from Bollihope Common*, unpublished report
- Payton, R W, and Usai, M-R, 1995 *Assessment of soils and sediments from an exploratory excavation at Low Hauxley, Northumberland*, Reports from the Environmental Archaeology Unit 95/42, York
- PCA North, 2003 *Alnwick Castle Gardens assessment report*, unpublished report
- PCA North, 2004 *An archaeological evaluation at the former Vaux*

- Brewery, *St Mary's Way, Sunderland, Tyne and Wear*, Tyne and Wear Heritage Environment Report 2004/114
- PCA North, forthcoming *Excavations on the Iron Age and Roman site at Faverdale Business Park, Darlington*, unpublished report
- Pearson, T, 1998 *Yeavinger Bell Hillfort, Northumberland*, unpublished survey report, RCHME, Swindon
- Perring, D, Whyman, M, Finch, J, Rosseff, R, and Condron, F, 2002 *Town and country in England: frameworks for archaeological research*, Council for British Archaeology Research Report 134, York
- Perry, J T, 1894 'The influence of the Hanseatic League on the architecture of Northern Europe', *Royal Institute of British Architecture Journal* 1, 473-494
- Peters, C, 1996 'Interiors and furnishings', in J Blair and C Pyrah (eds), *Church archaeology: research directions for the future*, Council for British Archaeology Research Report 104, York, 68-75
- Petts, D, 1998 'Landscape and cultural identity in Roman Britain', in R Laurence and J Berry (eds), *Cultural identity in the Roman Empire*, Routledge, London, 79-94
- Petts, D, 2003 *Christianity in Roman Britain*, Tempus, Stroud
- Philipson, J, and Child, F A, 1960 'Remains of illicit distilleries in Upper Coquetdale', *Archaeologia Aeliana* (4th series) 38, 99-112
- Philpott, R, 1991 *Burial practices in Roman Britain: a survey of grave treatment and furnishing AD43-410*, BAR 219, Oxford
- Pickin, J, 1982 'Axe hammer or witch stone', *Archaeology North* 3, 10-11
- Pickin, J, 1991 'Staple Crag, Upper Teesdale: site consolidation and recording', *Archaeology North* 2, 10-11
- Pickin, J, and Vyner, B E, 2001 'Finds of prehistoric metalwork in the Bowes Moor area', in B E Vyner (ed) *Stainmore: the archaeology of a North Pennine pass*, Tees Archaeology Monograph Series 1, English Heritage, London, 163-165
- Piggot, C M, 1948 'Excavation of Hownam Rings, Roxburghshire', *Proceedings of the Society of Antiquaries of Scotland* 82, 193-225
- Piggot, S, 1950 'Swords and scabbards of the British Early Iron Age', *Proceedings of the Prehistoric Society* 16, 1-28
- Pirie, E J E, 2000 *Thrymsas, sceattas and stycas of Northumbria. An inventory of finds recorded to 1997*, Northumbrian Numismatic Studies 2, Galata Print, Llanfyllin
- Pirie, E J E, 2004 'The Bamburgh hoard of ninth-century Northumbrian coins', *Archaeologia Aeliana* (5th series) 33, 65-75
- Pocock, M, and Wheeler, H, 1971 'Excavations at Escomb Church, Co Durham', *Journal of the British Archaeological Association* 34, 11-29
- Polley, C, and Turnbull, J, 2005 'Coping with congestion: responses to urban traffic problems in British Cities c.1920-1960', *Journal of Historical Geography* 31 (1), 78-93
- Ponting, M, forthcoming *Archaeometallurgy research frameworks*, Historical Metallurgy Society
- Pope, R, 2003 *Prehistoric dwelling: circular structures in north and central Britain c2500 BC-AD 500*, unpublished PhD thesis, University of Durham
- Posford Duvivier, 1993 *Durham Coast Management Plan: coastal processes report*, Posford Duvivier Environment, Peterborough
- Poulter, J, 1998 'The date of the Stanegate, and a hypothesis about the manner and timing of the construction of Roman roads in Britain', *Archaeologia Aeliana* (5th series) 26, 49-56
- Pratt, K, 1996 *Development of methods for investigating settlement and land-use using pollen data: a case-study from north-east England, c8000 cal.BC-cal. AD500*, unpublished PhD thesis, University of Durham
- Prehistoric Ceramics Research Group, 1991 *The study of later prehistoric pottery: general policies*, Occasional Paper 1, Oxford
- Prehistoric Society, 1999 *Research frameworks for the Palaeolithic and Mesolithic of Britain and Ireland*, English Heritage, Southampton
- Price, J, 1988 'Romano-British glass bangles from East Yorkshire', in J Price and P R Wilson (eds), *Recent research in Roman Yorkshire*, BAR 193, 339-366
- Price, J, 2002a 'Broken bottles and quartz sand: glass production in Yorkshire and the North in the Roman period', in P R Wilson and J Price (eds), *Aspects of industry in Roman Yorkshire and the North Oxbow*, Oxford, 81-93
- Price, J, 2002b 'Two vessels from Llandoverly and Piercebridge: a note on Flavian and polychrome mosaic glass in Britain', in M Aldhouse-Green and P Webster (eds) *Artefacts and archaeology*, University of Wales Press, Cardiff, 112-132
- Proctor, J, 2002 'An Iron Age and Romano-British settlement at Pegswood, Northumberland', *Archaeology in Northumberland 2002-2003*, 15-18
- Quartermaine, J, 2002 'Upland survey: Neolithic and Bronze Age sites', in C Brooks, R Daniels and A Harding (eds), *Past, present and future: the archaeology of Northern England*, Architectural and Archaeological Society of Durham and Northumberland Research Report 5, Durham, 29-36
- Rackham, D J, 1977 *Kennel Hall Knowe, 1976, Northumberland: bone*, AML Report 2976, English Heritage, London
- Rackham, D J, 1979 'Animal resources', in M Carver 'Three Saxo-Norman tenements in Durham City', *Medieval Archaeology* 23, 47-54 (1-80)
- Rackham D J, 1980a 'Bone and shell', in P A G Clack, 'Rescue excavations in County Durham 1976-78', *Transactions of the Architectural and Archaeological Society of Durham and Northumberland* 5, 53-79
- Rackham, D J, 1980b 'Animal bones', in E Tullet and G McCrombie, 'An excavation in the Cloth Market, Newcastle-upon-Tyne, 1979', *Archaeologia Aeliana* (5th series) 8, 141 (127-141)
- Rackham, D J, 1980c 'A note on animal remains found', in J Clipson, 'Back Silver Street, Durham, 1975-76 excavations', *Archaeologia Aeliana* (5th series) 8, 124-125 (109-126)
- Rackham, D J, 1981 *Coxhoe excavations in 1979 and 1980. A summary of the animal bone finds*, AML Report 3799, English Heritage, London
- Rackham, D J, 1982 'Faunal remains', in C Haselgrove and V L Allon, 'An Iron Age settlement at West House, Coxhoe, County Durham', *Archaeologia Aeliana* (5th series) 10, 43-44 (25-51)
- Rackham, D J, 1985a 'The animal bone', in D H Evans and D H Heslop, 'Two medieval sites in Yarm', *Yorkshire Archaeological Journal* 57, 76-77 (43-77)
- Rackham, D J, 1985b *Preliminary sampling exercise on a medieval and post-medieval midden, Lindisfarne*, AML Report 4455, English Heritage, London
- Rackham D J, 1987a 'The animal remains', in B Harbottle and R Fraser, 'Black Friars, Newcastle-upon-Tyne, after the dissolution of the monasteries', *Archaeologia Aeliana* (5th series) 15, 130-149 (23-149)
- Rackham, D J, 1987b 'The animal bone', in D Heslop (ed), *The excavation of an Iron Age Settlement at Thorpe Thewles, Cleveland 1980-2*, Council for British Archaeology Research Report 65, London, 99-109, fiche 5:F1-G14, 6:A1-F8
- Rackham, D J, 1988a 'Animal bones', in R Daniels (ed), 'The Anglo-Saxon monastery at Church Close, Hartlepool, Cleveland', *Archaeological Journal* 145, 197-199 (158-210)
- Rackham, D J, 1988b 'The mammal bones from medieval and post-medieval levels at Queen Street', in C O'Brien, L Bown, S Dixon, and R Nicholson, *The origins of Newcastle Quayside:*

Bibliography

- excavations at Queen Street and Dog Bank, Society of Antiquaries of Newcastle-upon-Tyne Monograph 3, Newcastle, 120-132
- Rackham, 1989 'Animal remains', in D Austin, *The deserted medieval village of Thrislington, Co Durham: Excavations 1973-74*, Society for Medieval Archaeology Monograph 12, Leeds, 146-158
- Rackham, D J, 1990a 'The mammal bones', in R Daniels, 'The development of medieval Hartlepool: excavations at Church Close, 1984-85', *Archaeological Journal* 147, 393-394 (337-410)
- Rackham, D J, 1990b 'Synthesis of animal bone reports', in R Daniels, 'The development of medieval Hartlepool: excavations at Church Close, 1984-85', *Archaeological Journal* 147, 398 (337-410)
- Rackham, D J, and Allison, E, 1981a 'The animal remains', in B Harbottle and M Ellison, 'An excavation in the Castle ditch, Newcastle-upon-Tyne 1974-6', *Archaeologia Aeliana* (5th series) 9, 229-243 (75-250)
- Rackham, D J, and Allison, E, 1981b *A report on the animal remains recovered by excavation including a report on the bird bones by Enid Allison*, AML Report 3797, English Heritage, London
- Raistrick, A, 1933a 'The distribution of Mesolithic sites in the North of England', *Yorkshire Archaeological Journal* 31, 141-156
- Raistrick, A, 1933b 'Excavation of a cave at Bishop Middleham', *Archaeologia Aeliana* (4th series) 10, 111-122
- Raistrick, A, 1934 'Mesolithic sites on the north-east coast of England', *Proceedings of the Prehistoric Society of East Anglia* 7, 188-198
- Raistrick, A, and Bennett-Gibbs, G, 1934 'Prehistoric invasions of Northumberland and Durham', *Transactions of the Northern Naturalists Union* 1 (3), 187-199
- Raistrick, A, Coupland, F, and Coupland, G, 1935 'A Mesolithic site on the South Durham coast', *Transactions of the Northern Naturalists Union* 1 (4), 207-216
- Raistrick, A, and Westoll, T S, 1933 'A prehistoric site on the Durham coast', *Vasculum* 19, 139-144
- Ramm, H G, McDowall, R W, and Mercer, E, 1970 *Shielings and bastles*, HMSO, London
- Rattue, J, 1995 *The living stream: holy wells in historical context*, Boydell Press, Woodbridge
- Reavell, G, 1935 'Notes on recent discoveries at Hulne Priory', *Proceedings of the Society of Antiquaries of Newcastle* 7, 42-44
- Reece, R, 1995 'Site finds in Roman Britain', *Britannia* 26, 179-206
- Reed, A, and Maxfield, V, 1975 'Excavations at Ebchester [Co Durham] Roman fort, 1972-3', *Archaeologia Aeliana* (5th series) 3, 43-104
- Reed, D, 2004 'The industrial secrets of the Cragside Estate', *Archaeology in Northumberland* 14, 14-15
- Rennison, R W, 1991 'The improvement of the River Tyne, 1815-1914', *Transactions of the Newcomen Society* 62, 113-142
- Rennison, R W, 1994 'The development of the River Tees, 1808-1914', *Transactions of the Newcomen Society* 65, 21-46
- Rennison, R W, 1998 'The influence of William Fairbairn on Robert Stephenson's bridge designs: four bridges in north-east England', *Industrial Archaeology Review* 20, 37-48
- Rennison, R W, 2001 'The Great Inundation of 1771 and the rebuilding of the North East's bridges', *Archaeologia Aeliana* (5th series) 29, 269-291
- Richardson, A, 2003 'Gender and space in English royal palaces c.1160-c.1547: a study in access analysis and imagery', *Medieval Archaeology* 47, 131-165
- Richardson, C, 1994 'A late pre-Conquest carving from Corbridge (Roman site)', *Archaeologia Aeliana* (5th series) 22, 79-84
- Richardson, G H, 1934-36 'Excavations on the Roman fort of Piercebridge, 1933-34', *Transactions of the Architectural and Archaeological Society of Durham and Northumberland* 7, 235-277
- Richardson, H (ed), 1995 *English hospitals 1660-1948: a survey of their architecture and design*, English Heritage, London
- Richmond, I, 1936 'Excavations at High Rochester and Risingham, 1935', *Archaeologia Aeliana* (4th series) 13, 170-198
- Richmond, I, 1940 'The Romans in Redesdale', in M H Dodds (ed), *A history of Northumberland* 15, Andrew Reid, Newcastle, 63-129
- Richmond, I, 1951 'A Roman arterial signalling system on the Stainmore Pass', in W Grimes (ed), *Aspects of archaeology in Britain and beyond*, H W Edwards, London, 293-302
- Richmond, I, 1955 *Roman Britain*, Cape, London
- Richmond, I, Birley, E, Fraser, F, Gillam, J, and Platt, M, 1952 'The temple of Mithras at Carrawburgh', *Archaeologia Aeliana* 29 (4th series), 1-92
- Riden, P, 1993 *A gazetteer of charcoal-fired blast furnaces in Great Britain in use since 1660*, Merton Priory Press, Cardiff (2nd edition)
- Riden, P, and Owen, J, 1995 *British blast furnace statistics 1790-1980*, Merton Priory Press, Cardiff
- Rimington, N, 1999 'Stone crosses of County Durham', *Church Archaeology* 3, 44-45
- Rippon, S, 2003 'Medieval settlements: some suggestions for the future', *Medieval Settlement Research Group Annual Report* 17, 10-18
- Rippon, S, 2004 *Historic landscape analysis: deciphering the countryside*, Council for British Archaeology Practical Handbook 16, York
- RCHME, nd *Historic Building Report: 114-116 High Street, Yarm*, Cleveland, London
- RCHME, 1986 *Yeavinger Estate: a survey by RCHME*, November 1986, unpublished report
- RCHME, 1996 *England's coastal heritage: a statement on the management of coastal archaeology*, London
- Roberts, B K, 1977 *The green villages of County Durham*, Durham County Library Local History Publication, Durham
- Roberts, B K, 1990 'Back lanes and tofts, Distribution maps and time, Medieval Nucleated Settlements in the North of England', in B E Vyner (ed), *Medieval rural settlement in North East England*, Architectural and Archaeological Society of Durham and Northumberland, Durham, 107-125
- Roberts, B K, and Wrathmell, S, 2000 *Atlas of rural settlement in England*, English Heritage, London
- Roberts, B K, Dunsford, H, and Harris, S J, 2005 'Framing medieval landscapes: region and place in County Durham', in C D Liddy and R H Britnell (eds), *North-Eastern England in the Later Middle Ages*, Boydell Press, Woodbridge, 221-237
- Roberts, M 1004. *The English Heritage book of Durham* Batsford, London
- Roberts, M, Laxton, R, Howard, R, and Litton, C, 1999 'The buildings of the religious estates in Medieval Durham: a tree-ring dating project', *Durham Archaeological Journal* 14/15, 141-160
- Rodwell, W, 1996 'Conclusion', in J Blair and C Pyrah (eds), *Church archaeology: research directions for the future*, Council for British Archaeology Research Report 104, York, 197-201
- Romans, T, Richmond, I A, and Wright, R P, 1944 'A civilian bath-house of the Roman period at Old Durham', *Archaeologia Aeliana* (4th series) 22, 1-21
- Rosser, G, 1996 'Religious practice on the margins', in J Blair and C Pyrah (eds), *Church archaeology: research directions for the future*, Council for British Archaeology Research Report 104,

- York, 75-84
- Rosser, N J, Kim, M, and Petley, D N, 2004 'The use of terrestrial laser scanning for the monitoring of coastal cliff processes', *Proceedings of the International Lidar Mapping Forum*, Denver, International Lidar Mapping Forum (unpaginated CD rom)
- Rowe, P N, 1994 *An archaeological survey of the Upleatham Hills, Cleveland*, unpublished BA dissertation, University of Durham
- Rowe, P N, 1999 *The 19th century industrial archaeology of Stockton-on-Tees*, Tees Archaeology, Hartlepool
- Rushton, S, 2004 'Blyth power station: the end', *Archaeology in Northumberland* 14, 7
- Ryder, P F, 1985 *The medieval cross slab grave cover in County Durham*, Architectural and Archaeological Society of Durham and Northumberland Research Report 1, Durham
- Ryder, P F, 1986 'A 16th century house at Whessoe Grange', *Durham Archaeological Journal* 2, 97-104
- Ryder, P F, 1988 'Aycliffe Church, a re-assessment', *Durham Archaeological Journal* 4, 45-51
- Ryder, P F, 1990 'Fortified medieval and sub-medieval buildings in the north-east of England', in B E Vyner (ed) *Medieval rural settlement in North East England*, Architectural and Archaeological Society of Durham and Northumberland, 127-139
- Ryder, P F, 1992a 'The gatehouse of Morpeth Castle, Northumberland', *Archaeologia Aeliana* (5th series) 20, 63-77
- Ryder, P F, 1992b 'Fortified buildings', in J Grundy, G McCombie, P Ryder, H Welfare, and N Pevsner, *The buildings of England: Northumberland*, Penguin, London, 58-67
- Ryder, P F, 1993a *Historic bridges in Northumberland: a survey of eighteen bridges scheduled as Ancient Monuments*, unpublished report for Northumberland County Council
- Ryder, P F, 1993b 'Bastles and bastle-like buildings in Allendale, Northumberland', *Archaeological Journal* 149, 351-379
- Ryder, P F, 1994 'Some further medieval cross slabs in County Durham', *Durham Archaeological Journal* 10, 43-54
- Ryder, P F, 1994b 'The two towers at Hexham', *Archaeologia Aeliana* (5th series) 22, 185-217
- Ryder, P F, 1996 'Some medieval churches in County Durham', *Durham Archaeological Journal* 12, 61-91
- Ryder, P F, 1997 'Durham churches: a programme of archaeological assesment', *Church Archaeology* 1, 35-41
- Ryder, P F, 1998a 'Durham Churches 1996/7: an archaeological assessment', *Church Archaeology* 2, 57-58
- Ryder, P F, 1998b *Non-conformist chapels and meeting houses in the Northumberland North Pennines AONB: A condition survey for Northumberland County Council*, unpublished report for Northumberland County Council
- Ryder, P F, 2000a 'Medieval cross slab grave covers in Northumberland, 1: south west Northumberland', *Archaeologia Aeliana* (5th series) 28, 51-110
- Ryder, P F, 2000b 'Durham churches 1999/2000: an archaeological assessment', *Church Archaeology* 4, 69-70
- Ryder, P F, 2002c 'Medieval cross slab grave covers in Northumberland, 2: Newcastle and south east Northumberland', *Archaeologia Aeliana* (5th series) 30, 75-137
- Ryder, P F, 2003a 'Medieval cross slab grave covers in Northumberland, 3: North Northumberland', *Archaeologia Aeliana* (5th series) 32, 91-136
- Ryder, P F, 2003b *Survey of Weardale chapels: survey of non-conformist chapels in Lower Weardale*, unpublished report
- Ryder, P F, 2003c *Survey of chapels in Durham North Pennines AONB*, unpublished report
- Ryder, P F, 2004a 'Saxon Staindrop reconsidered', *Church Archaeology* 5/6, 102-103
- Ryder, P F, 2004b 'Towers and Bastles in Northumberland National Park', in P Frodsham (ed), *Archaeology in Northumberland National Park*, Council for British Archaeology Research Report 136, York, 262-271
- Ryder, P F, 2004c *Change and decay: the architecture of non-conformity in Darlington*, unpublished report for Durham County Council
- Ryder, P F, and Sermon, R, 1993 *Historic bridges in Northumberland*, unpublished report for Northumberland County Council
- Sage, A, 2002 *Changing Ceramics Consumption in Newcastle and Hull, 1600 - 1800; The Role of Trade* Unpublished MA Thesis, University of Durham
- Salway, P, 1965 *The frontier people of Roman Britain*, Cambridge University Press, Cambridge
- Schofield, J, 2004 *Modern military matters: studying and managing twentieth-century defence heritage in Britain*, Council for British Archaeology, York
- Scull, C, 1991 'Post-Roman Phase I at Yeavinger: a re-consideration', *Medieval Archaeology* 35, 51-63
- Scull, C, and Bayliss, A, 1999 'Dating burials of the seventh and eighth century: a case study from Ipswich', in J Hines, K H Nillesen and F Siegmund (eds), *The pace of change: studies in Early Medieval chronology*, Oxbow Books, Oxford, 79-88
- Scull, C, and Harding, A, 1990 'Two early medieval cemeteries at Milfield', *Durham Archaeological Journal* 6, 1-31
- Selkirk, A, 2003 'Howick and East Barns', *Current Archaeology* 16/9, 394-399
- Selkirk, R, 1983 *The Piercebridge formula*, P Stevens, Cambridge
- Sellers, P, Butcher, B, Manchester, M, and Brown, S, 1986 'Shaftoe Crags hillfort, Northumberland', *Northern Archaeology* 7(2), 43-45
- Sherlock, S, 1988 'An Anglo-Saxon spearhead from Thornaby, Cleveland', *Archaeologia Aeliana* (5th series) 16, 250
- Sherlock, S, and Welch, M (eds), 1992a *An Anglo-Saxon cemetery at Norton, Cleveland*, Council for British Archaeology Research Report 82, York
- Sherlock, S, and Welch, M, 1992b 'Anglo-Saxon objects from Maltby, Cleveland', *Durham Archaeological Journal* 8, 71-76
- Shetelig, H, 1940 *Viking antiquities in Great Britain, part 4*, H Aschehoug, Oslo
- Shetelig, H, 1954 *Viking antiquities in Great Britain, part 6*, H Aschehoug, Oslo
- Simmons, I G, 1996 *The environmental impact of Later Mesolithic cultures: the creation of moorland landscape in England and Wales*, Edinburgh University Press, Edinburgh
- Simmons, I G, and Innes, J B, 1998 'The later Mesolithic period (6000-5000bp) on Glaisdale Moor, North Yorkshire', *Archaeological Journal* 145, 1-12
- Simms, C, 1974 'Cave research at Teesdale cave 1878-1971. Post-glacial fauna from Upper Teesdale', *Yorkshire Philosophical Society Annual Report* 1974, 34-50
- Simpson, A, Clogg, P, Díaz-Andreu, M, and Larkman, B, 2004 'Towards three-dimensional non-invasive recording of incised rock art', *Antiquity* 78, 692-698
- Simpson, F G, 1976 *Watermills and military works on Hadrian's Wall. Excavations in Northumberland 1907-13*, Titus Wilson, Kendal
- Simpson, F G, and Richmond, I A, 1935 'Recent excavations at Hunnum (Halton Chesters)', *Proceedings of the Society of Antiquaries of Newcastle-on-Tyne* 7, 132-134
- Simpson, F G, and Richmond, I A, 1941 'The Roman fort on Hadrian's Wall at Benwell', *Archaeologia Aeliana* (4th series) 19, 1-43
- Simpson, G, 1974 'Haltwhistle Burn, Corstopitum and the Antonine

Bibliography

- Wall: a reconsideration', *Britannia* 5, 317-339
- Smith, C, 1988-89 'Excavations at Dod Law West hillfort, Northumberland', *Archaeology North* 9, 1-55
- Smith, D J, 1962 'The shrine of the Nymphs and the Genius Loci at Carrawburgh', *Archaeologia Aeliana* (4th series) 40, 59-81
- Smith, D J, 1966 'Museum Notes', *Archaeologia Aeliana* (4th series) 44, 245-253
- Smith, J, 2001 'An introduction to the archaeology and conservation of football stadia', *Industrial Archaeology Review* 23 (1), 55-66
- Smith, J E, and Tolan-Smith, C, 1997 'The medieval landscape 2: Welton deserted medieval village', in C Tolan-Smith (ed), *Landscape archaeology in Tynedale*, Tyne-Solway Ancient and Historic Landscapes Research Programme Monograph, University of Newcastle, 53-68
- Snape, M, 1992 'Sub-Roman brooches from Roman sites on the Northern Frontier', *Archaeologia Aeliana* (5th series) 20, 158-160
- Snape, M, 1993 *Roman brooches from North Britain: a classification and a catalogue of brooches from sites on the Stanegate*, BAR 235, Oxford
- Snape, M, 1994 'An excavation in the Roman cemetery at South Shields', *Archaeologia Aeliana* (5th series) 24, 43-66
- Snape, M, 2003 'A horizontal-wheeled watermill of the Anglo-Saxon period at Corbridge, Northumberland, and its river environment', *Archaeologia Aeliana* (5th series) 32, 37-72
- Snape, M, and Bidwell, P, 2002 *The Roman fort at Newcastle-upon-Tyne*, Society of Antiquaries of Newcastle, Newcastle-upon-Tyne
- Sockett, E, 1971 'Stone axes from Heddon-on-the-Wall', *Archaeologia Aeliana* (4th series) 49, 240-244
- Spain, G R B, 1923 'Anglo-Saxon spearhead', *Proceedings of the Society of Antiquaries of Newcastle* (4th series) 1, 78-79
- SPMA, 1988 *Research priorities for post-medieval archaeology*, Society for Post-Medieval Archaeology, London
- Speak, S, and Aylett, M, 1996 'The carved stone ball from Hetton, Northumberland', *Northern Archaeology* 13/14, 179-181
- Spratt, D (ed), 1993 *Prehistoric and Roman archaeology of North-East Yorkshire*, Council for British Archaeology Research Report 87, York
- Spratt, D, Goddard, R E, and Brown, D R, 1976 'Mesolithic settlement sites at Upleatham, Cleveland', *Yorkshire Archaeological Journal* 48, 19-26
- Stallibrass, S, 1993 *Brief description of animal bone remains collected by Eric Frisby on the Hartlepool foreshore at low tide on 13th, 15th and 24th March 1993 and brought in to Durham University Department of Archaeology on 1st April 1993*, Department of Archaeology, University of Durham
- Starley, D, 1996 *The examination of metalworking debris from Housesteads Roman fort, Northumberland 1974-1981*, AML Report 39/96, English Heritage, London
- Steer, K, 1938 *The archaeology of Roman Durham*, unpublished PhD thesis, University of Durham
- Steer, K, 1939 'The excavations at Lanchester: the coarse pottery', *Transactions of the Architectural and Archaeological Society of Durham and Northumberland* 9, 112-122
- Steer, K, 1949 'The identification of palisaded enclosures from surface indications', *Proceedings of the Society of Antiquaries of Scotland* 83, 64-67
- Stell, C, 1994 *An inventory of nonconformist chapels and meeting houses in the North of England*, RCHME, London
- Stevenson 1998 'A possible Neolithic henge monument at Tynemouth, Tyne and Wear', *Northern Archaeology* 15-16, 39-43
- Still, L, 1965 'Excavations at Low Grange Farm', *Transactions of the Architectural and Archaeological Society of Durham and Northumberland* 11, 391-403
- Still, L, and Pallister, A, 1964 'The excavation of one house site in the deserted village of West Hartburn, Co Durham', *Archaeologia Aeliana* (4th series) 42, 187-206
- Still, L, and Pallister, A, 1967 'West Hartburn 1965, Site C', *Archaeologia Aeliana* (4th series) 45, 139-148
- Still, L, and Southeran, J, 1966 *The medieval origins of Billingham*, Billingham Urban District Council
- Still, L, and Vyner, B E, 1986 'Air photographic evidence for later prehistoric settlement in the Tees Valley', *Durham Archaeological Journal* 2, 11-24
- Still, L, Vyner, B E, and Bewley, R, 1989 'A decade of air survey in Cleveland and the Tees Valley hinterland and a strategy for air survey in County Durham', *Durham Archaeological Journal* 5, 1-10
- Stobbs, G, 1997 *The Stanegate: a frontier system in northern Britain c AD 90-122*, unpublished M Litt thesis, University of Newcastle
- Stocker, D A, 2000 'Monuments and merchants: irregularities in the distribution of stone sculpture in Lincolnshire and Yorkshire in the tenth century', in D M Hadley and J D Richards (eds), *Cultures in contact: Scandinavian settlement in England in the ninth and tenth centuries*, Brepols, Turnhout, 179-212
- Stokes, P R G, 1996 *The Roman fort at South Shields (Arbeia): a study in the spatial patterning of the faunal remains*, unpublished MA thesis, University of Durham
- Stratton, M, 1999 'The Rolt Memorial Lecture 1997. New materials for a new age: steel and concrete construction in the North of England, 1860-1939', *Industrial Archaeology Review* 21 (1), 6-24
- Stratton, M, and Trinder, B, 2000 *Twentieth Century Industrial Archaeology*, Spon, London
- Stuart, A J, 1982 *Pleistocene vertebrates of the British Isles*, London
- Sugden, K, and Warhurst, M, 1979 'An unrecorded parcel from the Hexham hoard of 1832', *Numismatic Chronicle* 19, 212-217
- Surtees, R, 1972 *The History and Antiquities of the County Palatine of Durham* Vol EP Publishing, Wakefield
- Swain, H, 1986 'A note on the Romano-British and other finds from Carr House Sands, Seaton Carew, Cleveland', *Northern Archaeology* 7/2, 31-34
- Swain, H, 1987 'Objects of worked bone and antler', in D Heslop (ed), *The excavation of an Iron Age settlement at Thorpe Thewles, Cleveland 1980-2*, Council for British Archaeology Research Report 65, London, 88-92
- Swain, H, and Heslop, D, 1987 'Other objects of stone', in D Heslop (ed), *The excavation of an Iron Age settlement at Thorpe Thewles, Cleveland 1980-2*, Council for British Archaeology Research Report 65, London, 89
- Swan, V, 1984 *The pottery kilns of Roman Britain*, HMSO, London
- Swan, V, 1992 'Legio VI and its men: African legionaries in Britain', *Journal of Roman Pottery Studies* 5, 1-33
- Swan, V, 1999 'The Twentieth Legion and the history of the Antonine Wall reconsidered', *Proceedings of the Society of Antiquaries of Scotland* 129, 399-480
- Swinbank, B, 1953 'The activities of Lollius Urbicus as evidenced by inscriptions', *Transactions of the Architectural and Archaeological Society of Durham and Northumberland* 9, 112-122
- Tait, J, 1963 'An excavation at Housesteads 1962', *Archaeologia Aeliana* (4th series) 41, 37-44
- Tait, J, 1965 *Beakers from Northumberland*, Oriel Press, Newcastle
- Tait, J, and Jobey, G, 1971 'Romano-British burials at Beadnell, Northumberland', *Archaeologia Aeliana* (4th series) 49, 53-69
- Tate, G, 1863a 'On the old Celtic town at Greaves Ash, near Linhope, Northumberland, with an account of diggings recently

- made into this, and other ancient remains in the Valley of Breamish', *History of the Berwickshire Naturalists Club* (1856-62), 293-316
- Tate, G, 1863b 'The antiquities of Yeavinger Bell and Three Stone Burn, among the Cheviots in to Northumberland, with an account of excavations made in to Celtic Forts, Hut Dwellings, Barrows and Stone Circle', *History of the Berwickshire Naturalists Club* (1856-62), 431-453
- Tate, G, 1865 *The ancient British sculptured rocks of Northumberland*, Henry Hunter Blair, Alnwick
- Taylor, D, 1997 'The Roman fort at Benwell: a re-examination of its size', *Durham Archaeological Journal* 13, 61-64
- Taylor, H M, and Taylor, J, 1965-78 *Anglo-Saxon architecture*, Cambridge University Press, Cambridge
- Taylor, J, 2001 'Rural society in Roman Britain', in S James and M Millett (eds), *Britons and Romans: advancing an archaeological agenda*, Council for British Archaeology Research Report 125, York, 46-59
- Taylor, J D A, Robinson, J, and Biggins, J A, 2000 'A report on a geophysical survey of the Roman fort and vicus at Halton Chesters', *Archaeologia Aeliana* (5th series) 28, 37-46
- Taylor, S, and Giles, C, 2004 *Gateshead. The everyday architecture of a 'Workman's Town'*, English Heritage, London
- Taylor-Wilson, R, 2001 'Alnwick Castle gardens', *Archaeology in Northumberland* 2000-2001, 7
- Thomas, C, 1959 'Wheel-made post-Roman sherds', in G Jobey, 'Excavations at the native settlement at Huckhoe, Northumberland, 1955-7', *Archaeologia Aeliana* (4th series) 57, 258-261 (217-278)
- Thomas, C, 1992 'The early Christian inscriptions of Southern Scotland', *Glasgow Archaeological Journal* 17, 1-10
- Thomas, R, 1991 'Drowning in data? Publication and rescue archaeology in the 1990s', *Antiquity* 65, 822-828
- Thornborrow, E L, 1988 'The South Shields salt industry', *South Shields Archaeological and Historical Society Papers* 3/2, 16-31
- Thornes, R, 1994 *Images of industry: coal*, RCHME, Swindon
- Thorpe, H, 1949 'The green villages of County Durham', *Institute of British Geographers Transactions and Papers* 15, 155-180
- Tinniswood, A, and Harding, A, 1991 'Anglo-Saxon occupation and industrial features in the henge monument at Yeavinger, Northumberland', *Durham Archaeological Journal* 7, 93-108
- Tipping, R, 1996 'The Neolithic landscapes of the Cheviot Hills and hinterland: palaeo-environmental evidence', *Northern Archaeology* 13/14, 17-34
- Tipping, R, 1997 'Pollen analysis and the impact of Rome on native agriculture around Hadrian's Wall', in A Gwilt and C Haselgrove (eds), in A Gwilt and C Haselgrove (eds), *Reconstructing Iron Age societies*, Oxbow Monograph 71, Oxford, 239-247
- Tipping, R, 1998 'The chronology of Late Quaternary fluvial activity in part of the Milfield Basin, north-east England', *Earth Surface Processes and Landforms* 19, 333-348
- Tolan-Smith, C, 1996 'The Mesolithic-Neolithic transition in the Lower Tyne Valley: a landscape approach', *Northern Archaeology* 13/14, 7-15
- Tolan-Smith, C, 1997a 'Excavations at Birkside Fell, July and August 1996', *PAST* 25, 3-4
- Tolan-Smith, C, 1997b 'Excavations at Birkside Fell', *Archaeology in Northumberland* 1996-97, 12-13
- Tolan-Smith, C, 1997c *Landscape archaeology in Tynedale*, Tyne-Solway Ancient and Historic Landscapes Research Programme Monograph, University of Newcastle
- Tolan-Smith, C, with Cousins, S, 1995 'Museum Notes 1995: an Upper Palaeolithic flint tool from the Tyne Valley, Northumberland', *Archaeologia Aeliana* (5th series) 23, 307-309
- Tolan-Smith, M, 1997 'The medieval landscape: approaches to the study of ancient woodland: Horsley Wood', in C Tolan-Smith (ed), *Landscape Archaeology in Tynedale*, Tyne-Solway Ancient and Historic Landscapes Research Programme Monograph, University of Newcastle, Newcastle, 43-52
- Tomlin, R, 1982 *The salt industry of the River Tees*, De Archaeologische Pers, Eindhoven
- Topping, P, 1989 'The context of cord rig cultivation in later prehistoric Northumberland', in M Bowden, P Topping and D Mackay (eds), *From Cornwall to Caithness: some aspects of British field archaeology*, BAR 209, 145-157
- Topping, P, 1993 'The excavation of an unenclosed settlement, field system and cord rig cultivation at Linhope Burn, Northumberland', *Northern Archaeology* 11, 1-42
- Topping, P, 1997 'Different realities: the Neolithic in the Northumberland Cheviots' in P Topping (ed), *Neolithic landscapes*, Oxbow Monograph 86, Oxford, 113-123
- Topping, P, 1998 'The excavation of burnt mounds at Titlington Mount, near Northumberland 1992-3', *Northern Archaeology* 15-16, 3-25
- Topping, P, 2004 'Hillforts, farms and fields. Excavations on Wether Hill, Ingram, 1993-2002', in P Frodsham (ed), *Archaeology in Northumberland National Park*, Council for British Archaeology Research Report 136, York, 190-202
- Trechmann, C T, 1905 'Neolithic remains on the Durham coast', *The Naturalist* 587, 361-363
- Trechmann, C T, 1912 'Notes on Neolithic chipping sites in Northumberland and Durham', *Transactions of the Natural History Society of Northumberland, Durham and Newcastle* (new series) 4, 67-85
- Trechmann, C T, 1936 'Mesolithic flints from the Submerged Forest at West Hartlepool', *Proceedings of the Yorkshire Geological Society* 7, 161-168
- Trechmann, C T, 1939 'A skeleton of elk (*Cervus alces*) from Neasham, near Darlington', *Proceedings of the Yorkshire Geological Society* 80, 100-102
- Trechmann, C T, 1946 'The submerged forest beds of the Durham coast', *Proceedings of the Yorkshire Geological Society* 21, 23-32
- Tripati, S, Parthiban, G, Vora, K H, Sundaresh, Bandodker, S N, 2003 'Lead ingots from a shipwreck off Poompuhar, Tamil Nadu, East Coast of India: evidence for overseas trade and their significance', *International Journal of Nautical Archaeology* 32.2, 225-237
- Tuffs, P, 1975 'North Skelton ironstone mine', *Cleveland Industrial Archaeologist* 3, 23-30
- Turnbull, P, 1994 *Excavations at Park View School, Chester-le-Street*, unpublished report, Brigantia Archaeology
- Turnbull, P, 2003 *Archaeological excavation and recording at Park View Community School, Chester-le-Street, County Durham*, unpublished report, Brigantia Archaeology
- Turner, R C, 1989 'A late Neolithic site at High House, Matfen', *Archaeologia Aeliana* (5th series) 17, 215-217
- Turner, R C, 1990 'A Romano-British cemetery at Lanchester', *Archaeologia Aeliana* (5th series) 18, 63-77
- TWM, 1998 *Ravensdowne Barracks: Berwick-upon-Tweed Archaeological Investigations 1997-98*, unpublished report, Tyne and Wear Museums Archaeology, Newcastle
- TWM, 2005 *Mountjoy, Durham City, archaeological evaluation*, unpublished report, Tyne and Wear Museums Archaeology, Newcastle
- Tylecote, R F, 1960 'The location of Byrkeknot. A 15th-century

Bibliography

- smelting site', *Journal of the Iron and Steel Industry*, 451-458
- Tylecote, R F, 1968 'Metallographic examination of Bronze Age artefacts from the north of England', in C Burgess, *Bronze Age metalwork in Northern Britain c.1000-700BC*, Oriel Press, Newcastle, 48-56
- Tyne and Wear Museum, 1981 *Maling: a Tyneside pottery*, Tyne and Wear Museum, Newcastle
- Tyson, R, 1996 *Medieval glass vessels in England AD 1200-1500: a survey*, unpublished PhD thesis, University of Durham
- Tyson, R, 2000 *Medieval glass vessels found in England c. AD1200-1500*, Council for British Archaeology Research Report 121, York
- Usai, M.-R, 2002 *Northern regional review of environmental archaeology: geoarchaeology in northern England II; site review, discussion and research priorities*, Centre for Archaeology Report 24/2002, English Heritage, London
- Usherwood, P, Beach, J, and Morris, C, 2000 *Public sculpture of North-East England*, Liverpool University Press, Liverpool
- Vaughan, J, 1981 'The leather', in B Harbottle and M Ellison, 'An excavation in the Castle ditch, Newcastle-upon-Tyne 1974-6', *Archaeologia Aeliana* (5th series) 9, 184-190 (75-250)
- Vaughan, J, 1983 'The leather', in M Ellison and B Harbottle, 'The excavation of a seventeenth century bastion in the Castle of Newcastle-upon-Tyne', *Archaeologia Aeliana* (5th series) 11, 208-217 (135-263)
- Vaughan, J, 1993 'The pottery', in J Nolan, 'The Town Wall, Newcastle-upon-Tyne. Excavations at Orchard Street and Croft Street, 1987-89', *Archaeologia Aeliana* (5th series) 21, 107-118 (93-149)
- Vaughan, J, 1994a 'The pottery', in D Heslop, L Truman, and J Vaughan, 'Excavations on Westgate Road, Newcastle 1991', *Archaeologia Aeliana* (5th series) 22, 162-171 (177-182)
- Vaughan, J, 1994b 'The glass', in D Heslop, L Truman, and J Vaughan, 'Excavations on Westgate Road, Newcastle 1991', *Archaeologia Aeliana* (5th series) 22, 171-172 (177-182)
- Vaughan, J, Hawman, C, and Fraser, R, 1987 'The pottery', in B Harbottle and R Fraser, 'Black Friars, Newcastle-upon-Tyne, after the dissolution of the monasteries', *Archaeologia Aeliana* (5th series) 15, 84-102 (23-149)
- van der Veen, M, 1982a *Carbonised plant remains from Neolithic Thirlings (Northumberland)*, AML Report 3831, English Heritage, London
- van der Veen, M, 1982b *Carbonised plant remains from Whitton Hill (Northumberland)*, AML Report 3832, English Heritage, London
- van der Veen, M, 1983 *The plant remains from Thornborough Scar, Northumberland*, AML Report 4705, English Heritage, London
- van der Veen, M, 1984 *The plant remains from Whitton Hill, Northumberland*, AML Report 4399, English Heritage, London
- van der Veen, M, 1985 *The plant remains from Murton High Crags, Northumberland*, AML Report 4720, English Heritage, London
- van der Veen, M, 1986 *The plant remains from Dubby Sike, Upper Teesdale (Co. Durham)*, AML Report 4761, English Heritage, London
- van der Veen, M, 1987 'The plant remains', in D Heslop (ed), *The excavation of an Iron Age settlement at Thorpe Thewles, Cleveland 1980-2*, Council for British Archaeology Research Report 65, London, 93-99
- van der Veen, M, 1988a 'The plant remains', in B E Vyner, 'The hill-fort at Eston Nab, Eston, Cleveland', *Archaeological Journal* 145, 87-88 (60-98)
- van der Veen, M, 1988b 'Carbonised grain from a Roman granary at South Shields, north-east England', *Der Prähistorische mensch und seine Umwelt* 31, 353-365
- van der Veen, M, 1992 *Crop husbandry regimes. An archaeobotanical study of farming in northern England 1000BC-AD500*, Sheffield Archaeological Monograph 3, Sheffield
- van Driel-Murray, C, 1989 'The Vindolanda chamfrons and miscellaneous items of leather horse gear', in C Van Driel-Murray (ed), *Roman military equipment: the sources of evidence. Proceedings of the 5th Roman Military Equipment Conference*, BAR International Series 476, 281-318
- van Driel-Murray, C, 2001 'Vindolanda and the dating of Roman footwear', *Britannia* 32, 185-197
- van Driel-Murray, C, Wild, J P, Seaward, M, and Hillem, J, 1993 *Vindolanda III. Leather, textile, environmental evidence and dendrochronology*, Vindolanda Trust, Bardon Mill
- van Hoek, M, 1982 *The carved rocks near Wooler*, van Hoek, Oisterwijk
- van Hoek, M, 2001 *The geography of cup and ring art in Europe*, StoneWatch, Warmroth
- van Hoek, M and Smith, C, 1988 'Rock carvings at Goatscrag rock shelters, Northumberland', *Archaeologia Aeliana* (5th series) 16, 29-35
- Vince, A, 1999 *The petrology of some medieval pottery from the Tees Valley* <http://www.avac.uklinux.net/potcat/pdfs/avac1999021.pdf>
- Vince, A, 2003 *Characterisation studies of some medieval coarseware from northeast England* <http://www.avac.uklinux.net/potcat/pdfs/avac2003035.pdf>
- Vyner, B E, 1984 'The excavation of a Neolithic cairn at Street House, Loftus', *Proceedings of the Prehistoric Society* 50, 151-196
- Vyner, B E, 1986 'Evidence for mortuary practices in the Neolithic burial mounds and cairns of Northern England', *Scottish Archaeological Review* 4, 11-16
- Vyner, B E, 1988a 'The hill-fort at Eston Nab, Eston, Cleveland', *Archaeological Journal* 145, 60-98
- Vyner, B E, 1988b 'The Street House Wossit: the excavation of a Late Neolithic and Early Bronze Age palisaded ritual monument at Street House, Loftus, Cleveland', *Proceedings of the Prehistoric Society* 54, 173-202
- Vyner, B E, 1991 'Bronze Age activity on the Eston Hills, Cleveland', *Yorkshire Archaeological Journal* 63, 25-49
- Vyner, B E, 1995a 'The Brides of Place: cross-ridge boundaries reviewed', in B E Vyner (ed), *Moorland Monuments: Studies in the Archaeology of North-east Yorkshire in Honour of Raymond Hayes and Don Spratt*, Council for British Archaeology Research Report 101, York, 16-20
- Vyner, B E, 1995b *Moorland Monuments: Studies in the Archaeology of North-east Yorkshire in Honour of Raymond Hayes and Don Spratt*, Council for British Archaeology Research Report 101, York
- Vyner, B E, 2000 'Lost horizons: the location of activity in the later Neolithic and early Bronze Age in north-east England', in J Harding and R Johnston (eds), *Northern pasts: interpretations of the later Prehistory of northern England and southern Scotland*, BAR 302, 101-110
- Vyner, B E, 2001 *Stainmore: the archaeology of a North Pennine pass*, Tees Archaeology Monograph Series 1, English Heritage, London
- Vyner, B E, and Daniels, R, 1989 'Further investigations of the Iron Age and Romano-British settlement site at Catcote, Hartlepool, Cleveland, 1987', *Durham Archaeological Journal* 5, 11-34
- Waddington, C, 1997a 'A review of "pit alignments" and a tentative interpretation of the Milfield complex', *Durham Archaeological Journal* 13, 21-33
- Waddington, C, 1997b 'Earliest henge and other updates: the Milfield Basin Archaeological Landscape Project (MBALP) in

- 1997, *Archaeology North* 13, 8-13
- Waddington, C, 1998a *A landscape archaeological study of the Mesolithic-Neolithic in the Milfield Basin, Northumberland*, unpublished PhD thesis, University of Durham
- Waddington, C, 1998b 'Cup and ring marks in context', *Cambridge Archaeological Journal* 8 (1), 29-54
- Waddington, C, 1999 *A landscape archaeological study of the Mesolithic-Neolithic in the Milfield Basin*, BAR 291, Oxford
- Waddington, C, 2000a 'Recent research on the Mesolithic of the Milfield Basin, Northumberland', in R Young (ed), *Mesolithic lifeways: current research from Britain and Ireland*, Leicester Archaeology Monograph 7, Leicester, 165-177
- Waddington, C, 2000b 'Neolithic pottery from Woodbridge Farm, the Old Airfield, Milfield', *Archaeologia Aeliana* (5th series) 28, 1-11
- Waddington, C, 2001 'Breaking out of the morphological straitjacket: early Neolithic enclosures in northern Britain', *Durham Archaeological Journal* 16, 1-14
- Waddington, C, 2004 *The joy of flint*, Museum of Antiquities, Newcastle
- Waddington, C, 2005 'Prehistoric pottery and lithic report', in *Mountjoy, Durham City, archaeological evaluation*, unpublished report, Tyne and Wear Museums Archaeology, Newcastle
- Waddington, C, 2005 *Complete Till-Tweed fieldwalking report*, ARS Ltd Report 2005/2 for English Heritage, Bakewell
- Waddington, C, Bailey, G, Bayliss, A, Milner, N, Pedersen, K, Shiel, R, and Stevenson, T, 2003 'A Mesolithic settlement site at Howick, Northumberland: a preliminary report', *Archaeologia Aeliana* (5th series) 32, 1-12
- Waddington, C, Blood, K, and Crow, J, 1998 'Survey and excavation at Harehaugh Hillfort and possible Neolithic Enclosure', *Northern Archaeology* 15/16, 87-108
- Waddington, C, and Davies, J, 2002 'An Early Neolithic settlement and Late Bronze Age burial cairn near Bolam Lake, Northumberland: fieldwalking, excavation and reconstruction', *Archaeologia Aeliana* (5th series) 30, 1-47
- Waddington, C, Godfrey, J, and Bell, J, 1998 'A chambered cairn on Dour Hill, Northumberland', *Archaeologia Aeliana* (5th series) 26, 1-15
- Waddington, C, Mazel, A, and Johnson, B, 2005 'Excavation of a rock art site at Hunterheugh Crag, Northumberland', *Archaeologia Aeliana* (5th series) 33, 1-20
- Waddington, C and Passmore, D, 2004 *Ancient Northumberland*, Country Store, Wooler
- Waddington, C, and Schofield, D, 1999 'A new stone-axe source in the Cheviot Hills, Northumberland' *Archaeologia Aeliana* (5th series) 27, 175-176
- Waddington, C, and Williams, A, 2002 'A survey of the Threestoneburn stone circle', *Northern Archaeology* 19, 1-22
- Wade-Martins, S, 2002 *The English model farm: building the agricultural ideal, 1700-1914*, Windgather, Bollington
- Wade-Martins, S, Lake, J, and Hawkins, B, 1997 *Thematic survey of planned and model farmsteads, 1997*, English Heritage, London
- Wake, T, 1939 'Excavations at Witchy Neuk, Hepple', *Archaeologia Aeliana* (4th series) 16, 129-139
- Wallis, P, 1980 'Capability Brown in Northumberland', *Garden History* 9.2, 157-183
- Wallis Budge, E A, 1903 *An account of the Roman antiquities preserved in the Museum at Chester's Northumberland*, Gilbert and Rivington, London
- Walton, P, 1988 'Caulking, cordage and textiles', in C O'Brien, L Bown, S Dixon, and R Nicholson, *The origins of Newcastle Quayside: excavations at Queen Street and Dog Bank*, Society of Antiquaries of Newcastle-upon-Tyne Monograph, Newcastle, 78-85
- Watts, V, 1982 'Some Northumbrian fishery names, I', *Transactions of the Architectural and Archaeological Society of Durham and Northumberland* 6, 89-92
- Watts, V, 1983 'Medieval fisheries in the Wear, Tyne and Tweed: the place-name evidence', *Nomina* 7, 35-45
- Watts, V, 1986 'Some Northumbrian fishery names: II, Fisheries on the S Bank of the Tyne', *Durham Archaeological Journal* 2, 55-61
- Watts, V, 1988 'Some Northumbrian fishery names, III', *Durham Archaeological Journal* 4, 53-59
- Watts, V, 1989 'Scandinavian Settlement-names in County Durham', *Nomina* 12, 17-63
- Watts, V, 1997 'Some Northumbrian fishery names IV: the River Tweed', *Durham Archaeological Journal* 13, 89-98
- Watts, V, 2002 *A dictionary of County Durham place-names*, English Place Name Society, Nottingham
- Waughman, M, 1996 'Excavation of a Mesolithic site at Highcliffe Nab, Guisborough', *Durham Archaeological Journal* 12, 1-16
- Waughmann, M, 2005 *Archaeology and environment of submerged landscapes in Hartlepool Bay, England*, Tees Archaeology, Hartlepool
- Welfare, H, 2000 'Causeways, at milecastles, across the ditch of Hadrian's Wall', *Archaeologia Aeliana* (5th series) 28, 13-25
- Welfare, H, 2002 'The uplands of the Northern Counties in the First Millenium BC', in C Brooks, R Daniels and A Harding (eds), *Past, present and future: the archaeology of Northern England*, Architectural and Archaeological Society of Durham and Northumberland Research Report 5, Durham, 71-78
- Welfare, H, and Swan, V, 1995 *Roman camps in England: the field archaeology*, HMSO, London
- Wessex Archaeology, 2004. *The Amesbury archer: oxygen isotope analysis* <http://wessexarch.co.uk/projects/amesbury/tests/oxygenisotope.html>
- Weyman, J, 1980 'A flint chipping site at Low Shilford, Riding Mill, Northumberland', *Archaeologia Aeliana* (5th series) 8, 159-161
- Weyman, J, 1984 'The Mesolithic in north-east England', in R Miket and C Burgess (eds), *Between and beyond the walls: essays in honour of George Jobey* John Donald, Edinburgh, 38-51
- White, K G, 1962 'The Spades Mire, Berwick-upon-Tweed', *History of Berwickshire Naturalists Club* 36 (1), 40-42
- Wilkes, J, 1960 'Excavations at Housesteads in 1959', *Archaeologia Aeliana* (4th series) 38, 61-71
- Wilkes, J, and Leach, J, 1962 'Excavations in the Roman fort at Housesteads 1961', *Archaeologia Aeliana* (4th series) 40, 83-96
- Williams, A 2003 *The guano shed, High Buston*, unpublished report, Alan Williams Archaeology, Newcastle
- Williams, A, 2001 'A North Pennine Landscape...', *Archaeology in Northumberland* 2000-1, 14-15
- Williams, A, and Wood, P, 1999 'Excavations at Durham's Old Borough 1995', *Archaeologia Aeliana* (5th series), 45-74
- Williams, E, 2000 'Archaeological notes 2000, North Northumberland. Holy Island, The Winery', *History of the Berwickshire Naturalists' Club* 48, part 2, 200
- Williams, E, 2001 'Archaeological notes 2001, North Northumberland. Berwick-upon-Tweed, Spades Mire', *History of the Berwickshire Naturalists' Club* 48, part 3, 286
- Williams, J, and Brown, N (eds), 1999 *An archaeological research framework for the Greater Thames Estuary*, Essex County Council, Chelmsford
- Willis, S, 1993 *Aspects of pottery assemblages of the late Iron Age/First Century A.D. in the East and North-East of England*, unpublished PhD thesis, University of Durham

Bibliography

- Willis, S, 1997 *Study group for Roman pottery (SGRP) national research framework document*, Study Group for Roman Pottery, <http://www.sgrp.org/Rfwork/Doc/1.htm>
- Willis, S, 1999 'Without and within: aspects of culture and community in the Iron Age of north-eastern England', in B Bevan, *Northern exposures: interpretative devolution and the Iron Ages in Britain*, Leicester Archaeological Monograph 4, Leicester, 81-110
- Willis, S, 2004 'The Study Group for Roman Pottery research framework document for the study of Roman pottery in Britain, 2003', *Journal of Roman Pottery Studies* 11, 1-21
- Willis, S, forthcoming 'The briquetage', in C Haselgrove, *Cartmandua's Capital? Excavations and fieldwork at the Iron Age and early Roman site at Stanwick, North Yorkshire 1984-89*, Yorkshire Archaeology Monograph Series, Leeds
- Willmott, H, 2002 *Early post-medieval vessel glass in England: 1500-1670*, Council for British Archaeology Research Report 132, York
- Willmott, H, forthcoming 'The glass', in R Cramp, forthcoming, *Wearmouth and Jarrow monastic sites*, Vol 2 English Heritage, London
- Wilmott, T, 1997 *Birdoswald: excavations on a Roman fort on Hadrian's Wall and its successor settlements 1987-92*, English Heritage Archaeological Report 14, London
- Wilmott, T, 1999 'Black carts', in P Bidwell (ed), *Hadrian's Wall 1989-1999: a summary of recent excavation and research prepared for the 12th Pilgrimage of Hadrian's Wall*, Cumberland and Westmorland Antiquarian and Archaeological Society and the Society of Antiquaries of Newcastle-upon-Tyne, Carlisle, 120-122
- Wilmott, T, 2000 'The late Roman transition at Birdoswald and on Hadrian's Wall', in T Wilmott and P R Wilson (eds), *The Late Roman Transition in the North: Papers from the Roman Archaeology Conference, Durham 1999*, BAR 299, 13-23
- Wilmott, T, and Wilson, P R (eds), 2000 *The Late Roman Transition in the North: Papers from the Roman Archaeology Conference, Durham 1999*, BAR 299, Oxford
- Wills, M, 1995 *Gibside and the Bowes Family*, Phillimore, Chichester
- Wilson, R J A, 2003 'Journeyman's jottings: two Roman inscriptions from Hadrian's Wall', *Archaeologia Aeliana* (5th series) 32, 25-35
- Winchester, A, 2000 *The harvest of the hills: rural life in northern England and the Scottish Borders, 1400-1700*, Edinburgh University Press, Edinburgh
- Wood, P, 2004 'Exciting finds from Bamburgh Castle', *Archaeology in the North* 14, 17
- Wooler, E, 1913 'The Roman station of Lavatrae-Bowes', *Yorkshire Archaeological Journal* 22, 400-410
- Wooliscroft, D, 1999 'More thoughts on the vallum', *Transactions of the Cumberland and Westmorland Antiquarian and Archaeological Society* 99, 56-63
- Wrathmell, S, 1975 *The deserted medieval village of South Northumberland*, unpublished PhD thesis, University of Wales
- Wrathmell, S, 1980 'Village depopulation in the 17th and 18th centuries: examples from Northumberland', *Post-Medieval Archaeology* 14, 113-126
- Wrathmell, S, 1987 'Medieval pot', in G A B Young, 'Excavations at South gate, Hartlepool, Cleveland, 1981-2', *Durham Archaeological Journal* 3, 37-46 [15-55]
- Wrathmell, S, 1990 'Pottery', in R Daniels (ed), 'The development of medieval Hartlepool: excavations at Church Close, 1984-85', *Archaeological Journal* 147, 337-410 [377-392]
- Wrathmell, S, and Jarrett, M, 1977 'Sixteenth and seventeenth-century farmsteads: West Whelpington, Northumberland', *Agricultural History Review* 25, 108-119
- Wright, R P, 1958 'The Stanegate at Newbrough', *Archaeologia Aeliana* (4th series) 36, 310
- Wright, R P, 1969 'Two bronze vessels from Northumberland and new readings of the names of other makers', *Archaeologia Aeliana* (4th series) 47, 1-5
- Wright, R P, and Richmond, I, 1948 'Two Roman shrines to Vinotonus on Scargill Moor, near Bowes', *Yorkshire Archaeological Journal* 37, 1, 107-116
- WYAS, 2002 *Land at Dixon's Bank, Marton, Middlesbrough*, *Geophysical Survey Report* 978, Leeds
- Wymer, J J, 1977 *Gazetteer of Mesolithic sites*, Council for British Archaeology Research Report 20, Oxford
- Young, G A B, 1987 'Excavations at South gate, Hartlepool, Cleveland, 1981-2', *Durham Archaeological Journal* 3, 15-55
- Young, R, 1980 'An inventory of barrows in County Durham', *Transactions of the Architectural and Archaeological Society of Durham and Northumberland* 5, 1-16
- Young, R, 1984 *Aspects of the prehistoric archaeology of the Wear Valley, Co. Durham*, unpublished PhD thesis, University of Durham
- Young, R, 1986 'Destruction, preservation and recovery: Weardale, a case study', in T G Manby and P Turnbull (eds), *Archaeology in the Pennines. Studies in Honour of Arthur Raistrick*, BAR 158, 213-227
- Young, R, 1987 *Lithics and subsistence in North-eastern England. Aspects of the prehistoric archaeology of the Wear Valley, Co. Durham, from the Mesolithic to the Bronze Age*, BAR 161, Oxford
- Young, R, 1993 'Three earthwork sites in Weardale', *Durham Archaeological Journal* 9, 9-17
- Young, R, 1994a '«Destruction is only a facet»... a study of the formation processes and the generation of distribution patterns for later prehistory in northern England', *Landscape History* 16, 5-16
- Young, R, 1994b 'Polished stone axes between the Tyne and the Tees', *Durham Archaeological Journal* 10, 1-12
- Young, R, 1997 'The flint assemblage', in D Coggins and K Fairless, 'Ritual succession? Excavations at the multi-period site of Middle Hurth, Upper Teesdale, Co. Durham, 1978-79', *Durham Archaeological Journal* 13, 8-15 [1-19]
- Young, R (ed), 2000a *Mesolithic lifeways: current research from Britain and Ireland*, Leicester Archaeology Monograph 7, Leicester
- Young, R, 2000b 'Aspects of the "coastal" Mesolithic of the North-east England', in R Young (ed), *Mesolithic lifeways: current research from Britain and Ireland*, Leicester Archaeology Monograph 7, Leicester, 179-190
- Young, R, 2002 'The Palaeolithic and Mesolithic periods in Northern England', in C Brooks, R Daniels and A Harding (eds), *Past, present and future: the archaeology of Northern England*, Architectural and Archaeological Society of Durham and Northumberland Research Report 5, Durham, 19-27
- Young, R, 2004a *Northumberland National Park: Research Agenda for Archaeology*, Internal Northumberland National Park Authority document
- Young, R, 2004b 'Peat, pollen and people: Palaeoenvironmental reconstruction in Northumberland National Park', in P Frodsham (ed), *Archaeology in Northumberland National Park*, Council for British Archaeology Research Report 136, York, 156-170
- Young, R, forthcoming, 'The flint', in D Austin (ed), *Excavations at Barnard Castle*, English Heritage funded monograph
- Young, R, and Humphrey, J, 1999 'Flint use in England after the

- Bronze Age: time for a re-evaluation', *Proceedings of the Prehistoric Society* 65, 231-242
- Young, R, and O'Sullivan, D, 1993 'Nessend, Lindisfarne and the "coastal" Mesolithic of north-east England', *Archaeology North* 6, 9-15
- Young, R, and Webster, J, in prep 'Excavations on Bollihope Common, Co. Durham', *Durham Archaeological Journal*
- Young, R, and Welfare, A T, 1992 'Fieldwork and excavation at the Crawley Edge cairnfield, Stanhope, Co. Durham', *Durham Archaeological Journal* 8, 27-49
- Young, R E, 2001 *Excavations within Berwick-upon-Tweed 1998-99*, Unpublished report, Tyne and Wear Museums/Northumbrian Water Limited
- Younger, D A, 1994 'The small mammals from the forecourt granary and the south west fort ditch', in P. Bidwell and S. Speak (eds), *Excavations at South Shields Roman fort, vol 1*, Society of Antiquaries of Newcastle Monograph 4, Newcastle-upon-Tyne, 266-268
- Zoll, A, 1995 'A view through inscriptions: the epigraphic evidence for religion at Hadrian's Wall', in J Metzler, M Millet, N Roymans and J Slofstra (eds), *Integration in the Early Roman West: the role of culture and ideology*, Luxembourg, Dossiers d'Archeologie du Musée National d'Histoire et d'Art IV, 129-138

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Shared Visions:

The North-East Regional Research Framework for the Historic Environment

The North-East Regional Research Framework for the Historical Environment (NERRF) sets out a vision for the future of research into the archaeology and historic environment of North-East England (Northumberland, Tyne and Wear, County Durham and Teesside) over the next five years.

The implementation of *Planning Policy Guidance Note 16: Archaeology and Planning* (PPG16) in 1990 integrated archaeology and heritage conservation into the planning process. This has led to a rapid increase in the volume of fieldwork carried out nationally and locally over the last fifteen years. Concerns have been expressed, however, by both individuals and by organisations, that much of this work lacks research focus. At the same time grant-providing bodies recognise the need to impose some sense of priority on research demands in order to ensure appropriate distribution of what are often limited resources. In response, the NERRF project aims to produce a series of research priorities for the region as a whole which will not only help to provide structure to commercially driven fieldwork locally but also supply a sense of direction for all strands of on-going research.



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