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Field Systems



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Introductions to
Heritage Assets

Field Systems

May 2011



ENGLISH HERITAGE

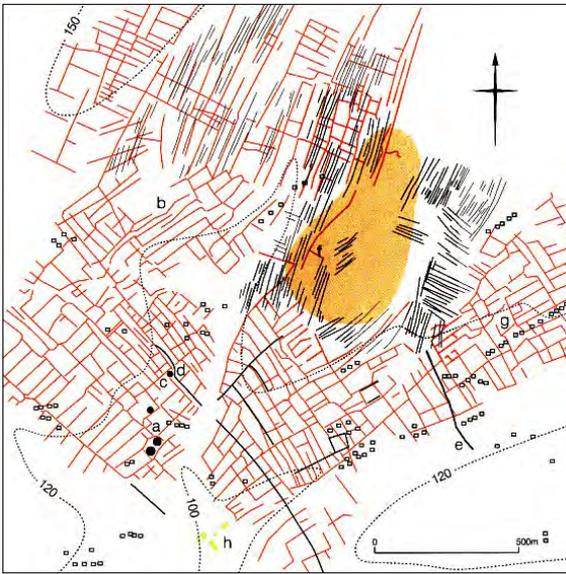


Fig. 1. Coaxial field systems, Salisbury Plain Training Area, Wiltshire. Two partly superimposed prehistoric coaxial field layouts.



Fig. 2. Cord rig cultivation, Carshope Hill, Northumberland. Prehistoric ridged cultivation.

INTRODUCTION

Field systems are ubiquitous features of the British countryside. They represent a physical manifestation of farming, both animal husbandry and cultivation, from its prehistoric origins to the present day and the earliest examples may be identified from patterns of boundaries preserved in or buried beneath the modern landscape. Later field systems, medieval or post-medieval in date, may be more visible, and often remain in use in complete or modified forms. Even the most seemingly modern field-systems may retain many elements inherited from the past. Reading such landscapes can be a complicated business, even using modern archaeological tools such as aerial photography and with the aid of old maps and other historic documents, since field systems exhibit an immense variety of forms depending on their age, purpose and the extent of later modifications. They are also intimately connected with a wide range of settlement forms, and like the settlements themselves,

subject to changes through time which provide complicated layers of archaeological evidence. Only where there is excellent preservation, such as on Salisbury Plain, is it possible to see one layout clearly superimposed upon another (Figure 1). The very ubiquity and extent of prehistoric and historic field systems creates issues in terms of land management and designation.

Field systems currently have a predominantly rural distribution but have undoubtedly been present in many other areas, perhaps destroyed by urban expansion, or submerged beneath later soil movement in river valleys. Different forms of field system vary dramatically in outline and extent, depending on geographical location, the nature of farming in a given area and the duration and development of related settlements. They are, inevitably, associated with a wide range of other archaeological features and monuments.

HISTORY OF RESEARCH

The antiquity of various field systems has long been recognised. Notably, early antiquarians such as William Stukeley (1776) and Richard Colt Hoare (1810) observed, for example, that fields under-lay Roman sites. The form and extent of early field systems were discussed by H Toms in 1911 but OGS Crawford and, independently, EC Curwen first characterised prehistoric field systems in 1923 and coined the term 'Celtic'. As a result, small 'gridded' ancient fields were differentiated from later 'Saxon' elongated strip fields, cultivation terraces and ridge-and-furrow. Recent work, both landscape studies and detailed archaeological fieldwork has refined our knowledge of early field systems and in the case of their extent and range in central and northern England, completely transformed our understanding.

DESCRIPTION

Prehistoric and Roman period fields

It must not be assumed that all prehistoric fields were cultivated for arable crops. Charred grain, cereal pollen and quern stones found on contemporary settlement sites shows that many were, but others were built to contain livestock, and even those which were ploughed may have lain fallow, or returned to pasture, for periods of time.

The earliest and most difficult field systems to characterise are unenclosed fields of prehistoric date, but as a class of fields they are intimately related to cairnfields. Cairnfields – scattered heaps of stones and boulders – are generally found in upland settings and result from surface clearance in advance of, or as a result of, agricultural activities.

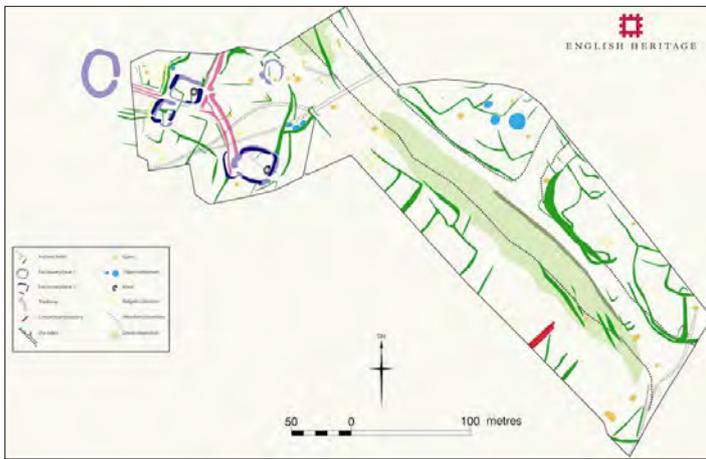


Fig. 3. Bronze Age settlement, Plumpton Plain, East Sussex. Irregular fields and settlement at Plumpton Plain.



Fig. 4. Reave system, Holne Moor, Dartmoor, Devon. Bronze Age field boundaries and settlement.

Although the majority of cairnfields cover fairly discrete areas, larger spreads covering several hectares are not uncommon.

Often these early unenclosed fields, the earliest generally dating from the second millennium BC, are only now represented as areas of colluvium (deposits of soil displaced by ploughing) sealed beneath later structures. Occasionally, where preservation is good, as in the Peak District, irregular features related to early agriculture are apparent alongside the unenclosed elements, including low terraces, clearance cairns, and short flights of lynchets (cultivation terraces), although these often do not form an obviously coherent pattern. In the Northumberland Cheviots, cord rig, that is, narrow linear cultivation ridges 1–1.5m in width, set within unenclosed, rectilinear plots up to c. 0.5ha, is frequently associated with settlements of the early 1st millennium BC and may well be earlier still in a number of places (Figure 2).

In some cases, as at South Lodge, Wiltshire, field systems appear well organised and structured; in others more irregular accreted patterns predominate as at Plumpton Plain, East Sussex (Figure 3). In southern England these early field layouts are often found in association with settlements dating to c. 1500 BC, frequently underlying them, and there are hints of a similar stratigraphical relationship with a small number of Early Bronze Age sites in Northumberland. These field systems cover small extents – perhaps a few hectares at most – and the field plots are similarly small, sometimes only 25 square metres in area with straight and curving edges visible. It is difficult to isolate the full extent of these fields as they are often incorporated into later systems but these early layouts contrast markedly with the broadly contemporary reave systems found across the moorland of south-west England (Figure 4). These comprise parallel-sided plots defined by stone-topped banks, strip-like in their layout and consistency, some with perpendicular sub-divisions of later date. Often the boundaries of these systems are fringed by more substantial field divisions, terminal reaves, functioning in the same manner – to define the outer bounds of the system, and perhaps to exclude stock grazing on the rough land beyond – as head dykes in medieval and post-medieval landscapes. The reave system is best seen on the middle and lower ground

of Dartmoor but there are similar sorts of field systems on moorlands elsewhere. They can extend across significant areas, sometimes as large as 200ha, and where excavated, have produced dates ranging from between 1300 BC and 1100 BC. Pollen diagrams indicate that some continued in use as pasture into the first millennium BC.

Many prehistoric field systems are regular, almost grid-like, in their layout. Described as ‘cohesive’, ‘brickwork’ or ‘coaxial’ field systems, they are found throughout England and are characterised by uniformly small, conjoined, square/rectangular, field plots and an adherence to a particular axial symmetry, i.e. the field system develops along a particular dominant axis or at right angles to it (Figure 5). On occasion, and strikingly, the axial geometry is adhered to regardless of the underlying topography. The size of individual field plot varies considerably, with some as small as 400 sq m in area (i.e. 20m by 20m): the largest can exceed 5000 sq m in size but there is much regional variation; on the chalklands of central southern England, for example, the majority of fields enclose between 0.2 and 0.6 ha, whereas in north Nottinghamshire and south Yorkshire they enclose between 0.5 and 2.8 ha. The size differential is due to longevity of cultivation and dominant land use – the longer the field was in cultivation using heavy ploughgear, the more substantial the field boundaries – pre-existing fields were sometimes sub-divided into smaller units at a later date. The overall extent of coaxial field systems varies considerably, but ordinarily they may well cover more than 2 sq km. Some extend to 15 sq km with the main spinal axis extending for a distance of 4–5km; clearly these fields would have supported the livelihoods of substantial communities. Coaxial field plots are defined in different ways in different areas: in stone-built environments, field walls and rubble banks dominate, but elsewhere, combinations of embanked, ditched or lynched boundaries can be seen. Most coaxial field systems in northern England lie on the periphery of the more exposed slopes in upland areas. In lowland settings, however, coaxial fields are found in all locales but predominantly below the 250m contour. Indications that the original distribution was more extensive are seen beneath some modern hedges which rest upon, and continue the alignment of, earlier boundaries.

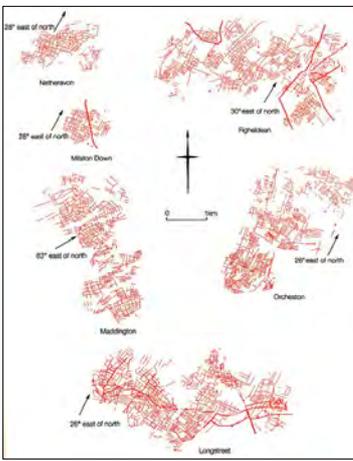


Fig. 5. Coaxial field systems, Salisbury Plain Training Area, Wiltshire. Coaxial field alignments.

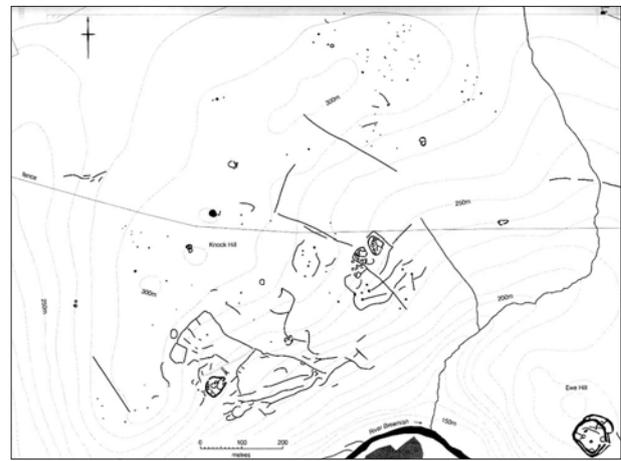


Fig. 6. Fields and settlement, Knock Hill, Northumberland. Irregular enclosed fields and settlement.

This form of field system has a very long currency, and there are frequent relationships with pre-existing sites: fields are aligned on extant Bronze Age round barrows, for example, but are truncated by linear earthworks.

Regular accreted field systems are also found across the country, often adjacent to contemporary prehistoric settlements, and are difficult to separate from coaxials. They are often found in close proximity to one another, indeed, accreted systems are frequently appended to coaxials or, much more rarely, contained within coaxial layouts. The distinguishing features are sinuous field boundaries, which may follow a general alignment, although strict adherence to a particular axis is unusual. They also appear to cover smaller extents than coaxials, with discrete blocks rarely extending beyond 100 hectares in area. The size of individual fields generally falls between 0.1 hectares and 3.2 hectares: those in southern England range from 0.1 hectares to 0.6 hectares, whilst in Nottinghamshire and South Yorkshire they can extend to about 2 hectares.

Some layouts will follow a gently curving course, while others will be characterised by a series of kinks created by localised changes in direction. Gradual development within these field systems is apparent, indicated by slight changes in alignment of the overall field symmetry caused by the addition of further field plots frequently of variable extent. Field shape can be rectilinear, long and narrow, triangular or polygonal and they are often difficult to distinguish without the aid of detailed field investigation, from rectilinear settlement enclosures. They have a similar date range to coaxials but their use can extend into the Iron Age and Roman period.

In contrast, Irregular accreted field systems are characterised by small conjoined field plots irregular in outline and size and arranged, often, around settlements, e.g. Knock Hill, Northumberland (Figure 6). A number of field systems of this type are found in the uplands of the south west too, such as at Leskernick, Bodmin Moor. Individual field plots are predominately rectilinear in outline, but triangular and polygonal examples do exist and they form discrete blocks of fields defined, largely, by low, curving earthworks, rarely covering more than 10 hectares. Some fields of this type are still in use today

where ancient boundaries have become fossilised in current field systems. As in all other classes of field system, trackways, either embanked or hollowed, are integral components.

'Planned' as well as organic field systems reach their apogee in the construction of formal terraced field systems, perhaps better known as strip lynchets: elongated cultivation terraces defined, on each long axis, by prominent scarps themselves often augmented by cultivation. The typical field plot produced thus consists of a relatively level arable area (tread) and a scarped leading edge or rear marker (riser). Terraced fields were often part of more extensive fields systems: the individual field plots can be distinguished from those within coaxial and accreted field systems by their extreme length, sometimes in excess of 200m, and narrow width, on occasion as little as 5m. The risers can be substantial features too, with examples standing to several metres in height. On occasion it is clear that they overlie earlier fields but the full chronology of strip lynchets is not yet fully resolved. Elongated fields of this form were in use throughout much of the later prehistoric and Romano-British periods, and continued, in a more developed form into later periods in tandem with the development of open field systems.

Medieval systems

Formal terraced field systems of the medieval period, often lie close to contemporary settlements but sometimes at the edge of, and beyond, the bounds of normal townships. Unlike shorter and squared-off prehistoric and Romano-British rectilinear fields, these later terraced fields either extend out onto unploughed land or terminate in a sharp curved negative lynchet, formed as the plough was pulled round. In upland landscapes, it may well be that terraced fields are the local expression of the same process of common field agriculture described below. Strip lynchets at South Cadbury resulted from the adaptation of strip farming methods to slopes; their dimensions suggest that they played a significant role in economic terms, since they represent a massive investment of villagers' time, labour and effort to increase the area of cultivation.

For much of lowland England, however, common, or open field systems, both regular and irregular, dominated the post-Roman rural landscape (Figure 7).



Fig. 7. Open fields, Haystack Hill, Northumberland. Medieval open fields and ridge-and-furrow cultivation.

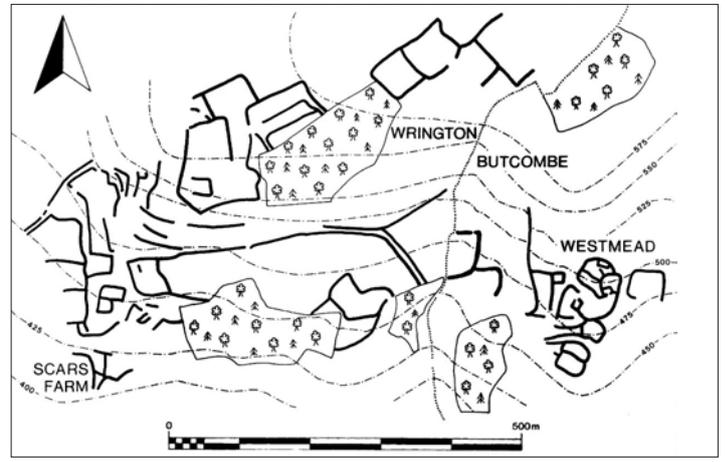


Fig. 8. Vale of Wrington, Somerset. Irregular enclosed fields, probably of medieval date.

A regular open-field system is composed of unenclosed cultivation strips methodically arranged within two, three or sometimes more 'great fields', which might extend to the margins of the township or parish. A process of rotation amongst these fields allowed a proportion of the land to lay fallow, and to recoup nutrients through grazing, whilst cultivation continued elsewhere. The individual units or strips within these fields (sometimes termed 'lands' or 'selions', where normally arranged in coherent blocks of arable or pasture known as furlongs, and separated from others by shallow parallel ditches or by raised ridges or ledges called 'headlands'. The open-field system ensured that resources were distributed among the inhabitants in a way which necessitated co-operation, with individual farmers holding part-furlongs or individual strips systematically distributed through different parts of a township.

Perhaps the most characteristic and widely recognised feature of regular open-field systems, though not unique to this class or period, is the practice of ploughing the individual strips to form patterns of ridges flanked by furrows – reinforcing the separate nature of the strips and facilitating good drainage. A large proportion of surviving medieval 'ridge-and-furrow' takes the form of a reversed 'S' when viewed in plan – a form dictated by the movement of the ox-teams drawing the plough; other ridge-and-furrow adheres to a shallow curving C-shaped plan. The furlongs of open fields, where the individual strips terminated, can be as long as 700m in length: the width of individual ridges varies considerably and may reach as much as 20m but more recent ridge-and-furrow of narrow form rarely exceeds 5m in width. Such differences in form are explained by different ploughing techniques or are related to soil type. In other areas, such as East Anglia, ridge-and-furrow cultivation did not reach the developed state seen elsewhere, or was not practised within the strip fields. Even where more recent cultivation has removed all trace of the open fields, headlands can still be seen as low ridges cross-cutting modern field boundaries as at Stanwick, Northants. Although bearing little morphological resemblance to earlier forms of field system, open field systems may have their origin in the layout and exploitation of fields in the Roman period.

Open fields vary considerably in size, and there appears to be no standardised extent for strips, furlongs and fields and, furthermore, no statistically significant relationships between field area, soil type, geology or climate. In south Norfolk, field sizes varied between 0.06ha and 0.15ha: they overlaid and take their shape from field system of a Romano-British or prehistoric origin.

The majority of open-field systems comprise furlongs that are rectilinear in shape, although local topography was obviously an important factor in determining the morphology of individual components. On the gently undulating boulder clay of south Norfolk, for example, the field system was clearly rectilinear in form, while in north Nottinghamshire furlongs were narrower and arranged in parallel strips.

Both furlong size and shape also varied at a local scale. In Kent, a striking contrast was evident between the small irregularly-shaped blocks of conjoined strips of the Weald and the larger, more rectangular, examples in east Kent.

Irregular additions to the open field layout can be observed in places. These consisted, largely, of small, irregular enclosures for cultivation or pasture, carved out of land previously wooded or regarded as waste. These fields, assarts, (or sometimes purprestures) often were later modified and incorporated within the strips of the open field. Regular and irregular open field systems have a number of common physical features. The term 'field' relates, in this class, to the entire area of land worked by an individual settlement or township.

By way of contrast, irregular open fields consist of randomly dispersed individual holdings unsystematically placed across different parts of a township. Although they appear widely distributed throughout England, irregular open fields are concentrated in areas characterised by hamlets and isolated farmsteads rather than villages. Later open-field systems often tended to be irregular, for example, in Yorkshire in the 17th and 18th centuries but there is debate about the chronological relationship between these and the more widely recognised regular examples.



Fig. 9. Bakewell, Derbyshire. Grid-like, straight-edged, fields, probably the result of large-scale 18th-century enclosure, overlaid medieval lynchets.

Ring dykes or enclosing fences were another important feature of common arable fields, especially in the northern counties and their function was to protect growing crops from stray stock. The base of the ring dyke was generally a raised mound of earth onto which were built other protective structures. Some examples remain visible while others have given their names to daughter settlements which were built as cultivation extended into areas of common waste, for example Salkeld Dykes, Bascodyke, both in Cumbria.

Enclosed field systems, of regular and irregular form, predominated in those areas of the country where no open strip fields existed (Figure 8). The field plots in this class comprised individual compounds (better termed closes), enclosed, variously, by low walls, earthen banks and hedges and it would appear that these fields developed in response to different tenurial arrangements than those for unenclosed open fields. Those of irregular form occur, primarily, in areas of low population density typified by isolated farmsteads and hamlets and give the impression of a random distribution with no obvious pattern of growth or development – a number of writers have referred to this as 'ancient countryside'. In the uplands of northern and south-western England, for example, the use of this form of field system was well underway by the time of the Norman Conquest. They often clustered in areas not previously farmed with any intensity such as former agricultural waste. This is a form of 'reclamation', their exploitation stemming from periods of land hunger. This is particularly true of assarted woodland in which small field enclosures were carved out of previously wooded environments, giving rise to a distinctive landscape composed of irregularly shaped fields, sometimes conjoined into larger units.

Conversely, on occasion, regular enclosed open fields were imposed upon earlier open-fields. After the 'high water mark' of medieval agriculture around 1300, many areas of arable farming were abandoned. Where favourable soils existed, however, they were laid down to pasture with the result that previously open fields were enclosed to form hedged or walled fields for cattle and sheep. As the new boundaries tended to be formed around groups of existing strips and their shape was partly conditioned by earlier arrangement (sometimes fossilising the reversed 'S' lines of strip boundaries), regular enclosed fields

tend to occur in the same areas as regular open fields. There are many regional variations in form of enclosure.

The move towards enclosure gathered pace during the late 18th and early 19th centuries. At this time Parliamentary enclosure field systems were laid out through a series of Parliamentary Acts resulting in wholesale enclosure of land previously held within the open-field system. In total, 21% of England was enclosed by the Acts; 7 million acres of land was affected, two-thirds of which had been arable, the remainder waste. The Parliamentary fields in many ways resembled earlier regular enclosed field systems in that they were typically rectilinear/square in outline and set together, where topography allowed, with mathematical regularity (Figure 9). Characteristically, the fields were bounded by hawthorn hedges and included provision for communications networks of roads and tracks. Pockets of managed woodland were also common components, created as game or fox coverts. The size of new fields varied greatly and was dependent upon the number of farmers involved and the amount of open-field land they held. In areas where there were multiple owners of small holdings, field size ranged between 2 and 4 ha. Larger farms contained fields covering in the region of 20-25ha but these proved to be too big for convenient working and they were, subsequently, often sub-divided into smaller, regular, parcels c. 4ha in area. In areas not covered by open-field arrangements, older field enclosures were enlarged and so the Parliamentary Acts resulted in a standardisation of field size across the country.

The Parliamentary Acts had an even more radical impact on the enclosure of areas previously outwith the common-field arrangement. In particular, the enclosure of wastes had a dramatic effect on the management and use of much upland in England. Moorlands throughout the country were enclosed within substantial new linear boundaries, in places massive stone walls or dykes, many of which were superimposed upon earlier fieldscapes. Some of the uplands were cultivated at this time, especially in times of crisis such as the Napoleonic Wars (1793-1815), and traces of low and narrow ridge-and-furrow can still be seen.

CHRONOLOGY

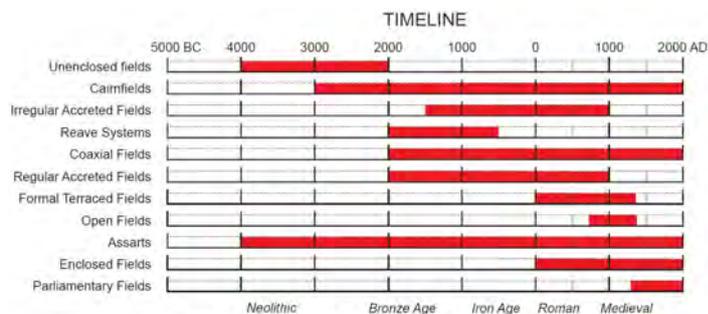
The Earliest Field Systems

Although cultivation undoubtedly took place at an earlier date, the first monumental field systems date to the period between 1700 and 1500 BC. Physical evidence for earlier cultivation is limited to the remains of ard-marks beneath Neolithic monuments, such as South Street long barrow. Deposits of ploughsoil have been excavated from the ditch fills of Neolithic long barrows pointing to cultivation before 2000 BC at the latest. Cultivation is also inferred by the presence of tillage marks at Hambledon Hill Neolithic complex in Dorset. Indeed, excavation is revealing increasingly frequent evidence for early cultivation in the form of ploughsoil deposits sealed within and beneath better dated archaeological features. Earlier cultivation furrows, for example, are sealed beneath a Middle Bronze Age field bank at Plumpton Plain and may well be associated with Beaker period pottery (i.e. 2500 – 1750 BC). It is probable that organised land divisions including field systems and linear boundaries were introduced or developed alongside other transformations in social and cultural life evident at the start of the second millennium BC: the earliest elements of the coaxial field system at Heathrow Airport, Terminal 5, for example, date to c. 2000 BC.

By the middle of the 2nd millennium BC, small extents of early regular and accreted field systems as well as isolated fields can be seen in association with a range of 'domestic' structures.

The earliest coaxial fields developed in the middle of the 2nd millennium BC and are contemporary with reave systems of the south west. The coaxial fields associated with settlement at Blackpatch, West Sussex date to between 1360 BC and 1100 BC at the earliest, but they overlie earlier, regular accreted fields. Some coaxial field systems have a 'latest date' provided by a stratigraphic relationship with monuments or artefacts of Roman date. The Roman road from Lincoln to Doncaster, for example, cuts the axial boundary of a large coaxial field system. Coaxial field systems of post medieval date do occur and illustrate the longevity of this form of field system. The embanked field system at East Hill, Hastings, East Sussex, for example, may well belong entirely to the post-medieval period. Likewise, debate still rages about the chronology of many coaxial systems evident in eastern England with, for example, a view expressed that the famous Scole-Dickleburgh coaxial system is largely a product of post-medieval land use.

Open field tenurial arrangements and the contingent field pattern emerged in the centuries preceding the Conquest, perhaps as early as the 8th century AD. It may well be that this form of land use had a much greater ancestry and open fields in a number of cases certainly use pre-existing field boundaries. Open field farming predominated and reached a zenith in the 13th and 14th centuries AD. After 1540 the majority of new field systems were enclosed and resulted from expansion and exploitation of upland environments. Indeed, after the 'high water mark' of 13th-/14th-century arable farming, many areas of open-field agriculture became redundant, some being abandoned altogether and others being enclosed for sheep or cattle.



ASSOCIATIONS

Frequently, field clearance cairns cluster around and incorporate earlier stone cairn burial mounds: indeed, on occasion, subsequent burials were inserted into the agricultural cairns. Stone hut circles are frequently found within coaxial field systems. In the South-West, regular accreted fields are occasionally associated with rounds; accreted fields have been noted in association with Roman farmsteads and villas.

Long barrows are incorporated within later field systems in parts of Wessex such as at Oxendean on Salisbury Plain where field boundaries are aligned on the barrow ditch. Broadly contemporary associations are evident with round barrows; barrow cemeteries; linear boundaries; hillforts; settlements; and enclosures.

There are strong associations between open fields and contemporary settlements and related agricultural structures such as hollow ways and barns.

FURTHER READING

The antiquity of field systems and cultivation in general was established in a number of early publications, in particular volume 1 of Sir Richard Colt Hoare's *The Ancient History of Wiltshire* (1810), but the true age of much of the ancient field landscape covering the chalk downs of southern England was established by two articles published in 1923: OGS Crawford, 'Air Survey and Archaeology', *The Geographical Journal* 61, 342-66; and E and EC Curwen, 'Sussex Lynchets and their Associated Field-ways', *Sussex Archaeological Collections* 64, 1-65.

There are a number of significant publications which assess the form and significance of field systems in England, notably the collection of reports presented in ARH Baker and R A Butlin (eds) *Studies of Field Systems in the British Isles* (1973). Many of the papers in this, such as that by Baker ('Field Systems of South East England'), were influential in helping to define the extent and context for many post-Roman fields. The same can be said of Richard Bradley's 1978 article 'Prehistoric Field Systems in Britain and North-West Europe: A Review of some Recent Work' (*World Archaeology* 9.3, 265-80), while Andrew Fleming's *The Dartmoor Reaves* (1988; revised edition 2007) published ground-breaking research on the form and chronology of early coaxial field systems in the south-west.

More recently Dave Yates has assessed the development of field systems across much of south-eastern England in *Land, Power and Prestige: Bronze Age Field Systems in Southern England* (2007).

For a general brief overview, even if now a little dated, Christopher Taylor, *Fields in the English Landscape* (1975) can be recommended.

CREDITS

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