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The Traprain Law Environs Project

Fieldwork and Excavations 2000-2004

Colin Haselgrove

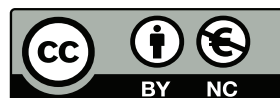
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Chapter 1

Introduction

COLIN HASELGROVE and LEON FITTS

INTRODUCTION

Ever since the 1914–23 excavations on Traprain Law (e.g. Cree 1923) and especially since the discovery in 1919 of the spectacular late Roman silver hoard (Curle 1920; 1923), the archaeology of this volcanic plug overlooking the East Lothian coastal plain (Figure

1.1) has dominated interpretation of political and social developments in southern Scotland from later prehistory to the post-Roman period. It is clear both from the initial discoveries and from several subsequent campaigns, most recently the Traprain Law Summit Project (Armit *et al.* forthcoming), that the hilltop

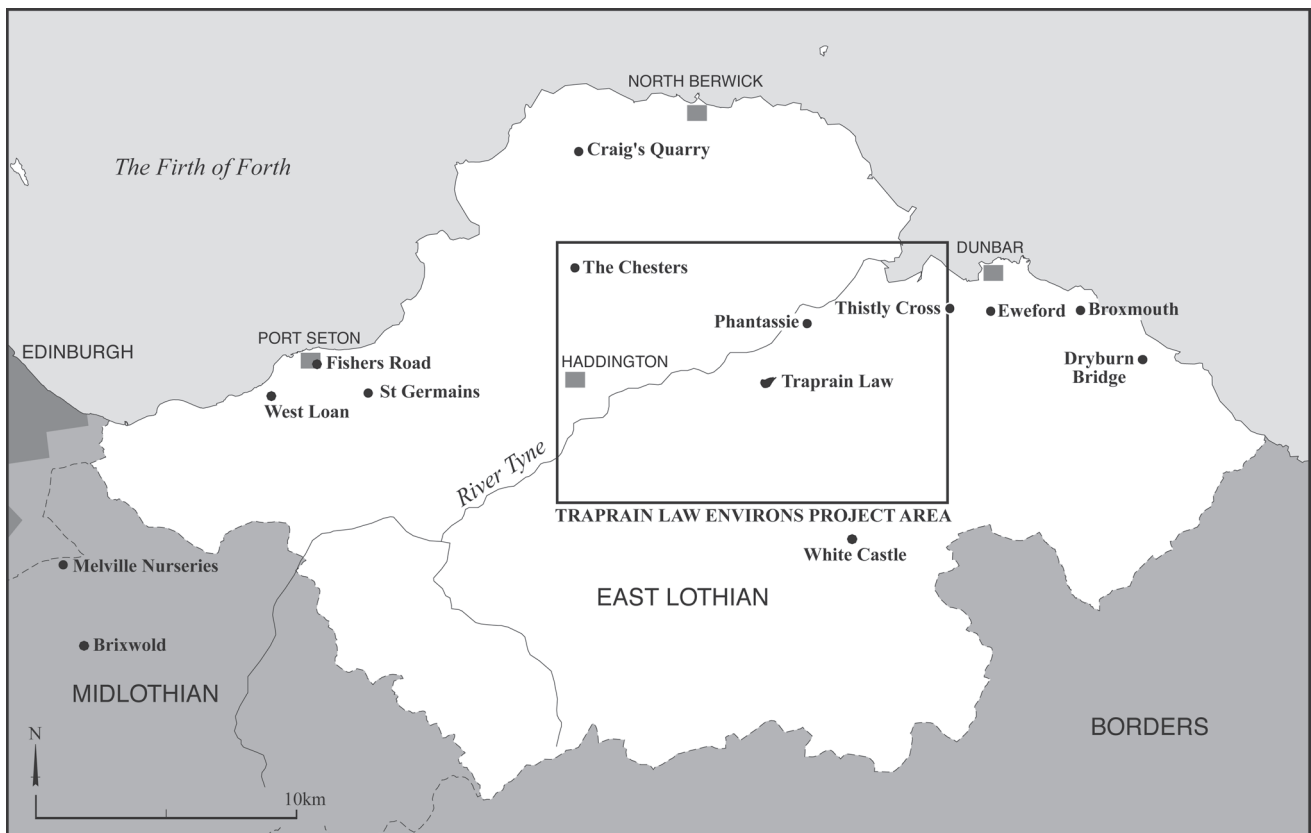


Figure 1.1
East Lothian, showing the Traprain Law Environs Project (TLEP) study area and other excavated later prehistoric sites in the region
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TRAPRAIN LAW ENVIRONS

had a long and complex history of use. Unstratified finds indicate some activity there in the Mesolithic and Neolithic, whilst the presence of rock art implies that the hilltop formed part of the sacred landscape of the late Neolithic and Early Bronze Age. The earliest extensive settlement dates to the Late Bronze Age, but as Jobey (1976) first noted, there was only limited occupation during the Iron Age – although it was probably then that the main ramparts were constructed, creating a hillfort on a scale paralleled in southern Scotland only at Eildon Hill North (Borders; Owen 1992).

Although the Roman army occupied southern Scotland in the Flavian and early Antonine periods, and again briefly in the reign of Severus, for most of the Roman era, East Lothian lay beyond the physical frontier. According to Ptolemy writing in the second century AD, a people known as the Votadini inhabited south-east Scotland and there can be little doubt, given the wealth of Roman finds from the hilltop, that Traprain was one of their major centres, quite possibly their capital. Allied to the lack of Roman military installations in East Lothian – indeed to a large extent throughout the Lothians and eastern Borders region (cf. Hanson 2007) – this has underpinned the further suggestion that the Votadini were Roman clients, on friendly terms with the imperial authorities for most if not all of the period (e.g. Hunter 2006; Mattingly 2006, 150, 424).

The Roman imports from Traprain include a wide range of pottery and glass vessels and coins, but very little military equipment. They are accompanied by a range of other goods of Roman and/or native origins, including a sizeable brooch assemblage, and glass and jet jewellery. The site was also a major manufacturing centre at this time, with evidence of bronze-casting, glass- and enamel-working, and the production of beads and bangles from cannel coal and shale (Hunter 2006). The recent work confirms the intensity of occupation at this period, with settlement spreading over the top of the earlier ramparts, which were evidently no longer maintained (Armit *et al.* 2002; 2006; forthcoming).

It is clear from the nature and date of the Roman imports – of which the great silver hoard is merely the most spectacular element – that unlike most Scottish settlements, the inhabitants of Traprain remained in close contact with the Roman world throughout the third and fourth centuries and into the fifth century AD. However in the decades just before or after AD 400, the site was refortified, after which the occupation seems to have rapidly tailed away. There is no evidence that Traprain Law was ever again a centre either of power

or of population, and when such centres re-emerged, they were located elsewhere, notably at Castle Park, Dunbar, to the east (Perry 2000), and on the site of Edinburgh Castle (Driscoll and Yeoman 1997).

THE ARCHAEOLOGICAL SETTING

The rich soil cover and its relatively dry climate has today made the East Lothian coastal plain one of Scotland's finest agricultural areas and there is little doubt that the region has been intensively inhabited and cultivated from prehistory onward. Traprain Law is only one of a handful of upstanding earthwork sites surviving in East Lothian that are likely to date to the later prehistoric period. Probably the best known of these upstanding earthworks is the multivallate enclosure known as The Chesters, near Drem. This has never been excavated, but remains of roundhouses and scooped yards are visible overlying the ramparts, indicating that – as at Traprain and other well-known sites like Hownam Rings (Piggott 1948) – settlement eventually extended over the earthworks after these were no longer required for their primary purpose. There is a noteworthy concentration of multivallate enclosures, or 'forts' as they are often termed, including both earthwork and plough-levelled examples around the Garleton Hills between The Chesters and the former county town of Haddington to the south. The iron ore, haematite, was mined in the Garleton Hills in the nineteenth century, and this may be one reason why there were so many potentially Iron Age enclosures in the area. Another well-preserved earthwork enclosure is White Castle, sited on the edge of the barren Lammermuir Hills, which delimit the region to the south, providing panoramic views over the coastal plain to the Firth of Forth and the Fife coastline beyond (see endpaper).

Unsurprisingly, in the rich agricultural landscape that is the coastal plain today and aided by the presence of a large archaeological community in Edinburgh, aerial survey has had a noteworthy impact in the region. The first discoveries of plough-levelled sites recorded as cropmarks date to very inception of archaeological air photography in the 1920s. Since the middle of the last century, aerial survey has led to the recording of hundreds of cropmarks on the coastal plain to add to the upstanding earthworks. Many of these plough-levelled sites take the form of ditched – or sometimes palisaded – enclosures of broadly circular or curvilinear form, generally assumed on the basis of excavated examples elsewhere to be of later prehistoric

date. The cropmarks include a significant number of rectilinear enclosures, which are widely dispersed across the county, and not, as several authors have noted (e.g. Macinnes 1984; Armit 1997), particularly prevalent close to Traprain Law. Pit alignments are another common monument type, in some cases concentrated around enclosures.

It is not unusual for enclosure cropmarks to occur in close proximity, sometimes forming noticeable clusters. A good example occurs at Fishers Road, Port Seton, where there are three separate enclosures all within a few hundred metres, the last of them only discovered in 2004 (Figure 1.2), along with further pairs at Meadowmill and Seton Mains (Haselgrove and McCullagh 2000). In other areas of the coastal

plain, however, sites are rare or non-existent, the area just east of Traprain being a good example. What this signifies has been a matter of some debate. Land use and soil quality are certainly factors in the extent of cropmark formation, but the nature of the distribution may well also reflect some underlying truths. Cropmarked site densities are undoubtedly highest in areas of well-drained soils, while in some pasture areas past land use will have levelled sites that are then unlikely to produce cropmarks. Equally, on the poorer-quality land used for pasture – for example on the fringe of the Lammermuirs – there are apparent gaps in the distributions of what might be comparable earthwork sites. Possible explanations are discussed in later chapters, but it is hard to avoid the conclusion



Figure 1.2

Enclosure at Seton West Mains, Port Seton (NT47NW 214). Discovered in 2004, this enclosure lies within 350m of the sites at Fishers Road West and East excavated in 1994–5 (E12990CN, Crown copyright: RCAHMS)

TRAPRAIN LAW ENVIRONS

that enclosures were commoner in some parts of the landscape than in others.

Within the general class of curvilinear enclosures, there is enormous variety, both in their plan and in the scale of the enclosing barrier(s). At one end of the range are numerous small and not always complete circular or oval enclosures with a single ditch, whilst at the other are far fewer larger and more complex sites with multiple boundaries and clear affinities to extant earthwork sites such as ‘The Chesters’. Virtually without exception, enclosures of rectilinear or sub-rectangular form in the coastal plain tend to be smaller and simpler, with just a single, albeit frequently fairly substantial, ditch.

Given the large number of sites of later prehistoric character known in East Lothian, to say nothing of the archaeological prominence of Traprain Law, it is surprising how few of them had been excavated by the end of the twentieth century, let alone on any scale. The main exceptions are five curvilinear enclosures along the coast, three excavated ahead of quarrying in the late 1970s and early 1980s at St Germain’s (Alexander and Watkins 1998), Broxmouth (Hill 1982a) and Dryburn Bridge (Dunwell 2007) – others having been lost without recording, like Riggonhead near Tranent – and two excavated in 1994–5 in advance of new housing at Fishers Road, Port Seton (Haselgrove and McCullagh 2000). All five sites yielded evidence of inhabitation in the first millennium BC continuing to varying degrees into the early first millennium AD, showing that in broad terms the lifetime of curvilinear enclosures overlapped with occupation on Traprain Law. At the same time, the individual sites were all revealed to have more complex sequences than was apparent from the air photographs. None of them, however, is very near to Traprain, as is true of the only other significant previous excavation on an Iron Age settlement in the area (other than on the hill itself) at Craig’s Quarry, Dirleton (Piggott 1958), which at a distance of 11km is the closest.

Unsurprisingly given its proximity to the capital, the inception of NPPG5 has led to a sharp increase in archaeological interventions in advance of development in East Lothian (Bradley and Phillips 2004). These have revealed numerous minor traces of later prehistoric activity in the region suggesting the presence of nearby settlement, as at Haddington on the A1 (DES 1995, 51), but the relatively few plough-levelled enclosures so far investigated under this regime all lie closer to Edinburgh, as at Brixwold (Crone and O’Sullivan 1997) or Melville Nurseries,

Dalkeith (Raisen and Rees 1996). In part, this lack of work on Iron Age sites closer to Traprain Law is due to the extensive programme of scheduling carried out by Historic Scotland in the late 1980s and early 1990s, thanks to which the majority of known cropmark enclosures now enjoy legal protection as Scheduled Ancient Monuments.

One direct consequence of this is that when the dualling of the A1 trunk road between Dunbar and Haddington, which passes close to Traprain Law, was planned, this was routed as far as possible to avoid known cropmark sites. Consequently, whilst numerous prehistoric sites and linear boundaries were identified by the archaeological evaluations carried out in 2001–2 ahead of the building of the dual carriageway, only one previously known enclosure was directly affected, at Eweford C-Road (Lelong and MacGregor 2007).

THE TRAPRAIN LAW ENVIRONS PROJECT

By 1999, the continuing focus on the archaeological remains and finds from Traprain Law had successfully resolved many of the issues thrown up by the 1914–23 excavations relating to the scale and character of activity on the summit. The same could not, however, in all honesty be said of questions pertaining to the possible chronological, social, or economic relationships between Traprain Law, as it underwent various transformations from Late Bronze Age hilltop enclosure to intensively occupied Roman Iron Age settlement and production centre, and the numerous enclosed settlements known in the vicinity, rectilinear or curvilinear, none of which had been excavated. Were these other sites occupied at the same time as Traprain Law in its different guises, and if so, what was their social and economic status in relation to the hillfort community? Or were they largely abandoned at the periods when Traprain itself was intensively occupied? To what extent were these smaller settlements of comparable status to one another or shared similar histories of occupation? More generally, what could be said of the wider regional settlement pattern of which Traprain Law was apparently such a dominant part, and how did this evolve over time?

In the late twentieth century, research elsewhere in Britain, notably around the hillfort of Danebury, has shown the value to be gained from adopting a landscape approach to the study of such monuments, whereby a range of sites are investigated under comparable conditions to construct a picture of the overall settlement

pattern in the area and the changing inter-relationship between its constituent parts (Cunliffe 2000; 2008). With final reports on the St Germain's and Port Seton excavations published or in press (Alexander and Watkins 1998; Haselgrove and McCullagh 2000) and a planned new programme on the summit of Traprain Law led by the National Museums of Scotland (for which see Armit *et al.* 2002; forthcoming), it seemed an appropriate moment to initiate a parallel programme of research around Traprain, designed to examine sites in the surrounding area. Although such a programme would affect Scheduled Ancient Monuments, it was felt this could be justified not only with respect to the academic aims and objectives, but also with regard to the future management of the sites, by providing information on the survival of different types of features and deposits and by enhancing our knowledge of the date and character of the sites, none of which had been investigated at the time of scheduling.

Following preliminary discussions with Historic Scotland with regard to the likelihood of scheduled monument consents being granted on a case by case basis subject to the submission of a satisfactory research design for each site, we began planning the project as a collaborative venture between the Department of Archaeology, Durham University, where one of us was then based, and the Faculty of Classics, Dickinson College, Carlisle, USA. In academic terms, the project was a natural successor to one we had recently completed at Melsonby, North Yorkshire (Fitts *et al.* 1999), just outside the Late Iron Age royal site at Stanwick, and would address many of the same questions about the relationships between the Roman world and the indigenous inhabitants of central Britain in the early first millennium AD. Like its predecessor, the new project, although research driven, was also designed to provide fieldwork training for undergraduates from both universities, for which opportunities are now far more limited than they were a decade or two earlier.

The study area

After assessment of the East Lothian aerial photographs at the National Monuments Record of Scotland (NMRS) in 1999, a block of landscape measuring 15km east–west by 10km north–south, roughly centred on Traprain Law, was adopted for more detailed study, comprising Ordnance Survey 1:10,000 map tiles NT 57 and NT 67 NW/SW (Figure 1.3). This study area was chosen as encompassing the main concentration of cropmarks in the coastal plain around Traprain

Law, along with a secondary cluster of cropmarked sites and earthworks around the Garleton Hills. The area is drained by the River Tyne, which flows broadly west–south–west to east–north–east across the area from Haddington to East Linton and then on to the sea 10km away, just west of Dunbar. Some 190 cropmarked sites of all periods are recorded within the 150km² study area, of which more than half are enclosures likely to be of later prehistoric date. As a part of their contribution to the project, these sites have been mapped and analysed by the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS).

The coastal plain has a complex solid geology, which is discussed in Chapter 2. The drift cover is mainly till laid down by the Devensian glaciation, with extensive raised-beach or blown-sand deposits around the coastline. The Holocene saw a gradual recolonisation by flora and fauna, but the coast was affected by continuing sea-level changes, culminating in the main post-glacial transgression through the seventh and sixth millennia BC when the lower-lying ground of the Forth valley was completely covered in water (Coles 1998). More recent alluvial deposits include river gravels, sands, silts, and clays in varying proportions.

RESEARCH DESIGN AND IMPLEMENTATION

At the outset, we decided that the project should focus solely on plough-levelled enclosures of later prehistoric character. There were three main reasons for this, all essentially pragmatic rather than academic. First, with over 100 such enclosures already known in the target area, only a handful of them could be investigated over a five year fieldwork programme – the longest for which we anticipated funding on the scale that would be necessary could be raised. Second, the most likely ways of finding settlements that do not normally generate cropmarks are fieldwalking and geophysical survey, neither of which had systematically been attempted in the area. However, the former seemed better suited to locating lithic scatters, since pottery of Iron Age tradition is too friable and Roman pottery too rare to survive in quantities that might allow later prehistoric sites to be identified. And whilst it might be possible to identify some sites from concentrations of building stone, the chances of obtaining dating evidence is relatively low (but see Chapter 2). The major Iron Age settlement at Phantassie was targeted by

TRAPRAIN LAW ENVIRONS

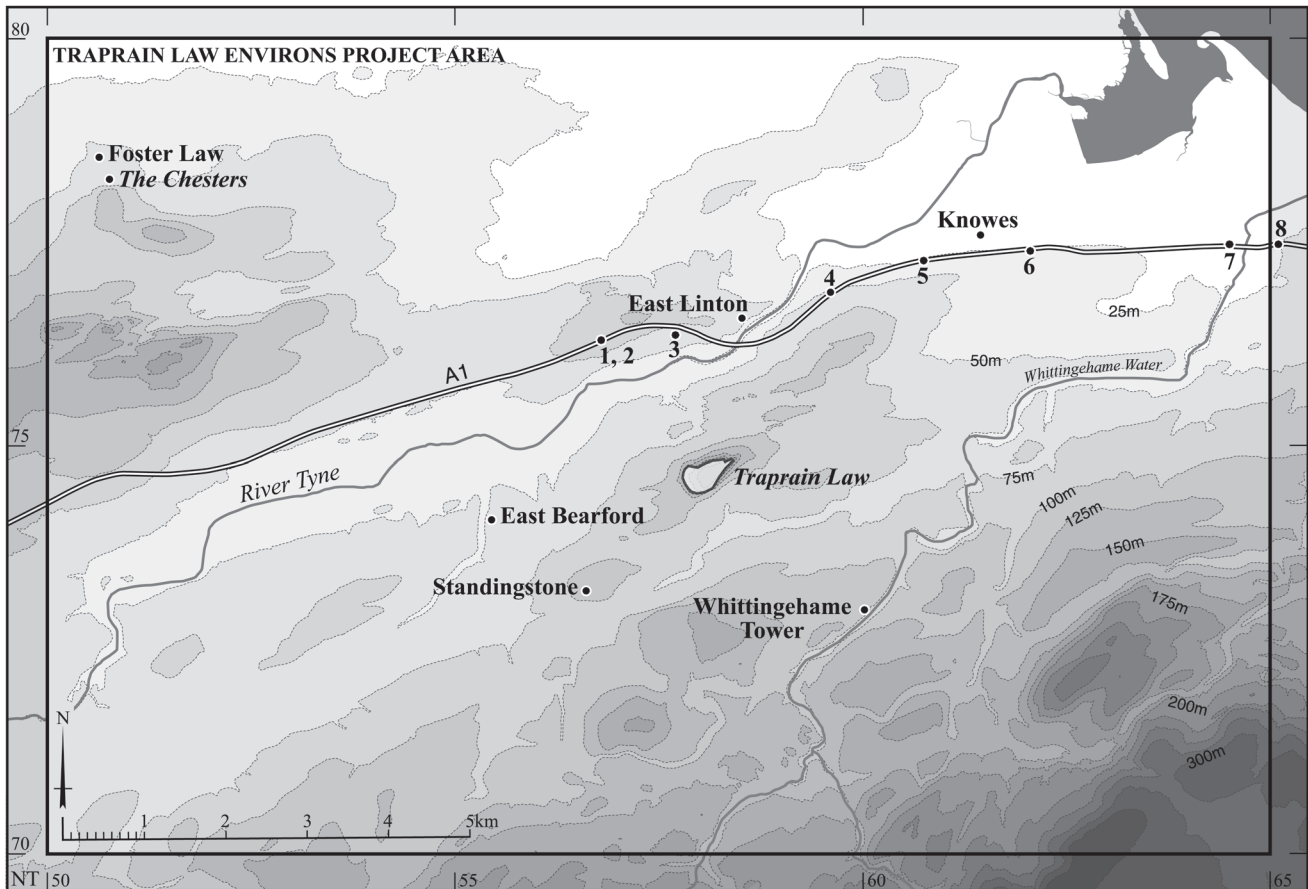


Figure 1.3

The TLEP study area, showing the sites excavated between 2002–4. Also shown are sites excavated by GUARD in 2001–2 in advance of the dualling of the A1 (numbered). 1. Pencaig Hill; 2. Pencaig Wood; 3. Overhailes; 4. Phantassie; 5. Knowes; 6. Howmuir; 7. Biel Water; 8. South Belton (Crown copyright: RCAHMS, GV004466)

GUARD in their evaluations along the line of the A1 because its topographic location, at the break of slope above a river, was shared by several known cropmark sites and the field was covered with stones of varying geological origin (Lelong and MacGregor 2007, 7); yet in the extensive excavations that followed, only one sherd of samian was found.

Thanks to technological advances, geophysical survey is now routinely used to cover large areas of landscape and define sites, as at Melsonby and West Heslerton in North Yorkshire (Fitts *et al.* 1999; Powlesland *et al.* 1997) or in the South Cadbury Environs Project (Tabor and Johnson 2000). However, geomagnetic survey was expected to be problematic in East Lothian owing to the complex geology of the region, although it had worked fairly well on the coast

at Port Seton (Haselgrove and McCullagh 2000), so we decided that a more productive strategy was to survey a selection of known sites on different rock types. This would establish for the future on which of the local geologies, geomagnetic survey offered a useful means of characterising sites, whilst any additional details revealed would help inform the choice of sites for excavation. An evaluation of geophysical survey for investigating sites over the different geologies of the coastal plain was therefore built into the project objectives.

The third factor in deciding to focus on plough-levelled enclosures was that the evaluations linked to the construction of the new A1 dual carriageway would in any case provide a systematic transect through the planned study area. Because the new road had been

routed to avoid known cropmarks, the archaeological data generated by the A1 work should be very largely complementary to the research we were planning. After the contract for the A1 work was awarded to GUARD, it was agreed that the two projects would keep each other informed of their results during the fieldwork and post-fieldwork phases. Data structure reports and other data have been exchanged and specialists have maintained contacts, we hope to the mutual benefit of both final publications.

The overarching aim adopted for the Traprain Law Environs Project (TLEP), as we christened the Durham–Dickinson collaboration, was to investigate the nature and changing character of smaller enclosed settlements in the East Lothian coastal plain around Traprain Law during the first millennia BC and AD, thereby contributing to wider research on (1) the development of society and economy in southern Scotland during the later prehistoric period; (2) Roman impact in the northern frontier zone and the nature of indigenous responses; and (3) the extent to which geomagnetic and cropmark evidence are representative of sub-surface remains in an area of complex geology.

Previous excavations of later prehistoric enclosures along the East Lothian coast and elsewhere in central

Britain have repeatedly shown that site sequences are more complex than the air photographs indicate. We therefore decided that the first phase of fieldwork would comprise a programme of geomagnetic surveys on a sample of 30 plough-levelled enclosures and other sites with the aim of identifying sites potentially with several occupation phases for further investigation and at the same time evaluate the effectiveness of geomagnetic survey for characterising such sites on different geologies (Phase 1).

The geomagnetic surveys were originally timetabled for the autumn–winter of 2000–01, with excavations scheduled to start in 2001. In the event, work was suspended in February 2001 owing to the outbreak of foot and mouth disease, and the surveys were not completed until 2001–02. The results, if anything, exceeded expectations, fully justifying the decision to invest time and resources in the surveys. In addition, the Edinburgh Archaeological Field Club undertook a trial resistivity survey of the enclosure at Standingstone, but in the event the results did not add significantly to those produced by magnetometry and the experiment was not taken further. No artefacts were picked up during the geophysical surveys, suggesting that a more extensive fieldwalking programme would have been of little value for locating or characterising such sites.



Figure 1.4

The enclosure at Standingstone under excavation in 2003, Traprain Law in the background

Excavation objectives

Phase 2 of the TLEP (2002–04) comprised area excavation in successive seasons of three sites within 5km of Traprain Law to provide detailed archaeological and environmental data on the different enclosure types, together with more limited evaluations of three other sites to validate specific anomalies revealed by the geophysical surveys and provide comparative data (Figure 1.3). For the area excavations, three of the enclosures surveyed in Phase 1 were chosen as representing the principal enclosure types and locational preferences seen in the study area; and having apparently had multiple phases of occupation and thus potentially able to provide information on change over a period of time. The sites selected were a semi-circular ditched enclosure at Whittinghame Tower (NGR: NT 6004 7300), excavated in 2002; an elevated curvilinear enclosure at Standingstone (NGR: NT 5659 7323), examined in 2003 (Figure 1.4; Plate 1); and a rectilinear enclosure at Knowes near East Linton (NGR: NT 6140 7755), investigated in 2004 (Plate 2). At each of the sites, the generic objectives were:

- to establish the sequence and character of the enclosure elements detected by air and ground survey,
- to explore the range and nature of associated structures and validate specific archaeological anomalies revealed by the magnetometer surveys,
- to sample deposits systematically for environmental remains and material culture from which to reconstruct the range and character of economic, social and ritual activities occurring at the site, and
- to investigate the date, duration and continuity of occupation and crop husbandry at the site through a programme of absolute dating.

All three sites revealed complex histories of occupation and re-use. In each case, the main excavation was preceded by an evaluation, which confirmed the presence of carbonised plant remains and during the excavations, intensive bulk soil sampling was undertaken to maximise the recovery of carbonised cereals, a strategy that had proved successful at Port Seton (Haselgrove and McCullagh 2000). Thanks to the subsequent radiocarbon dating programme, we now know that settlement and other activity such

as burial and agriculture at all three loci collectively spanned a period of over three millennia, from the later Neolithic to the dawn of the Early Historic period.

The three sites selected for limited evaluations were a second rectilinear enclosure at East Bearford (NGR: NT 5545 7410), a curvilinear enclosure at Foster Law (NGR: NT 5063 7854); and a multivallate ‘fort’ at East Linton (NGR: NT 5851 7655). They too provided valuable information, complementing and extending that provided by the main sites.

Recording methods

The excavations were conducted in accordance with the individual Scheduled Monument Consents granted by the Scottish Ministers under the Ancient Monuments and Archaeological Areas Act 1979. Sites were excavated by hand following machine stripping and recorded using standard procedures (*ASUD Recording Manual* v.4.3 2004). The surveys and excavations were tied-in to Ordnance Survey points using a Wild T1000 total station survey instrument linked to a SDR33 datalogger. After each excavation, Data Structure Reports were submitted to Historic Scotland. The finds have been deposited at National Museums of Scotland, pending allocation by the Finds Disposal Panel; the individual site archives and overall project archive have been deposited with Historic Scotland for transfer to the NMRS.

THE STRUCTURE OF THE REPORT

The layout of the volume is as follows. Chapter 2 gives an overview of the survey background in the TLEP study area, whilst Chapters 3–5 describe the results from Whittinghame Tower, Standingstone, and Knowes, in the order they were excavated. The results of the smaller evaluations are presented in Chapter 6. The material remains from all six sites are discussed in Chapter 7, with an overview by Fraser Hunter, whilst Chapter 8 examines the subsistence evidence. The radiocarbon dating is presented in Chapter 9, along with Bayesian models for the site chronologies developed by Derek Hamilton. In chapter 10, Dave Cowley places the cropmarked sites around Traprain Law in a wider perspective, whilst Chapter 11 offers a brief overview of the implications of the TLEP and other recent work for our understanding of later prehistoric societies in the region. Appendix 1 compares the results of the geophysical surveys with the aerial record, whilst Appendix 2 catalogues recent

surface finds of Roman material from Athelstaneford and elsewhere in East Lothian

Chronology and terminology

Radiocarbon dates cited in the text were calibrated using OxCal v4.0.5 (Bronk Ramsey 1995; 1998; 2001) and are quoted at 95% confidence. The results and details of the samples are given in full in Chapter 9. Throughout the volume, the term ‘Iron Age’ on its own designates the pre-Roman part of the period, and is sometimes subdivided into the Earlier Iron Age (c. 800–350 BC and the Later Iron Age (c. 350 BC–late first century AD). ‘Roman Iron Age’ is used for the period from the late first to third centuries AD inclusive and ‘post-Roman’ for the fourth to sixth centuries AD.

ACKNOWLEDGEMENTS

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We are particularly grateful to the following for their permission to excavate and assistance in facilitating the work: the late Lord Balfour, the Whittingehame Estate, Patricia Duncan and James Clarke (Whittingehame); Mr Stuart Drysdale (Standingstone); Tynninghame Estate, The Childrens Trust and Mr Peter Cochran (Knowes); Mr Hugh Elder (East Bearford); Mr James Miller (Foster Law); and Mr William Hamilton (East Linton). The fieldwork was undertaken through Archaeological Services University of Durham (ASUD), managed by Duncan Hale, who organised the geophysical programme and the evaluations, and Peter Carne, who oversaw the excavations. The main excavations were supervised by Jane Gosling, assisted variously by Janet Beveridge, Ed Blinkhorn, Amanda Brend, Laura Cripps, Mairi Davies, Tom Moore and Rachel Pope. The DSRs were compiled by Peter Carne and Jane Gosling, with illustrations by Linda Bosveld, David Graham, Janine Fisher, and Martin Railton. Finds recording was undertaken by Pamela

Lowther. The evaluations were supervised by Andy Platell (East Bearford), Janet Beveridge (Foster Law), and Matt Claydon (East Linton), who also compiled the DSRs. The geophysical surveys were conducted by Jamie Armstrong, Paul Dungey, David Graham, Duncan Hale, Andy Platell, Alan Rae, Daniel Still, and Barry Taylor. We would like to thank all the additional landowners and farmers who kindly allowed access to their fields.

Particular thanks are due to many colleagues at Historic Scotland and RCAHMS for their advice, support and interest throughout the fieldwork, especially Patrick Ashmore, David Breeze and Olwyn Owen, and Deirdre Cameron at the former and to Marilyn Brown, Dave Cowley, Strat Halliday, Kevin H J Macleod, and Jack Stevenson at the latter. Others whose support is gratefully acknowledged include Biddy Simpson (East Lothian Heritage Officer), Fraser Hunter and Alison Sheridan (National Museums of Scotland). Many other colleagues offered valuable comments on the excavations, notably Ian Ralston and Clare Wilson. John Davies photographed all three main excavations from the air, and we are grateful for him for allowing us to use his photographs. A debt is owed to Gordon Cook (SUERC) for his patience in dealing with a series of less than straightforward radiocarbon dating samples!

Although he would be too modest to admit it, John Minniear made an immense contribution to the day-to-day running of the project in all three seasons. Thanks also to James Whitfield, who catered for the hungry teams in 2003–04, Vivienne Cameron and Sheila Marshall of North Berwick Flats for arranging accommodation, and Michael Brander for local advice. Finally, thanks are due to the students of both universities and everyone else who took part in the excavations and to David Jones and the members of the Edinburgh Archaeological Field Club, who assisted at Whittingehame and carried out the resistivity survey at Standingstone.

Many people have contributed reports and advice to this publication, to all of whom we extend our thanks. Full reports on the human bone by Charlotte Henderson and Anwen Caffell, and on the geology of the stone artefacts by Fiona McGibbon are lodged with the site archives. Conservation was undertaken by Jennifer Jones at the Department of Archaeology, Durham University, with EDXRF analysis by Philip Clogg, who also lifted the Standingstone urn. The archaeo-magnetic date for the Knowes oven was provided by Mark Hounslow and Vassil Karloukovski

TRAPRAIN LAW ENVIRONS

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Harding kindly gave permission to reproduce Figure 10.19. The excavation illustrations were compiled by Pamela Lowther from the figures prepared for the DSRs. The pottery was drawn by Gavin Lindsay and Christina Unwin; the cremation urns by Marion O’Neil; small finds by Christina Unwin and Alan Braby; and the stone objects by Mark Hoyle and Alan Braby.

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