

The Fields of Britannia: continuity and change within the early medieval landscape

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Abstract

This paper will explore what we can learn about the Roman to medieval transition through a major synthesis of two datasets: pollen sequences that reflect broad patterns in land-use, and the relationship between excavated Romano-British and medieval field systems. Marked regional and temporal variations are found across the whole of Roman Britain, with some regions showing greater continuity than others. In lowland areas most of this variation will reflect the different ways in which communities responded to the changing socio-economic circumstances that followed Britain ceasing to be part of the Roman Empire, although climate change may have been significant in upland areas. Where there are identifiable discontinuities between Romano-British and medieval landscapes the crucial change may not have come at the end of the Roman period but several centuries later when an intensification of agriculture was seen across much of southern Britain around the 8th century.

Introduction

The traditional view of what happened when Britain ceased to be part of the Roman Empire is one of social and economic collapse: the supply of money ceased, the market-based economy and manufacturing industry collapsed, and large parts of the countryside were deserted. Within a few decades, so the traditional story goes, mass immigration from the continent by peoples known as the Angles and the Saxons led to the native British population being largely replaced, and this was followed by the establishment of a new political order. This culminated in the emergence of a series of kingdoms that in places are still commemorated in modern names such as East Anglia (from the East Angles), Essex (from the East Saxons), and Wessex (from the West Saxons). There may, also, have been some continuity in western regions where the county-name of Devon, for example, is derived from that of the British kingdom and Roman *civitas* of the Dumnonii (Watts 2004, 186), and the name of the early medieval kingdom of ‘Gwent’ is derived from *Venta Silurum*, the Roman name for Caerwent (Charles-Edwards 2013, 17; Knight 2013, 32).

This traditional view of a catastrophic end to Roman Britain has been challenged on many fronts, although there remains a fundamental division within contemporary scholarship between those who study the Roman and the early medieval periods (and even more specifically the archaeology of the Anglo-Saxon eastern regions, and the surviving native communities in the West; e.g. Esmonde-Cleary, S. 1989; 2014; Faulkner 2000; Hills 2003; Hamerow 2012; Gerrard 2013). We have, therefore, a Society for the Promotion of Roman Studies and a Society for Medieval Archaeology, and journals for *Britannia* and *Medieval Archaeology*. Period specialisations such as these are inevitable – we cannot all study all periods of archaeology – but they are also unhelpful in creating boundaries in our understanding of the past. This paper therefore focusses on the results of a project – *The Fields of Britannia* – that explicitly set out to explore the significance of the transition between the Roman and the medieval periods. It attempted to do this in three ways: firstly, through an analysis of palaeoenvironmental sequences (notably pollen) that allow us to reconstruct broad patterns of land-use; secondly, through an analysis of the relationships between Romano-British and medieval field systems; and thirdly, a study of how settlement patterns evolved across three contrasting regions. The results have all been published, in a major book (Rippon *et al.*, 2015, *The Fields of Britannia*), a paper on the palaeo-economic evidence from animal bones and charred cereals (Rippon *et al.* 2014), and Fiona Flemings’ (2016) PhD. This paper will review the results of that project, and reflect on its implications for Wales.

A regional approach to studying landscape change

There have been many studies of what happened at the end of Roman Britain (e.g. Esmonde-Cleary 1989; 2014; Higham 1992; Dark 1994; 2000; Faulkner 2000; Gerrard 2013) but the scarcity of well-dated archaeological evidence often leads to an approach based upon individual site biographies from widely scattered places. Until relatively recently, there was – for example – a small canon of classic sites where it was thought that the occupation of Roman settlements continued into the early medieval period such as Rivenhall in Essex (Rodwell and Rodwell 1986), Latimer Buckinghamshire (Branigan 1971), Barnsley Park in Gloucestershire (Webster *et al.* 1985), and Wroxeter in Shropshire (Barker *et al.* 1997; Gaffney *et al.* 2007). Discussing these sites, however, involved traversing three regions of the British landscape – the South East, the Central Zone, and the West – that we now know were very different in character in the later medieval, early medieval, and Roman periods (Roberts and Wrathmell 2000a; 2000b; 2002; Smith *et al.* 2006; Wrathmell 2017). In periods with relatively little data, there is no alternative but to write narratives based upon the scraps of evidence that we have, but it is questionable what the fate of a Roman villa in a region that experienced extensive Anglo-Saxon influence tells us about landscape history in areas further west.

Archaeologists have, however, been surprisingly slow to recognise the complexity and significance of regional variation in landscape character in the Roman and early medieval periods. An early start was made with Fox's (1932) recognition of the upland/lowland divide, which amongst Romanists became an equally simplistic binary division between 'military and civilian' zones (e.g. Rivet 1964, fig. 9). Dark and Dark's (1997) substitution of the term 'villa landscape' for 'civil zone', and 'native landscape' for 'military zone', simply perpetuated this over-simplification and added a new and misleading dimension in suggesting that all lowland areas were characterized by villas when even a cursory examination of a distribution map shows that this is obviously not the case. Taylor's (2007) *Atlas of Roman Rural Settlement in England* was an important step forward, although it used 21st-century local government regions rather than divisions within the Romano-British landscape itself.

In *The Fields of Britannia* an attempt was made to identify a set of broad regions within which variations in landscape history could be studied in a more meaningful way. As the aims of that project were to cut across the traditional boundary between the Roman and the medieval, a set of regions had to be devised that would be relevant to both periods. Data sets such as the distributions of Roman villas, temples, mosaics, pottery kilns, and the urban hierarchy, were mapped alongside evidence for Anglo-Saxon burials and settlements associated with halls and *Grubenhäuser* as well as the well-known tripartite division of the English landscape based upon the significance of villages and open fields most recently mapped by Roberts and Wrathmell (2000a; 2002) as their South Eastern, Central, and Northern & Western Provinces (Fig. 1). The result was that the whole of Roman Britain south of Hadrian's Wall was divided into nine regions each of which appear to have had a broad coherence in their character during the Roman and early medieval periods. This desire to identify regions which were meaningful in the past resulted in marked differences in their size which was particularly the case in Wales. 'Lowland Wales' comprised the coastal districts in the far south which were relatively Romanised, with a small number of villas and urban centres, and which in the medieval period saw the development of some villages and open fields along English lines. To the north lay 'Upland Wales' that was far less Romanised and saw little settlement nucleation or large-scale open field development.

Across most of Britain, the increase in archaeological survey and excavation following the introduction of PPG16 meant that satisfactory numbers of both palaeoenvironmental sequences and excavated Romano-British field systems were available in most regions, although unfortunately this was not the case in Wales. Whilst there were a large number of pollen sequence from upland areas, there had been very little analysis in the lowlands, although an initial assessment of the landscape

immediately west of Cardiff has suggested that there are suitable sites for analysis (Davies *et al.* 2015) which the Manifestations of Empire project will be exploring further (see Davies this volume). At the time that *The Fields of Britannia* project was undertaking its work there was unfortunately very little data available on the relationship between Romano-British and medieval field systems, and although the *Roman Rural Settlement Project* (Smith *et al.* 2016) has added some more sites to the Archaeology Data Services' Grey Literature Library, including some in Lowland Wales, there is still far less data from the two Welsh regions than the rest of Roman Britain (<http://archaeologydataservice.ac.uk/archives/view/romangl/map.html>). The discussion below will therefore summarise the results of *The Fields of Britannia* project as a whole, consider how Wales fits into this national picture, and considers some key data that has become available since *The Fields of Britannia* was published.

Changing patterns of land-use

Such is the scarcity of datable material culture in early medieval Wales that palaeoenvironmental research will always be of particular importance in understanding landscape change. It has been recognised for some time that the relatively few pollen sequences which straddle the Roman and early medieval periods in lowland areas of Britain did not support the traditional view that there had been an extensive woodland regeneration (e.g. Bell 1989; Dark 2000). Since then there has been a huge increase in data brought about by development-led archaeology and university research projects, and *The Fields of Britannia* sought to pull this together in the context of a regional comparison. The aim was to study broad regional differences in the major types of land-use at particular periods of time, and see how these patterns of land-use changed as Britain moved from the Roman through to the early medieval period. This was a piece of work that required generalisations to be made so that the 'big picture' could emerge, with the result that pollen was divided into species indicative of just four major land-use types: woodland, arable, improved pasture, and unimproved pasture. The Roman and early medieval periods were divided into four eras (AD43-410, AD411-499, AD500-849, and AD850-1066), and sites were grouped into the nine regions (South East, East Anglia, Central Zone, South West, Western Lowlands, North East Lowlands, Northern Uplands, Lowland Wales, and Upland Wales). It is recognised that within such broad areas there will have been very great differences in the land-use histories of different *pays*, but there are simply insufficient pollen sequences at present to study land-use at that more localised scale.

The results showed that in the Roman period there were some markedly different patterns of land-use (Fig. 2; Rippon *et al.* 2015, table 3.1). The Central Zone and East Anglia were the least wooded regions, with just 14% and 16% respectively of the pollen coming from trees and shrubs. It is important to appreciate that this does not mean that 14-16% of the landscape was covered in woodland as different plant species produce very different amounts of pollen: tree and grass pollen, for example, are always over represented, while arable pollen is always under represented (Fyfe *et al.* 2013). What these pollen percentages do show, however, is that the Central Zone (14%) and East Anglia (16%) were far less wooded in the Roman period than the South East (31%) and the Western Lowlands (33%). Unfortunately there was very little data from Lowland Wales, but for Upland Wales the figures for woodland (32%), improved pasture (44%), and unimproved pasture (23%) were comparable to the uplands of northern England.

There was also very marked regional variation in how land-use changed in the 5th century. In the Central Zone the proportion of tree pollen barely changed in the 5th century, and while unfortunately there are no pollen assemblages dated to the 5th century in East Anglia the figures for the Roman period and AD500-849 are virtually identical making it unlikely that there was a large increase in woodland in the 5th century that was entirely cleared by the 6th century. Indeed, very small increases in tree pollen may simply have been due to a failure to maintain laid hedges and

coppiced woodland (Rippon *et al.* 2015, tables 5.2 and 6.2). In the Western Lowlands tree pollen increased marginally (from 33% to 37%), although in the South West the increase was somewhat greater (27% to 38%: Rippon *et al.* 2015, tables 7.2 and 8.2). Again, there is a lack of data from Lowland Wales, although when data from the 31 sites from Upland Wales are aggregated tree pollen was virtually unchanged, arable was constant, improved pasture fell only very slightly, and unimproved pasture rose very slightly (Rippon *et al.* 2015, table 11.3).

Two studies from upland Wales have appeared since *The Fields of Britannia* was published, and they confirm its conclusions for both the Roman and early medieval periods. Tudur Davies (2015; and this volume) carried out an exemplary piece of multi-faceted geoarchaeological and palaeoenvironmental analysis in the landscape around Llyn Tegid (Lake Bala) in North Wales. The immediate post-Roman period saw firstly an expansion in heathland and then some woodland regeneration, alongside an decrease in pollen indicative of arable and pasture and a decline in sediment being washed into Llyn Tegid. Pollen analysis in the Carneddau Mountains above Panmaenmawr, also in North Wales (Caseldine *et al.* 2017), suggests that the Late Iron Age and Roman periods saw an increase in woodland clearance and an increase in pasture, whereas the early medieval period saw an increase in woodland and heather (although large amounts of grassland pollen show that there was still significant grazing activity). Unfortunately, this study's sampling intervals and very limited number of radiocarbon dates make it impossible to examine the Roman and early medieval periods in any more detail.

Traditionally the causes of land-use changes such as these have been attributed to simplistic monocausal factors, most notably climate change. In Upland Wales it is striking that many palaeoenvironmental sequences do indeed show an increase in pollen indicative of increased wetness at this time, and this tallies with a wide range of other palaeoenvironmental evidence that the Late Roman and earliest post-Roman periods saw increased precipitation (e.g. Charman *et al.*'s (2006) synthesis of testate amoebae assemblages from ombrotrophic (i.e. rain-fed) bogs across northern Britain: Fig. 3). This period of increased wetness also appears to correspond to declining temperatures, seen for example in oxygen isotopes from a speleothem (stalagmite) in south-west Ireland (McDermott *et al.* 2001), Greenlandic ice cores (Vinther *et al.* 2009), and in Luterbacher *et al.*'s (2016) synthesis of a wide range of proxy records from across mainland Europe (see Rippon and Fyfe (in press) for a general discussion of the palaeoclimate data from this period). Although some have argued that climate change was a major driver in the decline of Roman Britain as a whole (eg Jones 1996), this is unlikely to have been the case. Climate change will affect different regions in different ways and the physically more marginal environments within Britain, where precipitation is higher and temperatures lower – making growing seasons shorter – are far more vulnerable than lowland areas. A slight increase in rainfall, or shortening of the growing season, in Upland Wales for example could have had serious implications for subsistence based farmers, whereas in the fertile lowlands of Wales' coastal plain – and indeed the other lowland areas that made up the majority of Roman Britain – the growing season was far longer than necessary for growing crops and so a slight reduction will have had relatively little impact.

In 5th-century Britain there was, however, another factor at work – the collapse of the tax-driven and market-based economy – and this will also have affected different regions in different ways. The impact of Britain ceasing to be part of the Roman Empire will have been felt hardest in those regions where society was most dependent on the Roman socio-economic system, which in the case of Wales will have been the southern lowlands that were the most highly Romanised (reflected for example by a series of villas scattered across the countryside including in the vicinity of towns such as Caerwent). In these areas, communities were acquiring manufactured goods from across Roman Britain: at Biglis, Llandough, and Whitton, in the Vale of Glamorgan, for example, pottery came from as far afield as Gloucestershire, Dorset, Oxfordshire, Mancetter-Hartshill in Warwickshire,

and the New Valley (Jarrett and Wrathmell 1981, 111-45; Owen Jones 1988; Parkhouse 1988). It was in Romanised regions such as these, where farmers were producing a surplus in order to sell it at market, pay their taxes, and buy manufactured goods, that the collapse of the Roman economy will have had its greatest impact, and without these drivers for producing an agricultural surplus we might expect a decline in the intensity of agriculture in these more Romanised regions. It is, therefore, extremely frustrating that we do not as yet have good palaeoenvironmental sequences from these lowland districts in order to explore what impact the collapse of the Roman economy had on those more Romanised areas. In contrast, in the uplands – where the economy was more subsistence-based – the impact of Britain ceasing to be part of the Roman Empire may have gone almost un-noticed and here it is possible that climate change was a factor in the declining agricultural intensity.

Recent palaeoenvironmental studies are also shedding important light on an agricultural revival that is evident several centuries later. A number of early pollen studies suggest that there was some clearance of woodland and increase in agriculture around the later 7th to early 9th centuries, a period that historians have referred to as the ‘long eighth century’ (Hanson and Wickham 2000; Wickham 2005; Rippon 2010). Tudur Davies’ (2015) work around Llyn Tegid shows that – in common with many other areas across Upland Wales – the post-Roman decline in agriculture was reversed around the 7th and 8th centuries with a reduction in woodland and heathland, and an increase in arable and pasture. There is other evidence for an intensification of agriculture around this time, such as the construction of corn driers (e.g. West Angle Bay in Pembrokeshire: Groom *et al.* 2011) that appears to be contemporary with changes in land-holding reflected in documentary sources, such as the granting of land to the Church by non-royal individuals (e.g. the Llandaff charters: Davies 1978). This was happening at the same time as large estates were fragmenting, and the smaller units so created were increasingly associated with specific settlements and named persons (Davies 1978, 10-13). The climatic data for this period are also fairly clear in showing that the mid 7th through to the early 9th centuries saw increased wetness (e.g. Charman *et al.* 2006; Büntgen *et al.* 2011), although the temperate data are contradictory with the broad trend across Europe appearing to be for warmer conditions (Luterbacher *et al.* 2016) but Ireland (Fig. 3; McDermott *et al.* 2001) and Greenland seeing cooler conditions (Vinther *et al.* 2009; and see Rippon and Fyfe in press).

This trend towards agricultural expansion during the ‘long eighth century’ in Wales is also seen elsewhere (Rippon *et al.* 2006; Rippon 2017). It manifests itself in a wide variety of ways including investment in infrastructure such as watermills, crop processing facilities, causeways, and fish-traps that are found right across southern England from the Thames Estuary to the West Midlands and the West Country (summarised in Rippon 2010; 2012; 2017). Another manifestation of this intensification may have been the move towards the nucleation of settlement patterns into villages, and the associated laying out of open fields, but this was restricted to England’s Central Zone and East Anglia which covered just part of the far wider area that saw agricultural intensification during the ‘long eighth century’. The reasons why communities in England’s Central Zone and East Anglia decided to restructure their landscapes in this way – and equally why communities living outside these regions did not – has been much debated (e.g. Williamson 2003; 2013; Partida *et al.* 2013; Williamson *et al.* 2013; Hall 2014; Rippon 2014), and the possible reasons need not concern us here. What is important in the context of this paper, and indeed the volume as a whole, is that Wales shared in the underlying factors that lay behind this period of economic growth and social innovation that led to agricultural expansion during the ‘long eighth century’.

The relationship between Romano-British field systems and the historic landscape of today

The second strand of research within *The Fields of Britannia* project was an exploration of the relationship between excavated Romano-British field systems and the historic landscape of today. This sprang from various observations that in places there appeared to be a relationship between

Romano-British and medieval field systems, and in particular Romano-British ditches running underneath the headlands of medieval open fields (e.g. Taylor and Fowler 1978; Upex 2003; Gerrard with Aston 2007). Following Williamson's (1987) pioneering work on 'co-axial' landscapes that appeared to have been overlain by, and so pre-date, Roman roads there was also the possibility that continuity in field systems existed outside those areas with open fields (e.g. White 2003; Bryant *et al.* 2005; and see Hinton 1997; Williamson 1998; 2008 for alternative views).

The Fields of Britannia set out to explore how widespread the evidence is for the potential survival of Romano-British field systems through a review of the published and unpublished literature across Roman Britain (note that the project took place before the Roman Rural Settlement Project's database was available, and enhancement of the ADS Grey Literature Library that it brought about). This was done in two ways: firstly, by establishing where there is excavated stratigraphic evidence for late Romano-British ditches having been maintained (e.g. recut) into the medieval period, and secondly – where there were no excavated medieval field boundaries – by establishing the relationship between the Romano-British field systems and the historic landscape of today. The analysis set some clear parameters. Only Romano-British boundaries dated broadly to the Roman period, or specifically to the Late Roman period were included: any that were abandoned during the 1st to 3rd centuries were excluded from the analysis as their relationship to any overlying medieval field systems tells us nothing about what happened in the 5th century as they had already been abandoned. Similarly, field systems revealed through aerial photography, geophysical survey, and/or earthwork survey were only included if they were positively dated to the Roman period through excavation.

Another important parameter in *The Fields of Britannia* project was that the analysis only included Romano-British sites that were overlain by field systems of medieval character, and so sites in areas that became woodland or unenclosed pasture in the medieval period were excluded. It is also important to appreciate that while a Romano-British field system on a different orientation to the overlying medieval one is clear evidence for a discontinuity, this need not have happened in the 5th century, and may not have been associated with a prolonged period of abandonment: while the Romano-British field system may have continued in use until, for example, the 8th century, and then have been swept away as part of a replanning of the landscape, it may equally have been deserted in the 5th century and the area only recolonised several hundred years later. Where a Romano-British field system shares the same orientation as its medieval successor it is also important to remember that this does not automatically mean that the two are related. It is possible, for example, for a field system to be abandoned, and when the area was recolonised for a new field system to have been established on the same orientation as the first one because the latter was influenced by surviving earthworks from the earlier landscape. This is, however, most likely where the area had not been totally abandoned as that will have resulted in woodland regeneration, and the clearance of that woodland will have been an extremely destructive process (e.g. the dragging away of tree trunks, and grubbing out of tree stumps, is likely to have severely damaged the ephemeral remains of any relict field systems). Experiments have shown that woodland will regenerate within 30 years if land is not grazed by animals (Harmer *et al.* 2001), and so the common orientation of Romano-British and medieval field systems does suggest that there was not a prolonged period of abandonment (although there could have been a change in land-use from arable to pasture).

It is also possible that a Romano-British field system was on the same orientation as a medieval one due to topographical considerations (e.g. field boundaries sometimes run perpendicular to contours). This is, however, likely to have been equally significant across all regions, and the fact that the correlation between Romano-British and medieval field systems is so much stronger in some areas compared to others suggests that other factors were work. In East Anglia (73%), England's Central Zone (70%), and the North East Lowlands (67%), for example, there is a relatively strong

correlation between Romano-British and medieval field systems and this fits with the pollen evidence in suggesting that these regions had been the most extensively cleared of woodland in the Roman period and saw the least post-Roman woodland regeneration (Fig. 4). The potential continuity between Romano-British and medieval field systems is slightly lower in the South East (63%) which also fits with the pollen evidence which shows a greater increase in trees and shrubs. The lowland region with the lowest figure for the correlation between Romano-British and medieval field systems is the South West at just 38% (Rippon *et al.* 2015, tab. 3.7), although pollen evidence suggests that the discontinuity may have occurred around the 8th century rather than the 5th century.

The Fields of Britannia in Wales

Unfortunately, although a number of Romano-British rural sites have been excavated in Lowland Wales – and a lot more data is available following the Roman Rural Settlement Project compared to when *The Fields of Britannia* was published – relatively few of them fulfil the criteria for analysis outlined above. The distribution of sites on the Roman Rural Settlement Project map looks promising, although some were only occupied in the Iron Age (e.g. Woodbarn in Wiston, Pembrokeshire: Vyner 1986), and in other cases reports lack plans, which means that the excavated Roman features cannot be related to the historic landscape (e.g. Williams 1996). Several sites were abandoned before the 4th century (e.g. Mynydd Bychan: Savory 1954; 1955), or were in locations where the orientation of both the Romano-British and medieval fieldscapes are clearly determined by very strong topographical influences such as being adjacent to the coast (e.g. Cold Knap in Barry; Evans *et al.* 1985). Other sites with Romano-British occupation lay within Iron Age hillforts that are not overlain with medieval field systems making it impossible to carry out a *Fields of Britannia*-type analysis (e.g. Bulwarks in Porthkerry: Davies 1973; Castle Ditches in Llancarfan: Hogg 1976; High Pennard on Gower: Williams 1941; Porth y Rhaw near Solva: Crane and Murphy 2010). The continued tradition of curvilinear enclosures – stronger in western districts than in the east – is problematic as they give the impression of discontinuity when the overlying medieval field systems are rectilinear in character, but this may be misleading as the form of any field systems associated with the Romano-British settlement are unknown (e.g. Walesland Rath in Pembrokeshire: Wainwright 1971). Although Lowland Wales was an area that was extensively settled in both the Roman and medieval periods there were still areas of unenclosed land, and a number of Romano-British settlements lie in these areas where there are no medieval field systems with which their orientation can be compared (e.g. Dinas Powys Common: Evans 2001, fig 12; Llawhaden: Williams and Mytum 1998; Stackpole Warren: Benson *et al.* 1990; Whitton: Jarrett and Wrathmell 1981; Wyndcliff near Porthcasseg: Evans 2001, fig. 10; Wiston: Meek 2017). While it is tempting to argue that this represents discontinuity, *The Fields of Britannia* methodology only included sites where there was clear evidence of boundaries in both periods so that they could be compared, rather than speculating on whether the absence of field systems in one period or another was due to abandonment or simply a change in land-use.

There are, however, a number of places across Lowland Wales where Romano-British landscapes do appear to have been on the same orientation as excavated medieval field systems and/or the historic landscape as depicted on the earliest maps. At Crickhowell Road in Trowbridge, near Cardiff, for example, a sequence of three early Romano-British ditches, all oriented NW-SE, were succeeded by a sub-rectangular 3rd to 4th century enclosure associated with a series of field boundary ditches that were either on the same orientation or at right angles to it and which also contained Romano-British pottery (Fig. 5; Brett 2005; Brett *et al.* 2009, fig. 3 and 5). This Romano-British landscape was cut by an excavated post medieval ditch that was at right angles to the late Roman landscape, while field boundaries that appear on the 19th century Ordnance Survey First Edition Six Inch map share the exact same orientation as late Romano-British enclosure and associated field

system. To the south, by Trowbridge Road, a series of evaluation trenches revealed another Romano-British landscape (Fig. 5; Havard 2004). It can be difficult to accurately determine the orientation of linear features in relatively narrow evaluation trenches, but when the projected lines of the Romano-British features are plotted it can be seen that they share the same orientation as a series of rectangular fields within the historic landscape in the southern half of the site.

Trowbridge lies on the edge of an extensive reclaimed wetland – the Wentlooge Level – south-west of the Roman legionary fortress at Caerleon. The historic landscape of the Wentlooge Level is characterised by a series of very long, straight sided fields and a series of excavated late Romano-British ditches at Rumney Great Wharf have been shown to share the same orientation to these medieval/ modern fields (Fulford *et al.* 1994). More recent work in the northern part of the Wentlooge Levels has similarly found a series of ditches that conform in orientation to the historic landscape at Great Pencarn (Yates 1998). This apparent continuity on the Wentlooge Level contrasts with the neighbouring Caldicot Level where the smaller-scale Romano-British drainage ditches were all abandoned (Meddens and Beasley 2001).

Potential continuity is also seen elsewhere across Lowland Wales. At Upper Neeston in Herbrandston, Pembrokeshire, a rectilinear field system dating to the 3rd and 4th centuries was on the same orientation as the adjacent parish boundary (Fig. 6; Barber 2014), while the enclosure and field system at Thornwell Farm near Chepstow is on the same orientation as the historic landscape of today (Hughes 1996). Elsewhere the evidence is far from conclusive. At Sudbrook Road in Portskewett and Newhouse Farm near Chepstow the late Roman landscapes were on the same orientation as the medieval, although this may have been due to their proximity to the fen-edge (Brett *et al.* 2004; Ponsford and Robic 2008). At Llantwitt Major the modern field boundaries closest to the site are on the same orientation as the excavated villa and an associated enclosure complex revealed through a recent geophysical survey (Nash-Williams 1952), although slight changes in orientation as they approach the site suggest that there were respecting an extant earthwork: the orientation of boundaries within the surrounding historic landscape is different to that of the villa. At RAF St Athan (Barber *et al.* 2006) the evidence is also difficult to interpret: most of the Roman-British enclosure ditches were on a different orientation to the medieval and post medieval field boundary pattern, although the Romano-British Trackway 1 was on the same orientation suggesting that it may have survived in some form to influence the layout of the later landscape. The villas at Ely (Wheeler 1955) and Llandough both near Cardiff (Owen-John 1988), Five Lanes near Caerwent (Evans 2001, fig. 11) as well as the enclosures/field systems at Biglis (Parkhouse 1988), Caldicot Quarry (Vyner and Allen 1988), Church Farm in Caldicot (Insole 2000; Corney 2009) and Ifton (Ellis and King 2012), however, appear to be on a different orientation to the overlying historic landscape. The enclosure complex at Trewen, near Caerwent, is similarly on a different orientation to the historic landscape, although typologically these cropmarks could be Iron Age or Romano-British and so cannot be included in this analysis (<http://www.coflein.gov.uk/en/site/302142/details/trewen-caerwent-enclosed-settlement>).

When *The Fields of Britannia* undertook its analysis there were too few sites with available reports to make any analysis worthwhile, although subsequent data collection and enhancement of the ADS Grey Literature Library by the Roman Rural Settlement Project has now improved the situation. While the number of sites that meet the criteria for this analysis still very small, 9 out of 21 sites suggest that the Romano-British landscape might be related to that of the medieval period, a figure (43%) that is comparable to the South West of England (38%) but far lower than the Central Zone (70%) and the South East (63%). This does not mean that there was necessarily a major dislocation in the landscape in the late 4th or 5th centuries, as it may have occurred at a later date, for example following the Anglo-Norman Conquest.

Discussion

There have been several major research projects in recent years that have sought to exploit the huge increase in data brought about by development-led archaeology. Some have focussed just on England (e.g. the EngLAID Project: Gosden 2013) or a single period (e.g. The Roman Rural Settlement Project: Smith *et al.* 2006), whereas *The Fields of Britannia* explicitly set out to cut across a traditional period boundary (the Roman to early medieval transition) and to embrace both England and Wales. The project as a whole has suggested considerable continuity across most lowland areas in broad patterns of land-use and the extent to which field systems may have continued in use. There does appear to have been a decline in the intensity with which the landscape was exploited, something that is to be expected as the taxation-driven market-based economy collapsed, and some more marginal areas of the landscape were deserted. There does not, however, appear to have been a widespread woodland regeneration. Where discontinuities between Romano-British and medieval field systems have been identified it may have been the intensification of agriculture during the ‘long eighth century’ that was more significant than the socio-economic changes of the 5th century. In parts of southern Wales and northern England the decades following the Norman Conquest also saw major transformations of the landscape following the Flemish colonisation of south Pembrokeshire and ‘Harrying of the North’ respectively (Austin 2005; Rippon 2014; Creighton and Rippon 2017).

Unfortunately, it difficult to establish the degree of potential continuity between Romano-British and medieval field systems in Wales due to a lack of sites that meet the necessary criteria, and the same is true of land-use due to a lack of suitable sites. In upland areas palaeoenvironmental analysis has, however, been very successful in establishing broad patterns of land-use change, and the decline in intensity seen in the immediate post-Roman period is not a surprise. That this was reversed during the ‘long eighth century’ in Wales is particularly interesting as this confirms a wide range of other evidence that this intensification of agriculture was seen right across southern Britain both in areas that saw the transformation of landscapes through the creation of villages and open fields, and those that did not. It is to be hoped that in due course more suitable sites will be found for pollen analysis in the more densely settled and Romanised lowland areas so that their response to the collapse of the Roman economy can be explored.

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Captions

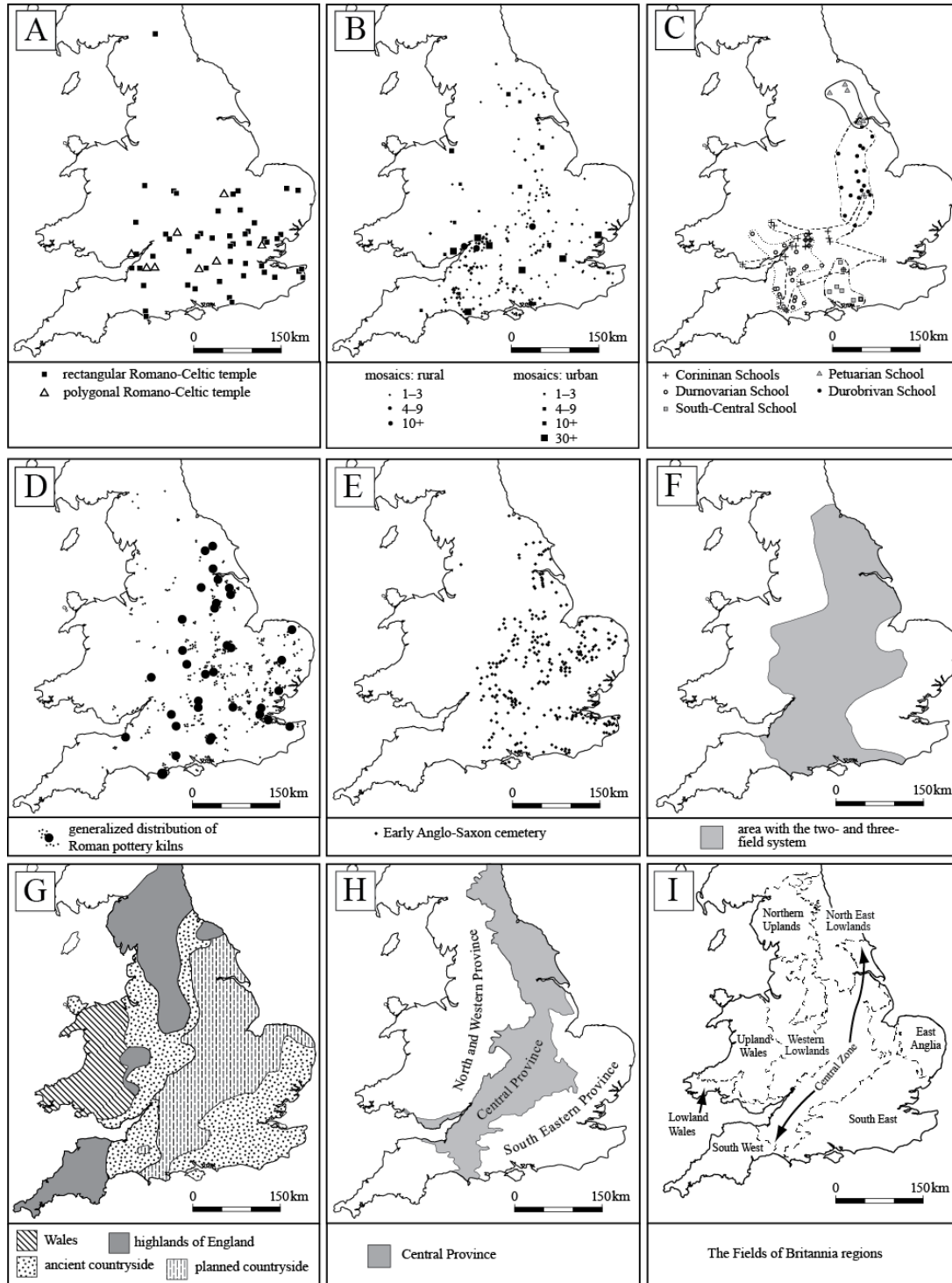


Fig. 1. Data sets indicative of regional variation in landscape character in the Roman and medieval periods. (A) the distribution of Romano-Celtic temples; (B) the numbers of mosaics in rural and urban buildings; (C) the products of regional mosaic schools; (D) Romano-British pottery kilns; (E) Anglo-Saxon cemeteries; (F) the Midland system of open field farming; (G) Rackham's countryside character types; (H) Roberts and Wrathmell's provinces with (shaded) the area of predominantly nucleated settlement extended into Wales; (I) the regions identified in The Fields of Britannia (after Jones and Mattingly 1990, maps 8.23, 6.24, 6.39, and 6.41; Hines 1990; Gray 1915, frontispiece; Rackham 1986, fig. 1; Roberts and Wrathmell 2000a, fig. 1.1, extended into Wales using Roberts 1987, fig. 1; Rippon et al. 2015, fig 2.11; drawn by Mike Rouillard and Stephen Rippon).

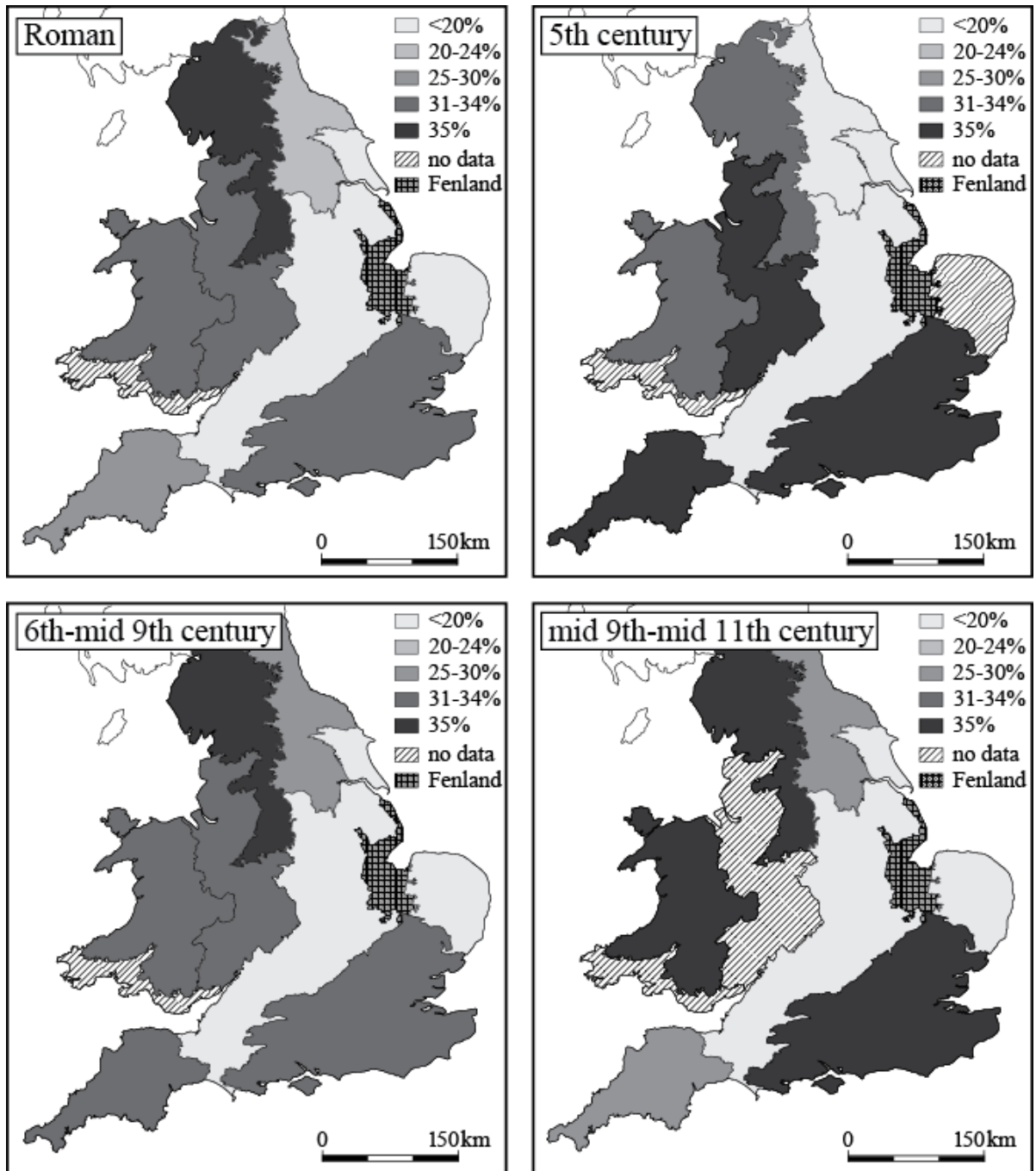


Fig. 2. The percentage of Total Land Pollen from trees and shrubs in the Roman and early medieval periods.

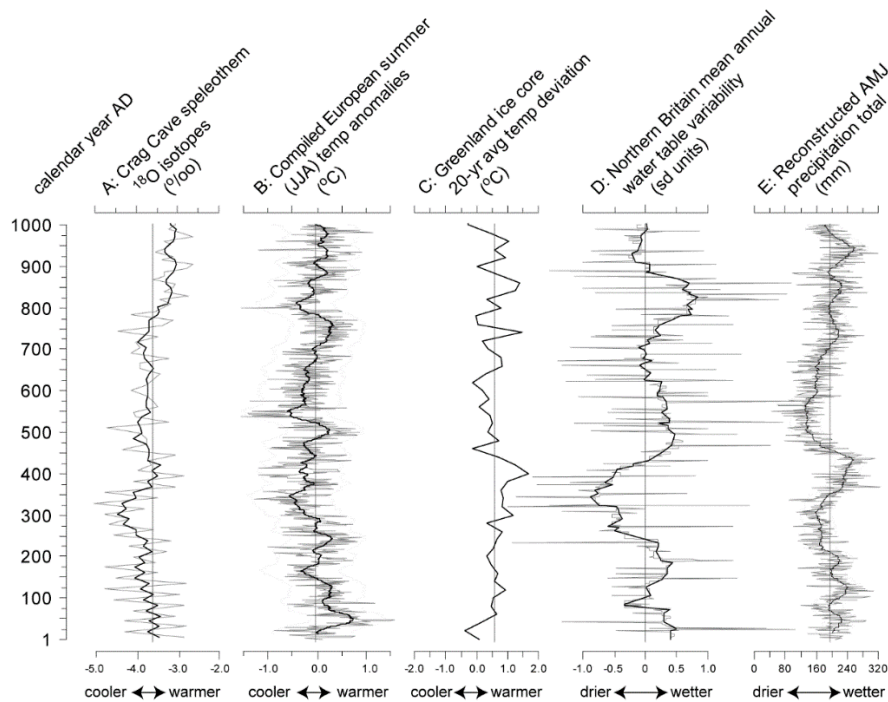


Fig. 3. Compiled palaeoclimatic proxies for the 1st millennium A.D. The Crag Cave speleothem indicates palaeo-temperature, while the northern Britain water table variability is a palaeoprecipitation record. Values for the compiled European summer temperature and Greenland ice core record are expressed as anomalies from the 20th century average. Vertical lines indicate the 1st millennium A.D. average. Sources: A: McDermott et al. (2001); B: Luterbacher et al. (2016); C: Vinther et al. (2009); D: Charman et al. (2006); E: Büntgen et al. (2011) (drawn by Ralph Fyfe).

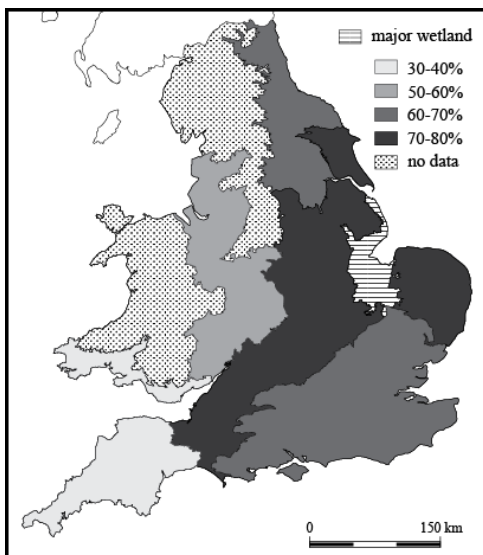


Fig. 4. The extent to which excavated Roman-British field boundaries across the different regions share the same orientation and/or alignment as historic landscapes characterised by former medieval open fields or closes: The Fields of Britannia Figure 12.7 amended in the light of this study (drawn by Chris Smart).

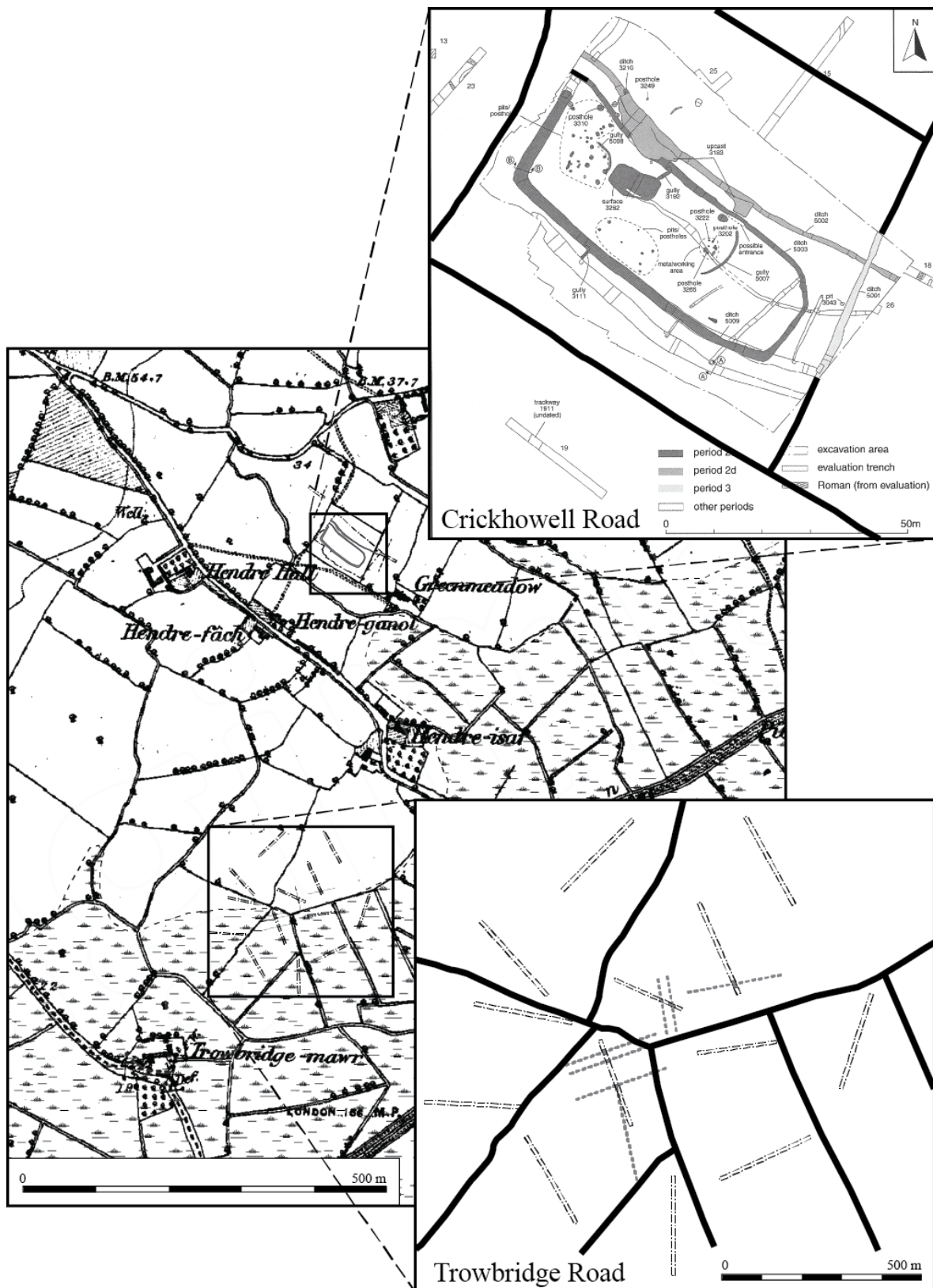


Fig. 5. Two Romano-British landscape on very similar orientations to historic landscapes whose character is suggestive of a medieval date: Crickhowell Road and Trowbridge Road in Trowbridge, near Cardiff, on the edge of the Wentlooge Level (after Brett 2005; Brett et al. 2009).

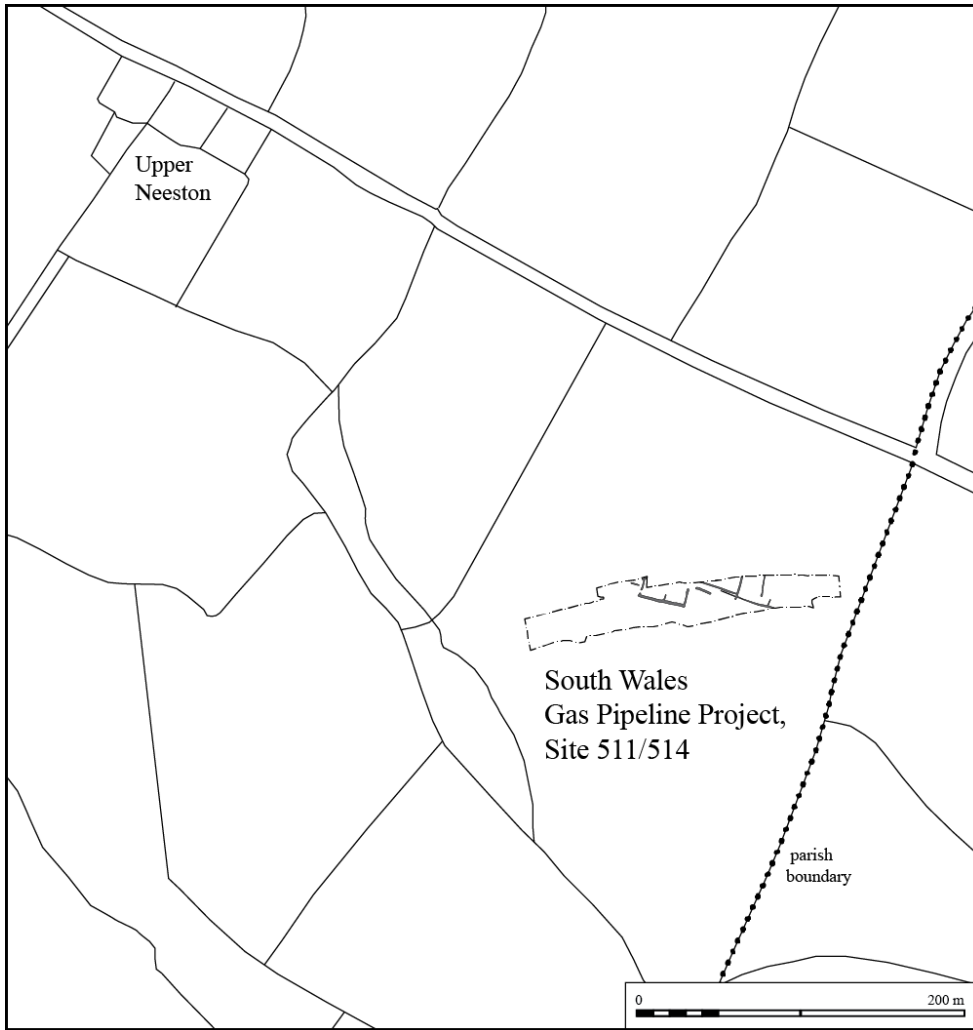


Fig. 6. Romano-British features on a very similar orientations to the historic landscape at Upper Neeston in Herbrandston in Pembrokeshire (after Barber and Hart 2014).