EAA 55

The Fenland Project, Number 5: LINCOLNSHIRE SURVEY, THE SOUTH-WEST FENS

East Anglian Archaeology
Heritage Trust of Lincolnshire 1992

EAST ANGLIAN ARCHAEOLOGY

The Fenland Project Number 5: Lincolnshire Survey, The South-West Fens

by P.P. Hayes and T.W. Lane

with contributions by
Hilary Healey, John Samuels

and illustrations by
Mick Clarke,
Hilary Healey, Jim Bennett, David Taylor,
Dave Watt, Margaret Mathews

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Editor: David Buckley
EAA Managing Editor: Susie West

Scole Editorial Sub-Committee:
David Buckley, County Archaeologist, Essex Planning Department
Keith Wade, County Archaeological Officer, Suffolk Planning Department
Peter Wade-Martins, County Field Archaeologist, Norfolk Museums Service
Stanley West

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Cover Illustration
Spring storm over the siltland: Pinchbeck North Fen. Photo by P. Hayes

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Contributors

Michael Clarke
Illustrator, Trust for Lincolnshire Archaeology

Peter Hayes, LL.B, BA, Ph.D.
Field Officer, Trust for Lincolnshire, Archaeology

Hilary Healey, NDD, M.Phil, FSA
Field Officer, Trust for Lincolnshire Archaeology

Tom Lane
Field Officer, Trust for Lincolnshire Archaeology

John Samuels, BA, Ph.D, MIFA,
Pottery Researcher, Trust for Lincolnshire Archaeology

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Abbreviations

Parishes

BIL	: Billingborough
POI	: Pointon and Sempringham
QUA	: Quadring
DON	: Donington
GOS	: Gosberton
WIG	: Wigtoft
DOW	: Dowsby
RIP	: Rippingale
DUN	: Dunsby
HAC	: Hacconby
PIK	: Pinchbeck (North)
MOR	: Morton
BOU	: Bourne
PIN	: Pinchbeck (South)
THU	: Thurlby
DSN	: Deeping St Nicholas (North of North Drove)
DEN	: Deeping St Nicholas (South of North Drove)
LAN	: Langtoft
BAS	: Baston
SPA	: Spalding
COW	: Cowbit
WES	: Weston
MAD	: Market Deeping
DEJ	: Deeping St James
CRO	: Crowland

(The Field Officers worked individually and simultaneously in Deeping St Nicholas, thus generating the need for different prefix codes).

Documentary Sources

CChR ii 1257-1300: *Calendar of Charter Rolls Preserved in the Public Record Office 1257-1300*; PRO, London 1906. (Series 6 vols 1903-1927).

CPR 1550-1553; *Calendar of Patent Rolls Preserved in the Public Record Office 1550-1553*, PRO, London 1926

Summary

This volume presents the results of the Fenland Project's intensive survey in the western Fenland of Lincolnshire. The work encompassed four contiguous but distinct landscape zones.

1. The pre-Flandrian land surface which has remained free of overlying accumulations of peat or non-organic sediments.
2. A zone of marine clays dissected by silted creeks, the latter being commonly known as *roddons*.
3. A zone of marine silts.
4. A zone in which survives the surface remnants of a once more extensive cover of peat.

The pre-Flandrian surface lies to the west of the surveyed area and shelves beneath marine clays which, in the south, are themselves overlaid by freshwater peat fens. Surface sediments in the east of the region are also marine, but take the form of silts rather than clays. Each of the four areas has a different chronological and environmental origin. Opportunities were therefore available to compare and contrast the presence on, and use of, these different landscapes by early communities.

During three seasons of fieldwork many traces of human activity were recorded ranging in date from Mesolithic to medieval, and often to post-medieval. These have been supplemented by air photograph and documentary evidence and topographical data to provide the basis for the accounts within these volumes.

The evidence is presented by parish and in three forms: a set of parish maps with interpretations of the landscape and environment for a range of archaeological periods; a discussion of the evidence for each parish; a gazetteer of sites and finds.

It was discovered that, apart from the difference in date between the pre-Flandrian, clay, silt and peat surfaces, another, initially less obvious, chronological variation existed. This was a division of the clay fens into a northern and southern zone with the incursions emanating from the Bicker Haven and Spalding areas respectively, and with several hundred years separating the two phases. Conveniently the boundary between the parishes of Hacconby and Morton marked the junction between the two environments. This also forms the division between the two groups of parish essays in this volume.

Of the two areas of clay fen, the southernmost is the older. Its second millennium BC origins pre-date the northern phase by up to 500 years. As might be expected, these areas have different archaeological remains. Having formed earlier and matured earlier, the southern clay zone has Iron Age settlement and saltmaking which in the north is mainly confined to the landward fen-edge. While the northern phase was still active, peat formed on the southern part and prevented Roman settlement over all but its eastern limits and prompted a decline in occupation late in the Roman period. Subsequently, in the Saxon period the whole of the southern area became deserted but on the silts in the north evidence was found of Early and Middle Saxon dispersed settlement. A relocation of the Saxon settlers into villages left the fen without inhabitants but, as documentary sources attest, it remained a well-managed resource throughout the medieval period.

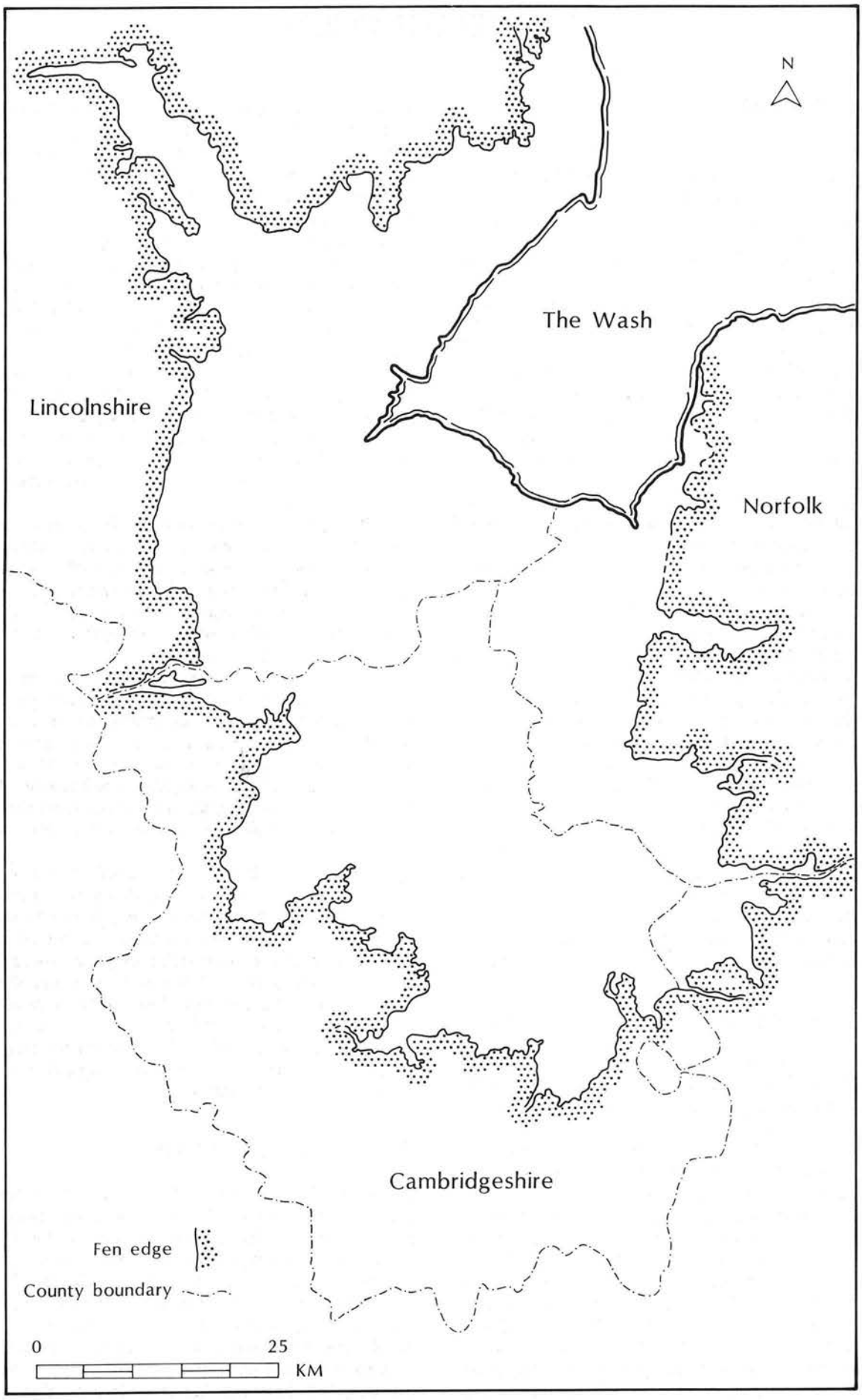

Figure 1 Location of the Wash Fenlands

1. Introduction

I. The Fenlands
(Fig. 1)

Visitors to, travellers through, and even residents of the Fenland of Eastern England often fail to associate the region with history or archaeology. The Fens tend to be considered, like the United States of America, as something recent — a successful land of plenty but lacking antiquity.

Some Fenland farmers have looked with incredulity at Roman artefacts picked from the surface of their fields, believing the land to have been no more than a semi-liquid swamp until Messianic Dutch drainage engineers shaped their destinies some two or three centuries ago.

Visitors to the Fens see its facade of featureless horizontality; spacious acres imperceptibly merging with voluminous skies somewhere beyond the depth of normal vision.

However, the Fenland has a history: a long, complex history of natural landscape changes which have resulted in a land alternately saturated then solid, firm then flooded. Within this seemingly inhospitable terrain, people have tentatively made their homes and their livings; resourceful pioneers whose fortunes have ebbed and flowed like, and with, the tides.

Though the overwhelming impression of the Fenland is one of flatness — the Great Level — it is, conversely, the subtle undulations which the fenmen have exploited and which have made it fascinating archaeologically. Like all who live in marginal contexts the fenmen have battled with nature and, like all good fighters, they have commanded the heights, be it creek-levee or island. Sufficient of their discarded domestic and industrial debris has survived to enable their progress to be charted. In similar fashion the end-product of mapping vast tracts of the region's soils and sediments has been an insight into the natural formation of the land.

This volume represents an attempt to portray the human and physical evolution of one area of Fenland, and to highlight the degree of interaction between the two.

II. Archaeological Potential of the Fenland

Flooding has occurred in the low-lying Fenland basin over a period of several millennia and has created a set of conditions favourable for the preservation of organic archaeological remains. Gradually rising early prehistoric sea-levels impeded the natural discharge of the rivers which traversed the area, causing their waters to back-up and overflow. This led to peat growth on the old land surface. So began a complicated sequence of floods that has infilled the Fen basin. In turn the early peats were overlain in many parts of the Fens by marine deposits — clays, silts and sands. In places these sediments lie many metres deep. However, their deposition does not represent a fixed and steady accumulation. Instead it has been characterised by alternating periods of high activity and relative dormancy, transgression and regression; positive and negative tendencies of sea-level changes (Shennan 1986a, 1986b). Neither was the build up synchronous throughout the Fenland. Flooding, either from the sea or the freshwater streams, affected different parts of the Fenland at different times. This resulted in territorial battles between the freshwater and marine dominated environments with seaward advances of the freshwater peats occurring during the less active phases of sea flooding.

However unlikely it may seem, people have intermittently colonised and often flourished in this changing, mobile landscape. It was always marginal territory and particular sites may have brought riches to one generation only to have been abandoned, flooded and buried during the next. In many ways buried sites are the essence of wetland archaeology. That which is protected by overlying sediments often becomes permanently waterlogged and in this environment organic remains are preserved. Therefore, in addition to the usual array of pot sherds, lithics or bones, items such as wood, leather, plant and food debris survive to tell a more complete tale of a site and its environs.

The change to arable use of the Fens has increased the requirements of drainage. This has resulted in a gradual lowering of the ground water table and an accelerating rate of peat desiccation and erosion. As a consequence sites which once were waterlogged are now drying, their organic content disintegrating and their vestiges undergoing destruction.

Away from the peats, intensive cultivation is damaging remains once covered by silt. Farmers naturally and instinctively maximise the productive and commercial capacity of good land, and this is very good land. Much of the siltland in particular is classed as Grade 1 by the Ministry of Agriculture, Food and Fisheries. Thus future damage to near-surface sites seems inevitable and the body of archaeological evidence will continue to be de-fleshed.

The almost exclusive arable use of land has on the one hand threatened individual sites, whilst on the other has resulted in the near-perfect setting for extensive field survey. Urban sprawls, permanent pastures and afforestation, the usual bane of large-scale surveys, are absent from the Fens. Coverage has been reasonably complete; distinctive and discernible patterns of settlement have emerged. Archaeologically barren areas in the overall distribution generally reflect either lack of settlement or the presence of later sedimentation, but seldom lack of suitable survey conditions.

III. The Fenland Project

The Fenland of Eastern England is still often thought of as a formerly intractable and uninhabited, waterlogged wilderness, one that owes its existence to the skills of post-medieval drainage engineers. In fact from the days of the earliest drainage attempts evidence has steadily accumulated to demonstrate that the Fens have been intermittently and sometimes densely occupied since at least the Roman period. Such is the quantity and quality of archaeological and environmental data present in the Fenland, that the region has recently been highlighted as one of international archaeological importance (Coles 1986, 238).

Changes from pastoral to arable use of the Fens have resulted in serious damage to certain sites through ever advancing cultivation techniques and the accompanying demands of drainage. For these same reasons, sites, monuments and, indeed, complete archaeological landscapes are ominously jeopardised.

In the late 1970s the Cambridge Archaeological Committee appointed a survey officer to investigate their own Fens. Using innovative methods of survey that officer not only located sites and archaeological features but was also able to attempt reconstructions of ancient landscapes through mapping soil and sediment boundaries and interpreting their origins (Hall 1987, 10). These early surveys in Cambridgeshire also emphasised the rapid rate of peat desiccation and erosion and revealed an alarming catalogue of destruction of previously buried and preserved archaeological sites.

Acknowledging this threat and the concern expressed in the neighbouring Fenland counties of Lincolnshire, Norfolk and Suffolk the then Department of Environment (now English Heritage) made a commitment to fund further survey in Cambridgeshire and to expand the work to cover all of the Fenland region. Funding was agreed initially for 5 years and later extended to 7 years. Four survey officers were appointed, two in Lincolnshire and one each in Cambridgeshire and Norfolk. Funding was directed through the respective existing county archaeological organisations, the Trust for Lincolnshire Archaeology, Norfolk Archaeological Unit and Cambridgeshire Archaeological Committee.

In addition to the survey officers a palaeoenvironmentalist was appointed. The post is based in the Department of Botany at Cambridge University.

Control and academic direction of the team is coordinated by a committee under the chairmanship of Dr. John Coles. This committee also monitors other English Heritage funded archaeological work in the Fens.

IV. Description of the Surveyed Area

(Fig. 2; Plates I, II)

Survey extended north from the county boundary with Cambridgeshire at Crowland for a distance in excess of 25km along the fen-margins to Billingborough, and from there eastwards to include the parishes of Quadring and Gosberton. From the Deeping parishes the area extended east as far as Cowbit. In total the surveyed area covers approximately 35750 ha (88340 acres) of the south-west Fens of Lincolnshire.

Much of the land surface comprises soils derived from Flandrian sediments which accumulated during periods of marine inundation or standing freshwater. At the southern end is a tract of eroding peat fen, similar to the extensive peat areas in Cambridgeshire. Further north the land surface has lost its cover of peats and is characterised by marine clays in which the traces of extinct creek systems are clearly visible. To the west, this formerly waterlogged zone is flanked by a narrow strip of flood-free gravels *c.* 2km wide. West from the gravel, on the periphery of the area, is the dipslope of the Lincolnshire Jurassic ridge, an area of upland which comprises predominantly Middle and Upper Jurassic clays and limestone. It is a region drained by a series of small streams whose canalised courses continue across the fen. In the east of the surveyed area are the landward edges of the Wash silts which merge with the clays (see this chapter, section V for fuller description). Undertaking work in all four of these landscape zones has enabled comparisons to be made between the archaeological development of the distinct and contrasting areas.

Parishes along this fen-edge seldom exceed 2km from north to south but extend up to 8km from west to east. This arrangement maximised the variety of soils and terrain (and therefore economic possibilities) in the individual medieval parishes and gave each its own strip of Fen. Many of the parishes therefore contained more upland than was necessary to survey and, of the parishes investigated, only in Billingborough, Pointon and Sempringham, Quadring, Gosberton, Crowland and Cowbit were attempts made to survey the parish fully. Of the other parishes only the relevant (fen and fen-edge) areas were walked.

The work was undertaken in the following seasons:

1982/3 — Billingborough, Pointon and Sempringham, Quadring, Gosberton, Crowland.

1984/5 — Parts of Dowsby, Rippingale, Dunsby, Hacconby, Morton, Bourne, Pinchbeck.

1985/6 — Cowbit and parts of Thurlby, Baston, Langtoft, Deeping St Nicholas, Deeping St James, Market Deeping, Spalding, Pinchbeck.

The river Glen forms the southern boundary of Thurlby. Further south the surveyed non-alluviated area is mainly composed of river terrace gravels which formed as outwashes of the rivers Glen and Welland (Booth 1983, 8). The gravels at this point are much wider than those north of the Glen and extend further east. They form a major mineral resource and are extensively quarried. Near an ancient course of the Welland the gravels lie buried beneath extensive freshwater alluvium.

East of the 4m OD contour the Fens constitute a largely unbroken expanse of low-lying arable farmland. It appears at first sight to be level. However, from a central point, around Bourne South Fen whose land surface is less than 1m above OD, the land rises on three sides; to the east where it attains altitudes of 3.0 – 3.5m OD on the silt; to the north where the marine clay surface lies at 2.0 – 2.5m OD and to the uplands on the west.

The region is sub-divided by a rectilinear pattern of dykes, ditches and drains, which result from the post-medieval draining of the area. Hedges are rare and trees sparse except for occasional rows of poplars planted to serve as windbreaks around isolated farmhouses.

Almost all of this fertile, high grade farmland is in arable use. In both the peat and the clay fens cereals are grown extensively. Root crops, predominantly sugar-beet, are also widely cultivated though they are perhaps more commonly found in the peat. Certain areas of specialisation exist; for instance Bourne South Fen is noted for celery growing.

The area is sparsely populated. Post-war farming trends have favoured the amalgamation of small farms and holdings. Many of these have been taken over by larger estates farmed from central bases. Machinery that is significantly labour-saving has also been developed and fewer people are now in full-time employment in agriculture. The semi-derelict barns and dwellings of the former holdings dot the landscape.

By contrast the siltland maintains a higher population. The earliest arable use of the Fenland was concentrated on the silts. There exists a striking difference between the geometric field shapes of the clay and peat

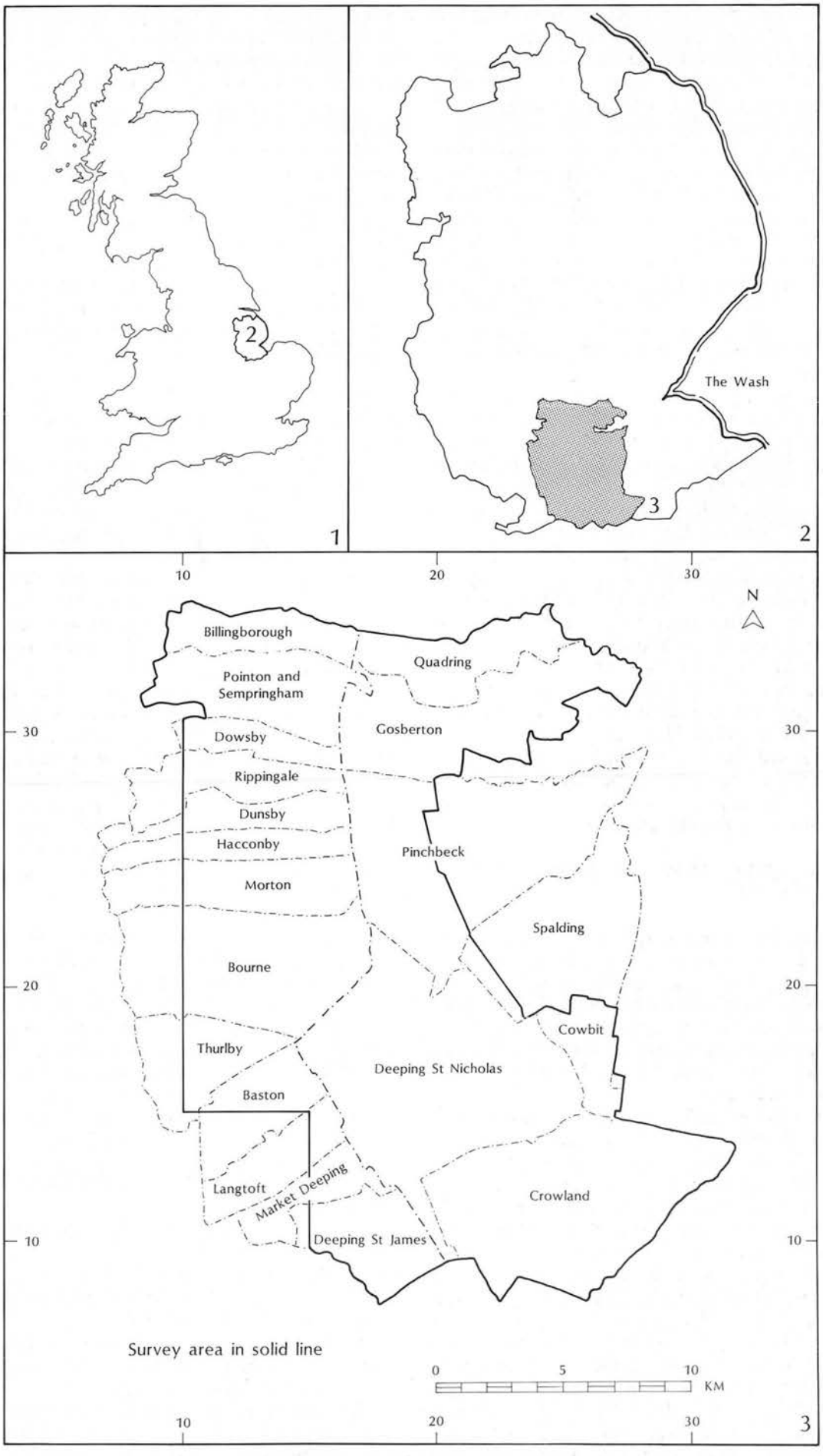

Figure 2 Location of Survey Area

Plates I and II Contrasting landscapes. Above the irregular shaped medieval fields of the siltland in Gosberton. The horizontal watercourse at the bottom of the picture is Risegate Eau. Leading from bottom right towards the top left is the medieval sea bank of Bicker Haven. To the right are the post-medieval reclamations of the Haven.
Photo Crown Copyright/RAF Photograph (CPE/UK.2005.14 APR.47. F/20 16,400 82SQDN).
Below is a typical example of rectilinear landscapes of the marine clay Fenland.
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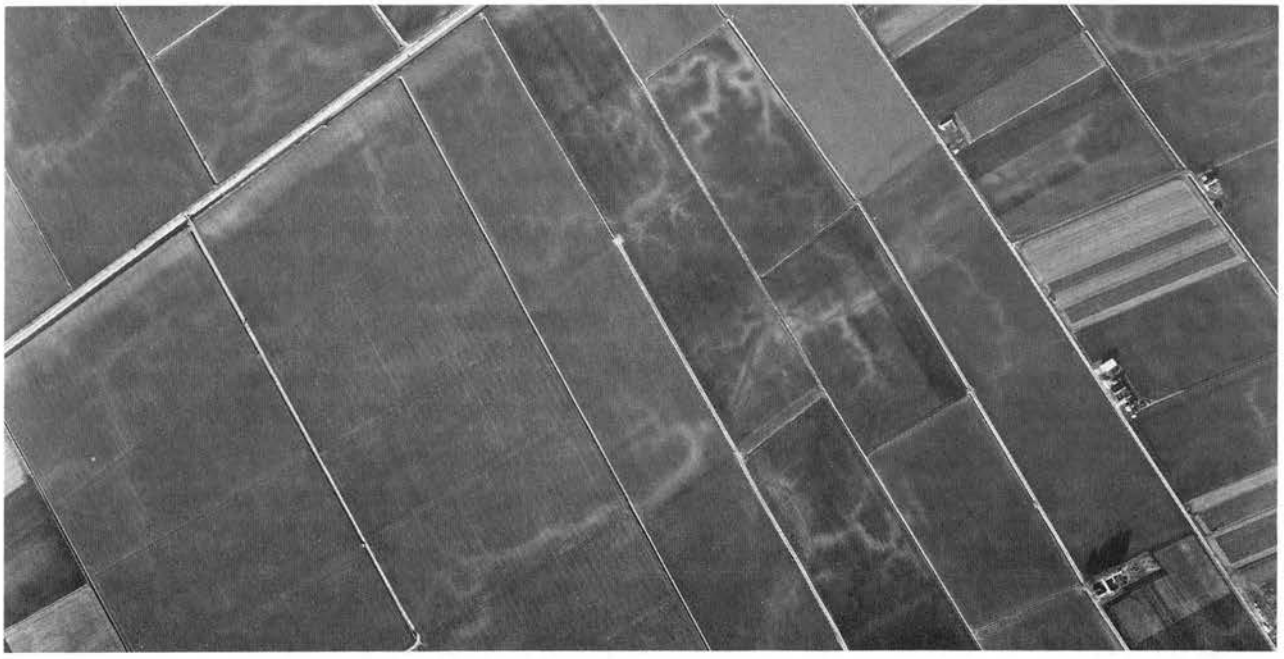

fen and those of the silts which are altogether more irregular and the fields smaller (Plates I and II). Cropping also differs on the silts where brassicas are popular and the soil fertility is sufficiently high to support double cropping. Pinchbeck Fen and Cowbit are on the periphery of the famous bulb growing industry centred on Spalding. Bulbs are easily bruised and are therefore confined to the light-textured and fertile silts (Dobbs 1983, 84-5). Where the blanket silts are shallow the bulbs are often set out along the silt ridges of extinct creeks, often spectacularly highlighting the ancient watercourses. Such crops are seasonally labour-intensive though the 'gangs' of pickers and planters are not always local. Individual holdings in the silt fens are generally smaller in area than those on the peats and clays, thus increasing the time spent seeking permission for access. Much of the settlement on the silts remains dispersed, particularly in Quadring and Gosberton parishes. Agriculture and its service industries totally dominate the economy of the Fenland region. Little other industry exists.

Crowland (pop. 3000) is the only town within the surveyed block though the market towns of Spalding, Bourne and Market Deeping lie immediately outside the area. The gravel 'island', or more accurately promontory, on which Crowland and its abbey are located, is now extensively developed with many of its inhabitants commuting to nearby Peterborough.

The modern course of the River Welland between Crowland and Spalding is embanked and the level of the river exceeds that of the surrounding lands.

Like the Welland, the rivers Glen and Bourne Eau flow eastward within substantial and regularly maintained banks. In 1976 the normal water level in the Glen was calculated to be in excess of 3m OD when the surrounding land surface was less than 1m OD (Miles 1976, 24). These embankments are striking in an otherwise featureless and level terrain.

Washlands were created in Crowland and Cowbit as part of the early post-medieval drainage systems, in order to contain water which frequently overflowed from the river. The Washes were regularly flooded each winter until after the Second World War.

V. The Flandrian Deposits

(Fig. 3)

The soils which cover most of the South Lincolnshire Fens have formed on sediments deposited since the last glaciation. In some parts of the survey area, such as Bicker Haven, deposition of marine sediments continued into the seventeenth century, and along the coast of the Wash it continues today. This account of the principal Flandrian deposits is written from the standpoint of a landscape archaeologist, not a sedimentologist or soil scientist. The intention is to identify the archaeologically important attributes of the deposits within the major landscape zones recognised by the survey. A landscape zone is an area of land which has a distinctive set of characteristics, especially archaeological, geomorphological (land forms) and pedological (soils).

The Jurassic rocks of the Lincolnshire uplands dip eastwards and very gradually disappear under the Flandrian sediments of the Fenland Basin. Near the fen-edge an earlier pre-Flandrian land surface is usually present not far beneath the present land surface. For example, in Billingborough Fen the Flandrian sediments remain less than 3m deep for at least three kilometres east from the fen-edge (Hayes 1985b, fig.5). Further out into the Fens the earlier Flandrian land surface is usually much more deeply buried. The record of a borehole made by the Deeping Fen, Spalding & Pinchbeck Internal Drainage Board beneath the site of the Pode Hole Pumping Station near Spalding (TF 213 220) shows nearly 9m of Flandrian deposits.

The earlier, buried, Flandrian land surface does not slope smoothly. There are deep hollows, including the buried valleys of rivers such as the Welland, and there are ridges, some of which are scarcely buried. The contours of the buried landscape beneath the Fens have often exerted a strong influence on subsequent events. Although Hall (1987) observed that even major rivers have changed their courses across the Fens, there can also be a remarkable continuity, with creeks perpetuating the courses of former streams, and buried ridges still effectively acting as watersheds. The highest parts of the earlier land surface were sometimes not buried by the marine alluvium and form 'islands' in the Fens. In the survey area most of the islands have not previously been recorded, probably because they are usually small and no higher than the surrounding land. The largest examples are Guthram Gowt, between Bourne and Spalding, and Crowland, though the latter was only an island when the freshwater fens were at their most extensive.

The Flandrian deposits of the Peterborough/Thorney area of the Cambridgeshire Fens have already been described in detail (Hall 1987, 4-9). At the start of the Lincolnshire survey it was not known how safe it was to use terminology developed in the southern Fenland so it was decided to postpone resolution of the problem until more information was available. In the meantime, terms such as 'the Fen Clay' or 'Terrington Beds' were avoided; the deposits were described simply according to their lithological characteristics (texture), *e.g.* 'silty clay' and their apparent organic content ('peaty'). These are only field descriptions, but although they may lack precise definition there has in practice been no difficulty in reconciling the conclusions of the field officers with the descriptions accompanying published and unpublished geological and soil maps.

Figure 3 shows a schematic section across the fen margin, extending seawards as far as the beginning of the siltlands. It shows the principal Flandrian deposits, the pre-Flandrian deposits, and the main landscape zones recognised during the survey.

On the west there is the archaeologically important fen margin gravel, a pre-Flandrian deposit. This has given rise to a level band of generally loamy soils containing evidence of almost continuous human activity, at least since Neolithic times. In the north the gravel band is about 2km wide but south of Thurlby it rapidly broadens into a fan some 5-7km wide near the river Welland (the Cambridgeshire border). On its east side, at the fen-edge, the gravel is often slightly buried under Flandrian alluvial deposits, described below. The gravel slopes very gradually under the alluvium and the fen-edge is usually difficult to define precisely. Ploughing has often mixed the deposits together, creating a confusing transitional zone which sometimes extends over hundreds of metres.

The oldest Flandrian deposit shown on Figure 3 is the basal peat which formed on parts of the prehistoric land surface before it was buried by marine alluvium. The peat is not well dated, particularly in the north of the

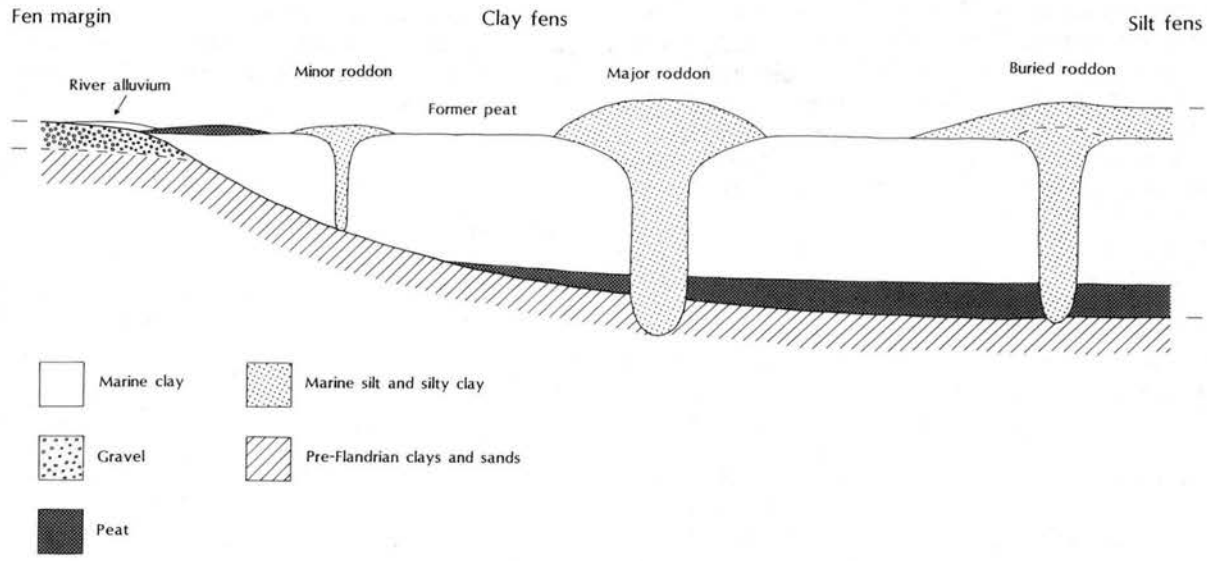

Figure 3 Schematic west-east section of the principal Flandrian deposits and landscape zones in the South Lincolnshire Fens

survey area. Peat probably started to accumulate in the deepest parts of buried river valleys as early as the Mesolithic period, but would not have extended away from these channels for several millennia. By inference from the survey results, it seems likely that peat formation became widespread in the south of the area during the Neolithic-Early Bronze Age and in the north during the Bronze Age-Early Iron Age. Where the marine clay is not deep, the basal peat may be exposed in the sides of dykes and drains overlying a buried soil, and prehistoric artefacts are sometimes brought to the surface in the dyke spoil. The remains of trees ('bog oaks') are not uncommon in the peat. The trees died when high water levels initiated peat formation in advance of marine inundation. When the dead trees fell, or were blown over, they sank into the peat, which inhibited their decay.

The marine alluvium which overlies the peat is rather variable. Immediately above the peat there is frequently a soft, sticky, blue-grey clay. The clay becomes stiffer and browner (more oxidised) towards the surface, usually with visible silt particles and sometimes having a slightly laminated structure. The variations in the alluvium have been described in more detail by Hayes (1987b, Appendix 2). In the south of the survey area, and especially near the fen-edge, grey clay is often ploughed up and the siltier, browner, clay is absent.

Within the marine clay there are the predominantly silty features known as roddons, the remains of former creeks. From the air they can be seen to form more or less dendritic networks, branching and rebranching far inland from major roddons that disappear into the siltlands to the east. Although sometimes capped with clay, the roddon deposits are predominantly silty or sandy and often cut down into the pre-Flandrian deposits. On the ground many of the roddons are higher than the surrounding clay, by as much as a metre or more. Soils on roddons are freqently silty and well drained. Farmers in the clay fens recognise the medium to large roddons as their best agricultural land. Large roddons may be over a kilometre wide, but they range down in width to less than a metre, by which time they are only silty trails, being no higher than the surrounding clay. Roddons normally seem to be contemporary with at least the upper parts of the marine clay around them, though two phases of creek activity were occasionally encountered (and more frequently suspected) during the survey. Godwin (1938), and more recently Gallois (1988), have discussed various explanations for the raised appearance of roddons. Gallois suggests that the height difference largely results from differential consolidation between clays, silts and sands, particularly after dewatering. However, the fact of their elevation is perhaps more important archaeologically than the reason for it, for almost all the settlement and saltern sites occur on the tops or sides of roddons.

Three deposits may be found on top of the marine clay and roddons: silt, peat and freshwater alluvium. They are local in distribution, being commonest on the western and eastern edges of the area; large parts of the clay-with-roddons zone lack any of these additional deposits.

The first of these uppermost deposits, silt, forms a distinct zone, variously called the siltlands, the high silts, or simply the silts. This complex zone, variable both in its surface appearance and in its underlying sediments, lies on the seaward side of the clay-with-roddons. The modern surface tends to be flat, even by Fenland standards. It is generally at least a metre higher than the clays to the west and the soils are siltier but within this general picture there are many variations. There are often ridges and hollows, and the sediment just under the surface may vary from very coarse silt (or even sand) to silty clay. This lack of homogeneity, and the apparent lack of pattern in the variations, suggests that the 'silts' may be the product of several flooding episodes, with much local variability, but the chronology of these events is not yet clear. The survey results in the parish of Crowland indicate a pre-Roman date for the silt, but in Quadring, Gosberton and Pinchbeck North Fen a late- or post-Roman date seems likely.

Historical records indicate the presence of some peat on the siltlands but this peat has now disappeared. Peat

was used as fuel in the Middle Ages, for instance when making salt (Hallam 1965, 169). It seems unlikely that the peat deposits on the silts were very deep or extensive. Extraction for fuel would soon have exhausted even the deeper deposits and wastage, caused by land drainage and arable agriculture, probably destroyed the remnants. Occasionally there is a thin peat layer preserved between the silt and the underlying marine clay but this would not have been worth extracting for fuel.

Peat, the second possible deposit on top of the marine clay, is now very rare on the surface in the survey area, though there are a few thin deposits (*e.g.* in parts of Deeping and Crowland Fens). Drainage caused initial shrinkage (through loss of water) and longer-term destruction set in as cultivation caused the organic matter to become oxidised (Hodge *et al* 1984, 85). Wind erosion has also resulted in the loss of surface peat. Maps produced by the Geological Survey about a century ago show peat over most of Deeping Fen. Peat stretched east from Bourne towards Spalding as far as Guthram Gowt (TF 170 220). Further north the peat tapered towards the fen margin, dwindling to a band about 1.5km wide in Billingborough Fen. Today most of the peat has gone, though the soils are recognisably dark and humose, especially when wet.

Loss of peat from the surface has exposed barrows and prehistoric sites, for instance on the edge of Deeping Fen, but unfortunately the threat to irreplaceable archaeological and environmental evidence has not ended. The organic content of the soils is still being reduced, causing the plough to bite deeper each year. Also, efficient land drainage leads to a lowered and seasonally fluctuating water table which destroys the waterlogged remains that are the true archaeological treasures of the Fens. The Iron Age sites discovered by the survey in Cowbit Wash (see also chapter 23) are only one example of what is at risk. The full extent of the threat is difficult to assess from surface evidence alone, but there appear to be important buried sites at risk on the edge of the siltland and its adjacent transitional zone.

Finally, freshwater alluvium is the third deposit which sometimes overlies the marine clay. The occurrence of freshwater alluvium, often a stiff, stoneless clay, has previously been noted by Hall (1987, 9). Alluvium from the river Welland was found to be widespread on the fen margin gravel, and the adjacent marine alluvium, in Crowland, Deeping St James and Market Deeping. Some of this alluvial spread is undoubtedly medieval or later, but parts may be considerably older. Worked flints were found on top of the alluvium in Market Deeping. It is possible that the late prehistoric Welland split into a number of distributaries as it approached Deeping Fen, perhaps because the build-up of Flandrian deposits interfered with the pre-existing drainage system. The Welland is, in any case, likely to have been a much less controlled watercourse in the past, flowing as a braided stream, through shifting channels.

River alluvium interferes with surface survey but it must have buried prehistoric, and possibly Roman, sites, earthworks and ditches comparable with those recently or currently being excavated in Cambridgeshire, *e.g.* at Etton, Flag Fen and Haddenham. Less extensive alluvial spreads were noticed near rivers and streams along the entire length of the fen margin. Freshwater alluvium occurred less commonly further east, on top of the marine deposits, for example in the Welland Washes.

VI. Survey in the Fens

'. . . (their) . . . boots perpetually mud-caked, ignorant of how their efforts were, little by little, changing the map of England.'

Graham Swift
Waterland 1983

The Aims

The overall aims of the Survey have been outlined in the first of the Fenland Project reports (Hall, 1987). The work can be summarised as a large-scale archaeological and environmental reconnaissance survey of an internationally important archaeological area.

A historian of aircraft would no doubt compare the roles of the Fenland Survey Officers to those undertaken by two classes of aircraft during the war — reconnaissance and pathfinder. The former was designed to gather up to the minute information on which current and future strategies can be formulated and implemented, the latter to illuminate specific target areas. This reconnaissance is providing a fund of data on which will be based future excavation, preservation and site-management policies. The pathfinder role highlights specific and often urgent problem areas that could be fruitfully tackled by other archaeological disciplines.

There will never be sufficient resources available to preserve or excavate more than a small fraction of the sites. Thus, survey has been designed, and later honed, to include research objectives in addition to its more usual preliminary fact-finding role.

It is always desirable to know the locations of archaeological sites in specific areas, but the survey needed to achieve more than simply to add sites to the record. By standardising, where possible, the artefact retrieval methods and by mapping and interpreting soil and sediment boundaries it has been possible to chart large-scale changes in economic activity and set these, and the shifting patterns of settlement, in their contemporary environmental context. Having established the broad perspective it has become possible to assess the importance of individual sites in a more reasoned and knowledgeable manner. Results of the survey have added to our understanding of the past rather than merely increased the national stock of fragmentary artefacts, and have provided a solid body of information on which to base future research.

The Methods

The Fenland Survey has adopted methods of field survey first developed in Cambridgeshire (Hall 1981, 53-4) and outlined in the first Fenland Survey report (Hall 1987, 14-16). These methods are designed to answer specific sets of questions relating to settlement and landscape in the Fenland region.

In addition to the usual locating of archaeological sites and features, soils were recorded and their boundaries mapped. This information was used to interpret and reconstruct details of the ancient environment. Only surface soils were examined though notes were made regarding the stratigraphy of any clean sections of drainage ditches that were encountered. Soils were visually assessed in the field and tested by hand for texture.

The principal method of survey employed was fieldwalking in lines 30m apart. This enabled adequately detailed recording of the soils and, in keeping with the

overall aims, was sufficient to locate most of the larger sites and many of the smaller ones. When sites were identified the distance between the walked lines was reduced to 2-3m to enable *all* the visible surface finds to be recovered from each site (excluding salterns: see below p.00). Thus a great deal of material was generated, for instance approximately 60,000 sherds of Roman pottery alone. Although progress was slowed when high densities of ceramically rich sites were encountered a total collection strategy was deemed essential for two reasons:

1. to standardise retrieval in order to enable accurate comparisons to be made between sites in different areas. Potentially these comparisons can highlight differences of status, wealth, longevity and function, and indicate patterns of settlement drift.
2. to ensure that any sparse but important finds dating from earlier or later than the main period represented were retrieved for later identification.

This latter point proved highly significant: after the finds had been washed a number of the sites with predominantly Roman sherds were found to include Iron Age or Saxon pottery. These were usually in the form of undistinguished sherds that would probably not have merited collection if a selective finds retrieval policy had been in operation (one based for instance on collecting rims, bases and decorated sherds). It could not be expected that such muddy sherds would be recognised in the field. Indeed, it would be inefficient to waste fieldwork time attempting to check the detail on each unwashed sherd when the material would be washed, marked and identified later. The only exception to the policy of total collection was for saltern sites. Surface evidence for each of these sites came in the form of thousands of baked clay fragments. When these sites were encountered all sherds of domestic pottery were collected together with fired clay that had been shaped, augmented by an uncontrolled sample of other baked clay fragments. This generated sufficient material to enable the briquetage to be later classified whilst maintaining the survey's time schedule.

Walking in 30m lines proved ideal on the upland and on much of the siltland but such coverage was found to be unnecessary on the peat fens where settlement evidence was extremely rare. After walking a number of fields at 30m to confirm the usual pattern of lack of settlements on peat, the surrounding fields were visited in order to plot any roddons and, at the same time, check for islands which were indicative of pre-Flandrian land surfaces.

As on the peats, a few of the fields in the clay fens were walked at 30m to confirm the absence of settlements on the clay soils between the roddons. Subsequent walking was then irregular and conducted to facilitate ease in roddon plotting. Roddons were most conveniently mapped in the field whilst walking parallel to their courses but *c.*10–20m away from their edges. It was here that altitude variations were most visible. Frequent traverses of the roddon, where the majority of sites were located, ensured the optimum site/artefact recovery rate. Overall the method proved to be a highly efficient way of maximising the ground coverage while producing good quality evidence and was well-suited to rapid large-scale reconnaissance. It was particularly beneficial in the clay and peat fens where the minimising of time spent examining in detail archaeologically empty land was most effective.

Because of the variations in recovery conditions from field to field it was considered to be invalid to determine 'sites' by wholly objective criteria such as the collection of a minimum number of sherds per square metre. Such a regime may not have identified, for instance, the ceramically poor Saxon concentrations as 'sites', despite clear secondary indicators such as mounding, soil staining and an abundance of animal bones.

Within these volumes the term 'site' is used to identify and define discrete surface concentrations of contemporary artefacts, or earthworks, or, more rarely, the location of crop marks. Isolated, individual sherds or flints, usually termed 'off-site' or 'background scatter material', and generally thought to have originally been incorporated in manure heaps, was almost totally absent on the clay and peat fens (the grazing land) but common on the upland (arable) area. Off-site finds of medieval and later pottery were noted on the siltland. The uplands produced the normal broad range of sites and background scatters. Here, inevitably, there were some grey areas when designating site or non-site status, particularly in areas rich in lithics. However, the overwhelming majority of post-Bronze Age surface scatter 'sites' had secondary indicators such as dark soil stains and scatters of animal bones.

The retrieval and recording methods were not entirely suited to dealing with off-site material, nor were they designed to be. On surveys of this magnitude and in such a compressed time scale, not all levels of enquiry can be dealt with equally and time was not available to undertake the detailed work required to maximise the off-site data. It should be emphasised that scatters of all periods are confined only to the uplands and the siltland scatters were of medieval date only. Therefore much of the surveyed area is devoid of off-site finds. However, when encountered, scattered material from all areas was collected. Its presence or absence from fields on marginal land has been a useful guide particularly when defining the extent of arable land in the medieval period.

Recording: Pre-Season

Prior to each survey season, which usually lasted from mid-October to mid-May, as much information about the area as practicable was collated and a pre-survey map produced. Local Sites and Monuments Records (SMRs) provided data to enhance that gained from existing soil or geology maps. Site and roddon details were plotted from aerial photographs on to copies of 1:10560 Ordnance Survey maps. All soil marks and tonal variations were plotted. Roddons are usually relatively clear on air photographs of peat soils but considerably less so on those taken over the clay and silt fens. Wide expanses of roddon and spreads of silt tend not to show at all on aerial photographs, except occasionally as areas devoid of marks.

It proved useful to have these details though every effort was made not to let this information prejudice opinions formed in the field. Hall's methods were deliberately designed to avoid the common error of inventory collecting. Concentration of effort on known or highly obvious sites was accordingly eliminated.

Recording: In the Field

In the field, soil boundaries, roddons and site areas were sketched on to copies of the relevant 1:10560 maps along with details of soil type and crop cover.

Sites were numbered consecutively within each parish and the number preceded by a three letter code to identify the parish, thus QUA 21 represented the twenty-first site in Quadring. All visible surface finds were placed in sealed polythene bags which were marked with the site number and a sketch of the site area was made on the field copy of the map.

General scatters of material which did not constitute sites, were collected, bagged, and numbered, and the collection area outlined and recorded on the map. As soon as possible, a standard site form was completed for each site and off-site collection area. On the forms were recorded details of date, location, site type, size, altitude, artefact date range recognised in the field, geology, soil, recovery conditions (light, soil weathering and exposure), cultivation and crop details, and the owner or occupier of the land.

Initially the two Field Officers worked together in order to standardise their methods, to familiarise themselves with recording the Fenland landscape, to learn to recognise the unfamiliar archaeological material to be found on certain sites, and to identify the site indicators that might be unique to the Fens. Thereafter each season started with the partitioning of the survey area into logistically sensible units which were walked individually, but with frequent meetings to compare results and check that the maps fitted together.

The essence of the fieldwalking method is that as many as possible of the fields are visited and examined but the intensity of the coverage (the distance between the lines walked) is varied in order to put the most effort into the areas where needed. This avoids wasting time walking areas in great detail which have no visible soil or sediment variations. Where this can be achieved it considerably increases the area which can be surveyed in a season, making it possible to map large blocks of land. This is desirable because it is easier to detect and understand patterns on large continuous areas than on small, scattered samples.

Fieldwork Intensity

As the work involved interpreting past environments for entire parishes when not every field in these parishes could be walked, it was necessary to record and publish exactly which fields were examined. Further to that, because some fields were walked in less favourable conditions than others, the condition of each field in respect of its artefact recovery potential needed to be recorded in order that accurate comparisons between sites could be attempted, even though such a record is a subjective assessment. Thus the concept of Fieldwork Intensity was devised. Each field was classified as shown in Table 1.

No.	*Type of Coverage*	*Intensity & Conditions*	*Quantifiable Sites*	*Results Scatters*
1	Objectively Standardised	30m lines, good visibility	Yes	Yes
2	Subjectively Standardised	Variable	Yes	No
3	Undifferentiated	Variable	Variable	No
4.	Not surveyed	Not applicable	No	No

Table 1 Fieldwork Coverage

Definitions

Type 1: Land walked in 30m lines in good or excellent visibility (as defined below) and not over frozen ground or in bad light.

Type 2: Land for which the strict definition of type 1 coverage does not apply but the area has been visited and in the opinion of the Field Officer the number of sites found (of all periods) would not be increased by type 1 coverage.

Type 3: all surveyed land not included in types 1 and 2

Type 4: land not surveyed

The evaluation of 'good visibility' for Type 1 is to some extent an arbitrary process but an attempt has been made to standardise the assessment of the interaction of two major factors: soil weathering and soil visibility. Weathering, the degree to which the soil is broken down, is extremely important. It is possible to walk over a newly ploughed or drilled, and therefore unweathered, field containing a large Roman site and to recover less than a handful of sherds, and to miss a small Saxon or prehistoric site altogether. Adequate soil weathering is essential in order to find artefacts. Similarly, the more the soil surface is obscured by crops the more difficult it is to see artefacts or soilmarks. By estimating the degree of weathering in stages and the percentage of the soil surface which can be seen, it is possible to separate Type 1 from Type 3 (provided both are walked in 30m lines and there are no other complicating factors) as follows. The numbers in Table 2 refer to the Type of coverage. Estimates of the factors are 'rounded up' where necessary.

Soil Weathering				
Heavy	3	1	1	1
Medium	3	3	1	1
Light	3	3	3	1
None	3	3	3	3
	25	50	75	100 *% Soil Visible*

Table 2
Fieldwork Coverage: Soil weathering and visibility

It is important to realise that the Types or Classes are intended to describe how the fields have been surveyed and not necessarily to rank them in order of excellence. For example, to plot roddons efficiently it is better not to walk in straight lines but to follow a twisting line which gives the most mapping for the least walking. This does not fall into Class 1 because it is not 30m line walking, though the coverage could be at least as good. In areas where the prehistoric land surface is deeply buried and only Roman or later sites are to be found, and these on or close to the roddons, it might fall into Type 2. In other areas, and depending on the pattern of walking, there might remain the possibility of an isolated saltern, prehistoric or Saxon site being missed altogether so it would be classed as Type 3, though for the purposes of the larger and more obvious Roman settlement sites it would remain good coverage.

Recording: Post-Survey

As each walking season closed the officers were responsible for completing master copies of maps and duplicating both these and the fieldwork record sheets. Aerial photographs were re-examined and often found to contain crop or soil mark information which in retrospect

could be seen as significant to the archaeology, even though the archaeological relevance had gone unrecognised during the pre-season scrutiny. Limited historical accounts were studied and parish essays completed as far as possible. Meanwhile armies of volunteers processed the finds. Subsequently all the briquetage was sorted and classified to form the basis of chapter 20 and all other ceramics were identified by period specialists. Dr. Peter Chowne examined the prehistoric pottery, Dr. John Samuels and Pat Loscoe-Bradley the Roman assemblages and Hilary Healey the Saxon and medieval wares. Complete and fragmentary stone axes were identified, and in certain cases thin sectioned, by Mr. Tim Clough (see chapter 25). The Pointon and Sempringham coin hoard was identified by the staff of Lincolnshire Museums Services.

The retrieval strategy was not designed to maximise the use of off-site information and, as relatively few lithics were found, no analyses of these were undertaken.

Iron Age pottery warranted analysis because of the implications of its existence in an area previously thought uninhabitable during that period. Saxon finds were also new to the area and, as such, clearly worthy of further research. Roman settlement was previously well attested but the quantity and quality of the survey evidence made it likely that shifts in patterns of settlement within the area and/or regional and local changes in the environment could be identified if the material was analysed in an appropriate way. This possibility led to the development of the techniques of graphic analysis outlined by Hayes (1987b, 20-7) and presented in chapter 22.

The abundance of the pottery evidence recovered by the Survey has meant an increased emphasis has been placed on the analysis of the archaeological material in order to date the environmental phases of the marine dominated landscape. In some cases it has been the only evidence available with which to chart environmental changes. This has made an interesting comparison with work in other areas of the Fenland. In the freshwater peats of the southern Fens, for instance, artefacts are comparatively rare but a longer history and stronger tradition of palaeoenvironmental research exists there. Little work of that nature has previously taken place in the western Fens of Lincolnshire. Radiocarbon dates from this area are scarce, therefore these more detailed analyses of the finds have proved to be necessary in order to understand the development of the area.

VII. Previous Research

Though Lincolnshire's south-western Fens as defined in this volume have never before been the sole subject of investigation some eminent researchers have, at times, given their attention to the area as part of their wider studies. Many have been historians, notably H.E. Hallam and, more latterly, David Roffe. Field surveyors have been thin on the ground but their work has been formidable. Pioneering reconnaissance by C.W. Phillips in the early 1930's resulted in the publication of a synthesis of the archaeology of the whole county, the like of which has yet to be repeated (Phillips 1934). It was followed, a quarter of a century later, by Sylvia Hallam's survey of Romano-British sites in the Fenland. The publication of her work in 1970 was a landmark in the history of field survey. It showed Hallam to be ahead of her time, particularly in her use and interpretation of surface collections. Unfortunately, the fact that her fieldwork was selective has not always been appreciated and Hallam's Fenland investigations have commonly, and mistakenly, been thought exhaustive. Hallam worked 'on the assumption that it would not be necessary to visit every field (an impossible task), but only those where the photographs indicated the probability of settlements' (Hallam 1970, 28). Her work is, therefore, an admirable study of *cropmark* sites in the Fenland.

The aim of the Fenland Project has been to visit every field (an impossible task because of pasture, inappropriate cropping or cultivation, problems of access, *etc.*). Enough fields were visited, however, to ensure that sites which do not necessarily produce cropmarks in this region, such as salterns, Iron Age and Saxon settlements and partly buried sites of all periods, including Romano-British, were adequately represented in the archaeological record.

Simmons and the Car Dyke Research Group (Simmons 1975a and c, 1979) maintained the standard of fieldwork set by their predecessors during their study of the ancient watercourse which borders the Fenland in Lincolnshire and Cambridgeshire. Simmons (1980) went on to interpret changes in 'coastlines' (more specifically the fluctuating extent of active marsh).

Immediately prior to the start of the Fenland Survey, Peter Chowne conducted a three month exploratory survey for the South Lincolnshire Archaeological Unit (now Trust for Lincolnshire Archaeology) of Fenland in Billingborough and Quadring along a 1km wide transect between grid lines TF 33 and 34. Recording of site information was based on the existing Cambridgeshire method (Hall 1981, 53-4). Sites located then have been incorporated into the record for this survey.

Until the recent work of Shennan (1982, 1986a, 1986b) and Hayes (1985b and 1987a) the area had seen little of palaeoenvironmental researchers. Shennan has maintained an interest in the area and is currently researching the potential archaeological applications of remote sensing (Shennan 1986c, Donaghue and Shennan 1987). There remains a scarcity of radiocarbon dates with which to date the landscape development of the area.

The 19th century history of the South Lincolnshire Fenland compiled by Wheeler (1896) drew upon material from this area. The geology of the entire Fenland region was investigated at about the same time by Skertchly (1877) whose published reports are informative and highly regarded. His later collaboration with S.H. Miller (Miller and Skertchly 1878) produced a wider range of Fenland information. Little detailed geological research in these Fens has since been published other than the Mineral Assessment Report of the area from Bourne to Crowland (Booth 1983) and the publication of the 1:50000 Crowland sheet by the Director of Ordnance Survey for the Geological Survey.

VIII. Organisation of the Volume

Results of the Survey are presented at both local and regional scales. The assembled data have been used to make interpretive judgements about landscape changes covering the last seven millennia.

Survey was conducted by parish and that same unit of study has been retained for presentation of the results. Essays, in which both the archaeological and environmental development are considered, have been prepared for

each parish and these are linked to a series of maps which are produced at 1:40000 scale and give details of site locations and the likely environment for certain archaeological periods. However, not every parish has maps relating to the same periods. For instance, a Middle Bronze Age map has been produced for each parish in the southern block to depict the marine incursion of that period. The equivalent flooding in the north occurred during the Late Bronze Age/Early Iron Age and is therefore shown on a map bearing that title. A Middle Bronze Age map is thus unnecessary for the northern block.

The period maps combine both objective and subjective information. The latter relates mainly to interpretation of environments from surface soils and sediments. There are no fixed numbers of maps per parish. Maps combining information from more than one period have been produced when insufficient detail is available for particular periods. Each parish, however, has maps depicting Fieldwork Intensity and the Modern Landscape. The latter is based on the Ordnance Survey sheets but has updated field boundary and building information with built-up areas shown as hatched lines. Modern Landscape maps underlie each period map.

The Fenland represents a mobile landscape without fixed or firm boundaries to its environmental zones and therefore each period map records one moment in the development of the environment. Not all the settlements recorded on a period map will have necessarily survived the whole span of time which the map represents.

Period maps are designed to be used in conjunction with individual parish essays. The essays themselves are all similarly structured by period. They are designed to stand, whenever possible, as separate entities and the intention is that they capture some local flavour. A set of regional maps summarizes the information on a broader scale.

Additional chapters set out methods of analyses and results from specialist studies. The chapter on Roman ceramics has been prepared in conjunction with Dr. John Samuels whilst the equivalent study of the Saxon pottery is a collaboration with Miss Hilary Healey. These subjects warrant attention outside the normal essay/discussion format because the quantity of finds and quality of information enabled the surface remains to be studied in new and significant ways.

Finally, the raw data assembled for each site are listed in tabular form in a gazetteer printed on microfiche.

IX. Radiocarbon Ages

A large number of new radiocarbon determinations has been made by Dr. Roy Switsur, of Cambridge University, during the course of the Fenland Project. The full details of the sites and samples together with the definitive radiocarbon ages will be presented in the forthcoming Environmental volume of these reports (Waller, forthcoming). The nomenclature and notation used in these reports is in accordance with that approved at the Trondheim International Radiocarbon Conference, 1986. The Conventional Radiocarbon Age is denoted by the upper-case letters BP and this may be calibrated to a date-range on the Christian calendar, denoted by Cal.BC (or Cal.AD) using the high-precision calibrated curve. The tables in Dr. Switsur's paper will indicate the laboratory reference of the sample (Q-2548 in the example below); the Conventional Radiocarbon Age; the Uncertainty associated with this (±) and two Calibrated Date-ranges with probabilities of 68% and 95%. A similar table listing previously published radiocarbon ages is to be included for relevant Fenland sites. In this report only the 68% calibrated date-range will be given, for example: Q-2548 4135 ± 70 BP (2875 to 2595 Cal.BC).

X. Sources

The principal data used in this volume are the results of three seasons' fieldwalking. In addition the published results of other researchers in the area, various maps, photographs and records have been consulted and used before, during and subsequent to the Survey.

Ordnance Survey maps at 1:10560 scale have proved invaluable and all fieldwork was plotted at this scale. The majority of the aerial photographs which were consulted formed part of the extensive collections of the Cambridge University Committee for Aerial Photography housed in Cambridge. Relevant photographs from the R.A.F. 1947 vertical coverage and selected oblique views were sketch-plotted at the National Monument Record (NMR) office. The 1947 shots proved particularly useful for tracing the medieval ridge and furrow of the Fen margins, and for recording earthworks which are now damaged. Other sources of aerial photographs included those that form part of the Sites and Monuments Record at the Trust for Lincolnshire Archaeology, and copies loaned by the Soil Survey of England and Wales, and by Jim Pickering. Results of remote sensing in Morton Fen were also made available by Dr. I. Shennan and Mr. D. Donaghue. Overall, cropmarks in the area are dense and time has not been available in which they can be accurately plotted onto the period maps. Maps produced by Hallam (1970, sheets A and C) demonstrate the quality of information available in the area from aerial photographs. Reference has been made to these and also to plotting undertaken by NMR and produced as overlays to OS 1:10560 sheets TF 13 and TF 14. Parts of Billingborough were also plotted at 1:1250 (Hampton 1983, 111-3).

Drainage maps, altitudinal information and borehole logs were made available through the courtesy of Anglian Water Authority and Black Sluice, Welland and Deepings, and South Holland Internal Drainage Boards. Plots of levels taken of the field surfaces were useful. Being drainage-related most of these were taken in the lowest part of the fields but in general they provided a useful guide to the micro-topography.

Enclosure, tithe and other post-medieval parish and estate maps were consulted and have proved particularly useful when compiling medieval accounts. The majority of the originals that were used are stored in the Lincolnshire Archives Office. Many of the post-medieval regional maps consulted formed part of the Wheeler collection housed in Boston Library.

Records of the Commissioners of Sewers have given insight into the state of the medieval Fen. The Commissioners made recommendations concerning the maintenance and management of Fenland watercourses and adjudicated on disputes. Publication of their findings was initially undertaken by Dugdale in 1662 (Coles 1772) and later by the Lincoln Record Society (Kirkus 1959, Owen 1968).

Much historical information has derived from the surviving records of religious foundations. Those from

Crowland Abbey and Spalding Priory have been previously well-thumbed (Page 1934, Hallam 1965) and they record economic activities on the silt and peat Fens. Sadly fewer documents from the Abbeys at Bourne and Sempringham survive to record in a similar manner life on the Fen margins and clay Fens.

Repeated reference has been made to the published works of the Hallams, Sylvia and Herbert, who have produced thorough and masterly accounts of the Roman and medieval Fens. In addition to the Trust for Lincolnshire Archaeology's Sites and Monuments Record, the one maintained by Lincolnshire Museums Service, and the parish records therein, were extensively consulted.

XI. Ceramic Chronology

Prehistoric

(Tables 3,4)

Analysis of pre-Roman ceramics (undertaken by P. Chowne) is discussed more fully in chapter 21. It entailed classification of sherds by period as listed below (Table 3). For convenience, the codes for each period, 01-08, are used in the following texts and gazetteers.

Code	*Period*	*Approximate Date Range (Calendar Years)*	*Wares*
01	Early-Middle Neolithic	pre-2850 BC	Giants' Hills, Skendleby, Tattershall Thorpe, Grimston, Mildenhall
02	Late Neolithic	2850-2250 BC	Peterborough, Grooved Ware, Early Beaker
03	Earlier Bronze Age	2250-1850 BC	Late Beaker, Food Vessel, Collared Urn
04	Later Bronze Age	1850-1000 BC	Billingborough
05	Late Bronze Age/Early Iron Age	1000-400 BC	Billingborough, Maxey, Washingborough
06	Middle Iron Age	400-150 BC	Billingborough, Ancaster, Fiskerton, Helpringham
07	Late Iron Age	150BC-AD 100	Billingborough, Sapperton, Old Sleaford
08	Prehistoric	pre-AD 100	

Table 3 Ceramic Chronology: Prehistoric

Saxon—Early Medieval

The terms Early, Middle and Late Saxon, and Early Medieval are used in the text to indicate the range of dates set out below.

Code	*Period*	*Approx. Date Range*	*Wares*
ES	Early Saxon	450-650 AD	
MS	Middle Saxon	650-850 AD	Ipswich, Maxey
LS	Late Saxon (Saxo-Norman)	850-1150 AD	Stamford, Lincoln
EM	Early Medieval	1150-1250 AD	Developed Stamford

Table 4 Ceramic Chronology: Saxon-Early Medieval

XII. Terminology: Marsh and Fen

The terms 'marsh' and 'fen' are used in this volume as shorthand expressions. They indicate, respectively, wetlands predominantly influenced by the sea (marsh), and freshwater (fen). This distinction has a long history in the Fenland region but, confusingly, differs from the other accepted usage of the terms. Marsh, for example, has a much wider meaning when used in everyday speech, and includes land regularly flooded by fresh water. The term 'fen', on the other hand, is often used more restrictively than in this volume.

In this volume, therefore, 'marsh' covers a range of environments from inter-tidal flats to upper saltmarshes and 'fen' includes a range from reed swamp to carr, fen woodland and even raised bog if it occurred. On a period map any line drawn between fen and marsh will necessarily be somewhat subjective. Also, the highest parts of the fens and marshes would often have been similar in appearance to damp grassland, especially if protected from flooding and modified by activities such as grazing and scrub removal.

Another terminological point which needs to be clarified is the distinction between 'fen' and 'Fen'. In this volume 'Fen' is used to refer to a location while 'fen' refers to an environment. Thus it is possible to say that today there is no fen left in Morton Fen.

XIII. Reading the Maps

(Fig. 4)

Figure 4 lists the conventions used on the period maps. During the Survey, all sites were listed numerically by parish and these codes have been retained. Sites are generally referred to in the text prefixed by the parish code, for example the first site in Dunsby is DUN 1. However, on the parish maps the prefix is omitted and the first Dunsby site is simply labelled '1' on the appropriate period map of Dunsby. In Deeping Fen (Deeping St Nicholas) both officers worked individually and, for convenience, used separate parish prefix codes: these have been retained. On the period maps the site numbers shown without a prefix relate to the DEN entries in the gazetteer. The DSN sites have each been prefixed as such on the period maps.

Where sites straddle more than one parish separate numbers have been allotted for each parish. Thus the Car Dyke has a separate number prefixed by the appropriate code in each of the Fen-edge parishes. Where previously known site have been re-walked as part of the Fenland Survey they have been included in the normal sequence of sites. However, care has been taken to separate out previously-recorded sites whose existence was not confirmed during the Fenland survey. These have been prefixed on the map by a 'U' meaning unverified by Fenland Survey. Previously recorded sites may be unverified for any number of reasons. Some have been quarried or developed, others exist in fields that were unavailable at the time of the survey. The term unverified has no connotations regarding the quality of the original evidence.

Significant individual finds or small groups of artefacts are also recorded on the parish maps. These have been listed numerically in each parish and prefixed with an 'A' if found during the Fenland Survey and 'UA' if found previously by others.

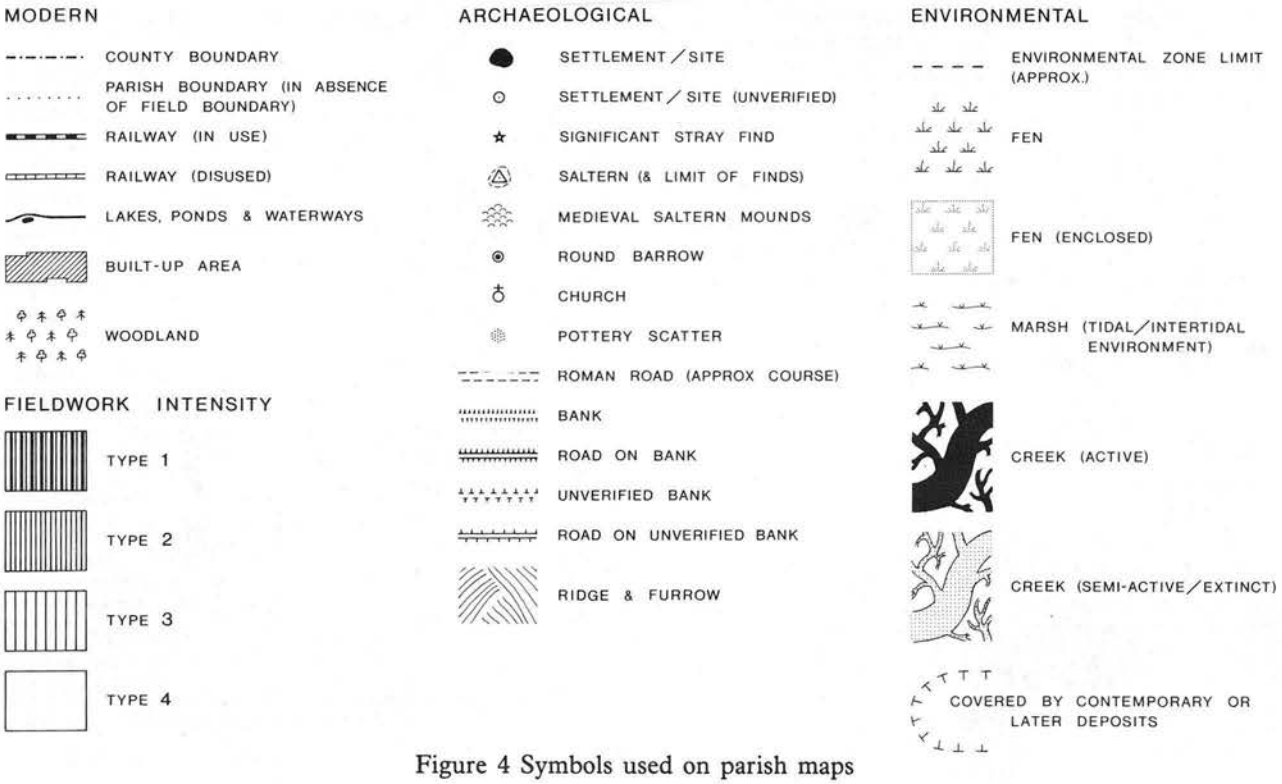

Figure 4 Symbols used on parish maps

The Parish Essays: Billingborough to Hacconby

It is very hard to define
Whether upland must I be
Or most am maratine

25th song from Polyolbion
Michael Drayton (1622)

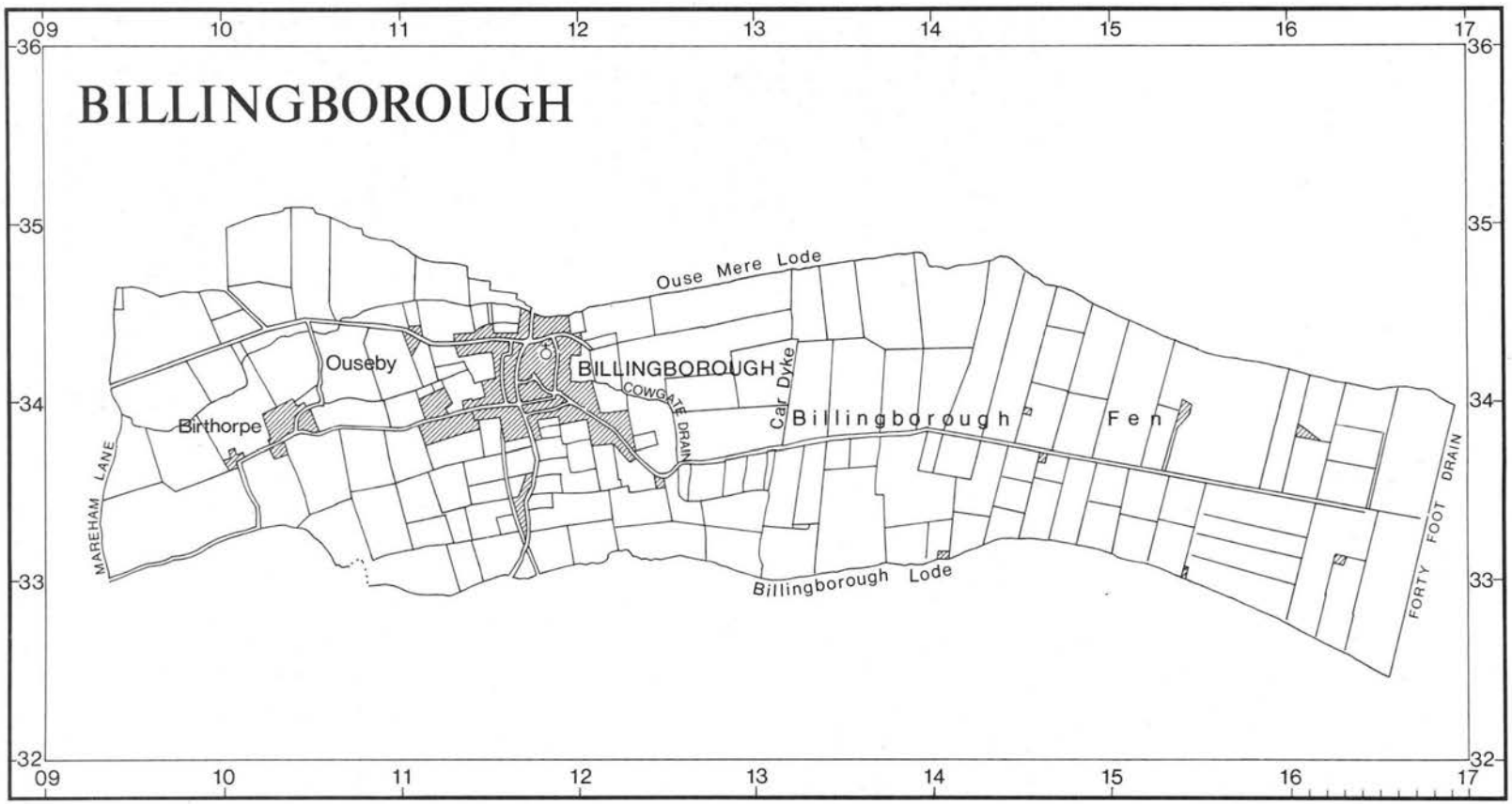

Figure 5 Billingborough: The modern landscape Scale 1:40,000

2. Billingborough

I. Introduction
(Fig. 5)

Billingborough was the most northerly of the fen-edge parishes to be surveyed. Like the parishes further south its east-west axis (8km) greatly exceeds that from north to south (2km). This deliberate arrangement is common along the fen-edge and enabled communities to benefit from the various resources offered by upland, fen margin and fen environments. Ten post-medieval parishes each of similar elongated shape shared the 15 km of land from Billingborough south to Bourne.

The modern village is situated on the western edge of a band of gravels which extend along the fen margins. It is comparatively large and recent expansion has attracted light industry. A secondary hamlet, Birthorpe, is sited on the springline on higher ground towards the west. For a time it existed as a separate parish before being incorporated into Billingborough. Birthorpe, and a second medieval settlement Ouseby, appear to have developed a complex relationship during the Middle Ages. After amalgamation in the 14th century (Foster and Longley 1924, lxii) they became variously attached to the lands of Threekingham and Sempringham. Few people now live in Birthorpe, and Ouseby is deserted.

Many of the post-medieval farms of the Fen have been incorporated into larger holdings and the Fen is now largely uninhabited.

II. Topography

The maps of the Geological Survey (sheet 127 Grantham and sheet 143 Bourne) distinguish a variety of clays and sands which cover the dip-slope of the Jurassic limestone ridge in the west of Billingborough. Many of these are exposed in the side of the broad valley of the Ouse Mere Lode, the main watercourse which flows west-east through Billingborough. They are separated from fen deposits by a band of pleistocene gravels which are visible at the surface for 2km from west to east before they shelve beneath marine clays and silts.

A series of streams drains the upland region and now has canalised courses across the Fen. Of these the Ouse Mere Lode and Billingborough Lode form parish boundaries, the former with Horbling to the north, the latter with Pointon and Sempringham. The west and east boundaries of the parish follow respectively the courses of Mareham Lane, the Roman road from Bourne to Sleaford, and the Forty Foot Drain.

III. Fieldwork
(Fig. 6)

Prior to the Fenland Survey a programme of fieldwork instigated by the South Lincolnshire Archaeological Unit had been conducted along a 1km wide transect (between NGR northings TF33 and 34) extending 16km from Mareham Lane to the medieval estuary at Quadring Eaudike. Though the work did not involve plotting soils and extinct creeks, the recording of sites was based on the method devised by Hall (1981, 53-4) and compatible to those used in the Fenland Survey. Site data from the Transect have been incorporated into this work and finds have been analysed accordingly (by kind permission of Dr. P. Chowne, the Survey Officer, and the Unit Director Mr. B.B. Simmons). Sites BIL 1-20 are those found during the Transect Survey. Elsewhere in the parish, fieldwork has been undertaken on the current survey and the officers revisited many of the fields covered on the Transect Survey in order to map the soils and creeks. All fieldwork on the Transect has been listed as Class 3 except where fields were re-walked in better survey conditions.

IV. Mesolithic—Bronze Age
(Fig. 7)

A succession of later alluvial deposits obscures the early prehistoric land surface in the east of the parish.

The temporary and insubstantial structures of Mesolithic people leave little or no archaeological trace; in general, it is scatters of flint which attest to their former presence. No such material of Mesolithic date has been recorded in Billingborough though there is no reason to suppose the parish was not visited intermittently. Flints however, did provide some indication, though scant, of a Neolithic presence in upland Billingborough. A scatter (BIL A1) extended along a limestone outcrop overlooking the slight valley of the Ouse Mere Lode. On the north side of the stream, flints (BIL A10) were present on the multi-period BIL 25 site. Elsewhere a sparse background scatter was noted. All along this western edge worked flints are distributed thinly when compared to the prolific densities recorded on the northern Fen-edge of Lincolnshire (Hayes and Lane 1984, 8-12), or on the Norfolk and Suffolk margins (*e.g.* Silvester 1988, 326-8).

Isolated pre-survey finds of a perforated mace head (BIL UA1), and a stone hammer head (Trust for Lincolnshire Archaeology Sites and Monuments Record (TLASMR), provenance within parish uncertain) help to demonstrate a continued, if low level, presence. Residual sherds of food vessel and barbed and tanged arrowheads were noted by Chowne (1978, 18) during the excavation of a Later Bronze Age/Iron Age settlement complex (BIL 2). This excavation has provided evidence of the characteristic hard-fired and durable pottery which broadly dates this site and other similar ones in South Lincolnshire (see Chowne 1980, 295-305; Chowne and Lane 1987). A radiocarbon date of BM-1410 2348 ± 57 BP (1520-1375 Cal.BC) (Chowne, 1980, 297) was obtained from material in the fill of a ditch. This material postdated the occupation phase. Further east, a second site, BIL 1, had similar pottery on the field surface. Chowne (1980, 297) suggested the onset of freshwater flooding as a reason for abandonment of BIL 2. Further evidence for increasingly watery conditions in the area was obtained during dyke survey in Horbling, some 2km north-west of the BIL 2 excavation (Chowne 1980 295-6), where a radiocarbon date HAR-1749 3010 ± 80 BP (1410-1145 Cal. BC) was obtained from peat which had developed on the old land surface. Therefore, freshwater flooding was causing peat to form on the fen-edge in the Later

Figure 6 Billingborough: Fieldwork intensity

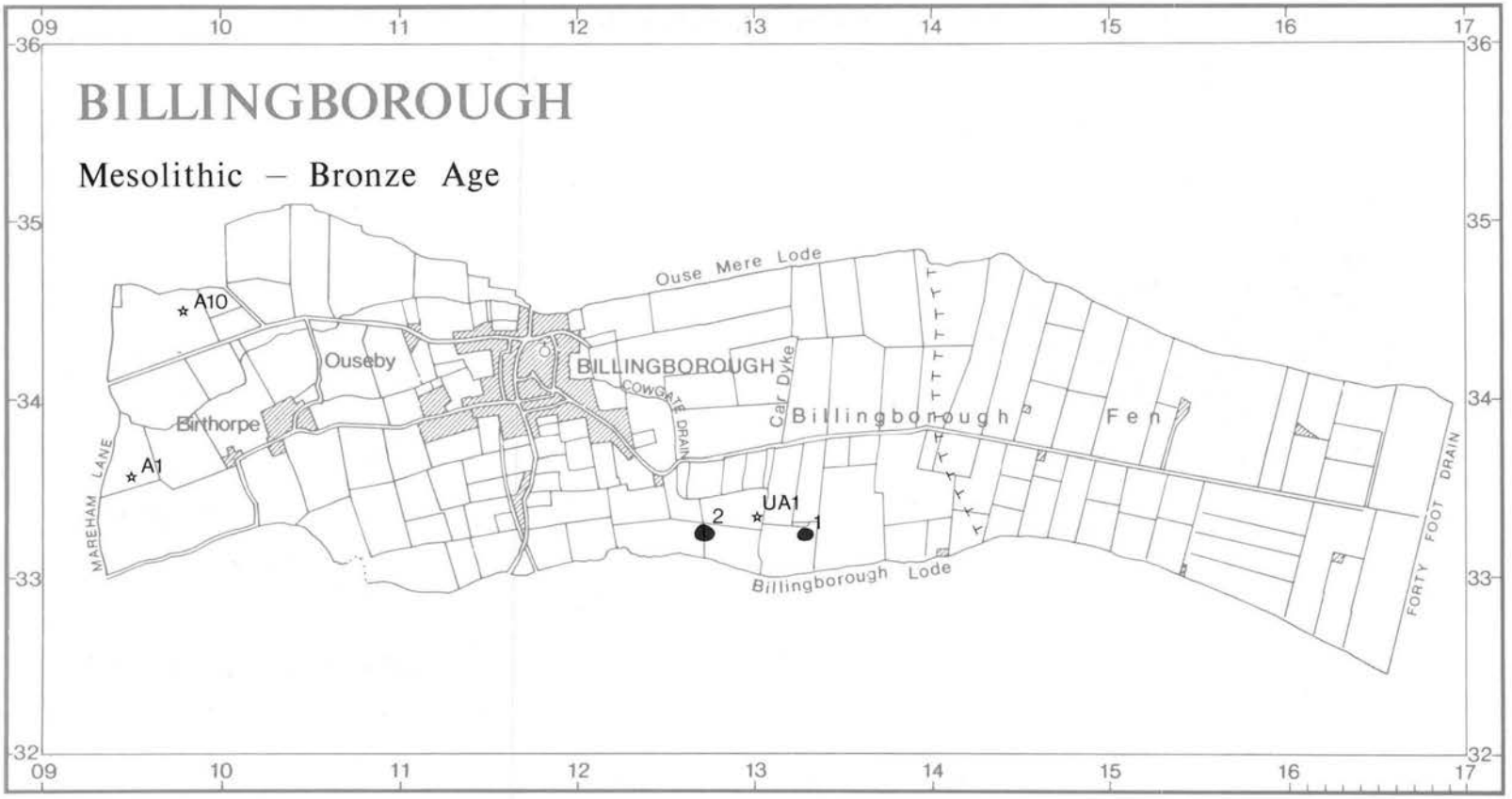

Figure 7 Billingborough: Mesolithic—Bronze Age

Bronze Age, and Hayes (1985b, 245-261 and 1987b) has suggested the flooding resulted in the formation of a fen wood or alder carr environment.

V. Late Bronze Age-Early Iron Age
(Fig. 8)

Above the peat, the encroachment of a marine dominated environment resulted in the accumulation of a considerable depth of marine and brackish water sediments, clays and silts. These active saltmarshes were drained by a network of creeks shown as Figure 8 which brought saltwater conditions close to the site of the BIL 2 excavation. During this phase saltmaking took place and this had an associated date of HAR-3101 2490±100 BP (810-415 Cal.BC) (Chowne, 1980, 297), making it the earliest area of saltmaking so far identified in Lincolnshire. The briquetage from this site however resembles that associated with pottery of the Middle Iron Age (400-150 BC) further south towards Bourne.

Evidence for Iron Age settlement on the BIL 2 excavation took the form of abundant pottery sherds excavated from one side of a rectangular ditched enclosure. Its wider significance in terms of field survey centred on the marked lack of contemporary sherds in the plough soil compared to those liberally distributed within the ditchfill. Whether this results from meticulous Iron Age waste disposal or non-survival of surface pottery is not known.

VI. Middle Iron Age
(Fig. 9)

It was to unfamiliar and initially inhospitable peat-fringed saltmarsh landscapes that later prehistoric people adapted themselves. Perhaps, however, it should not be the adversity of their situation but the opportunities presenting themselves which should be focussed upon, for such a specific environment would have offered a range of economic possibilities. Hayes (1985b, 249) suggested conditions suitable for hunting, fishing and fowling in the early stages of marine flooding and, as the marshes developed, so there would have gradually emerged an area rich in grazing potential. It is that last option which appears to have been exploited in the Iron Age.

Certainly by the Middle to Late Iron Age there existed sufficient opportunity for at least seasonal grazing of the marsh. Late prehistoric pottery discarded by these pioneers is distributed, albeit sparsely, in the western fens. In Billingborough two undated prehistoric sherds (BIL A11) were found on a large Roman site in the Fen. A saltern, BIL 21, with domestic Middle Iron Age (O6) pottery lies close to the Ouse Mere Lode on the landward edge of the waterlogged zone and indicates the minimum extent of tidal activity. The saltern debris is unlike any other from the survey but resembles that from the partly excavated site at Helpringham, some 7km to the north (Simmons 1975b:35), from which a radiocarbon date of HAR 2280 2180±80 BP (395-105 Cal.BC) has been quoted (Chowne 1979, 247)

Extensive cropmark complexes based on linear ditches are a feature of the gravels along this stretch of the western fen-edge. Two are known in Billingborough, though their precise inter-relationship remains unclear. A complicated series of cropmarks, north-east of the village, extends to the eastern limit of the gravels. Roman pottery (BIL 22) was collected from part of the system. Hampton (1983, 113) plotted these cropmarks in relation to the Car Dyke; his results indicate that the Car Dyke is the later feature.

Chowne (1980, 297-98) suggested that similar cropmarks and extensive field systems postdated the Early Iron Age phase on the BIL 2 excavation. Ditched enclosures within this system are likely to have formed pens or paddocks, perhaps for winter management of stock which were grazed on the fen during the summer. The frequency of this type of cropmarks decreases towards Bourne where the peat fringing the marsh grew deeper and its extent broader, thereby restricting easy passage to the marshes.

Although it may have received some political impetus this apparent fundamental change which brought about the construction of enclosures and field systems is likely to have been considerably influenced by the maturing and stabilising of the marsh, creating a shift in economic emphasis towards stock-based agriculture.

The roddons in Figure 9 are depicted as stippling on this and the Roman phases (Fig. 10). This convention is used in order to demonstrate the correlation between the roddons and settlement. The creeks were still active in this phase but were much reduced from their extent as shown on the previous figure.

VII. Roman
(Fig. 10)

Among the many Roman sites that have emerged three are particularly notable in terms of site area and ceramic richness; BIL 25 on the upland close to Mareham Lane, BIL 3 on the fen margin gravel and BIL 10 on the main roddon in the fen.

Both BIL 25 and BIL 10 yielded pre-conquest pottery and subsequent Saxon finds. In the case of BIL 25 these latter finds almost all date from early in the Saxon period while those on BIL 10 tend towards Middle Saxon. On the gravels BIL 3 is a site known prior to the survey under the name 'Toft Hills'. Abundant finds of pottery, limestone building rubble, tiles, coins, *tesserae* and, recently, a rare medallion of the third-century emperor Carus, single this site out as being abnormally ostentatious for the fen margins. Difficulties may arise when attempting to interpret the 'status' of sites from surface indicators but the classic finds here inevitably lead to it being termed a 'villa'. A parallel for the site, its setting and its finds exists in Heckington some 10km to the north (Simmons pers. comm.). Though building stones and tiles are present on some sites further south along the edge there is nothing to suggest that they were other than rural settlements where use had been made of locally available building materials. Other than examples from the immediate vicinity of Bourne (p.135) the BIL 3 site represents the only putative 'villa' in the surveyed area.

A striking feature of the distribution of Roman sites within the parish is the strong grouping of salterns in the peaty, landward, waterlogged zone. This location, one which failed to tempt any non-industrial activity, demonstrates continued tidal activity within the main creeks at least for the duration of the saltern phase. At present there is little evidence to indicate precisely when the salterns were abandoned, though they are thought not to have continued throughout the duration of Roman rule.

Seaward of the salterns, on the main silting creek, settlements BIL 9, 10 and 11 flourished. All were long-

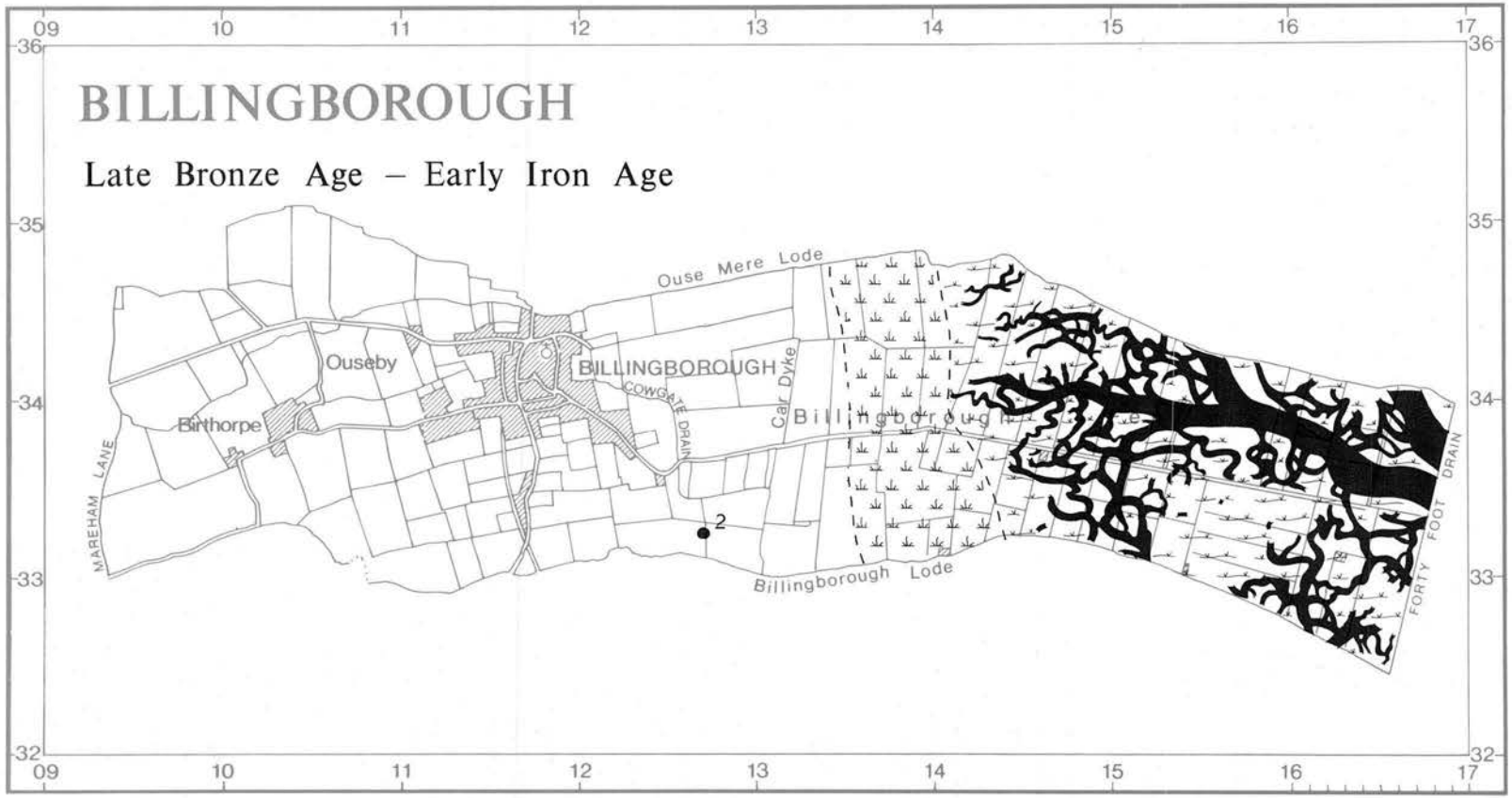

Figure 8 Billingborough: Late Bronze Age — Early Iron Age

Figure 9 Billingborough: Middle Iron Age

Figure 10 Billingborough: Roman

lived sites with their earliest phases contemporary with the salterns. A number of sites that were not verified on this survey are previously recorded from Billingborough Fen. All were noted in the local SMRs using only the six figure grid references by which they are plotted here. BIL U6 may therefore be an earlier, but less precisely pinpointed discovery of BIL 10.

The pottery from the site suggests that BIL 13, on the upland, was not established until later in the period. Whether or not occupation on BIL 17 was unbroken, it was succeeded in its long-term Roman occupancy by a considerable Early Saxon presence.

The remaining major feature on the Roman map is the Car Dyke. Though depicted here by an unbroken line, a longitudinal section cut by Simmons (1979, 189) demonstrated clearly that it was discontinuous at TF1305 3340. The natural formation of the gravel at that point was undisturbed and formed a baulk some 27m wide, which was presumed to be a Roman crossing point. Similar interruptions to the Dyke are suggested by Hampton's (1983, 113) plots of air photographs and are important for they preclude the use of the Car Dyke for long-distance waterborne transport.

Use of land and resources in Roman times is likely to have resembled that of the Iron Age except for a considerable intensification of activity in the fen. Cropmarks plotted by Hallam (1970 Map 1c) show extensive localised settlement features on the roddons. On the gravel edge, cropmarks in Pointon and Sempringham demonstrate Roman re-use of a system that had its origins in the Middle Iron Age. Likewise, BIL 22 appears to utilise an earlier cropmark complex.

VIII. Early and Middle Saxon

(Fig. 11)

Continued silting of the natural creeks impeded drainage of the upland waters and resulted in a seaward expansion of the freshwater dominated environment, though it is not possible to determine precisely these boundaries.

There exists little evidence of Early Saxon occupation along the immediate fen margins. Settlement in this period is characteristically concentrated further west, on the dip-slope of the Jurassic limestone ridge. This constitutes an abrupt change to the pattern of settlement in the area which had, from at least the Iron Age, been concentrated on the fen margin gravels and the fen itself. The change would appear to herald a move away from a livestock based economy and focus more on an arable dominated regime. Deterioration of the local environment and the expansion of the watery fen, at the expense of the marshes, would have provided the impetus for the change. In addition many of the markets for livestock based products would have disappeared following the decline of the Roman economic system.

In Billingborough, Early Saxon settlements are shown within a background 'manuring scatter' of mainly single isolated sherds (BIL A2-9). The fen and its margins remain conspicuously empty of Early Saxon traces.

BIL 25 continued in use during the Early Saxon period and one or two sherds of Middle Saxon pottery seem to have survived on both BIL 16 and 17 before nucleation heralded the birth of the modern village sites.

After a period of abandonment the Roman site BIL 10 was re-occupied in the Middle Saxon era when it was peripheral to the Quadring-Gosberton group of sites. Unfortunately no survey is possible in the area of Billingborough village. The place-name may suggest that the modern houses mask traces of the *Billingas* (Ekwall, 1960, 43) or the *Bilmigas*, whose presence, in the tribal hidage of *c.* 700 AD, is discussed elsewhere (Courtney 1981, Hayes 1988, 325).

IX. Medieval

(Fig. 12)

As a pre-existing feature the Car Dyke served as an early division between meadow and fen and, later, arable and meadow. Expansion of arable east of the Car Dyke onto the fen fringes could have taken place soon after the 11th century. Certainly by *c.* 1200 AD the adjoining parish to the north, Horbling, had 'arable east of Carisdik' (Hallam, H.E., 1965, 107). The seaward advance of peats had created a fuel supply which seems to have been utilised in the late 13th century when labour services to the lord of the manor in Billingborough included 'one day digging turves' (Platts 1985a, 64). As elsewhere along this edge, reclamation in Billingborough during the Middle Ages created new enclosed meadow land thus releasing old meadows for arable use. In 1418 a grant is recorded of 'one half acre and 20 foot of meadow lying in the new land . . .' (Lincs. Notes and Queries. (LNQ) 5, 213). Where precisely on the fen margins of Billingborough this particular new land was situated, or how new it was in 1418, is not clear. However, such references help to illustrate the nature and use of the fen and its margins in the Middle Ages.

Use of the fen as a grazing resource enabled a lot of wealth to be generated. Often this agricultural wealth is reflected in the splendour of the churches and Billingborough is a fine example.

The earliest historical record of land use in Billingborough is the *Domesday Book* which noted meadows, plough land and also 26 acres of underwood, probably on the clays west of the village. Both Birthorpe and Ouseby had their meadow which could either have been on the fen-edge, or, flanking the Ouse Mere Lode. Of the historical sources examined the latest, the Enclosure map of 1770, makes an interesting definition in respect of the fen margin meadows. The most landward is termed fine meadow while, to the east, the latest intake is rough meadow.

Survey and air photographic evidence shows the modern route to the Fen through South Field to postdate the ridge and furrow of the medieval fields. The medieval route almost certainly followed the natural course of Cowgate Drain near to the village. Where the Drain turned south on an apparently canalised section, the early road probably continued east towards a non-continuous section of Car Dyke. Its later route would then have taken it more to the south (the route depicted on Figure 12) before again turning east into the fen. A second route to the east from Black Miles, at the north of the village is also likely. Either route would be accessible for the villages of Birthorpe and Ouseby each of whom would have shared in the rights of the fen. Those of Birthorpe were recognised during enclosure, and early Ordnance Survey maps indicate a detached portion of Birthorpe parish situated in Billingborough Fen.

The site of the deserted village of Ouseby was recognised from surface finds (BIL 18). Pottery was identified as being from the 12th century onward. However,

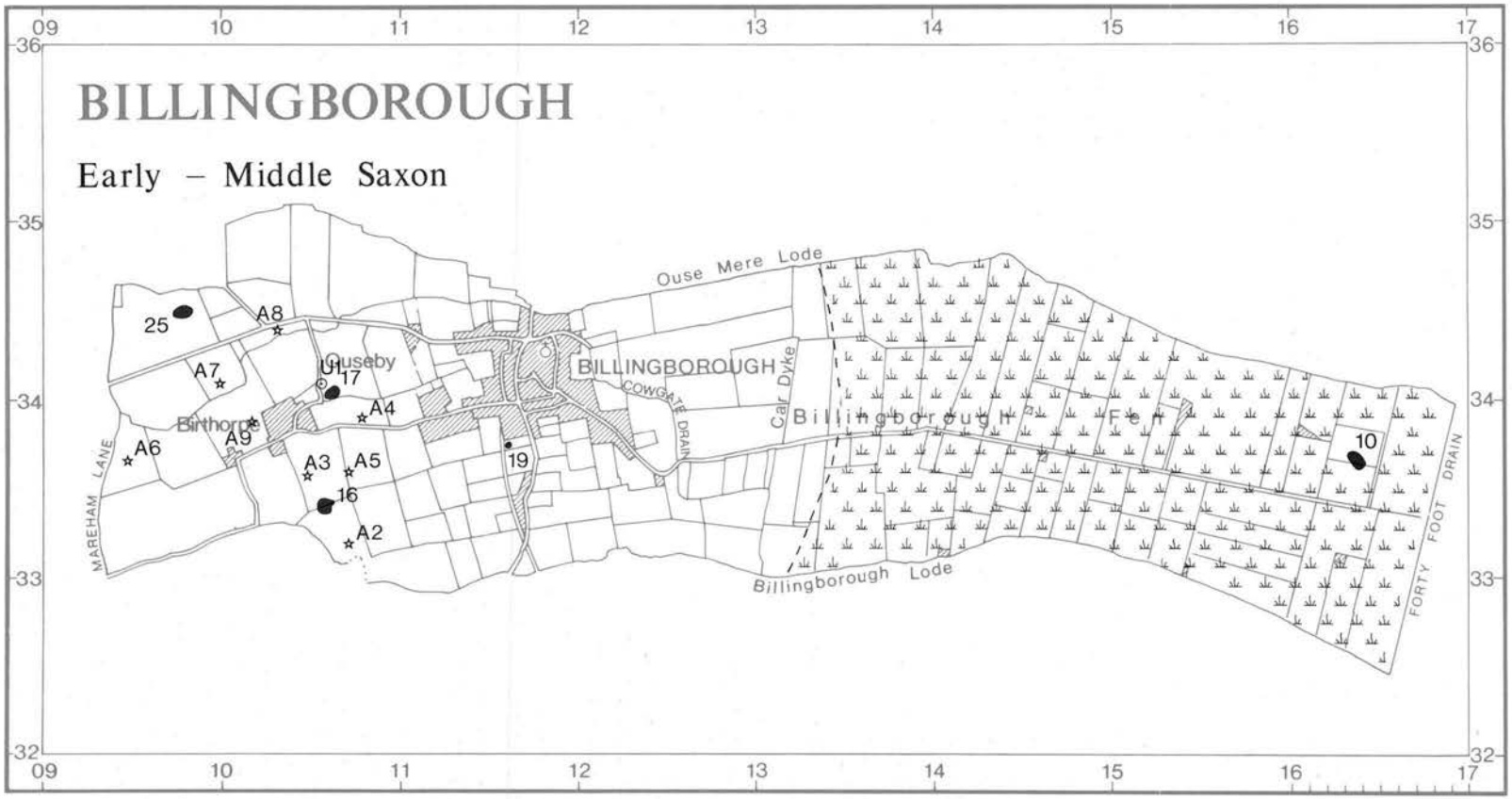

Figure 11 Billingborough: Early and Middle Saxon

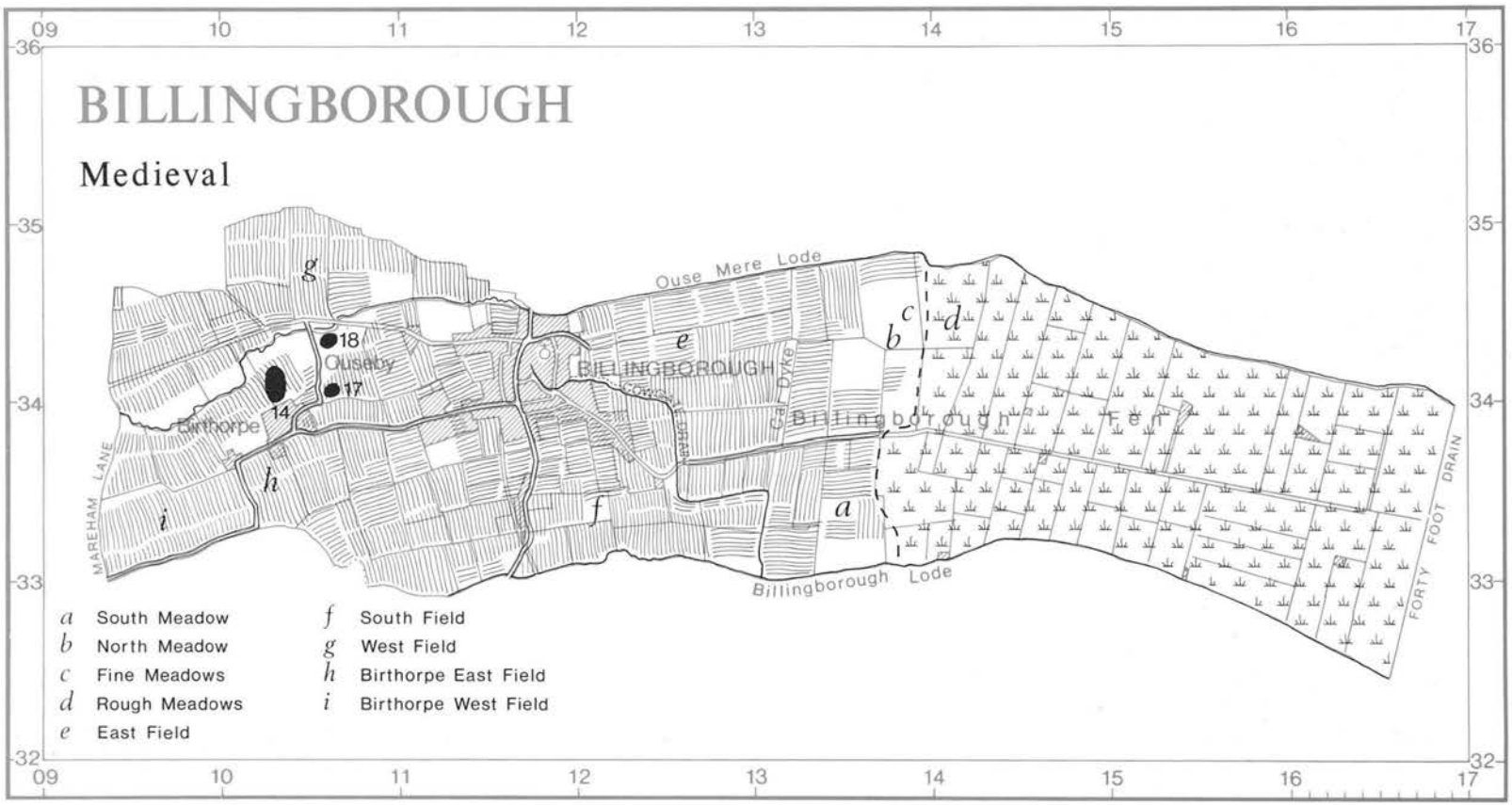

Figure 12 Billingborough: Medieval

the village was recorded in the *Domesday Book* and finds previously made on the site include Late Saxon pottery. An Early or Middle Saxon lava quern was also found there during survey. Finds from BIL 14 on the outskirts of Birthorpe date from the 11th century onwards.

X. Conclusion

The growth of peat on the pre-Flandrian surface of Billingborough was caused by flooding from upland streams whose seaward passages were obstructed by rising tide levels. Eventually, by the early first millennium BC, flooding from the sea overwhelmed the Fen area and deposited several metres of clay and silts almost as far west as the later route of the Car Dyke. The developing salt marshes were gradually and seasonally used for grazing livestock in the Iron Age before a full-blown expansion of settlement onto the fen during the Roman period. The pottery used by these people suggests that they became relatively wealthy from their stock-rearing activities and, perhaps initially, from producing salt. A changing political and natural environment in the 4th and 5th centuries AD reversed the agricultural emphasis to arable exploitation of the uplands and this was carried out from dispersed farmsteads. The site of the modern village was probably first determined in *c.*6th century AD when settlement became more centralised. The name of the village suggests that it formed a centre for a tribe referred to as the *Bilingas* or *Bilmigas*. The fen continued throughout as an important resource for food and materials and access to its products was highly prized. After almost two and a half thousand years as rich grassland the area has recently undergone a complete reversal of roles and within a few decades has become almost exclusively arable land.

3. Quadring

I. Introduction
(Fig. 13, Plate I)

The modern parish of Quadring extends east from its boundary with Billingborough Fen to the former estuary of Bicker Haven. Quadring village now straddles the road between Donington and Spalding. Nearer to the estuary, which finally silted up in the 17th century, is the hamlet of Quadring Eaudike. Modern settlement occurs more frequently in the eastern end of the parish, usually as ribbon development along roadsides, while dispersed farms occupy the former fen to the west.

Quadring church, dedicated to St Margaret, now stands isolated 1km or so north of the present day village. Place-name studies suggest Quadring was an early Old English 'settlement of the Haeferingas dwelling in the mud' (Hallam, H.E., 1954, 4; Ekwall, 1960, 376).

The broad extent of the medieval fen is strikingly visible on the Ordnance Survey 1:10560 maps where its area can be identified by the rectilinear pattern of fields and dykes created during, and subsequent to, post-medieval drainage. These contrast sharply to the sinuous boundaries of the smaller and older fields on the siltland (Pl. I). A succession of fen banks which protected the early village from inundation by highland water during the winter flood season can still be traced as can the sea banks which likewise repelled the tides in the Haven. Fields laid out during fenward reclamation can be seen abutting Quadring bank.

Many of the modern roads on the silts are direct survivors of medieval roads and tracks which formed around groups of fields called bounders, which were the equivalent of the groups of furlongs or open fields of the upland (Healey, pers. comm.).

II. Topography

Flandrian alluvial sediments are widespread throughout the parish obscuring the early prehistoric horizons. The modern land surface ranges from *c.* 5.5m OD on the seaward accretions at Quadring Eaudike to as low as 2m OD in Quadring Low Fen where the courses of extinct creeks extend seaward through Quadring Low Fen towards Hammond Beck. Further east from this point the soils and sediments grade almost imperceptibly from a predominantly clay surface dissected by roddons to form discontinuous tracts of variably silty soils. These latter soils generally mask the creek pattern though remnants of clay surfaces appear intermittently. Seaward of grid line TF 20 soils have been mapped by the Soil Survey of England and Wales and identified as silty marine alluvium, predominantly of the Wisbech soil series (D. Cope, pers. comm.). The date of the floods depositing these silts is uncertain though it is known that some Roman sites are largely concealed by silt and therefore pre-date the flooding.

III. Fieldwork
(Fig. 14)

Results of the Transect survey have been incorporated into this report. Though fields were walked at 30m on the Transect, the differences in weathering and soil visibility were not recorded and therefore all Transect fields have been classed as Type 3. However, due to limitations of time it was not possible to retrace the steps of that initial reconnaissance in order to map the surface soils in the same way as occurred at Billingborough where the pattern was less complex and therefore less time consuming. Soil information for Quadring is only available from areas walked during the Fenland Survey or, at a broader scale, those covered by the Soil Survey (whose working maps were kindly made available).

On the silts around the village the main fieldwork problems resulted from a cropping pattern in which brassicas predominated. In many cases towards the end of the fieldwalking season brassicas were ploughed in resulting in an unweathered field surface obscured by leaves and stalks. The main agents of the weathering process, wind, rain, and frost were by that time abating. Thus in any one fieldwalking season the surfaces of fields growing such crops were seldom sufficiently visible, or weathered, to be adequately surveyed.

IV. Late Bronze Age-Early Iron Age
(Fig. 15)

A major marine flooding episode laid down silty clays through which flowed a dendritic network of saltmarsh creeks. Clay soils and creeks are visible in Low Fen but then largely disappear beneath later silts nearer to the Haven. The creeks remained tidal through Quadring and west into Billingborough until at least early in the Roman period. Evidence of limited utilisation of the fens during the Iron Age has been noted elsewhere in this volume though there is nothing directly associated with the period from Quadring. The area is likely to have continued through the Iron Age as a developing and maturing saltmarsh. Figure 15 indicates the extent of information for the time of the major incursion.

V. Roman
(Fig. 16)

Once settlements became established on the marshes of Quadring they survived long enough to accumulate some, and in certain cases, considerable, quantities of pottery. Much of it came from 3rd to 4th century Roman kilns in the Nene Valley. On only one site, QUA 8, was this type of fineware not represented. Even QUA 22 which is sited only a kilometre from the medieval, and presumed Roman estuary of Bicker Haven, yielded sherds of colour coat. Analysis of the scattered finds from this and the Transect survey revealed that Roman sherds ('A' numbers on Fig. 16) extend east almost to the Haven. They indicate a Roman presence well beyond the limit of cropmark visibility, which coincides more or less with the Hammond Beck. Further east, sites and scattered sherds demonstrate the existence of a Roman land surface that is not beyond the reach of the plough. Hallam, S.J., (1970, 27) has previously noted the shallow burial of Roman features by silts and suggested that persistent air photography might yield a 'blurred record' of occupa-

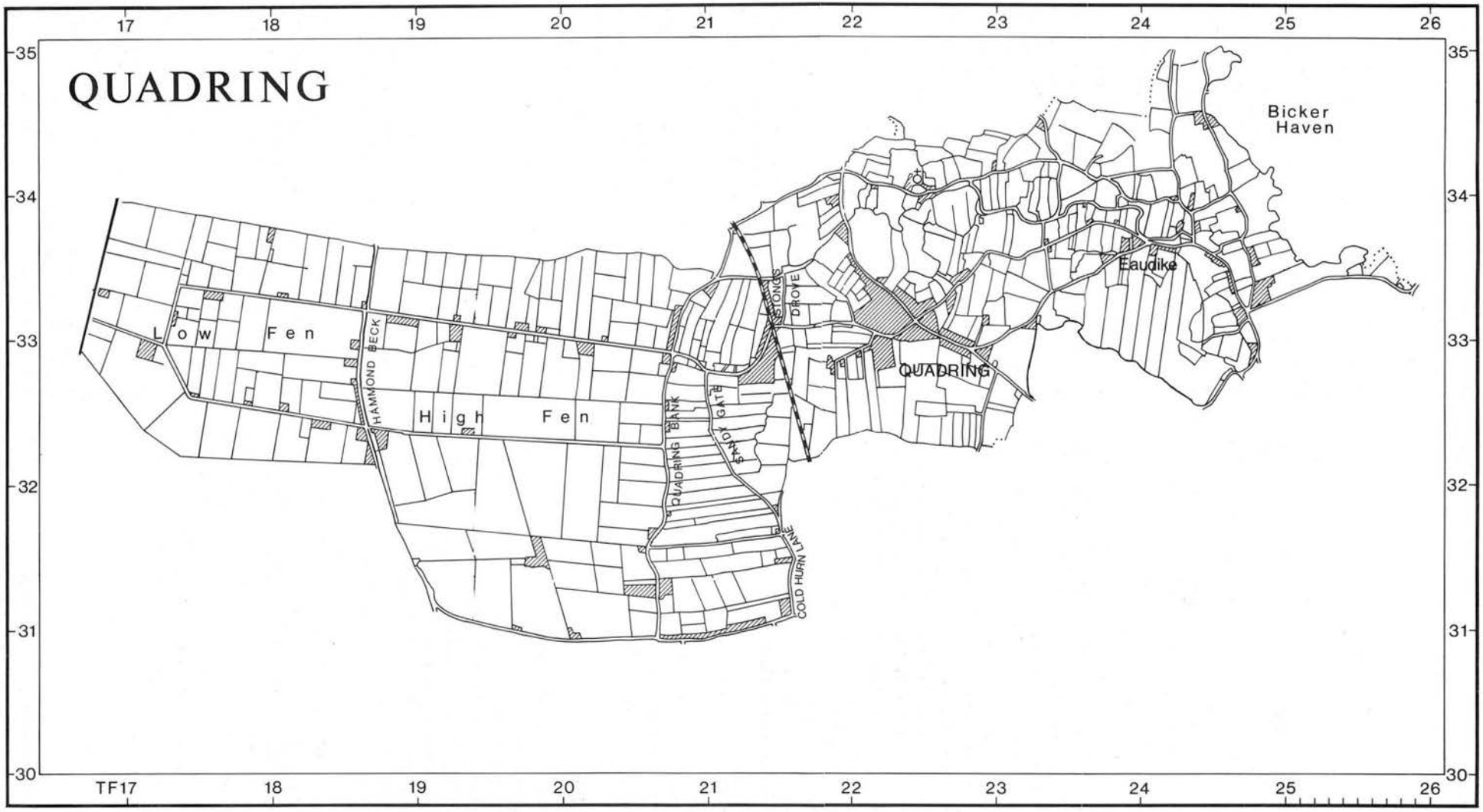

Figure 13 Quadring: The modern landscape Scale 1:40,000

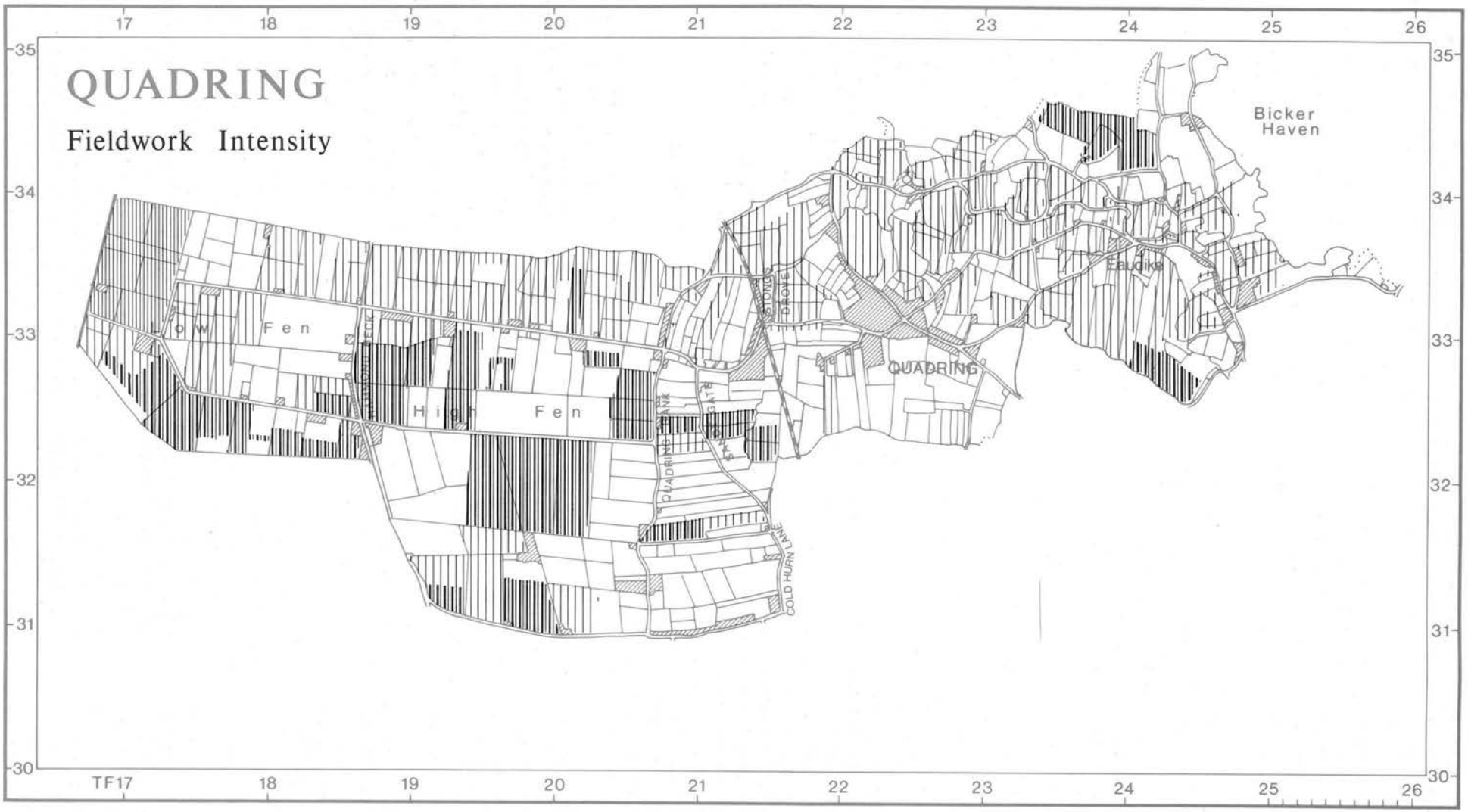

Figure 14 Quadring: Fieldwork Intensity

tion in the area. Results of this and the Transect survey clearly demonstrate that large-scale reconnaissance survey represents a cost-effective and productive method of investigating such areas.

The substantial site QUA 30 is particularly interesting in terms of its location. It occupied a clayey depression within an otherwise generally even tract of silt, though with indistinct roddon traces occasionally visible. The cause of this local pattern of silt deposition is unclear unless a flood defence barrier (of turves?) protected the site from an anticipated inundation.

The pattern of silting in High Fen probably related to the localised activities of the major creeks. Floods which deposited silt in High Fen do not appear to be the result of a general western thrust from the Haven, for areas of the marsh clay surface exist between the Haven and the Hammond Beck. Unpublished maps of the Soil Survey indicate that a broad pattern of major creeks drained from the Donington area south-east towards the southern part of Gosberton.

Bicker Haven itself was the largest of the inlets around this coast. Though it is mostly outside the survey area and therefore largely unexamined it is assumed to be an early estuary of the Rivers Witham and Slea. Its surviving sea banks indicate that it was up to 1.5km wide at Quadring during the Middle Ages. Its western limit during the Roman period has been equated here with the position of the earliest of the visible defences. Quadring's modern parish boundary to the east is along Bicker Creek, the much reduced central channel. In order to place the Haven in a more accurate perspective, and to suggest its Roman extent, the eastern (medieval) bank, in Wigtoft parish, has been outlined in Figure 16.

A mature saltmarsh environment can be suggested for Quadring in the Roman period; one through which flowed tidal creeks of sufficient strength to feed the Billingborough salterns in the early part of the period. It is interesting that no salterns were found in Quadring though there existed obvious access to the Haven. The combination of saline muds and available fuels was apparently not at an optimum here. Instead the economy is likely to have been geared to stock rearing on the grasslands of the mature marshes.

However, on Figure 16 the pattern of scattered Roman potsherds on the silts can be seen to resemble the Late Saxon equivalent which has been used to outline the extent of arable land for that period. Dispersed finds on the silts west of Quadring village create a markedly different distribution pattern from the more discrete groups of finds on sites in the fen and may hint at a different use of land — perhaps even a degree of opportunistic arable agriculture? Such practice is only likely to have been possible on the highest and widest of roddons in the fens. The sherds could, however, represent the first traces appearing of largely buried sites.

Of the surveyed settlements QUA 30 and 34A proved the most prolific in terms of ceramic abundance and variety. QUA 5 also yielded a range of pottery types including samian, mortars, amphorae and white wares. Despite its location, in Donington parish, this Transect site had been allotted a number in the Quadring sequence and is therefore included here. The remaining Transect site from north of the boundary, DON 1, has also been included. It is sited on clayey soils and partly obscured by the railway. This site, along with QUA 10, 29A and 32, yielded one or two tiles. A number of fired clay balls measuring *c.* 5cm diameter was found on QUA 30, 32 and 34A (Fig. 62 Nos 8-11). Examples of these items have previously been found on a number of sites in the area. Their function is not precisely known but they may have served as net weights.

In Quadring Low Fen are two Scheduled Ancient Monuments (Lincs 202 and 203), which are ploughed Roman sites on the major arm of the creek. They have dense cropmarks (Hallam, S.J., 1970 sites 1732, 1733) and correlate with sites QUA 2 and 28.

Together Quadring and Billingborough provide a useful insight into the widespread settlement of the marshes, for these contiguous parishes present a geographical and environmental range not encountered elsewhere on the survey: literally, a transect from the Jurassic Limestone uplands to the Roman 'coast' at Bicker Haven. In all there exists over 10km east to west of ancient marsh fringed by peat fen at its landward edge. Roman settlement extended over most of the area, except on the peat, which attracted only the saltmakers. Settlement traces within a kilometre of the 'coast', and scattered finds within 200m, suggest the real possibility of coastal flood protection — indeed a Roman Bank.

The evidence for this is, of course, circumstantial but, if it did exist, its presence would have gone some way towards accelerating the natural maturing processes of the marsh and introduced an element of environmental stability into a high risk area. If such a construction took place it may imply an element of local organisation but may not necessarily confirm military or imperial control. In some cases the communal efforts of medieval bank builders are recorded as being piece-meal, and they were based on the same necessities as those affecting their Romano-British counterparts.

VI. Early-Middle Saxon

(Fig. 17)

A 7th century date has been suggested by Hallam, H.E., (1954, 4-5) for heavy settlement of the Holland division of Lincolnshire based on 'place names and archaeological evidence', though the latter is unspecified. Survey revealed an interesting pattern of Saxon settlement. The work of Healey (1979, 80-81) had led us to suppose, correctly, that Middle Saxon pottery would be located near the church (QUA A4 and A5) but had not prepared us for the discovery of dispersed settlements of a similar date in the Fen. Many of these Fen sites were discovered on low mounds, which do not appear to have been formed naturally, and on which the surface soil was stained black. Typical finds consisted of abundant animal bones with lesser quantities of pottery and, infrequently, stone objects. Pottery included some shell-tempered Maxey types and some Ipswich-type wares.

QUA 33 in Low Fen is on the silts of the major roddon and represents the most long-lived of the Saxon fen sites so far noted. It has Early and Middle Saxon components which, unlike other sites in the area, are superseded by a Late Saxon phase indicated by finds of Stamford Ware. Its late survival, compared to that of other sites, was due in no small part to its position on the high roddon which offered protection from advancing freshwater influences. Additional finds of lava quern suggest the site was not without a certain wealth or status. Lava quern was also found on a further mounded site QUA 36. QUA 38 represents a classic example of mounding measuring

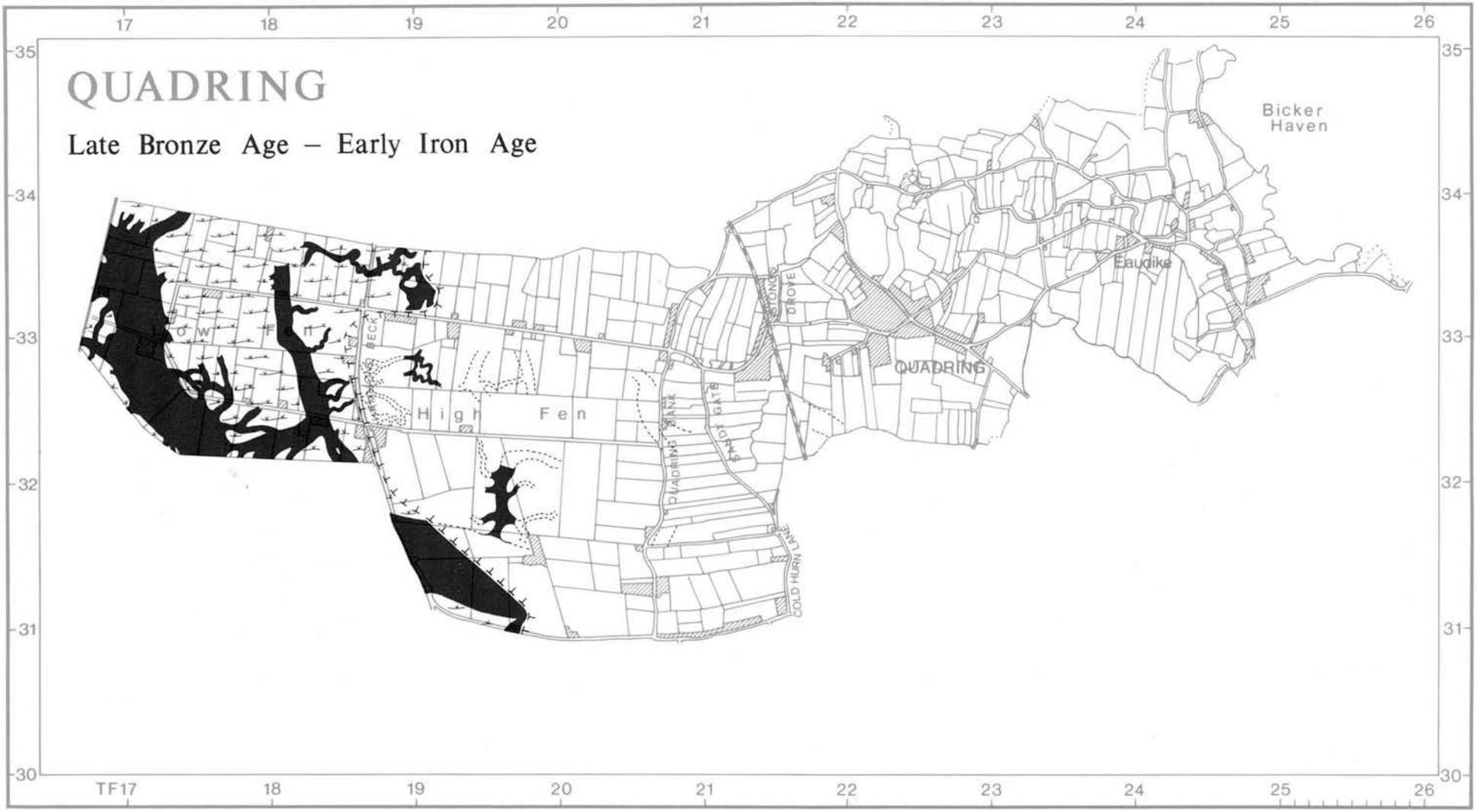

Figure 15 Quadring: Late Bronze Age — Early Iron Age

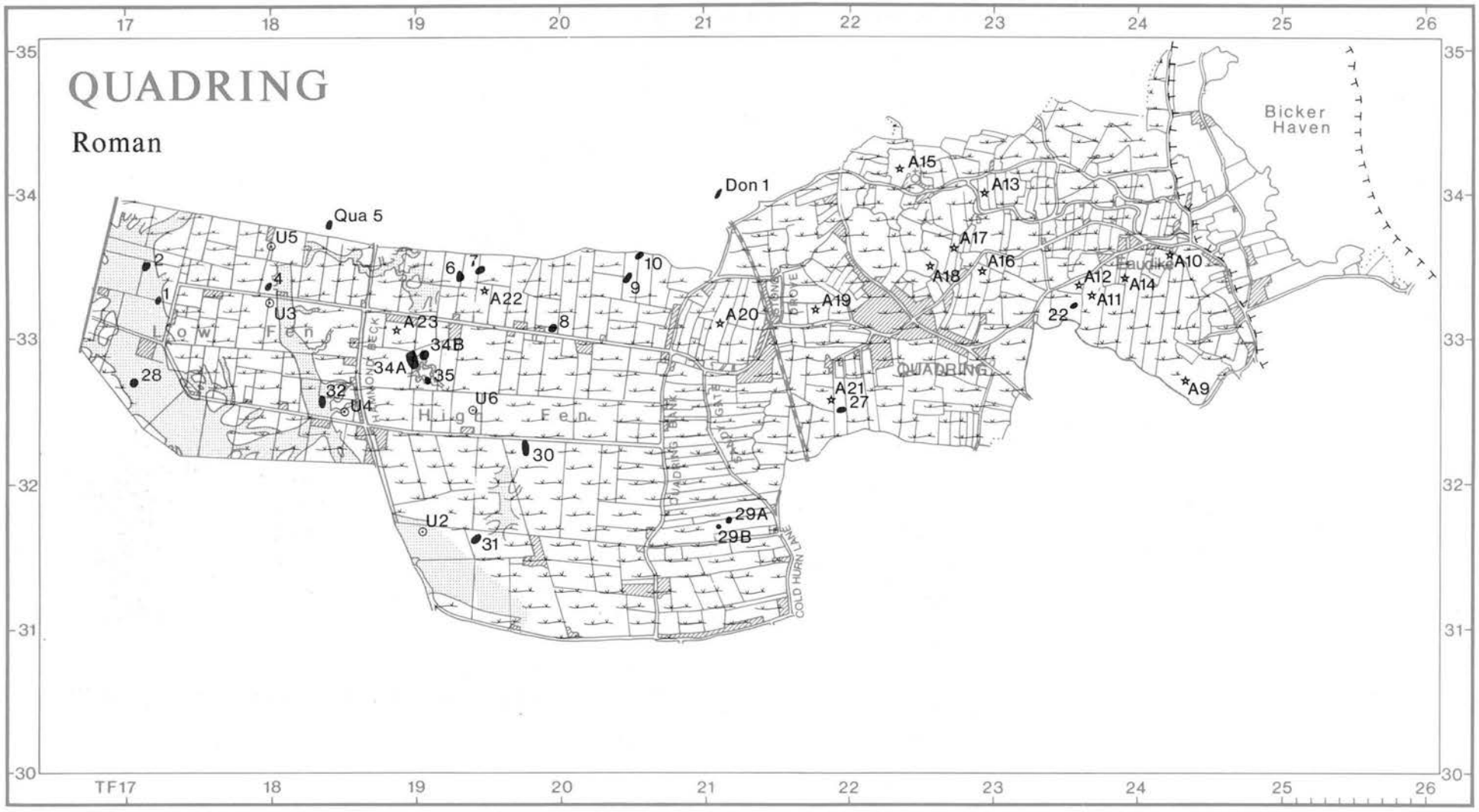

Figure 16 Quadring: Roman

some 35m diameter and over 1m high, and with its dark soil stain, is strikingly obvious from the nearby road.

There are no objective indications as to the nature of the contemporary environment or the junction of fen and marsh during the Saxon period. Unverified limits of the eastward expansion of fen have been placed west of the main zone of sites on the assumption that, like the Romano-British, the Saxons preferred to occupy the somewhat drier, mature salt marsh rather than the watery fens. By inference, mounded sites can be thought of as being created within a potentially flooded landscape. The advancing influence of the freshwater, supplemented by the increased run-off of water from the uplands in the winter months, may have dictated that the sites were only seasonally occupied. The animal bones suggest that cattle, sheep and pigs were kept but the activity of these Saxon settlers remains difficult to assess. No evidence was found to indicate Saxon saltmaking. If it did take place, and if the methods resembled the Roman saltmaking, the sites would probably occupy an equivalent position in the landscape to that of the Roman saltmaking sites, that is, the landward edge of the marsh. However, the salt extraction process had changed by the Late Saxon period when sites were founded on the sheltered coasts and it is possible that these later sites may have been a continuation of a Middle Saxon saltmaking tradition.

Despite a suggestion of elevation on a few Iron Age and Roman sites in the Fen the general mounding of sites in the Middle Saxon period is largely unprecedented and they may, therefore, pinpoint the destination of continental emigrants and represent a form of terp more common in North Germany and the Netherlands (see for example Myers, 1986, 51-2). At present the relationship between the Fen and continental sites is speculative but does emphasise the need for further study in the form of a programme of excavation. Of all the sites, QUA 33, due to its longevity, is a preferred option for such investigation and it could provide both an extended type series of pottery with which finds from other local sites can be compared. Excavation would also afford the important opportunity for palaeoenvironmental investigation to determine, more precisely, contemporary environments and site function.

Prior to the final desertion of QUA 33 the other Middle Saxon sites had been abandoned. Although evidence from pottery is subject to revision a date of *c.* early 9th century has been suggested for this general evacuation (Hayes 1988, 325).

Subsequent settlement seems to have taken on a nucleated pattern of the sort which had earlier created the villages of the fen-edge and uplands. Initial settlement was probably on to the higher silts near the present day church, an area which yielded scattered Middle and Late Saxon sherds.

VII. Late Saxon-Medieval

(Figs 18, 19)

In addition to the results of fieldwork two major sources have been used extensively to establish a perspective of medieval Quadring and its neighbouring parishes. These represent the work of H.E. Hallam who admirably summarised his documentary research in the 1965 publication, and also that of Hilary Healey whose comprehensive knowledge of this area has enabled her to offer a welcomed string of informed opinions.

A succession of protective banks, both seaward and fenward of Quadring village, is clearly visible on the relevant OS 1:10560 maps. Modern roads often run atop the banks which in places, particularly on the fen side, have little surviving elevation. A pre-conquest date was suggested by Hallam, H.E., (1965, 41-2) for a sea bank around the Haven and settlement evidence from the survey confirms that likelihood. In Quadring a second and later sea bank existed some 300m into the Haven.

A Late Saxon influx into the siltland by Scandinavians is testified by place-names (Hallam, H.E., 1954, 6-8 though the place-name for Quadring itself is Old English) but there are no obvious changes to style of pottery or artefactual remains which belie their presence. Scandinavian influence is also marked by the division of the area into Wapentakes. This clearly demonstrates vision and organisation beyond a parochial level and may have added impetus to, or control over, any communal flood protection and reclamation.

Analyses of field scatters collected on this and the Transect surveys reveals an interesting distribution of Late Saxon pottery which was found exclusively on the high silt land between the main Donington road and the Haven. Sherds were found east of the earliest known bank of the Haven near Quadring Eaudike on a high area formed by accreting silts at the mouth of the Mar Lode. Redeposited waste silt from contemporary saltmaking may have been added to the accretions to make a Late Saxon domestic presence possible within the earliest banks of the Haven.The second, more easterly, defensive bank may also have been crucial to the survival of those using the Late Saxon pottery. Discovery of this material suggests the more westerly bank was out of use by the Late Saxon period and that its construction date was indeed early.

Figure 19 shows a distribution of Late Saxon pottery sherds from fields recorded on this and the Transect surveys. Each dot marks the centre of a field or walked area where Late Saxon pottery (in whatever quantity) was present. Clearly the finds respect the line of the modern Donington-Spalding road, an extension of Hargate, which formed the old sea bank south of the Welland outfall. The scattered distribution is consistent with manuring and would suggest that the road marks, in Quadring, the extent of the Late Saxon arable land and, if embanked, may have served as protection from the fen rather than the sea. Its line has been shown as a possible bank on Figure 18. Necessity for such a bank would indicate a rapid deterioration from the conditions which enabled Middle Saxon settlement some 3 or 4km further into the fens. Few of the known medieval fen and sea defences survive as recognisable high banks, and there are many roads and field boundary alignments in the area which, as banks, would appear to be equally as convincing as known surviving examples.

Between Hargate and Quadring Bank, another, intermediate bank can be tentatively suggested with a course along Cold Hurn Lane continuing either north along an alignment of field boundaries or north-west along Sandy Gate. The date of pottery scatters suggests that land between the conjectured bank and the Donington-Spalding road was in arable use by the 13th century. Nevertheless, some sherds from a century or more earlier come from a distinctively shaped area of enclosure, likely to be early, around which Fen Drove appears to have been diverted. Between Sandy Gate and Quadring Bank is a distinct pattern of medieval fields.

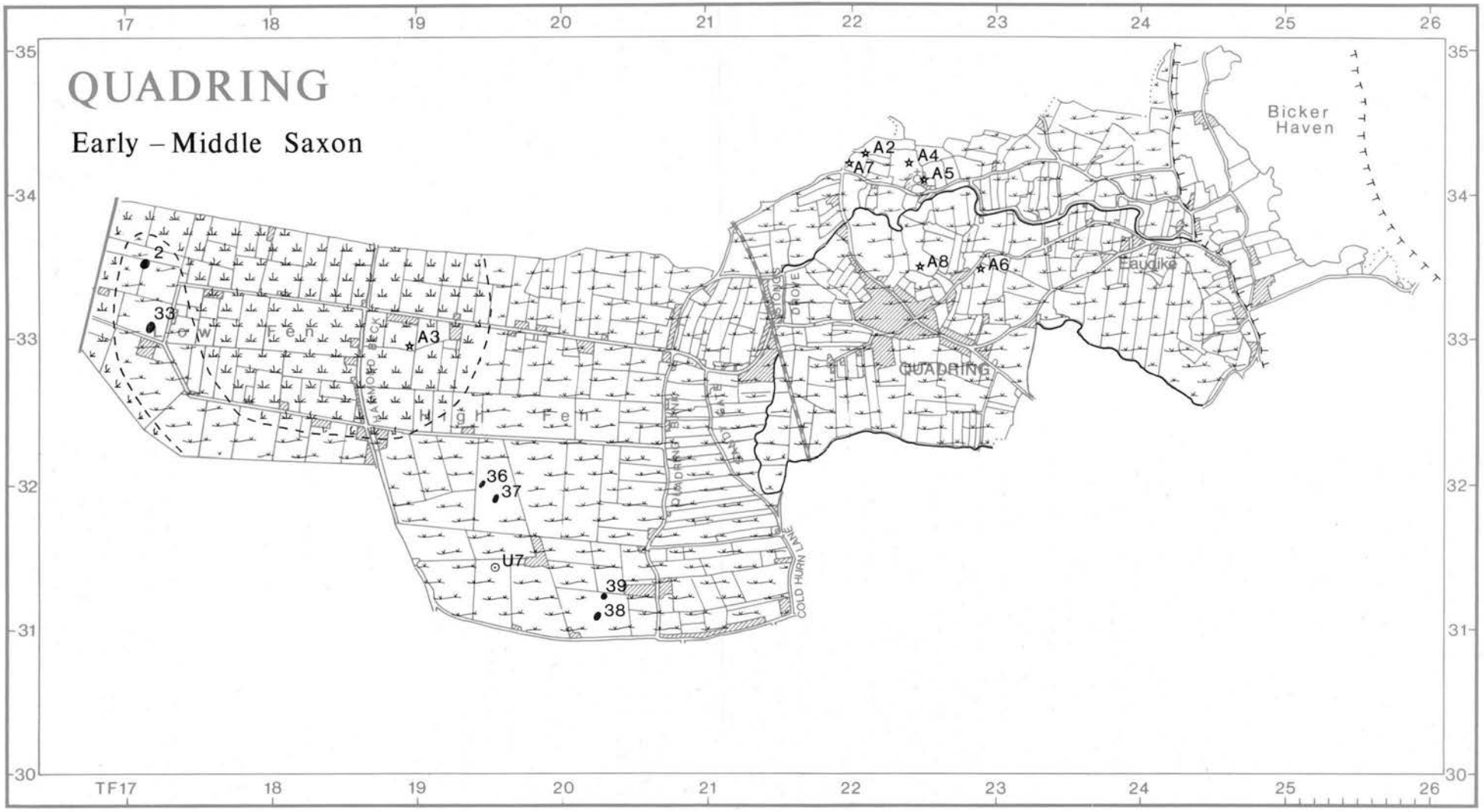

Figure 17 Quadring: Early — Middle Saxon

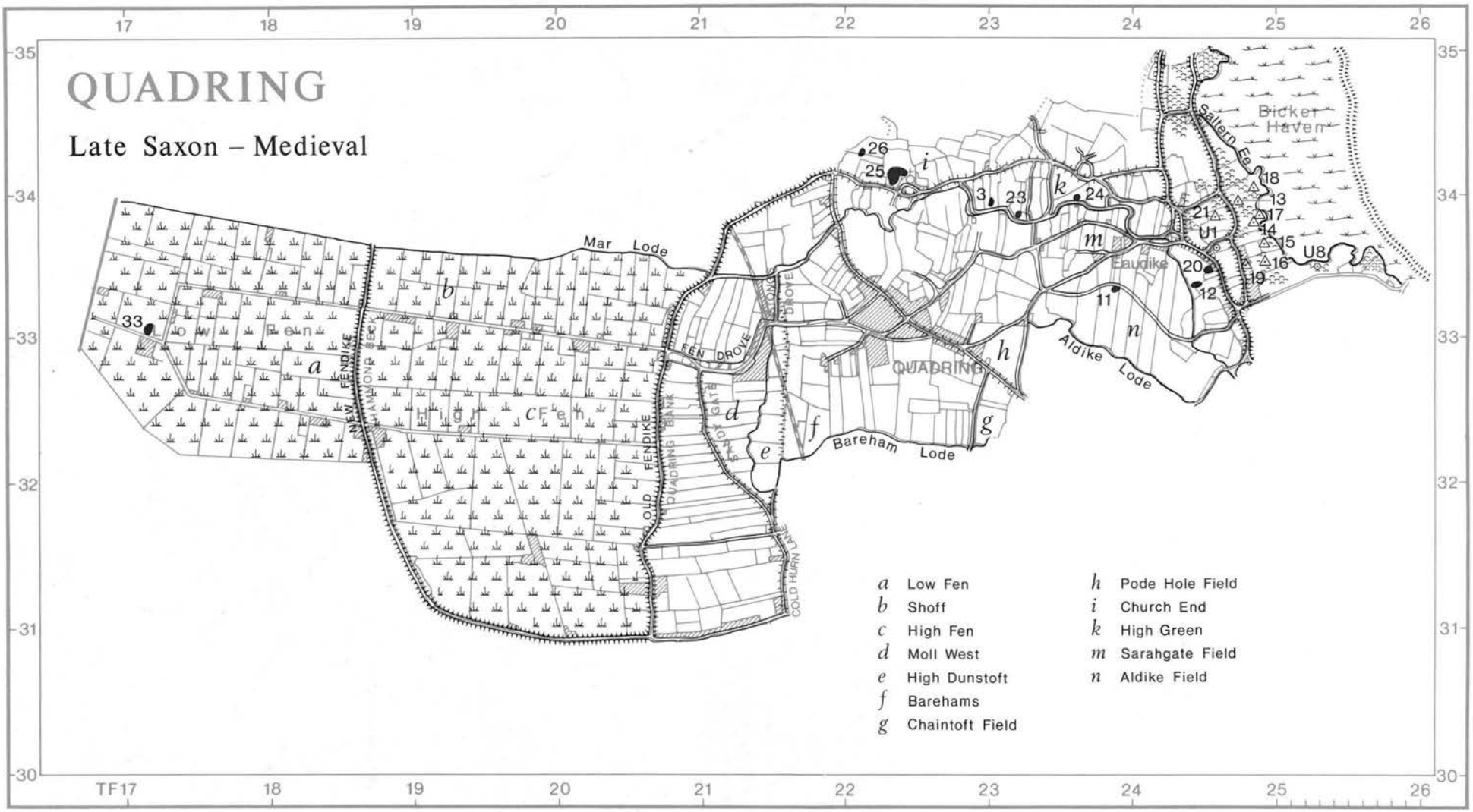

Figure 18 Quadring: Late Saxon — Medieval

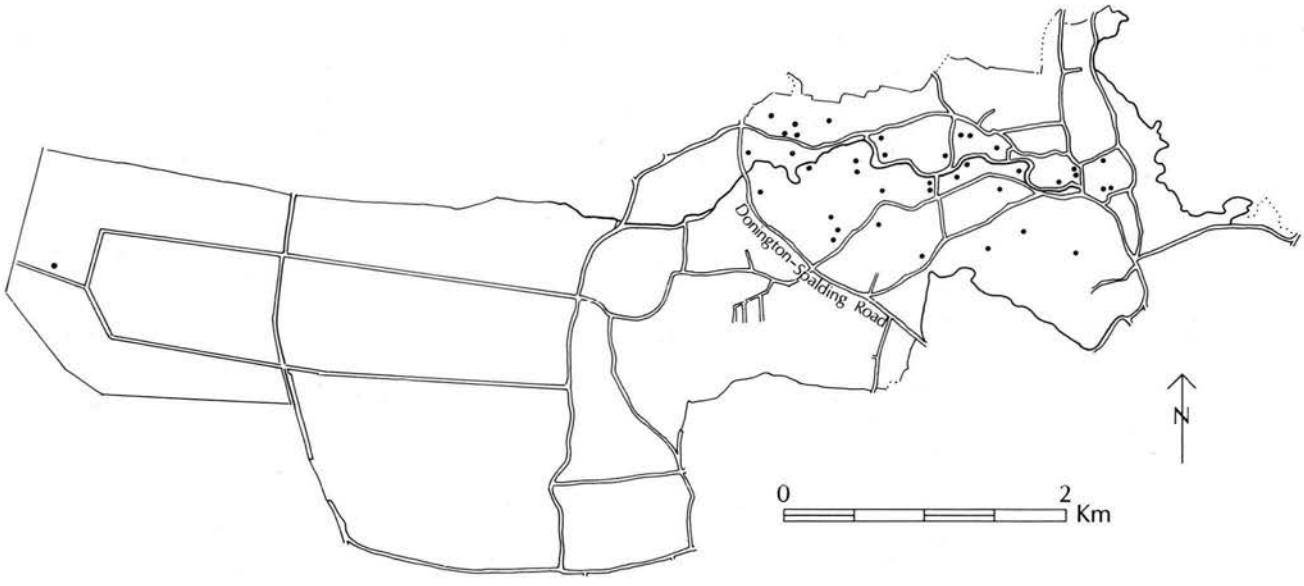

Figure 19 Quadring: Distribution of Late Saxon Pottery

Hallam, H.E., (1965, 51) equates Quadring Bank with the Old Fendike noted in historical sources, and records its earliest appearance in documents as the 13th century, but elsewhere he speculates on a pre-AD 852 date (see Gosberton, p.53). Evidence would suggest this undoubted bank, which protected an area from west of Spalding to Donington, was not formed in one major construction phase and therefore, may not be of one date. Similarly, the 'New Fendike', again with 13th century references, which is on the line of Hammond Beck, is different in character in Quadring from that further south. Scattered finds of medieval pottery, which might suggest arable use of the land, are rare between these two banks.

In the Haven are the spectacular visual remains of the saltmaking industry conducted during the Late Saxon and medieval periods. These consist of mounds up to 3m high created by deposition of waste silt, and are most prominent in Bicker, Donington, Wigtoft and Quadring. The *Domesday Survey* recorded an established industry, centred on the head of the Haven, but with some activity in Quadring (Hallam, H.E., 1960, 87; Healey 1977, 4). The Haven was silting throughout the medieval period and constant accretion forced the salters south, so that by the 14th century Quadring and Gosberton were at the heart of the industry. During levelling of one mound (QUA U8) Healey (1969b, 110) conducted rescue excavations which revealed a pair of peat-fired hearths dated by the finds to the first quarter of the 14th century.

Peat would not have been abundant locally although Healey's field name studies indicate Pit (Peat?) Moor Field existed near to the Mar Lode between the church and the Haven. Large quantities of peat required to service the industry would need to have been imported. Transportation to the coastal sites of peat from the vast resources available in the various 'black' fens is frequently cited in documents.

Certain of the saltern mounds which were designated site numbers on the Transect survey are shown on Figure 18 but not all saltern sites are clearly defined and many take the form of a succession of interconnected mounds. In the Haven such groups of mounds are numerous and their extent has been indicated by stylised small hillocks on Figure 18. They continue across the Haven to Wigtoft bank, which is also shown, but no time was available to map these outside the parishes under study. Pottery, which was found on some of the mounds, does not necessarily relate to the use of the mounds as salterns and cannot aid in establishing their date. Briquetage was not found and evidently the medieval salt extraction equipment differed greatly from that in use during the Iron Age and Roman periods.

During the peak of saltmaking in Quadring mixed arable and livestock farming would have continued between the Haven and the Donington-Spalding road and, as surface finds attest, this expanded towards Quadring Bank. Regular maintenance of the seabanks would have been needed to keep the siltland reasonably free from frequent inundation although it remained a risky environment. As late as the mid-16th century the raising of the banks to 6ft (2m) high was urged 'for the defens of the rage of the saltwater coming and flowing upp within seyd common sewer of Quadring' (Kirkus 1959, 54). The said common sewer was the Saltern Ee, or perhaps the Mar Lode, whose early outlet had accreted forcing the creation of a new, partly artificial, channel which took its waters south to enter the Haven at Lampson's Clough in Gosberton parish.

In contrast to the ridge and furrow cultivation common in the upland parishes of Lincolnshire, the medieval fields on the silts more usually comprised wider, ditched strips called dylings (Hallam, H.E., 1965, 152-4). Very few examples of dylings survive in the silt fens. However, on the Donington boundary north of Quadring church, two fields containing classic examples of the form were recorded. The former extent of dylings in the fens cannot now be ascertained for, on these light and intensively ploughed soils, their traces do not survive either as soilmarks or micro-topographical features.

QUA 23, 24 and 26 are predominantly Late Saxon settlements close to Mar Lode. QUA 25 is the old village

centre around the church and QUA 20 a large site close to the early Mar Lode debouchment at Quadring Eaudike. It has small Late Saxon content but mainly comprises sherds from the 14th century onwards. A date for the foundation of Quadring Eaudike is unknown but Late Saxon sherds have been found around the area. Its long-since demolished chapel (QUA U1) indicates that the hamlet continued as a focus of the settlement into the Middle Ages.

Fen is shown on Figure 18 in its early medieval position west of Quadring Bank though it is possible it may have extended nearer the village in the Late Saxon period. The more westerly bank marks the later medieval limit of fen. The main access from the village, Fen Drove, is depicted on Calcrafts 1776 map of Quadring as a wide road extending west out of the present village before taking a marked detour around the enclosures west of Stongs Drove.

VIII. Conclusion

Initial flooding is thought to have taken place in the Late Bronze Age/Early Iron Age. At the east, in the proximity of the Haven, this may have started earlier. All the area of the parish was turned into an uninhabitable morass characterised by circuitous creeks. Prolonged tidal activity created a build-up of deposits which eventually stabilised to allow colonisation by salt-tolerant plants. Though the creeks remained active, taking tidal water far inland to the saltmakers near Billingborough, settlement on the marsh was established and intensified in the Roman period.

Further flooding, probably of a localised nature, deposited a thin silt over certain of the Roman sites. The dating of this is uncertain and no real gap exists in the archaeological record in which to place the phase comfortably. The general area was inhabited sparsely early in the Saxon period and more abundantly during the Middle Saxon period. Subsequently the area was evacuated in advance of the easterly spread of freshwater fen and perhaps in response to political and social pressures.

Before the Norman Conquest the Haven had been embanked and salt was being manufactured. Land adjacent to the Haven was sufficiently steadfast to support arable agriculture as indicated by manuring scatters of pottery. Embankments protected the area from floods during the Middle Ages. At least one phase of reclamation from the fen had taken place prior to the 13th century. Saltmaking in the Haven was at its peak during the 14th century then subsided as the Haven silted. Agriculture became the prime occupation with stock-rearing on the fens to the west, and arable use of the firm and fertile silts.

4. Pointon and Sempringham

I. Introduction

(Fig. 20)

The parish of Pointon and Sempringham covers 2116 ha (5229 acres) on the fen-edge in South Lincolnshire, about 15km south of Sleaford and 12km north of Bourne. It includes Aslackby Fen, formerly part of Aslackby and Laughton, an adjoining parish on the uplands to the west. The east end of Pointon and Sempringham projects east across the South Forty Foot Drain, which, apart from that single interruption, forms the boundary between the fen-edge parishes of Kesteven and the siltland parishes of Holland.

With the exception of the hamlet of Millthorpe, the modern population is mainly concentrated in the village of Pointon. The number of people living in the fen, and in Millthorpe, has dropped considerably this century, and depopulation and abandonment of houses in the deep fen area continues. Similar changes have taken place in neighbouring parishes. Pointon and Sempringham is in several respects typical of a distinctive group of parishes arranged in a series of west-east strips or bands along the fen margin of South Lincolnshire. In this case the parish (in its modern form) extends nearly 9km from the upland (in the west) to the edge of the silt in the east, but with a north-south distance of only 2-3km. Each strip-shaped parish includes within its boundaries the three principal environmental zones: upland, fen-edge and fen.

The easily observable relationship between the shapes and boundaries of the parishes and the major landscape divisions underlines the importance of relating the archaeology of these Fenland parishes to their environmental contexts, a fundamental aspect of the approach adopted by the Fenland Survey. Change is an important element in this relationship between people and their environment. The abundant evidence of changes in settlement patterns and land use in the Fens and on the margin, such as deserted medieval villages and frequent transfers of land between parishes, emphasises that the silt and clay fens have been areas of almost continuous change. Even as late as the post-medieval period new land has been created or has undergone changes so fundamental as to destroy old patterns of land use and offer new opportunities to the inhabitants.

There is every reason to suppose that environmental and economic instability was a characteristic of the area from at least the middle of the Bronze Age until medieval times. One of the interesting conclusions which may be drawn from comparison of the various parish essays is that although change is a common feature, the periods of prosperity and change vary between parishes, certainly between fen-edge and silt parishes but, more surprisingly, between northern and southern parishes. However, the inhabitants of the area were not always passive creatures, dominated by their environment. Often they were faced with several options, and the course of action they chose can be revealing. Pointon and Sempringham will emerge as a rich but fairly typical example of a fen-edge parish in the northern part of the survey area.

The history of the parish is, however, complicated by a unique event. In the middle of the twelfth century St Gilbert of Sempringham founded the only wholly English religious order, the Gilbertines, and within a century a flourishing priory stood next to the village of Sempringham. Today only the village church survives. The village, priory and an uncompleted hall which replaced the priory, have all been abandoned and levelled at one time or another.

II. Topography

On the west towards Aslackby, the upland, capped by boulder clay, reaches a maximum height of about 45m (150ft) above sea-level, but is generally rather lower, having been dissected by the precursors of streams flowing down to the Fens. Sempringham occupied the head of the valley of the principal stream, the Marse Dike, which has its source in the Jurassic rocks beneath boulder clay on the uplands to the west. The Priory took advantage of the plentiful supply of clear, fast-flowing water by constructing fishponds, the remains of which are still visible as earthworks. A smaller stream runs out into the Fens near Millthorpe.

In the western part of the parish there is an extensive surface deposit of chalky till, giving rise to soils of the Ragdale Association (Hodge *et al* 1984, 293-296). Along the sides of the stream valleys various Jurassic deposits (Oxford clay, Kellaway's Clay and Sand, and Cornbrash) are exposed in narrow bands (less than 250m wide), giving rise to a variety of soils, especially those in the Denchworth Association (Hodge *et al* 1984, 155-158). The boulder clay and Jurassic deposits dip gradually eastwards. Springs are common where the upland deposits meet the fen margin gravel, at around 15m OD. The gravel continues the low-angle dipslope eastward for about 1.5km. There is scarcely any change in gradient to mark the transition from the slightly sandy, loamy-clay soil of the fen margin to the slightly silty, stiff, clay soil of the Fens.

Aslackby Fen proved to be particularly interesting. It is unfortunate that problems over access during the pheasant-shooting season reduced the area which could be surveyed before the cereal crop became too tall. Aslackby Fen was found to contain a number of 'islands', more or less at the same height as the surrounding marine alluvium. These small islands varied from boulder clay to sand (sometimes silt) and are part of the prehistoric land surface. They appear to be the northern edge of a partially buried promontory of the old land surface which juts into the Fens. Other parts are visible in Dowsby, Rippingale and Pinchbeck North Fen (east of the South Forty Foot Drain). Although it cannot have been very high this former ridge seems to have been a significant landscape feature in prehistory. The Hoe Hills barrow cemetery (mainly in Dowsby) marks its junction with the fen margin gravel.

Clay soils, locally humose, cover the marine alluvium in these Fens. The alluvial clay is slightly silty and contains a dendritic network of roddons, former creeks, which are often higher than the clay. On the roddons the soil is often loamy and better drained, because of the silt which lies just under the surface. The modern surface of the Fen is around 2m OD but the roddons can be a metre

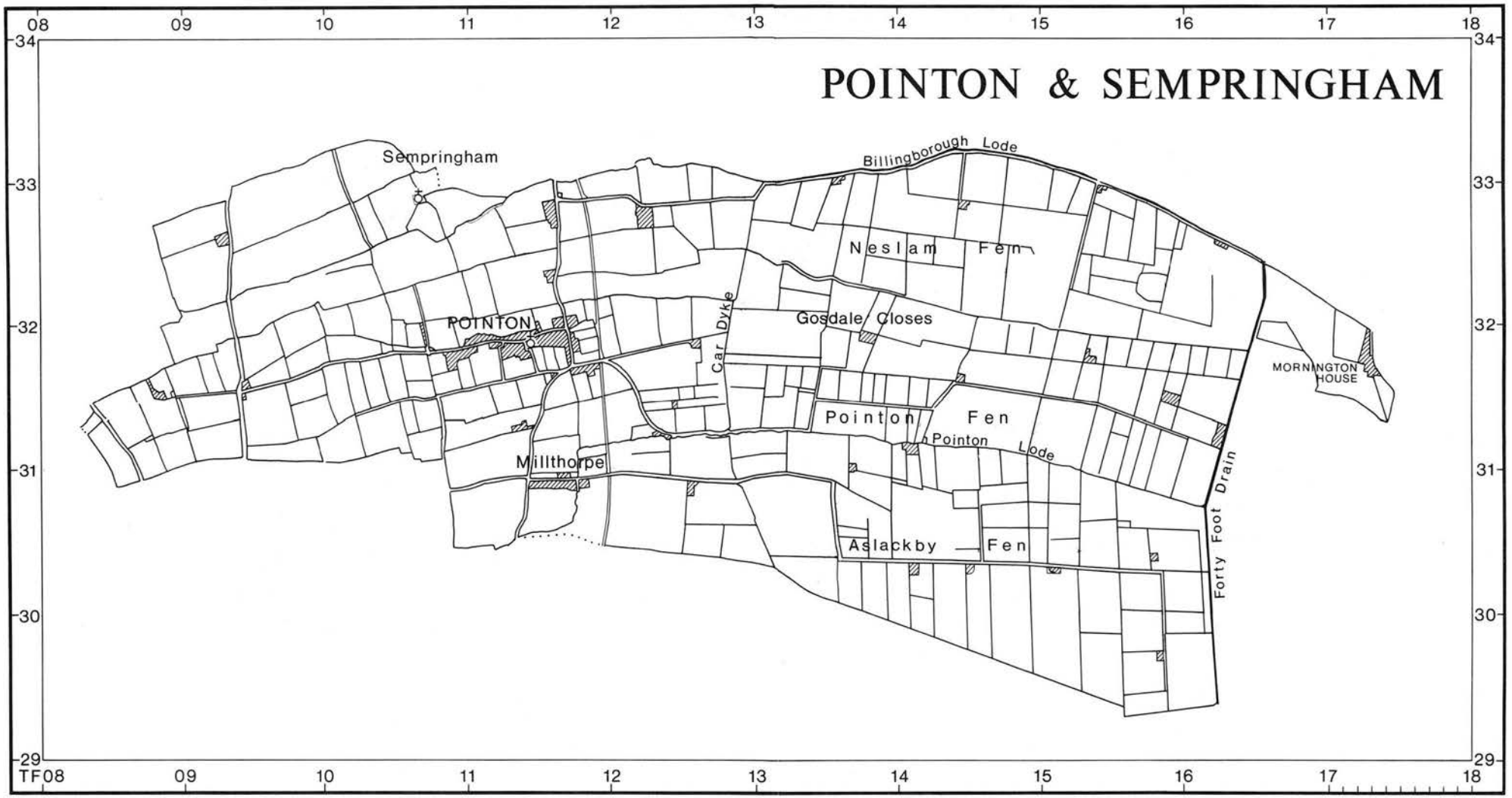

Figure 20 Pointon & Sempringham: The modern landscape Scale 1:40,000

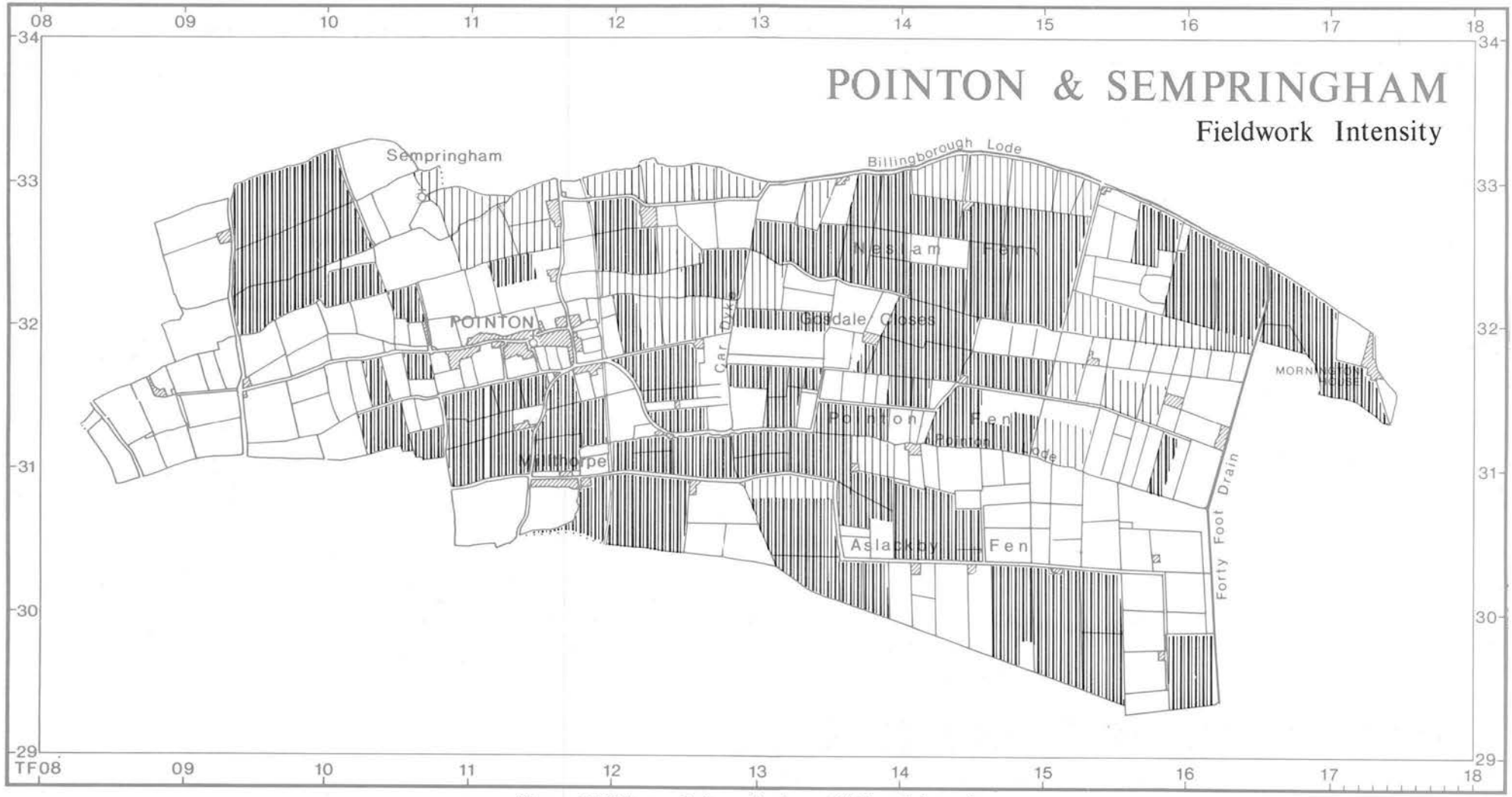

Figure 21 Pointon & Sempringham: Fieldwork intensity

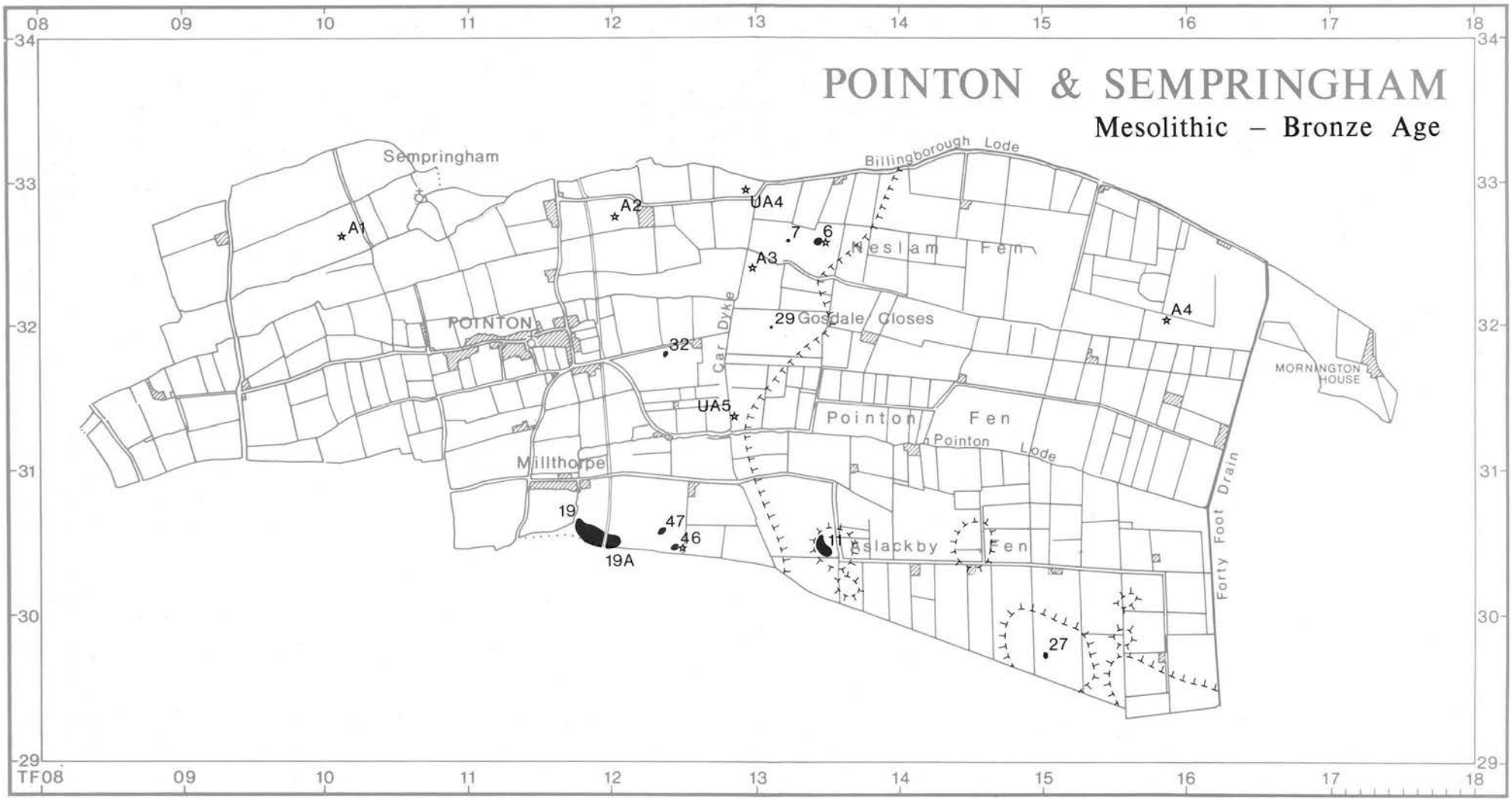

Figure 22 Pointon & Sempringham: Mesolithic—Bronze Age

or so higher. No peat was observed on the surface, but the 1886 Geological Map shows peat immediately east of the fen edge, where the soils tend to be darker and more humose.

III. Fieldwork

(Fig. 21)

Survey work in the parish involved both Field Officers and was carried out in the first season. A few fields on the northern boundary had recently been surveyed by the South Lincolnshire Archaeological Unit and were not re-surveyed (see chapter 2 for further details). Relevant information from that survey has been incorporated in this report, including details of sites POI 1-3 in the gazetteer. The fields have been treated as Class 3 on Figure 21.

A reasonable proportion of the surface was surveyed. The far west of the parish was excluded, and other parts of the upland and gravel could not be surveyed for various reasons, including the presence of grassland and other unsuitable crops. The main omission in the Fen was in the south-east, where there were problems over access to two farms.

IV. Mesolithic-Bronze Age

(Figs 22, 23)

There is no clear evidence for Palaeolithic, Mesolithic or earlier Neolithic activity in the survey area. Nearly half of the land surface dating to this period is no longer visible, being covered by up to 4m of marine alluvium, but as far as the fen margin and upland are concerned the negative results are consistent with those in nearly all parishes and there is no reason to suppose that sites of any significance occur there. It has been assumed that the isolated find on the fen-edge (A3 on Figure 22) illustrated on Figure 23, No.1, is later Neolithic. During the survey the Field Officers were shown a pierced-stone artefact (UA5) found close to the Car Dyke. While resembling a Mesolithic macehead it could well be an Early Bronze Age shaft-hole implement. Flints found on the fen island in the south-east (POI 27) may be Neolithic but there are too few for precise dating. The larger scatters of flint (POI 11 and 19) do not contain many blades and seem likely to be mainly Late Neolithic or Early Bronze Age. However, they contain some small cores with blade scars which could be earlier.

The most striking feature of the lithics is that five pieces of Group VI polished stone axes were found—the highest number in any of the survey parishes. From west to east on Figure 22, they were found at A1, A2, sites 46 and 6, and at A4, far out in the Fen. The last (half an axe) was found on top of the marine alluvium. The axe fragment lay beside a dyke in a field that is bounded on two sides by deep drains and has a pumping station in one corner. Engineering or drainage work in connection with any of these may have brought the axe to the surface from the prehistoric soil buried beneath the marine alluvium. It is worth noting that an axe made from rock resembling jadeite was found by the survey in Gosberton parish and a Group XX stone implement was found on a site in Pinchbeck North Fen (PIK 11). Both of those stone artefacts were also found in fields next to the South Forty Foot Drain, so there is no necessity for the axe fragment to be dismissed as a modern import.

No Neolithic pottery was found in the parish and the only Earlier Bronze Age pottery (probably 2250-1850 BC) came from site 46. Since virtually no Neolithic pottery was found in the whole of the South Lincolnshire survey area, the permanent population may have been very low at that time. Seasonal visitors could easily account for the small numbers of flint artefacts. On the other hand the absence of pottery may be the result of destruction through ploughing and weathering. In the case of Early Bronze Age pottery, however, the scarcity in this parish may have been genuine, because pottery of that age was found further south and also along the northern fen margin. Later Bronze Age pottery (1850-1000 BC), on the other hand, is widespread. It was found on sites 6, 7, 11, 29, 31, 32, 46, 48 and 50.

Given the incomplete nature of the evidence it is difficult to draw many conclusions about the period from the Mesolithic to the Bronze Age. However, by putting all the information together, it is possible to suggest with reasonable confidence that there was little or no settlement in the area during Mesolithic and earlier Neolithic times. Evidence of human activity becomes more common in the Late Neolithic and Early Bronze Age, though mainly in the form of flint scatters and axe fragments rather than pottery. People frequented the southern part of the fen margin and the ridge, now buried, which extended into the Fens. Perhaps this was the first real phase of clearance of woodland. By the Middle Bronze Age farming settlements seem to have been established; the cropmark, pottery and locational evidence suggests that they resembled the excavated site on the fen margin in Billingborough (BIL 2, Phase 1). The soils on the fen margin gravel seem to have been the most favoured location. The Middle Bronze Age sites are slightly further east, closer to the marine alluvium, than later settlements (Roman to medieval). Figure 22 shows the approximate limit of the marine alluvium. Sites such as 6 and 7 are in a transitional zone where shallow alluvium has been mixed with gravel soil by ploughing.

Flint tools

(Fig.23)

1. **Laurel leaf point?** Bifacially worked. Orange/brown patination on black flint. Pointon and Sempringham (A3 in gazetteer).
2. **Projectile point**. Bifacially worked. Black/brown flint with some cortex remaining. Pinchbeck (PIK 11).
3. **Plano-convex knife?** Worked at top and bottom. Grey/black flint with some cortex remaining. Crowland (TF 345 104).
4. **Incomplete pointed flint tool**. Knife? Retouch along sides and at point. Black/brown flint. Pointon and Sempringham (TF 110 310)
5. **Broken projectile point**. Retouch along sides and point. Grey/black burnt flint. Crowland (TF 2345 0967).
6. **Broken projectile point**. Probably leaf-shaped. Black flint. Thurlby (A3).
7. **Projectile point**. Leaf shaped. Bifacially worked. Black flint. Morton (A10).
8. **Broken bifacially worked flint tool**. Black flint. Morton (TF 120 230).
9. **Tanged projectile point**. White patinated. Dunsby (DUN 2).

V. Early and Middle Iron Age

(Fig. 24)

No sherds dating to the Late Bronze Age/Early Iron Age (1000-400 BC) were found by the survey. A similar sharp decline in the evidence of human activity is repeated all

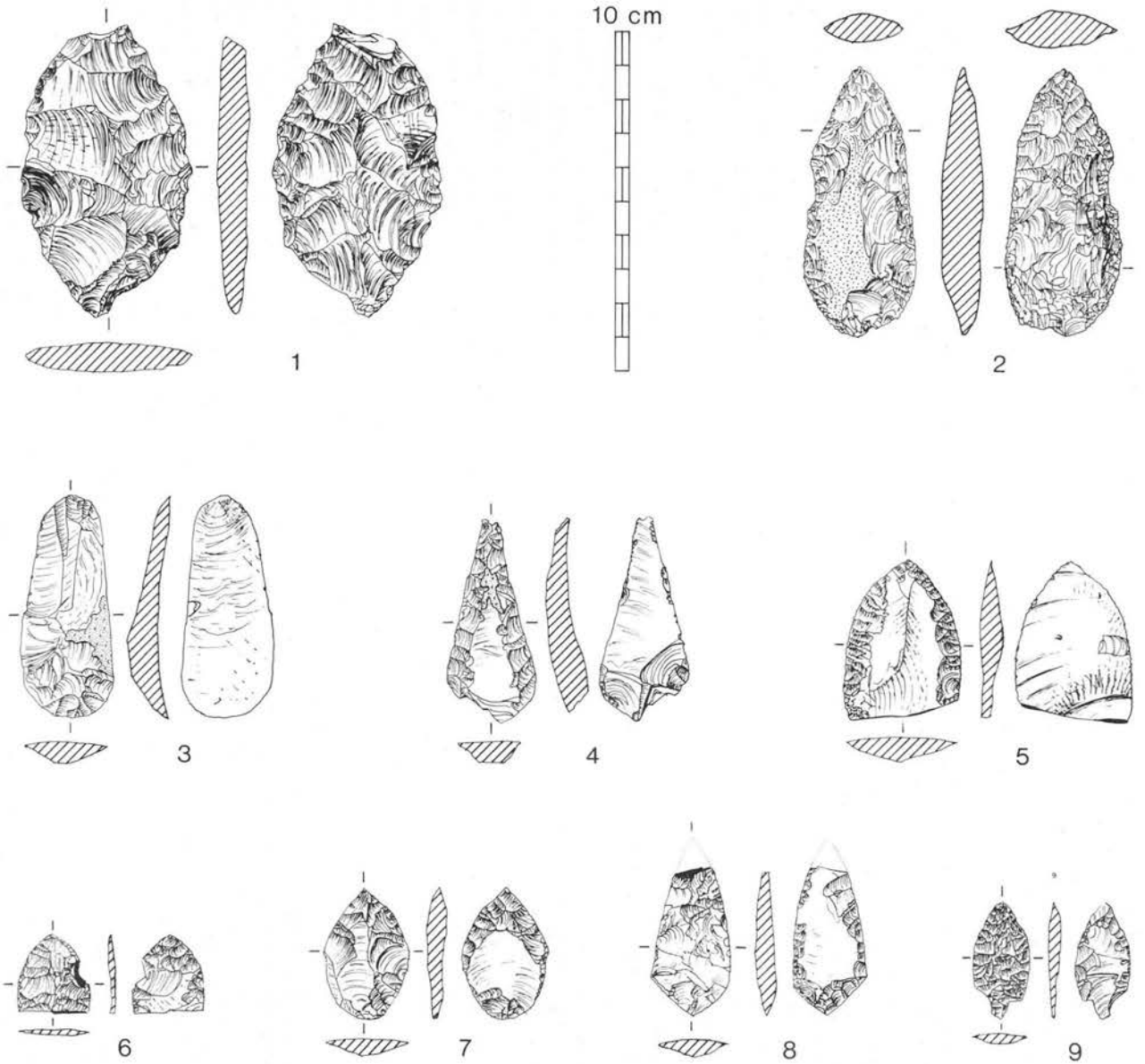

Figure 23 Pointon & Sempringham: Flint tools 1. POI A3; 2. PIK 11; 3. CRO f/c 31; 4. POI f/c 55; 5. CRO f/c 4; 6. THU A3; 7. MOR A10; 8. MOR f/c 15; 9. DUN 2

along this part of the fen margin, though a few sherds were found in the neighbouring parishes of Billingborough and Dowsby. The archaeological evidence points to this period as the time when tidal waters reached the edge of the gravel. Although it did not happen overnight, it was, in human terms, an ecological disaster unparalleled since the last Ice Age. Mudflats and saltmarshes covered the old land surface east of the gravel and a complex pattern of creeks came into being. Bronze Age settlements on the gravel were not buried by marine clay, but even if they escaped the worst of the flooding, they seem to have been abandoned. Perhaps saltwater, seeping into the gravel and moving up the streams at high tide, ruined the water supply.

The marine inundation initiated a series of natural processes which led to the development of vast saltmarshes east of the gravel. As they matured the saltmarshes became a valuable resource. The upper marshes could be grazed by flocks and herds belonging to settlers along the gravel, and other parts of the marshes provided food in the form of fish, wild fowl and shellfish. Reeds would have started to grow along the edges of the gravel and the islands, precursors of the next major change, the development of freshwater fen on top of the marsh.

That was the situation around the middle of the Iron Age portrayed in Figure 24. Although the evidence consists of only a few sherds, it seems likely that small settlements were established along the gravel (43, 50, 30, 31, 49 and 48), on sites that were occupied in the Roman period. Farming had presumably been resumed, but the huge new grazing resource of the marsh is unlikely to have been ignored, even if it was still too wet to settle. Some advances were made onto the marsh, perhaps around 150 BC. Sites 25 and 26 are salterns well out in the marsh but on, or close to, islands. Middle Iron Age sherds were found on the saltern site 25. Site 26 nearby (see Figure 25) has similar briquetage and may date to the Middle Iron Age but no positive dating evidence was found. The 'islands' were not significantly higher than the surrounding marsh but they may have supported different vegetation and thus have provided a source of fuel (peat or wood) for the fires needed for evaporating brine. Also connected with the chain of 'islands' marking the buried ridge (discussed earlier), site 12 marks the first move towards settling in the fen; a group of sites developed there in the early part of the Roman period. It is not clear whether site 12 was a normal settlement or whether it was connected with saltmaking; some fired clay was found, but not enough to suggest a saltern.

VI. Late Iron Age—Roman
(Fig. 25)

Late Iron Age pottery (150 BC-AD 100) is curiously scarce throughout the South Lincolnshire survey area. Lane (1988, 318-320) has doubted whether the pottery evidence accurately reflects the pattern of human activity in this period. It seems too great a coincidence that all the known Middle Iron Age sites were re-occupied in Roman times, at least 250 years later, and that saltmaking was resumed after an interruption lasting a quarter of a millennium. It is tempting to think that some of the undifferentiated prehistoric sherds, and perhaps some 'Roman' and 'Middle Iron Age' pottery, actually dates to the Late Iron Age but is unrecognisable. There is undoubtedly a complete absence of the fine, often decorated, Late Iron Age wares found on certain upland sites, such as Old Sleaford, but their absence is not conclusive because they may have been confined to a class of site not found in the Fens. Unfortunately, the shell-tempered coarsewares of the Iron Age and Roman periods have very similar fabrics and there seems to have been a strongly conservative pottery tradition in these wares. Rims and some decorated pieces are distinctive but few were found. Having noted the unreliability of the evidence, it remains possible that the marshes were abandoned in this period, or were used in ways which have not left any archaeological evidence. On present knowledge, only site 43 (Figure 25) was definitely occupied in the Late Iron Age.

The Roman period saw a great expansion of settlement. There are four times as many Roman settlement sites as Middle Iron Age, and the number of salterns increases five-fold. Salterns and settlements are geographically separated, as in Billingborough Fen. There are some upland settlements, but many more along the fen margin gravel. Between the settlements on the fen margin and those on the marshes at the east end of the parish there was a zone almost entirely devoted to saltmaking. The exceptions to this pattern are the group, referred to above, which grew up near the chain of small 'islands' marking the buried ridge on the Dowsby border (sites 10-15), and the nearby site 24, which is also close to an island. The smaller islands are not shown on Figure 25 but may be seen by referring to Figure 22.

The largest settlements, those at which more than 200 sherds were collected on a single visit, are sites 31 and 50 on the fen margin, 13 and 15 on the islands and, in the north-east marshes, 18 and 41. All three environments (fen-edge, islands and marsh) seem likely to have been occupied in the Late Iron Age/Early Roman period, though the evidence is certainly not plentiful. Colonisation of the marsh was not a gradual movement eastwards, following a retreating sea. Instead there was an almost instantaneous leap to the prime sites accompanied or followed by infilling of less desirable locations. Precise dating of the settlement process is impossible on present evidence. Most sites had pottery which is predominantly undatable or falls into several broad categories and so could span the entire Roman period. Four sites had pottery indicating 'Late' occupation but no 'Early' indicators: 3, 30, 22 and 45. Two sites had only 'Early' indicators: 10 and 21. In short, on the evidence of the few sherds which can reliably be used as chronological indicators, there is no sign that settlement developed first in any of the three main areas (fen-edge, islands, silt-edge). However, there are indications that wealth was not evenly spread, and that the relative wealth of the three areas changed during the Roman period in a way which can be related to changes observable in the other parishes considered in this volume.

One striking feature is that the inner fen sites near the 'islands' in Aslackby Fen (10-15 and 28) seem very prosperous in the earlier part of the Roman period; samian and earlier grey ware sherds were unusually common and a possible hypocaust tile was found at POI 15. In contrast, that group's share of later wares (especially colour-coated) is rather low. Some of the sites at the east end of the parish, nearest to the silts of Gosberton, also have an abundance of samian (17, 18), but samian is less common on the fen margin. In later Roman times there was a general decline in prosperity (assuming that

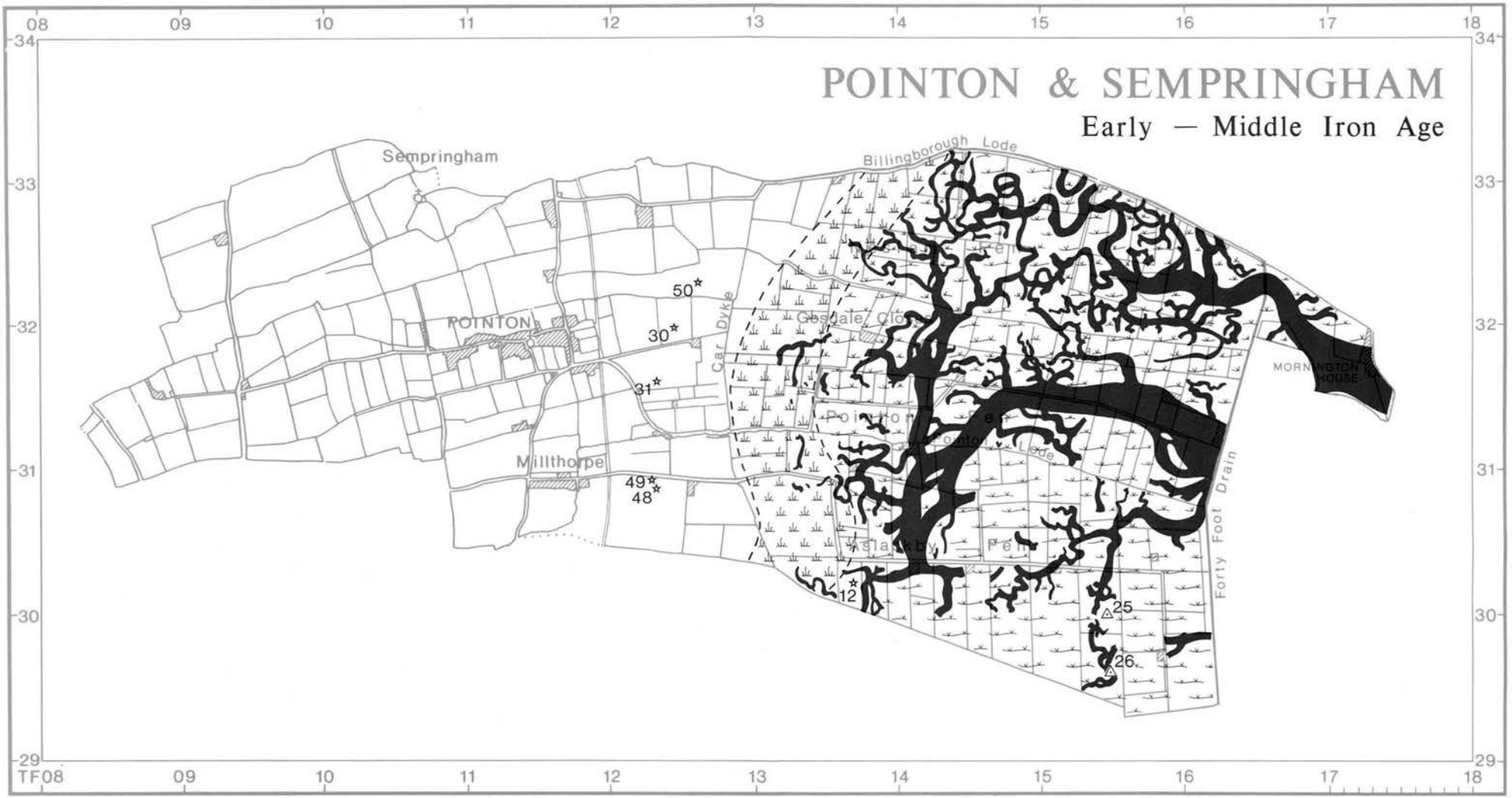

Figure 24 Pointon & Sempringham: Early — Middle Iron Age

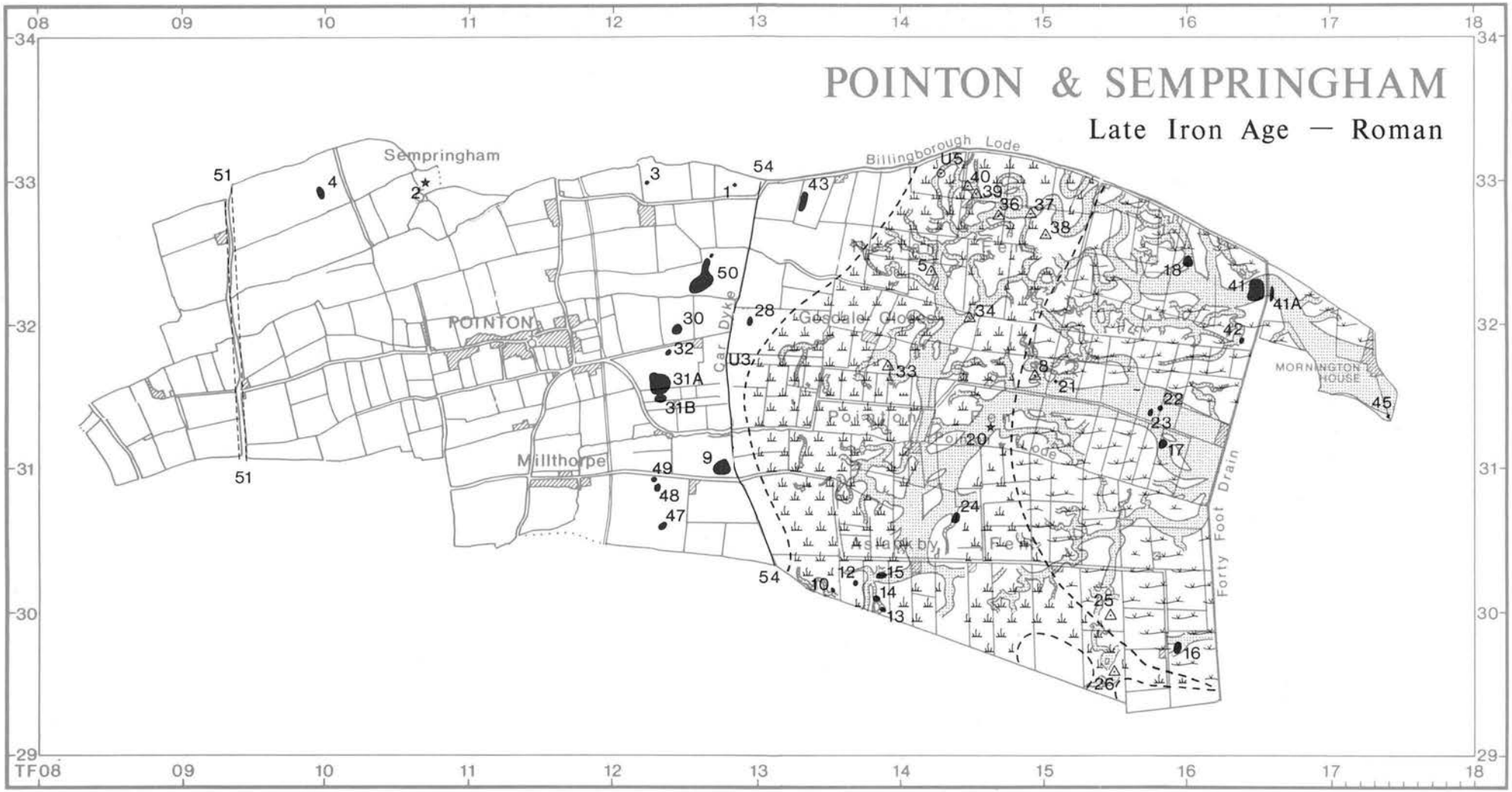

Figure 25 Pointon & Sempringham: Late Iron Age — Roman

prosperity is reflected in the quantity of pottery, especially colour coated wares). Individual sites continued but they do not appear to have been rich. For example, 'rich' sites in Gosberton and Quadring, on the silts to the east, have over 200 sherds of colour-coat, whereas the highest totals in Pointon and Sempringham are 124, 41, 40 and 35 (sites 41, 9, 15 and 45). Site 41 on the silt-edge is the only one which had anything approaching the quantity of pottery found on sites in the silt fens.

The Roman sites in Pointon and Sempringham, like those in Billingborough, seem to have been less prone to large fluctuations in prosperity during the Roman period compared with parishes to the south and east. It is true that one can detect evidence of the usual pattern (less ceramic wealth on the fen margin, a peak in prosperity in the earlier period among sites in the inner marshes, a preponderance of later colour-coated wares near the silts to the east) but the changes appear to be muted. Whether this was due to, or at least influenced by, a slightly more stable environment in the parish remains an open question.

Eleven salterns were found in the parish, and others are known to exist in unsurveyed areas (U6). These occupy a zone between the fen-edge and the silt-edge settlements. They show some variety in briquetage fabric and their dating remains problematical because of a lack of pottery on the sites and the lack of chronological evidence from excavations. Even site 25, which has Iron Age pottery on it, also has one or two sherds which are probably Roman. It is possible that sites such as 34 and 37 were in use in the Late Iron Age, but in general the most likely interpretation is that almost all the salterns were in use in the Roman period, though possibly only in the earlier part.

The ultimate fate of the Roman settlements is obscure. A coin hoard found at site 31 (identified and dated by A.J. White, Lincoln Museum) was probably buried just before AD 335, perhaps at a time of crisis. But it is possible that some sites, such as POI 41 on the silt-edge, continued to prosper well into the fourth century. What does appear to be clear, as in all the parishes, is that few, if any, of the Roman sites were occupied in the Early Saxon period. Only one Saxon sherd was found on site 41 and that could be either Early or Middle Saxon. It is extraordinary that such a well-located site, close to a cluster of Saxon sites to the east, and with evidence of prolonged Roman and medieval occupation, should be lacking in Saxon pottery. Elsewhere in the parish, POI 1 is the only Roman site which might have been occupied in the Early Saxon period, though not one of the three possible sherds is definitely Early Saxon.

VII. Early and Middle Saxon

(Fig. 26)

Although scarcely any Early Saxon sherds were found on Roman sites, they are not scarce in some other parts of the parish. The 253 sherds (some stamped) found on site POI 19 are all likely to be Early Saxon. This 'site' probably consists of several overlapping concentrations. It is part of the Hoe Hills complex, an area (mostly in Dowsby) containing prehistoric barrows and Saxon sites. It is not certain whether the pottery from the POI 19 is domestic or funerary. Some of the Saxon sites in the complex (in Dowsby) are readily acceptable as locations of settlements because they have distinct soilmarks, of the usual size, with fragments of pottery and animal bone that are normal in both quantity and appearance. Although POI 19 is more problematical, it probably indicates the presence of one or more settlements; the absence of grave goods and of large numbers of decorated sherds makes it unlikely to be the site of an Early Saxon cemetery. If POI 19 and its neighbours in Dowsby do represent settlements, they constitute an unusually large concentration, an Early Saxon hamlet or small village. Dispersed settlement sites, marked by a sparse scatter of Early Saxon sherds, are more usual. POI 35 and POI 44 are more typical.

The sites of Sempringham Priory and the deserted medieval village there have, in the past, attracted much attention from fieldwalkers. Early Saxon stamped sherds are recorded from the priory site (UA1), and part of a brooch was found at UA2. One Early Saxon sherd is known from the village east of the church (UA3). The collection from site 2, north of the church, includes definite Middle Saxon (Maxey type) and Late Saxon material, but nothing that is clearly Early.

To sum up, the picture for this period is sketchier than for the Roman and medieval, but some features are apparent and others can be clarified by excavation. The eastern part of the parish was abandoned. It may have been used but there are no settlements. The influence of the sea dwindled and true fen spread over the surface of the former marshes. Settlement even retreated somewhat on the gravel, away from the fen edge towards, and onto, the upland.

Taking into account the evidence from other parishes, small, scattered farmsteads are certainly characteristic of the Early Saxon period. However, it is possible that larger settlements, perhaps even villages, also existed but were not found because present-day villages occupy the same sites. POI 19 and the Hoe Hills complex have been noted as possible exceptions, along with site 24 at Thurlby (Fig. 97). The deserted priory and village at Sempringham may be another. The close spacing of finds in the vicinity of the priory, hint at the possibility of a nucleated Early Saxon settlement.

Whatever the position in the Early Saxon period, a village must have been in existence at Sempringham by Middle Saxon times (AD 650). Middle Saxon pottery is scarce on the fen margin and uplands, in marked contrast to the situation in most of the silt fens. It has been argued that the abandonment of the scattered Early Saxon farmsteads was connected with conquest of the fen-margin by the kingdom of Mercia soon after AD 600 (Hayes 1988, 323-325). Movement of the entire population into villages (pre-existing or specially built) could be an expression of authority, or of group identity, or it might be undertaken for administrative convenience, or as a consequence of change in land tenure. No matter what the reason, nucleation of settlement seems to be the best explanation for the absence of Middle Saxon sites on the fen margin and uplands. Sempringham is one of the few places where this could be tested by excavation.

VIII. Late Saxon—Medieval

(Fig. 27)

Sempringham, mentioned in the *Cartularium Saxonicum*, was in existence by AD 852 (Ekwall 1960, 412). Both Pointon and Sempringham are mentioned in the *Domesday Book* (1086) and they were the principal centres of

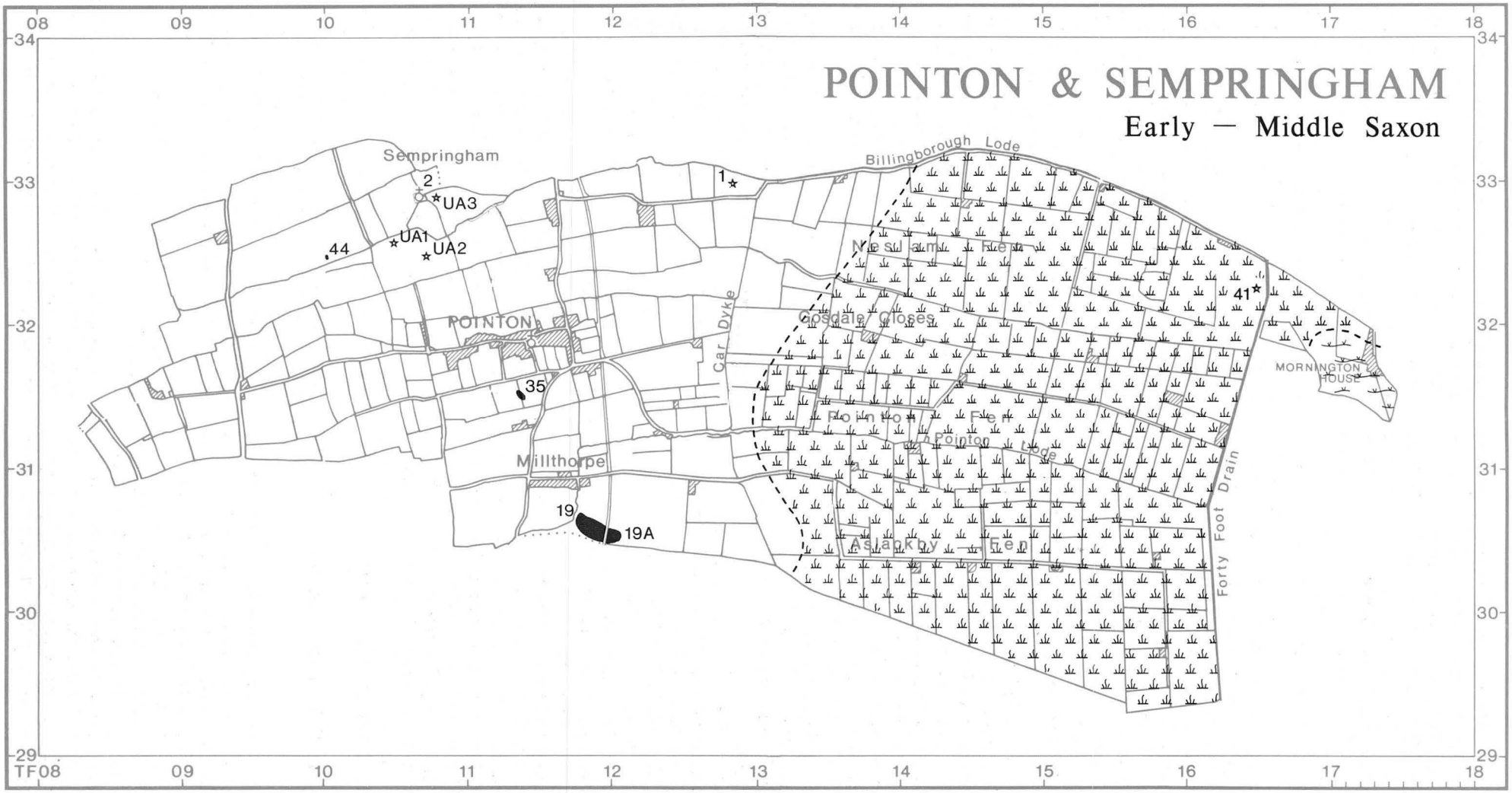

Figure 26 Pointon & Sempringham: Early — Middle Saxon

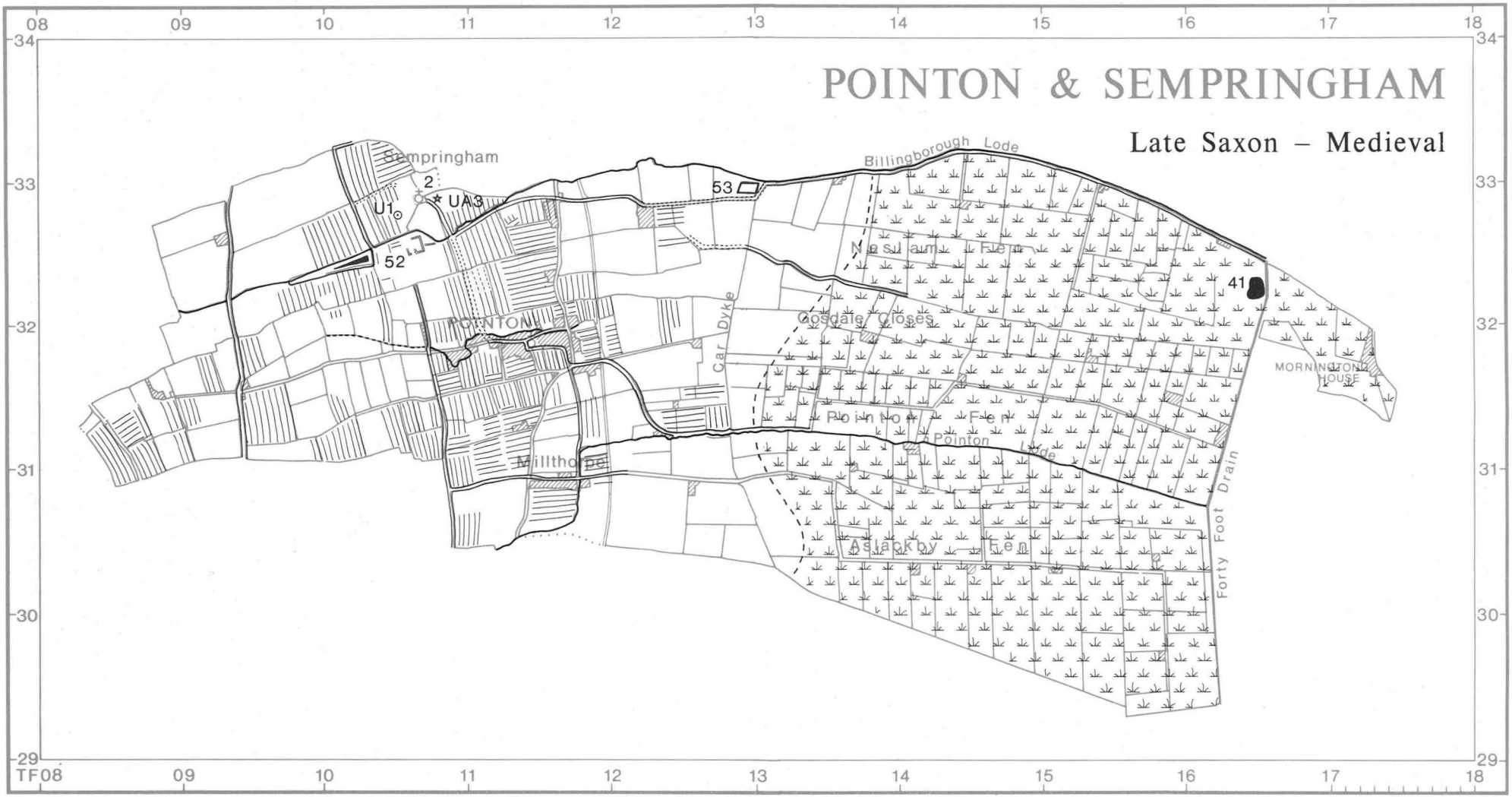

Figure 27 Pointon & Sempringham: Late Saxon — Medieval

population in the Middle Ages. Millthorpe is not recorded until 1202. Although the 'thorpe' element might suggest a Scandinavian origin for the name, and thus a pre-Conquest origin for the settlement, the first part of the name is Old English for a mill, and Fellows Jensen (1978, 99) considers that the name is more likely to be a young formation in 1202 than an archaic survival.

A fourth possible settlement area, is suggested by the existence of Neslam Fen, in the north-east of the parish. Neslam is mentioned neither by Fellows Jensen (1978) nor Hallam (1965). Site 41 is approximately in the correct location but could scarcely have been more than a single house. It is, however, notable as one of only three medieval sites found (in the entire survey) on land which was true fen in medieval times. It is tempting to speculate that Neslam is derived from the Scandinavian 'nes' meaning a headland (Fellows Jensen 1978, 158). It was noted in the introduction that the parish juts across the South Forty Foot Drain at that point. However, the survey results suggest an alternative, namely that in Middle and Late Saxon times the headland was perceived as jutting in the opposite direction, from Gosberton and Quadring (with their abundance of settlement) into the empty fens of Pointon and Sempringham.

Figure 27 shows a medieval road along the northern parish boundary, following the same route as the modern road which crosses the Forty Foot Drain at Neslam Bridge. This is somewhat speculative, but it would connect the fen margin to the 'ness' of the silt fens via the only known settlement site. The appearance of the road, curving along a bank on the south side of Billingborough Lode, contrasts with the straight post-medieval roads.

The other medieval routes into the fen were simply droves giving access to the common pastures of Sempringham, Pointon and Aslackby. Written surveys in 1286 and 1294 show that Pointon had arable, meadow and pasture, including *prati in marisco* (Hallam 1965, 192). It can be seen from Figure 27 that most of the land west of the Car Dyke was at one time or another cultivated in strips (ridge and furrow), leaving very little room for woodland or meadow. Perhaps the main area of meadow lay between the Car Dyke and the end of the droves, in areas such as Gosdale Closes (presumably enclosed early in the post-medieval period). Some of the land between the Car Dyke and Pointon village might have been meadow for much of the medieval period. The ridge and furrow now observable there could represent a late or temporary arable phase.

Apart from the fen road and the droves mentioned earlier, Mareham Lane (51) was the main long-distance route (Bourne to Sleaford). The villages seem to have been connected by rather circuitous tracks, following the headlands of the ridge and furrow system. It is possible that the present road from Pointon northwards to Billingborough originated in the Middle Ages, but further south, in Dunsby, the road cuts across (and therefore must be later than) the ridge and furrow.

The village of Sempringham was located on a small area of loamy soil formed over an outcrop of Kellaway's Sand in the valley of the Marse Dike. In this not especially distinguished village, Gilbert, the physically handicapped son of a local landowner, reluctantly founded the only purely English religious order, in or about 1139 (White 1979, 2). The Gilbertine order was unusual in having 'double houses' (communities of both nuns and canons) and in making the nuns the more important. An initial grant of 300 acres of land in Sempringham, by Gilbert de Gant of Sempringham, was soon increased as the Gilbertines received land from other benefactors. Eventually, the order owned land in 70 parishes (64 in Lincolnshire), together with seven mills and ten granges. Gilbert died early in 1189. He was canonised in 1202 and his tomb at Sempringham Priory became a place of pilgrimage.

Although the Gilbertines attracted grants of land from many small landholders, they were never especially rich. In the twelfth century they enjoyed immunity from customs duties but this benefit was restricted in succeeding centuries. Wool contributed greatly to their income (they exported some 3000 fleeces a year) and their seven mills were profitable (White 1979, 5). In 1268 the Priory was granted the right to hold fairs at Stow Green (to the north-west) and in 1293 acquired the right to hold fairs at 'Wrightbold', near Rigbolt House, Gosberton, a part of the silt fens in which the survey has produced evidence of unusually dense Saxon settlement. The sites chosen for the fairs had the potential for, and perhaps a tradition of, sale and exchange of fen and upland produce.

After the fourteenth century the fortunes of the priory declined. Following the Dissolution the roofs and windows of most of the buildings were destroyed. Edward Fiennes, Lord Clinton and Saye, took up residence there but his mansion (built of 'mud and stud') was never completed. Eventually the priory and village were levelled, leaving only the village church and its graveyard, containing a holy spring. Some excavations were carried out at the priory in 1938 but little information and few finds have survived.

This brief account of the medieval history has drawn extensively on White (1979), with supplementary information from Hallam (1965), Platts (1985a) and Platts (1985b).

IX. Conclusion

Pointon and Sempringham proved to be a parish of considerable archaeological interest and great charm. Extending from the edge of the siltland in the east to the Jurassic dipslope of the western uplands, the parish compresses the typical landscape features of the western fen margin into a series of narrow strips, making it easier to appreciate their structure and pattern. There is a similar comprehensiveness in the range of the survey results, and the history of Sempringham Priory adds a human, even personal, element to the story of the parish.

In common with neighbouring parishes there is little or no sign of pre-Neolithic activity. Hunter gatherers of the Mesolithic period may have passed through, but the landscape is likely to have been well wooded. Forest clearance in the Neolithic was possibly confined at first to the few patches of sandy soil that are to be found on the fen margin, though exposures of sand in the stream valleys and areas of sandy soil now buried by marine alluvium in the Fens would also have been suitable for the first attempts at farming. The locations of the few concentrations of flints found during the survey suggest that the sandier soils were certainly favoured areas for the preparation of flint tools in the Late Neolithic and Early Bronze Age periods. By that time, however, there was sporadic human activity all over the parish, evidenced by fragments of stone axes. From about the middle

of the Bronze Age until the environment deteriorated, that is between about 1850 and 1000 BC, there were well-established settlements along the fen margin, with ditched fields and enclosures. The inhabitants probably lived off mixed farming (arable and pastoral), taking advantage of the well-drained loamy soils and the good supply of freshwater afforded by the springs and streams on the fen margin.

Disaster struck the area soon after 1000 BC and the fen margin may have been deserted until about 400 BC. It may be that the apparent emptiness has been exaggerated by poor survival of pottery of that period, but there seems little doubt that the permanent population of the area was much reduced. Almost half the parish was rendered uninhabitable when the sea overwhelmed the land and brought tidal flats and saltmarshes to the edge of the gravel.

Agricultural settlements returned to the fen margin in the Middle Iron Age, between 400-150 BC. The evidence is slight, in the sense that the number of identifiable sherds is low, but widespread. All the Middle Iron Age settlements were occupied in the Roman period but at present, with one exception, no Late Iron Age pottery has been recognised. An abandonment phase between 150 BC and about 50 AD does not fit well with the overall impression given by the fieldwork, but on present evidence a second period of abandonment remains a possibility. The Iron Age saw the first attempts to move onto the new land, the marshes east of the gravel. One or two salterns and a possible settlement were established before 150 BC on or close to the islands in Aslackby Fen. Again, there is no pottery evidence for Late Iron Age saltmaking, but some undifferentiated prehistoric pottery found on the undated salterns could belong to this period.

By the early Roman period a distinct saltmaking zone existed on the inner marshes, close to the fen-edge. There were many settlements along the fen margin gravel, and sites were established equally early, and at least as successfully, in the marshes. Following a period of high prosperity in the inner marshes, lasting until about AD 200, there appears to have been a general economic decline, though possibly not as pronounced as in parishes to the south, and some sites continued to prosper. Increased freshwater flooding and the development of true fen conditions on the inner marshes could have adversely affected the local economy. On the other hand, the decline in prosperity might have been caused by wider economic factors, such as a reduction in the profitability of saltmaking due to competition from other parts of Britain. These are matters which can probably be resolved only by further research, including excavation. The value of the survey is that it not only raises the questions but makes it possible to identify key sites, and to distinguish sites which prospered and those which declined.

The resilience and relative stability of the Roman settlements did not ensure their survival into Saxon times. No Early or Middle Saxon sites were found in the former marshes, though a single sherd was found at Neslam, close to the well-settled Fens of Gosberton and Quadring. Saxon settlement was concentrated on the western part of the gravel and the uplands. There are major sites near the Dowsby border (part of the Hoe Hills complex) and possibly under Sempringham Priory and the deserted medieval village. By the Middle Saxon period both Pointon and Sempringham were villages housing most or all of the inhabitants of the parish.

During medieval times a typical fen margin landscape evolved, with closely spaced villages surrounded by open fields (with ridge and furrow), meadows and fen pastures, organised into west-east strips of land neatly arranged along the fen-edge. Sempringham produced the only purely English religious order, the Gilbertines, and Sempringham Priory grew up beside the village. The relationship of priory and village remains to be explored by excavation. The Priory site is naturally important as the original house of the Gilbertine Order, a model for subsequent houses. It is regionally important because it seems to offer one of the few opportunities to investigate the development of Early and Middle Saxon settlements on the fen margin. If the Early Saxon settlements consisted not merely of scattered small farms but also included villages or high-status centres, the artefactual evidence suggests that some such 'central place' is likely to lie close to the priory and deserted village.

5. Gosberton

I. Introduction
(Fig. 28)

The modern parish of Gosberton extends, from its junction with Pointon and Sempringham at the Forty Foot Drain, east to the silted medieval estuary of Bicker Haven. In total it encompasses some 3346 ha of clay and silt Fens. The main village was called Gosberkirk prior to the 16th century. Both village and church, dedicated to St Peter and St Paul, are sited on siltland at the eastern end of the parish. Also on the siltland are the long established hamlets of Wargate, Belnie, Cheal, Risegate, Clough and Westhorpe. Of these, only Cheal merits a *Domesday* mention and Hallam, H.E., (1965, 52) has suggested a pre AD 852 date for its foundation.

As with Quadring to the north, settlements on the high silts are sandwiched between protective flood banks which are sited both seaward, around Bicker Haven, and landward at the limit of the fen. The overall character of the parish is similar to that of Quadring. Their common boundary has been altered frequently, at times leaving detached parts of one parish within the other. Similarly, the boundaries with Surfleet have been much altered. The enclosures of the fen resulted in a detached area of Surfleet parish being carved out of Gosberton Fen though this has now, once more, been absorbed into Gosberton.

II. Topography

Gosberton's modern land surface is derived entirely from Flandrian alluvial sediments which vary in date, the most recent being medieval and post-medieval silts deposited in Bicker Haven. Much of the soil surrounding the village is composed of variously coarse silts, primarily those identified by the Soil Survey as belonging to the Wisbech soil series (D. Cope, pers. comm.). It forms intensively farmed Grade 1 land of sufficient fertility to support double cropping, which, in practice, means the harvesting of three crops in 2 years (Robson 1985, 70).

Marine clays, dissected by roddons, predominate in the west of the parish. The clays and silts were deposited during a sequence of major marine inundations of assumed Late Bronze Age/Early Iron Age date. Boundaries of the two main sediment types are not a clear divide, and therefore their junctions on the maps are an approximation. Roddons, part of the prehistoric marshes, are visible intermittently between Hammond Beck and the Haven.

Glacial clay (Till) protruded from beneath the fen to form flood-free islands in neighbouring Pointon and Sempringham, Dowsby, and Pinchbeck. In the south-west of Gosberton the pre-marine land surface was observed in ditch sections at little more than a metre below ground level.

III. Fieldwork
(Fig. 29)

Gosberton Fen received coverage that was adequate to map the creeks and the predominantly Roman settlements. In the south-west the area had been sub-divided into small plots for council small-holdings and many of these were unavailable for survey because of crop types; thus, fieldwork coverage there was discontinuous. This was the area where Flandrian deposits were shallow over the early prehistoric land surface which may have protruded through in places. Coverage on the higher land to the east represents the maximum that was possible within the constraints of time and the agricultural cycle. The areas surveyed are relatively evenly spaced (except on the recent silts of the Haven), but there exists a large acreage for which there is no soil or survey information — and this in a parish where soil patterns are of an extraordinary complexity.

It could be expected that, as adjacent parishes with similar soil patterns, Quadring and Gosberton would produce similar archaeological distributions. A greater percentage of Quadring's fields were walked and, if finds recovered from there are used as a datum, it can be seen that, despite reduced coverage in Gosberton, the overall pattern of Roman finds is broadly similar. The Saxon distribution, however, appears markedly different with only a single sherd found in Gosberton east of the Old Fen Bank (Chespool Fendike). This may or may not properly reflect Saxon activity in the region and it reinforces the need for large-scale coverage to enable groups that are less prominent archaeologically, such as the Saxons, to be identified and accurately represented.

IV. Late Bronze Age/Early Iron Age
(Fig. 30)

Dating of the major marine innundation, which deposited silty clays over the area north of Morton, has been discussed more fully elsewhere (p.5). Creeks (roddons) of this period, and the clays in which they formed, were mapped on the surface in Gosberton Fen. Silts which mainly derived from later flooding mask much of the land surface east of Hammond Beck. Discontinuous traces of roddons were mapped east of Rigbolt where surface silting is shallow and the soil generally of a finer clayey texture. Other roddon fragments probably belong with this system and are mapped here as such. The general direction of the creeks suggests an outfall into the Haven south-east of Gosberton village and the unpublished maps of the area compiled by the Soil Survey tends to support this.

As the marine influence diminished during the Iron Age the area appears to have been visited sporadically. Iron Age pottery was found in small quantities on sites GOS 2C and 25. The former site, on the main creek, included two sherds recognised as Middle Iron Age in a collection that was predominantly Roman but also contained sparse Saxon material. GOS 25, conspicuously sited on a high roddon, yielded ten prehistoric sherds (08) plus Roman and Saxon. Two somewhat surprising discoveries of Neolithic stone axes have now been recorded from Gosberton. A previously known find recorded as being from Cheal (TLASMR) is now thought to have been recently introduced into the area but the second, complete axe (Fig. 150 No. 4) was discovered during this survey in the west of the parish. The findspot (GOS A1) is shown on this map to be within the zone of post-

Neolithic sediments but in the area where they form generally shallow deposits over the old land surface near to the island groups in Pointon, Dowsby and Pinchbeck. The location is also adjacent to the Forty Foot Drain and the axe may therefore have been either re-deposited during construction of the drain or ploughed out from the land surface beneath shallow marsh deposits. It has proved to be an interesting item manufactured from jadeite. Though as yet undiscovered, the source of the parent material is thought to be in the Alpine region (T. Clough pers. comm.). Axes of similar rock are also known from Feltwell Fen in Norfolk (Jones *et al* 1977, 290).

V. Roman

(Fig. 31)

A major expansion of settlement onto the saltmarshes early in the Romano-British period is evident from finds made throughout the survey area. Sites were usually founded on the levees of the higher creeks presumably to ensure a degree of protection from potential flooding, but in some instances the finds and soil-marks overlap on to the adjacent clays. The area is known to have remained active as a saltmarsh, at least early in the period, for the creeks continued to serve the needs of the saltmakers of Pointon and Sempringham to the west. Many of the sites occupy positions between 2m and 3m OD. GOS 9 lies entirely in a clay hollow at the lower end of that range.

Levees of the major creek, which drained the area, maintain a width of some 600m in Gosberton before the seaward continuation, in Quadring, is masked by silts. Sites GOS 2A, B and C, 23, 31, 36 and 37 were founded on the levees of this creek. East of Mornington House the main channel sub-divided and one course swung north-west into Quadring Low Fen where it branched into a series of smaller channels. The second branched again near the modern Forty Foot Drain and, to the southwest, its levees are covered by the cropmarks of ditches. These suggest that tidal flow was either being controlled along the rectilinear system of ditches or that the creeks had, at some stage, become inactive. A precise date for these cropmarks is not known. They fit well within the overall pattern of Roman settlement but they may not relate to the earliest Roman phase. GOS 24 and 26 are sited within the area covered by the cropmark pattern and neither generated pottery that was recognised as early. A few arable fields may have been formed on the highest and widest of these levees but the economy probably remained predominantly livestock-based.

Overall the Gosberton region generated a lot of wealth in the Roman period, if this can be accurately assessed in terms of the quantity of discarded pottery. Of the total Roman pottery recovered from the parish (6712 sherds) almost 30% are fine wares, either Nene Valley Colour-Coat or samian. A number of the sites form village-like groups *e.g.* GOS 32A, B and C with 33 A,B,C and 34; GOS 12 and 13; GOS 14 and 35; GOS 7, 7A, 8 and 19; GOS 24 and 26; GOS 2, 2A, B, C and 31; GOS 10A,B,C,D, and 11. The sites that together form the GOS 10 group were on a high roddon and produced prolific quantities and varieties of finds. GOS 10D in particular has pottery from the Nene Valley and Mancetter/Hartshill in addition to continental imports of samian and amphorae. Finds of Roman tiles and limestone building rubble indicate a degree of sophistication and permanence on GOS 10D that does not accord with the image of poor people eking out a precarious living in a threatened landscape. Sparse finds of tile and rubble are also present on GOS 35 and 36. GOS 25 is also notable as a long lived settlement area. Iron Age sherds in a previously unrecognised fabric, Roman, Early and Middle Saxon sherds were all found on the surface of this site which, again, occupied a higher than usual location.

As in Quadring, the pattern of surface finds changed east of Hammond Beck where the surface of the fields became siltier. Only one Roman site, GOS 15, was discovered in this zone though there are isolated potsherds. Scattered sherds found on the clays in the west have not been given artefact numbers for they fall within the previously known settled area. However, those found on the silts have been indicated by 'A' numbers. Their significance is their existence in an area previously thought to be devoid of Roman finds, and from which no Roman 'sites' as such were found during this survey. Roman material from GOS U9 near the medieval banks of Bicker Haven was reputedly found 3m down but greyware, colour-coat and an early 4th century coin (GOS A8, A9, UA1) occurred on the modern surface within a kilometre of this site. Possibilities of a Roman protective sea-bank around the Haven are considered in the Quadring report and the distribution of Gosberton finds in proximity to the Haven endorses the likelihood of some sort of protection from the tides in the Haven, however localised it may have been.

The marine flooding episode(s) which deposited the silts in the east (as distinct from clays further west) have not always proved easy to date. The task has been made more difficult through the nature of the sedimentation process in which the same system operating at the same time may have been depositing sediment of varying coarseness along its extent. Seldom are there found sealed within the silts organic layers of suitable thickness and consistency to enable samples to be used for radiocarbon determinations. Even if such strata existed it would take an extensive sampling programme to provide a regional assessment; despite their apparent homogeny, these silts are almost certainly the result of a repetative series of local catastrophes rather than a single widespread event. At its broadest level this localisation can be seen by comparing the visually similar silts of Postland, near Crowland, where the Roman evidence includes highly visible and extensive cropmarks, and those of Quadring and Gosberton which yield Roman finds, but cropmarks are masked by the shallow silts.

The temptation to interpret the silts as representing severe and widespread Late Roman flooding has always proved strong, and the notion was formerly thought to be corroborated by the complete absence of evidence to suggest an Early Saxon presence. The discovery of Early Saxon pottery on the silts of Gosberton, Quadring and Pinchbeck has focussed attention once more on the date of the floods, for an Early Saxon presence leaves little time for widespread innundation to occur and then subside. Evidence from Pinchbeck North (p.114), in particular, indicates variable and localised flooding.

VI. Early-Middle Saxon

(Figs 32, 33)

The likely extinction of salterns that operated on the inland edge of the marsh early in the Roman period, and

Figure 28 Gosberton: The modern landscape Scale 1:40,000

Figure 29 Gosberton: Fieldwork Intensity

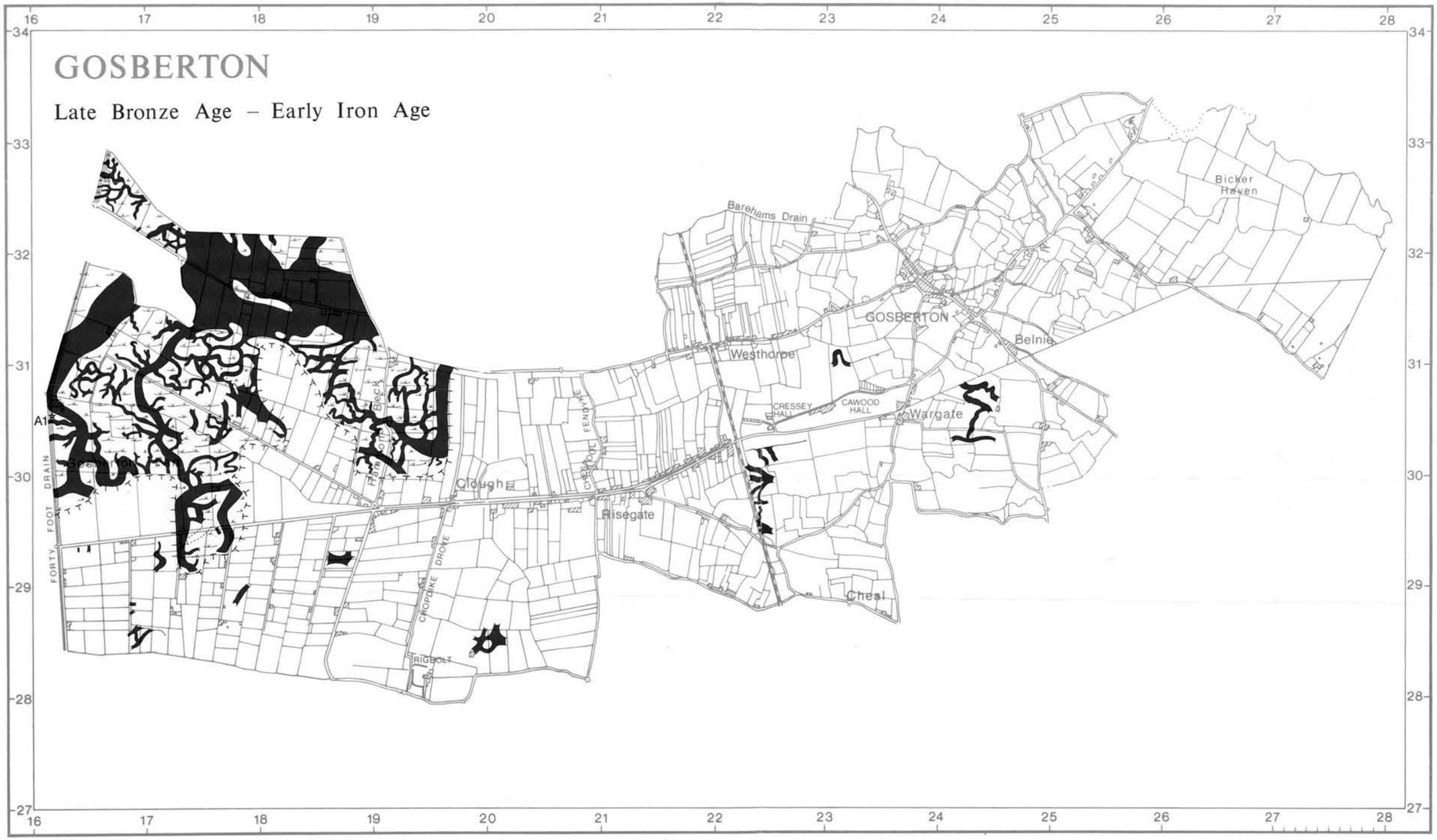

Figure 30 Gosberton: Late Bronze Age — Early Iron Age

GOSBERTON

Roman

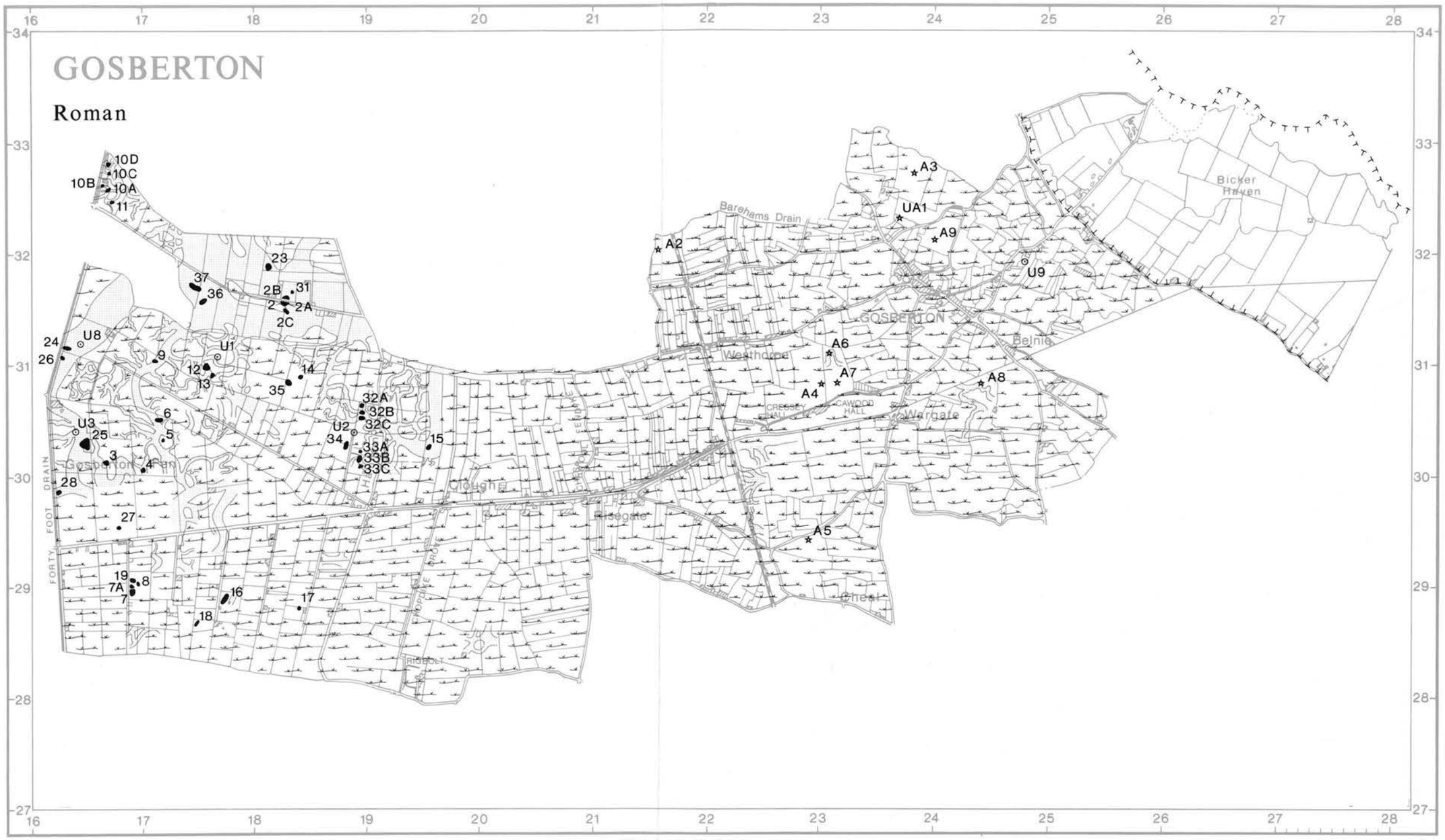

Figure 31 Gosberton: Roman

the setting out of ditch systems over certain of the roddons suggests that the creeks were losing much of their tidal impetus later in the Roman period. Such events would have led, eventually, to an eastward expansion of the freshwater fens. The rate at which this happened, and the extent of the fen in the Saxon period can only be inferred from the position of the Middle Saxon settlements and their assumed preference for habitation in the driest end of the marsh rather than in the fen.

Nine Saxon sites were found in Gosberton. Of these all but GOS 36 contained Early Saxon pottery. GOS 2B, 20, 22, 25 and 37 also had Middle Saxon wares. The frequent coincidence of Early and Middle Saxon sherds suggests that the Middle Saxon tribe, the Spaldas, with whom the Middle Saxon sherds have been associated, may have had a longer history than is currently envisaged.

A wider consideration of the silt fen Saxon sites has recently been undertaken (Hayes 1988) but further comment can be made here regarding individual sites. Pottery from GOS 2B and 25 spans the greatest length of time. Prehistoric activity on these sites was superseded by a long period of Roman habitation. Both Early and Middle Saxon pottery was then used and discarded. GOS 2B was centrally located on the levees of the main channel. GOS 16 was likewise an Early Saxon continuation (or reoccupation) of a well-established Roman site, one of the few with pottery of both periods. No certain evidence of Middle Saxon occupation was found on GOS 16 and the site perhaps became an early victim of peat encroaching from the nearby island areas in Dowsby. The group GOS 20-22, north of Rigbolt, was typical of the fen sites and yielded large quantities of animal bones. GOS 22 is very noticeably mounded. GOS 36 was predominantly Roman but with a Saxon presence, not recognised in the field but apparent after sorting the finds. Neighbouring GOS 37 also had some Roman sherds but it is primarily an Early and Middle Saxon settlement located at the junction of the major and minor roddons. Lava querns, probably imported from Europe, imply a degree of wealth and suggest trade connections.

Though the dating of the Saxon pottery requires refinement, it would seem to suggest the sites were abandoned by the 9th century AD. There is no Late Saxon material on the Fen sites in Gosberton. The area was not re-settled until after the post-medieval drainage.

Finds from Saxon sites

(Fig. 33)

1. **Spindle whorl**. Manufactured from sherd of Romano-British colour coat. Quadring (QUA 39).
2. **Spindle whorl**. Fired clay. Coarse sand inclusions. Thurlby (THU 24).
3. **Spindle whorl**. Fired clay. Coarse sand and fine flint inclusions. Gosberton (GOS 16).
4. **Hone**. Grey schist. Possibly Saxon. Gosberton (near to GOS 2).
5. **Hone**. Dark grey fine grained stone. Broken and weathered. Undated but probably Saxon. Hacconby (HAC 3).
6. **Hone**. Grey stone. Exterior smoothed. Broken. Quadring (QUA 33).
7. **Hone**. Pale grey unidentified sandy stone. Exterior smoothed. Incomplete. Groove on one face. Pinchbeck (PIN 9A).
8. **Hone**. Off-white unidentified stone. Exterior smoothed. Incomplete. Gosberton (GOS 20).
9. **Bone fragment**. Decorated with three incised grooves. Pinchbeck (PIN 5).
10. **Quern fragment**. Coarse lava stone. Gosberton (GOS 37).
11. **Quern fragment**. Coarse lava stone. Quadring (QUA 33).

VII. Late Saxon-Medieval

(Fig. 34)

It would appear that the move from dispersed to nucleated settlement, whether instigated by social or economic changes or environmental pressures or political/defensive necessities, sparked off a furious programme of embanking and reclamation both to seaward and landward. A precise chronology of the works is not easy to assemble though Hallam, H.E. (1965, 40-56) offers a detailed and indispensable discussion.

The pattern of Late Saxon pottery which in Quadring was concentrated between the Donington-Spalding road and the Haven Bank, changed south of Gosberton village. If the present main road does, indeed, represent an early bank, as suggested in the Quadring report, the line of this bank south of Gosberton village must have been the road through Wargate to Cheal, for most of the Late Saxon finds lie east of here. Even then there are exceptions for Late Saxon pottery does occur on a high band of silts in the vicinity of Cawood Hall.

South-east of Gosberton piecemeal reclamation from the sea as early as the 10th century is said to have resulted in the construction of Cunsdike and Peter Sea Dike (Hallam, H.E., 1965, 43).

A succession of fen banks is also evident in Gosberton. These were to protect settlements and arable areas on the silts from winter flooding from the fen. The banks were aligned north-south and extended for several kilometres. Old Fendyke, called Chespool Fendike in Gosberton, is the earliest. It has a more sinuous course north of Risegate than in Pinchbeck, suggesting it may have had a different date and perhaps style of construction, or different surveyors. At least one, and probably two, further banks to the west attest to continuing reclamation during the Middle Ages.

West of Chespool Fendike, the line of Chopdike Drove near Rigbolt forms a likely northern equivalent of New Fendyke in Pinchbeck though it may be an earlier, separate, construction. Further west, Hammond Beck Bank, previously called New Fendyke, represents the final intake from the fen.

Cheal was referred to in a landbook of Peterborough Abbey and therefore existed by AD 852. Hallam, H.E. (1965, 52) has suggested Chespool Fendike/Old Fendike must have already existed by this time to protect Cheal. In considering this we should perhaps re-emphasise the excavation potential of the Middle Saxon sites which existed without any obvious flood protection banks. They undoubtedly retain vital indicators as to the contemporary environment. If their abandonment was not entirely due to deteriorating environmental conditions, and it is worth remembering that QUA 33 survived into the Late Saxon period, then Cheal could have existed, at least for a time, unprotected from the winter floods off the fen. The earliest fenward extension of settlement would have been along the major roddons where a slight elevation offered some natural protection.

Each of the fenward reclamations would have initially created meadow land, though some later arable use of the land can be assumed near Risegate, where 14th century wares were scattered on the field surface. Both from the air and on the ground traces of strip fields are evident around the site of Rigbolt (GOS U6). Having originated in the 12th century, the moated site at Rigbolt became a grange of Sempringham Abbey, and from 1293 fairs

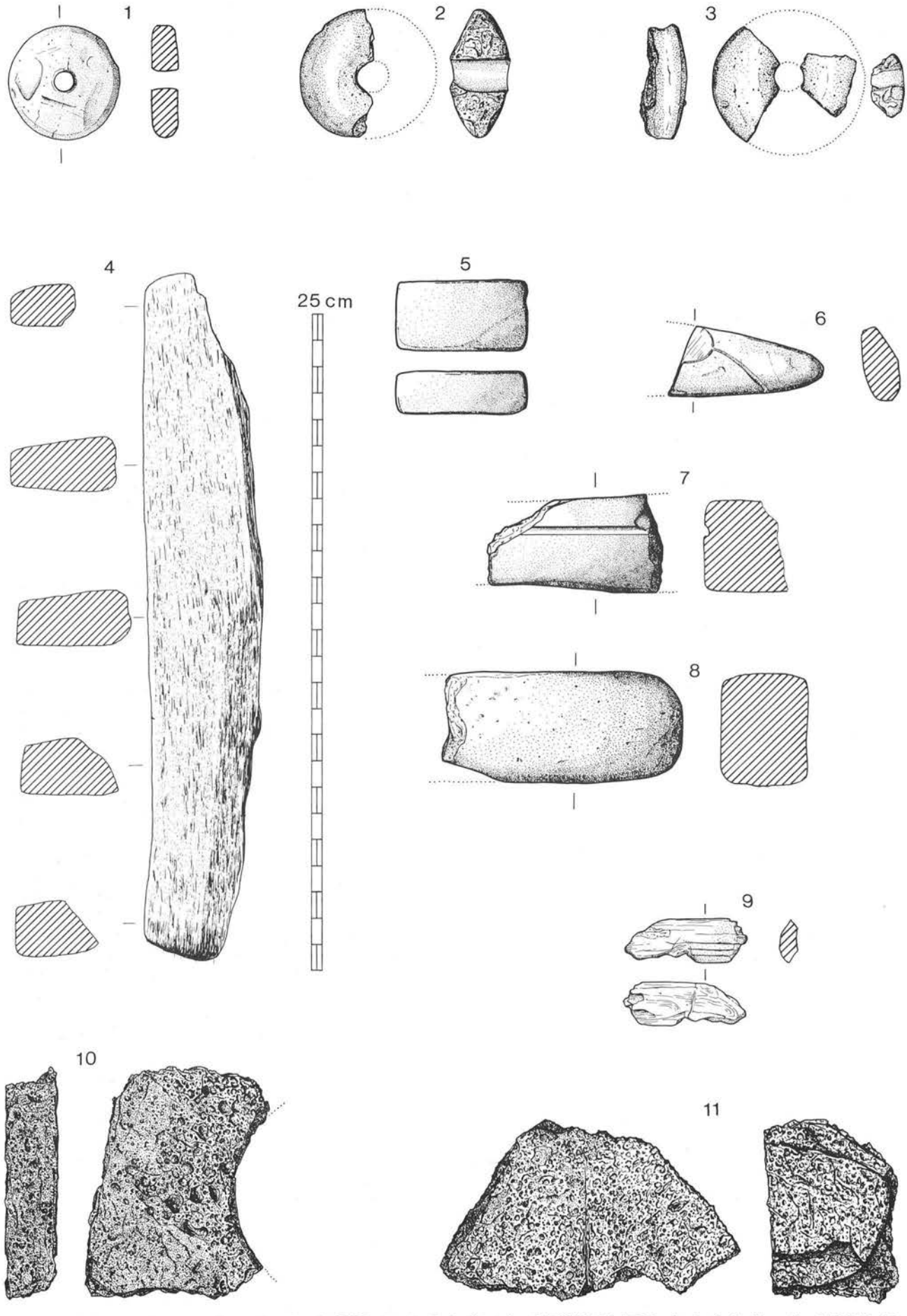

Figure 33 Saxon finds. 1. Spindle whorl QUA 39; 2. Spindle whorl THU 24 (E Sax); 3. Spindle whorl GOS 16 (E. Saxon); 4. Hone Gosberton; 5. Hone HAC 3; 6. Hone QUA 33; 7. Hone PIN 9A; 8. Hone GOS 20; 9. Decorated bone PIN 5; 10. Lava quern GOS 39; 11. Lava quern QUA 33

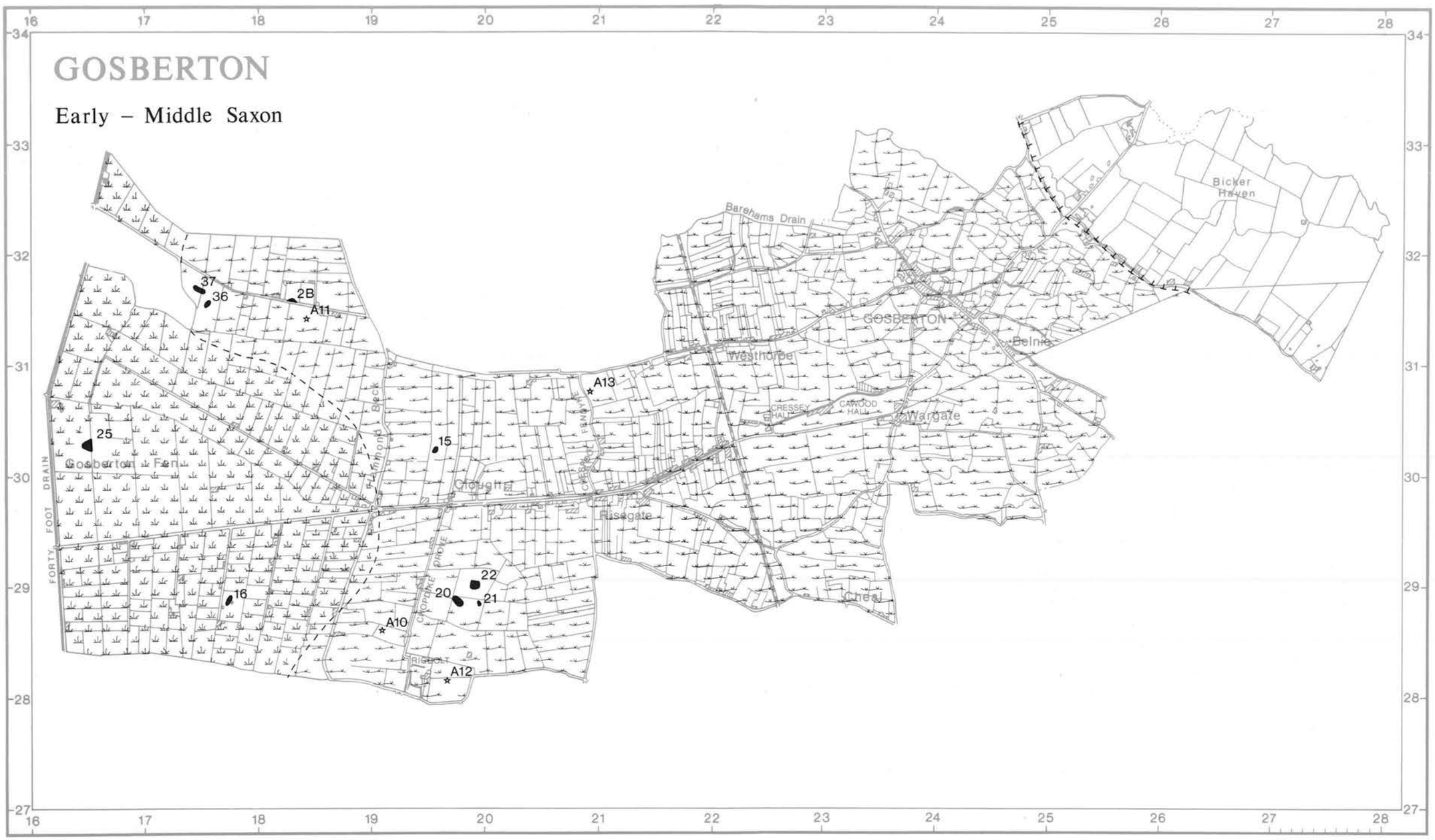

Figure 32 Gosberton: Early — Middle Saxon

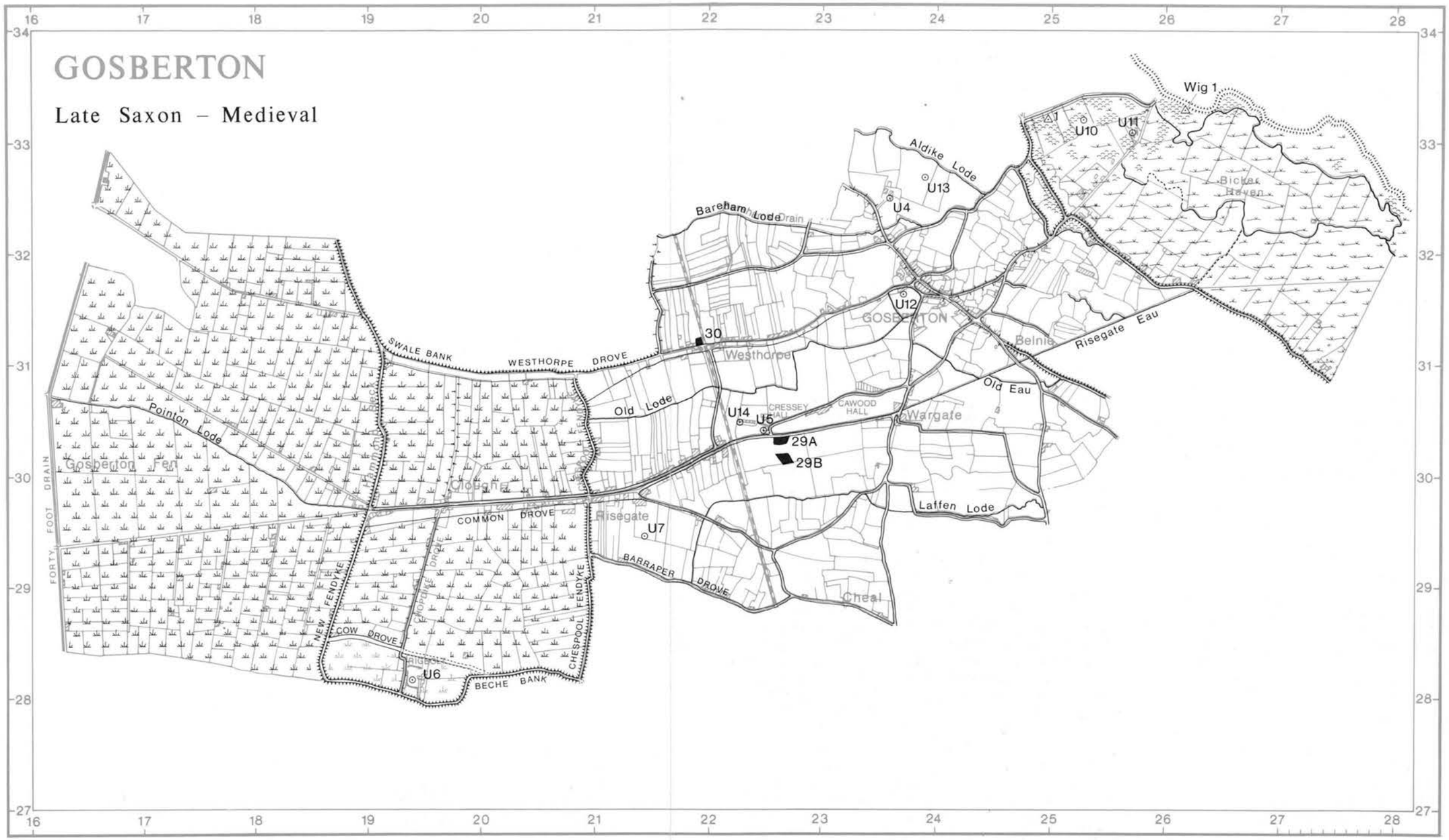

Figure 34 Gosberton: Late Saxon — Medieval

and markets held there were said to have been useful sources of revenue for the Abbey. Marratt (1816, 379) noted that the vestiges of a road across the fens to Sempringham could still be seen and that the house at Rigbolt had only recently undergone demolition. The nearby Lowbrands barn is, in part, built of limestone blocks reused from an old building, possibly the early grange. No trace survives of the road but it, no doubt, went to Neslam and continued along the embankment which carries the modern road through Sempringham Fen.

Strips recorded in pasture at Rigbolt and at Cawood Hall, are similar in appearance to the dylings which survive in Quadring (p.37). In other parts, south of Bareham Lode, certain field boundaries resemble the familiar S-shaped upland ridge and furrow systems. Field names pertaining to 'Rigs' occur in the Acre Book of 1724 which, in turn, quotes earlier Acre Books (H. Healey pers. comm.). The value of these fields on the silts may have been in their arable potential. H.E. Hallam's (1965, 183-84) assessment of 13th century surveys in Gosberton suggests high percentages of (silt) land in arable use.

In addition to income generated by arable agriculture and fen-based products, Gosberton's medieval economy was boosted by revenue derived from salt manufacture in Bicker Haven. By the 13th and 14th centuries the Haven was rapidly silting and the centre of the local salt industry had moved south to Quadring and Gosberton. The extent of those saltern mounds, which are still visible, is shown on Figure 34. They are mainly confined to the Haven in the north of the parish, though Hallam, H.E. (1965, 47-8) noted that by 1200 AD salterns existed near the Risegate Eau outfall. Within the old Haven is a wooded area around the damaged remains of a series of rectangular pits (GOS U11). The name Saltgate Floors (corrupted from Saltcote Floors) relates them to the saltern industry though their precise date and function is unclear. In this part of the Haven saltmaking was described as 'having been left off' in 1662 (H. Healey, pers. comm.).

Little detailed attention was paid to the medieval and post-medieval silts in the southern part of Bicker Haven in Gosberton. Although a rapid reconnaissance showed that a number of low saltern mounds exist these were comparatively rare and the area appears generally disimilar to the 'hilly' part of the Haven further north in Quadring and Bicker. This southern part of Gosberton is topographically interesting for the latest of the silts which accreted are contained within well defined sea banks, and have a surface altitude a metre or more higher than that of the surrounding land.

Considerable human effort was required to control and manage the sea and marsh. As early as the 13th century enforceable rules existed regarding accretion and erosion and these were often illustrated by the pronouncements of the Commissioners of Sewers. A dispute of 1260 concerning Gosberton's Marsh revealed that ' . . — whenever the sea did, by its raging, overflow any mans land or, upon its going back, waste away any of the said land and make a hollow place, no man ought to fill up that place but to cleanse it and drain it for the common benefit of the Country and so let it remain in the same condition as the sea left it in' (Dugdale 1772, 223). These rules regarding flooding and erosion were matched by those relating to accretion. Additions to the marshes caused a dispute in Gosberton Marsh in 1328. The Abbot of Peterborough had taken possession of land, which was claimed by the Abbot of Swineshead and Nicholas de Ry as their possession, 'by the custom of the County: because that it was increased and grown to their own ancient marshes by addition of its sand which the sea had by its flowings cast up: insomuch as by that means coming to be firm land'. They claimed the right to 'enjoy' this accreted area as far as the Saltern Ea, the main channel of the Haven. These early medieval laws concerning the marshes had equivalents in respect of the fen. Later Fen by-laws (Brears 1929, 59-64 and 74-77, and Hallam, H.E. 1963, 40-55) demonstrated that far from being waste the area was indeed a rich resource strictly managed and controlled by a firm set of economically astute edicts.

Other than Cheal, with its *Domesday* record, little is known of the origin and antiquity of hamlets within the parish. Westhorpe is one of only a handful of 'thorpe' names in the fens. It suggests a Scandinavian foundation though it has no record in *Domesday* and no pre-conquest pottery was found in the part walked. Pottery found in the general area of Westhorpe (GOS 30) was dated to the 14th century onwards with an abundance of 16th century wares present. The last element in the name Belnie would suggest an 'island', probably of accreted silts. Clough is a fen word for a sluice. Risegate could translate literally as 'brushwood street' but its early form *Rysgate* may link it with the de Ry family who held land extensively in the area from at least the 12th century.

Taking the name of the hamlet, the Risegate Eau served as a main drainage channel assisted by Aldike Lode, Laffen Lode and Old Eau. These were frequently re-aligned either naturally or by man. One such example of the former occurred in 1259 when the 'Sewer (drain) of Risegate by the flowing of the sea and freshwater became obstructed and thereupon by force made itself another current which it then held' (Wheeler, 1896, 91-93). Old Beck (Beche Bank) was a considerable channel and significant early landmark which took to the Haven the waters of the Rippingale Running Dyke into which many of the small streams draining the upland had been directed.

As well as at Rigbolt several other moated areas are known in Gosberton. One fragmentary example (GOS U4) is at Monks Hall in the east of the parish. This ancient manor near the Haven banks was owned variously by the Abbeys of Peterborough and nearby Swineshead. A moat has been recorded at Cressy Hall (GOS U5) where a market and fair were established in the 13th century (TLASMR) and Marratt (1814, 210-14) noted a chapel 'built, or licenced at least, in 1309' (GOS U14). Cressy Hall is on a band of firm silts but with heavier soils to the south and north. On the edge of these silts close to Cressy Hall are sites GOS 29A and 29B. These have pottery dating from the 14th century onwards with kiln sites in Bourne, Toynton, Nottingham and Lincoln represented. Settlement probably extended north into an unsurveyed area, for dark soilmarks associated with the settlement can be seen there. South-west of the site traces of an undated brick kiln were found.

Healey's unpublished research has equated the moated site GOS U12 with the manor of Doubledike and the moat (GOS U7), which is now levelled but was recorded on a map prepared by the County Planning Office from an original by Christopher Epworth, dated 1799, as possibly that of Newberry. This interesting map also indicates the extent of Droves out as far as Chespool Fendike. Later Droves extended along Swale Bank and east

from Risegate to the Hammond Beck to give access through the reclaimed areas to the fen pastures.

Though it was unavoidable it remains a matter of regret that survey in Gosberton could not be as extensive as in Quadring and that Surfleet could not be included. With hindsight the three parishes can best be viewed as one historical unit which, subsequent to dispersed Roman and Saxon settlement, appears to be at the heart of the early nucleated settlement zone. Their parish boundaries have been remarkably interchangeable. A fragmentary perspective of political and tenurial complexities which abounded in these parishes is indicated on the pre-1925 Ordnance Survey maps, and the one referred to in the previous paragraph, for some isolated strips in medieval fields represent detached parts of other parishes.

VIII. Conclusion

Any early prehistoric settlement in the area is buried beneath marine sediments laid down in the 1st millennium BC. A saltmarsh gradually developed through which winding creeks drained tidal waters towards Bicker Haven and the Glen/Welland outfall. These creeks formed levees or natural banks on to which a few Iron Age people were tempted as the conditions in the marsh slowly improved. Initially their visits were probably made during the summer months in order to graze cattle on the rich vegetation. The maturing process of the marsh then enabled a great influx of Romano-British settlers who appear to have become wealthy by their exploitation of the fen. This boom in settlement gradually declined towards the end of the Roman period but did not entirely cease. People producing hand-made pottery continued to use, or perhaps, later re-use, a few of the Roman settlement sites. By the 7th century a new type of settlement had appeared, possibly with habitation on deliberately raised mounds. By late in the Saxon period these sites had been abandoned and settlement shifted to the higher siltlands further east. A series of embankments were subsequently raised to protect the villages from the flood waters of the sea and the fen. Farming, and the maritime products available in the Bicker Haven estuary, provided a steady income which, for a time, was boosted by the revenue from the production of salt. The gradual, but successful, draining of the fen area has resulted in the parish being given over completely to arable agriculture.

6. Dowsby

I. Introduction
(Fig. 35)

The parish of Dowsby is comparatively small, covering about 771 ha (1905 acres). Its shape is typical of the fen-edge parishes of South Lincolnshire: a strip of land stretching from the uplands out across the Fens as far as the South Forty Foot drain, the boundary between the parts of Lincolnshire known as Kesteven and Holland. The shape is a legacy from medieval times when the land was divided into strips to enable as many villages as possible to have access to the complementary resources of the upland, the fen margin and the fens. Each village could then be almost self-sufficient in basic agricultural products.

II. Topography
(Plate III)

Dowsby parish is situated where the Jurassic rocks of Kesteven dip under the much more recent clays and silts of the fens. The land is at its highest in the west, around Graby, where it reaches about 50m above sea-level (Ordnance Datum). The Jurassic rocks are mainly covered by a chalky till (or boulder clay) but this is patchy and is sometimes absent, particularly on the sides of the valleys through which small streams flow down to the Fens.

The village lies at about 10m OD, near the junction of the uplands and the fen margin. Here the uppermost geological deposit changes to gravel and the soil is better drained and generally loamier than on the uplands. About a kilometre east of the village the gravel dips beneath the Flandrian marine alluvium of the Fens. The soil is noticeably darker, suggesting former peat cover, probably encouraged by a high water-table in the gravel. The transition from fen margin to Fen is almost imperceptible. Ploughing has blurred the boundary by mingling the thin cover of alluvial clay, the remains of the former peat, and the underlying gravel.

Soils derived more or less entirely from marine alluvium are to be found a field or so east of the Car Dyke, and from there the usual landscape of the Clay Fens extends eastwards to the parish boundary. The land is flat, around 2-3m above Ordnance Datum, with clay soils crossed by an intricate network of roddons. Dowsby Fen is unusual, though, in having several 'fen islands': parts of the prehistoric land surface which formed a low ridge, just too high to be buried by sediment when the sea flooded the area. The islands now consist of small patches of gravelly or stony soil, sometimes very humose. Dowsby Fen was in effect a small watershed, less obvious now than in prehistoric times. The pattern of the extinct creeks suggests that the ridge continued to act as a watershed when marine alluviation was taking place; roddons run north-east into Aslackby and Pointon Fens and south-east into Rippingale Fen.

III. Fieldwork
(Fig. 36)

It was decided, with some regret, that in order to meet the objectives of the Fenland Survey Project in the time available, the western part of the parish could not be included in the field survey. Fig. 36 shows the area surveyed. It can be seen that the village and the upland area were not visited. The villages of East and West Graby (now deserted and shrunken respectively) straddled the western boundary of the present-day parish of Dowsby and air-photographs show areas of archaeological interest along the stream valley which forms the north-western boundary. To be meaningful, a survey of those upland areas would have to be extended into neighbouring parishes.

IV. Mesolithic—Bronze Age
(Fig. 37)

Figure 37 shows the landscape for this period in so far as it can be glimpsed by surface survey. In almost all of Dowsby Fen the land surface which dates to this long period has been buried by the marine alluvium. Although hidden, this prehistoric land surface is not lost — quite

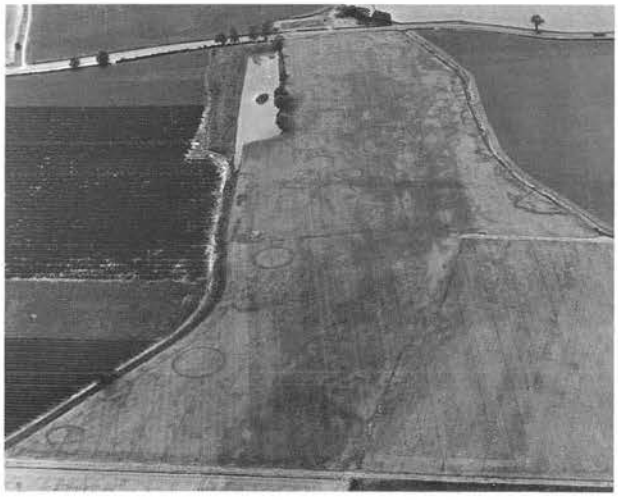

Plate III Hoe Hills cemetery on the Fen-edge gravels at Dowsby
Cambridge University Collection; copyright reserved (BZL 16)

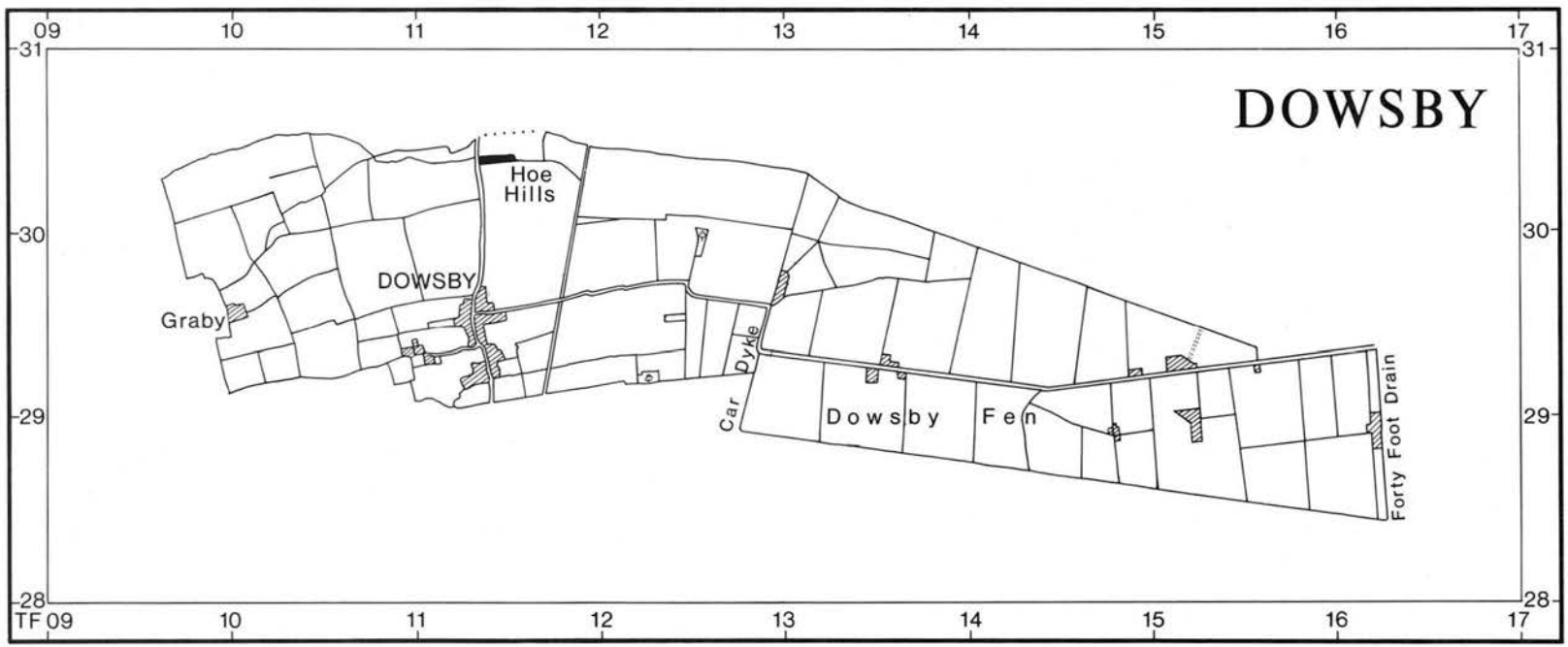

Figure 35 Dowsby: The modern landscape Scale 1:40,000

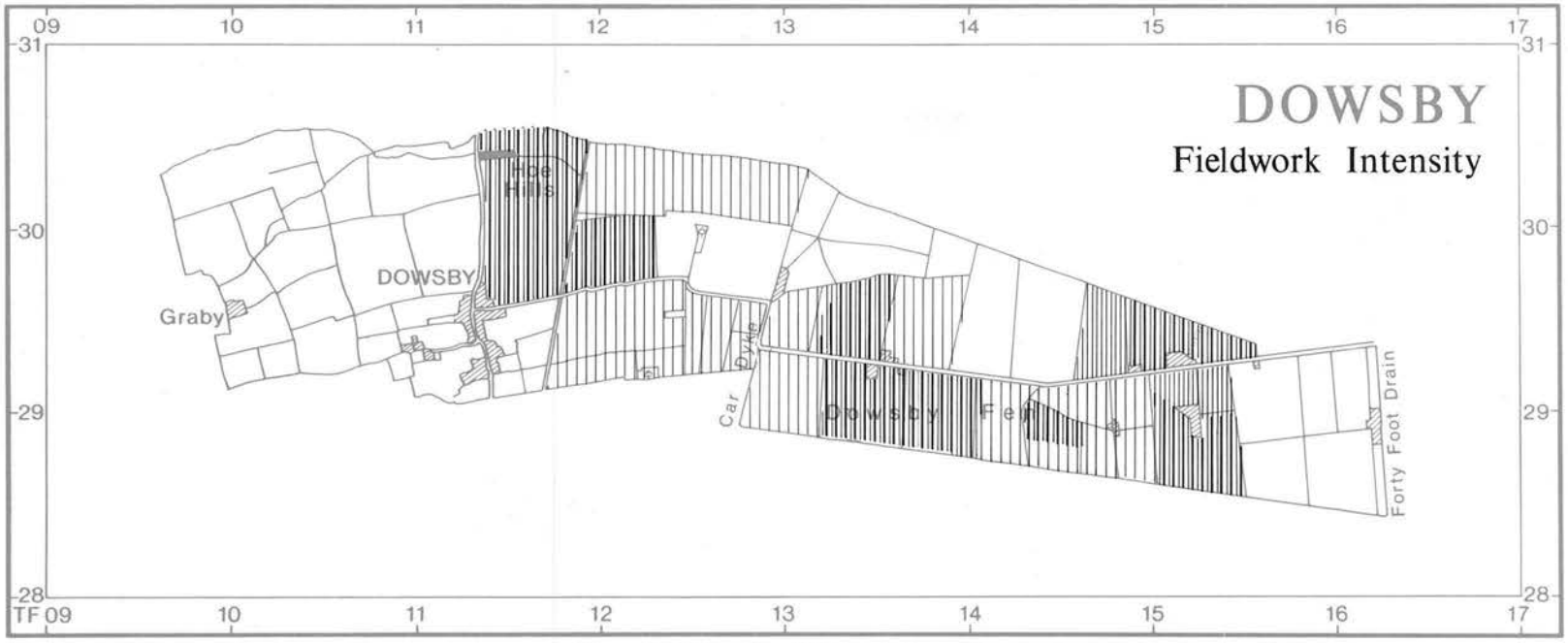

Figure 36 Dowsby: Fieldwork Intensity

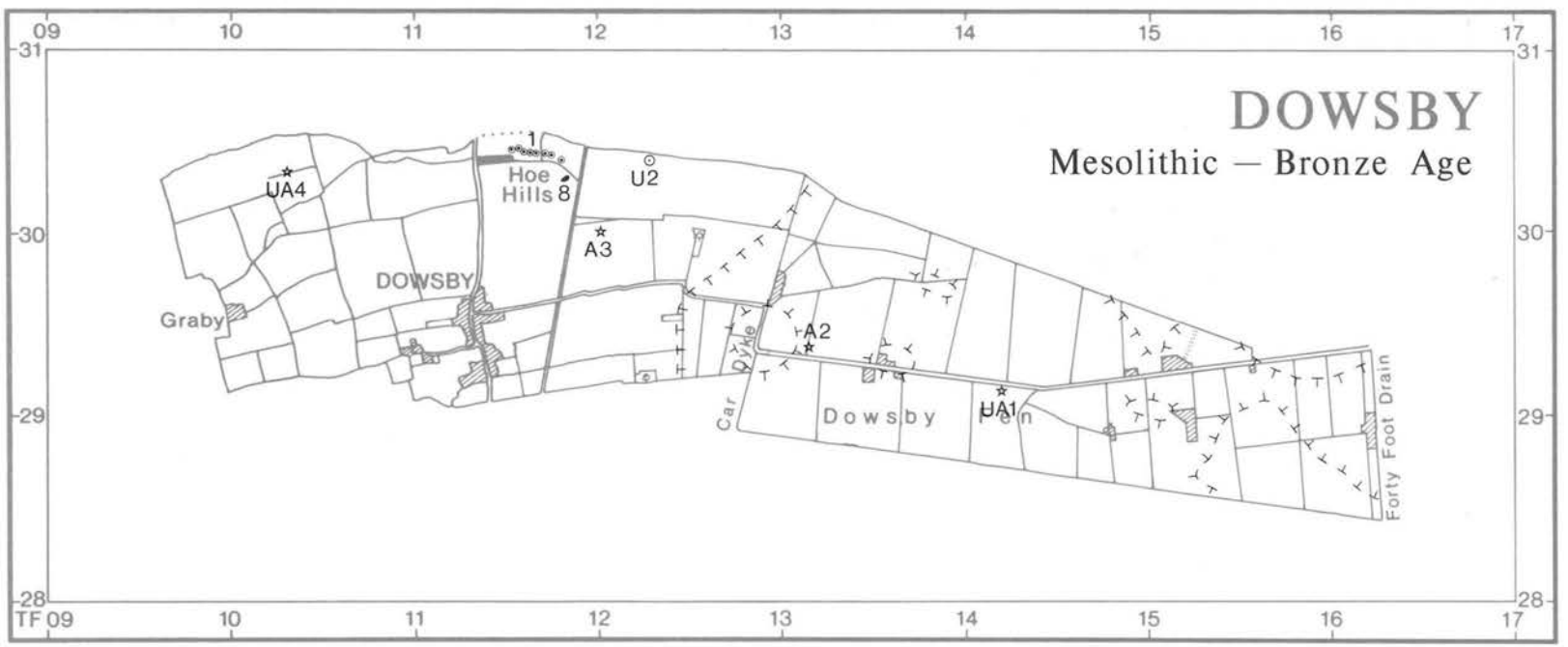

Figure 37 Dowsby: Mesolithic — Bronze Age

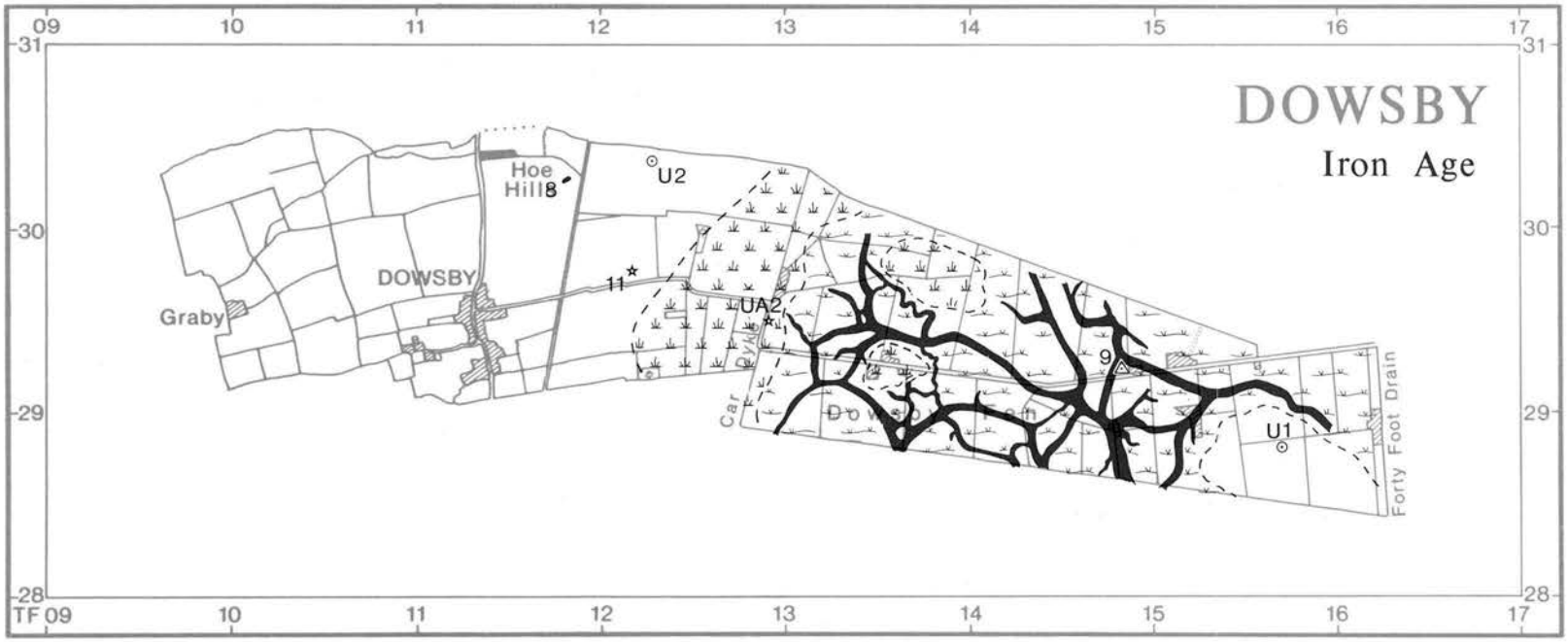

Figure 38 Dowsby: Iron Age

the reverse. Given the watershed nature of this part of the parish, the thin cover of alluvium, and the stray finds discussed below, there seems to be a higher than usual likelihood that significant prehistoric remains should be both preserved and accessible to investigation. The shallowness of the clay does, however, suggest the possibility that drainage and agricultural activities may be damaging the buried archaeology, either directly, by cutting through them, or indirectly, by drying them out and allowing oxygen and air breathing organisms to destroy the formerly waterlogged organic material.

No Mesolithic flints were found during the survey or known from earlier discoveries in the parish. Although one cannot be certain about the unsurveyed upland and the buried landscape in the Fen, there seems to be no reason to suspect that many Mesolithic artefacts exist in either locality.

A few flints were found scattered among the barrows at Hoe Hills. Some of these are probably Neolithic, but they are few in number. Evidence of human activity in the Late Neolithic or Early Bronze Age is more abundant. The Hoe Hills barrows (DOW 1) almost certainly belong to that period. They look like round-barrows and are depicted as 'possible' Late Neolithic-Bronze Age barrows on figure 39 in May (1976, 72), although there are no associated finds and there have been no excavations. Part of the site has been destroyed by the construction of a small reservoir and the remaining barrows have been ploughed nearly flat. Nevertheless, at least 7 barrows are still visible and this could be one of the principal barrow cemeteries in Lincolnshire. A drawing of the site based on air-photographs has recently been published, (Pickering 1988, 40).

Indisputable evidence of Late Neolithic-Early Bronze Age activity is supplied by the three axes found in the parish. A flint-axe (UA4) is known from the upland, another (A3) was found on the fen margin, and an axe (UA1) of "Borrowdale ash" (Group VI?) is known from the Fen. The symbol on Figure 37 shows only an approximate location for UA1. The axe seems likely to have come from one of the islands or from the shallowly buried prehistoric land surface.

The next recognisable phase of activity is in the Middle Bronze Age, though the evidence is slight. Small numbers of sherds of this date were found at Hoe Hills (sites DOW 2,4,6,8). The number of sherds is lower than in the parishes to the north and south but the cropmark complex (U2) with its 'clothes line' enclosures is similar to the later prehistoric field system partially excavated at Billingborough (Chowne 1980, 298). The cropmarks extend north-west into the parish of Pointon and Sempringham. The Dowsby section could not be surveyed due to unsuitable crop cover.

Only two sherds were found at A2 on Figure 37 but they are important because of their location. They were found on top of marine alluvium, close to a minor roddon. As all the evidence from this part of the Fens suggests that the marine clay postdates the sherds, their discovery came as something of a surprise. The most likely explanation for their presence is that deep ploughing or dyke cleaning had brought them up from a site buried by the marine alluvium. If this is the case then a Middle Bronze Age site exists, presumably virtually intact, under a shallow layer of clay in a fen-edge location where the likelihood of damage through desiccation is high.

V. Iron Age

(Fig. 38)

In the Late Bronze Age/Early Iron Age period Dowsby Fen was flooded by the sea and the old land surface was buried under a thick layer of mud. Soon after salt water reached the fen edge the landscape in Dowsby Fen would probably have been one of mud flats, perhaps with areas of open water and a developing creek system. Eventually, saltmarshes would have developed, offering opportunities for grazing animals, but in the early stages movement across the mud flats would have been difficult.

The earliest site on Figure 38 is DOW 8, where sherds of Late Bronze/Early Iron Age (1000-450 BC) were found. Pottery of that period is very rare along this part of the fen-edge, but it is not altogether surprising that it should turn up in the Hoe Hills area in view of the cluster of exceptional sites to be found there (including those which are in the parish of Pointon and Sempringham).

There is no definite evidence for Middle Iron Age activity in the surveyed part of Dowsby. The cropmark complexes at U1 and U2 have been included on Figure 38 only because they are undated and might possibly have been in use at some period in the Iron Age. A more likely possibility is that the sherds at UA2 date to the Middle Iron Age and were associated with salt making, but there was no sign of this at the time of the survey and the sherds (found in 1973) have not been re-examined. The principal focus of Middle Iron Age saltmaking on this section of the fen-edge lay further south. However, at least one of the sites immediately north of Dowsby Fen (POI 25 in Pointon and Sempringham) had Middle Iron Age pottery on it. It was noted earlier that Dowsby Fen was in effect a watershed, due to the presence of an almost-buried ridge, and this may have given rise to subtly different environmental conditions which allowed or required saltmaking to take place near the watershed islands rather than out in the open marshes.

Late Iron Age sherds are rare in almost all the survey parishes in South Lincolnshire and Dowsby is no exception. A single sherd from DOW 11 (a Roman site) could date to the Late Iron Age. The saltern site (DOW 9) could be Late Iron Age, judging by the briquetage, but unfortunately no pottery was found there and an early Roman date is also possible.

VI. Roman

(Fig. 39)

It is not possible on the existing evidence to separate the landscapes of the Late Iron Age and Roman periods, so Figure 39 covers both of them, in so far as a single snapshot can represent a changing scene. The developing saltmarshes, backed by reedbeds or fen, eventually produced a land surface which people could cross and which could be used productively.

DOW 9 (discussed above) shows that saltmaking was possible well out in the Fen at about this time, even if the exact date is uncertain. There was, though, a scarcity of both salterns and settlements in Dowsby Fen during the Roman period (DOW 10 is small and enigmatic) and this suggests that the Fen had little economic value. Air-photograph evidence and pieces of limestone suggest the possibility, one can put it no higher, of a road between the points marked A1 on Figure 39. If so, it is

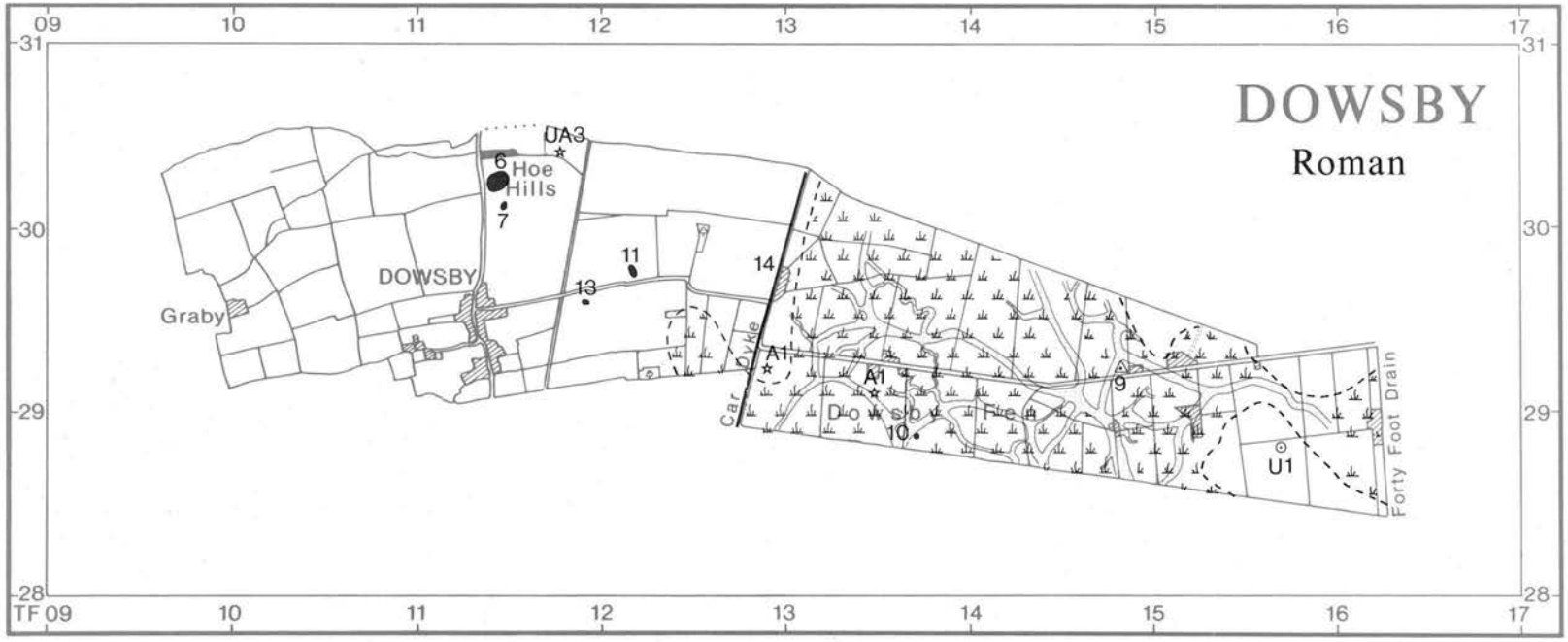

Figure 39 Dowsby: Roman

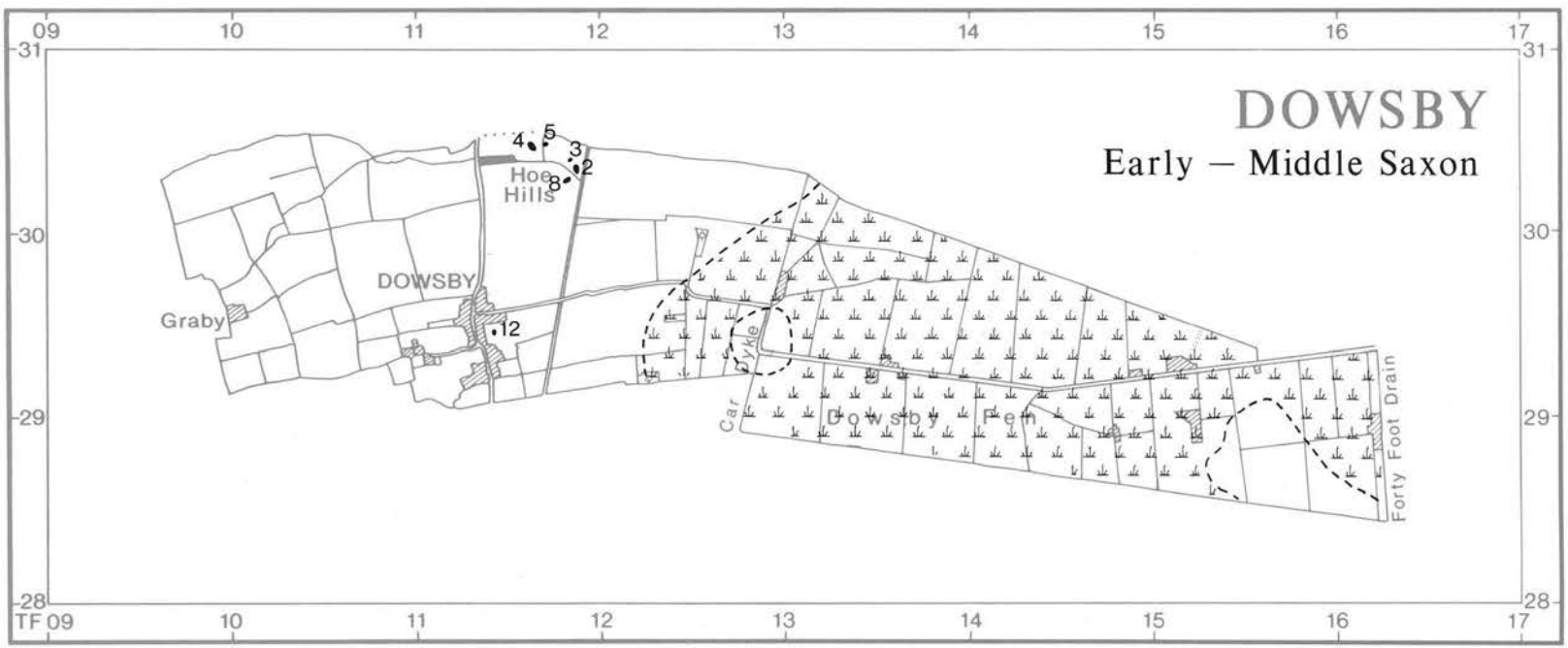

Figure 40 Dowsby: Early — Middle Saxon

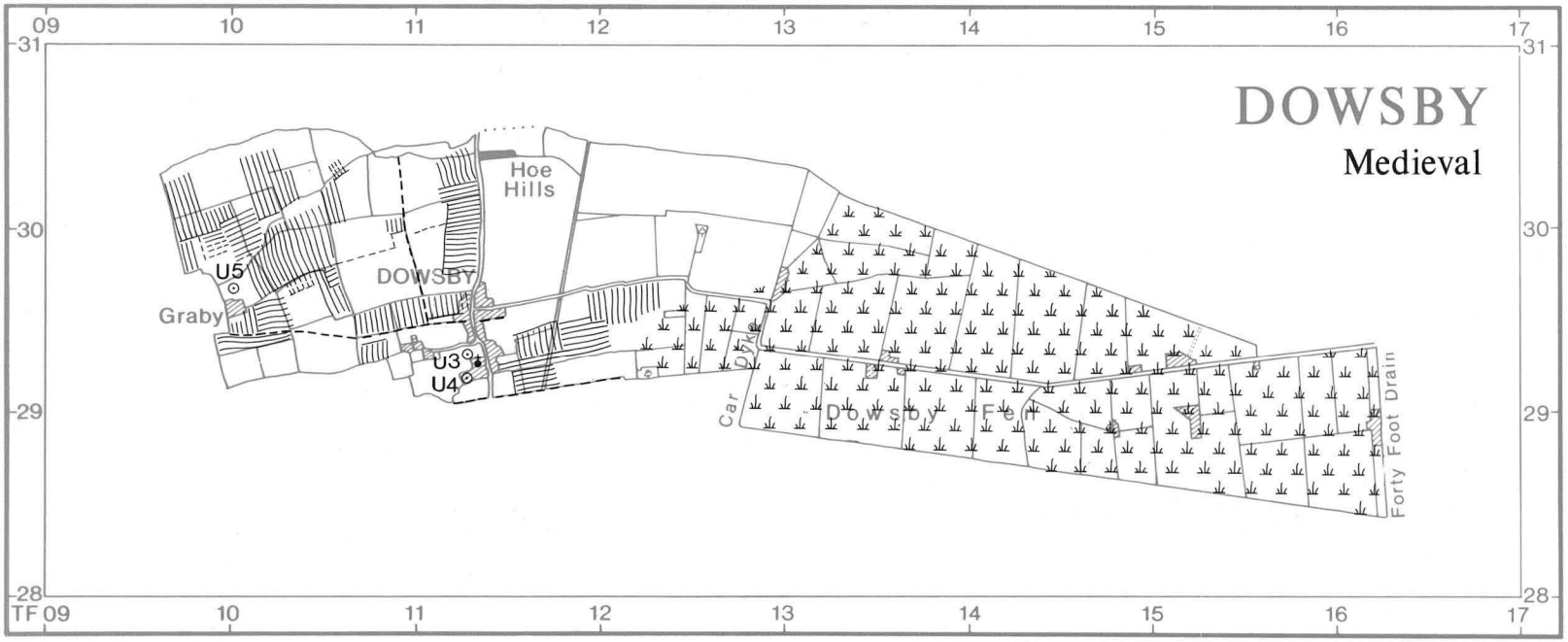

Figure 41 Dowsby: Medieval

likely to be Roman in date and to have led to the very large settlement (village?) on the Rippingale side of the large island at the east end of the Fen (RIP 4-11).

Dowsby's fen margin, on the other hand, did support some Roman settlements (DOW 6,7,11 and 13). DOW 11 stands in a large, ditched, enclosure, clearly visible on air-photographs. The shape of the enclosure, the single Iron Age sherd, the amphora fragment, samian and colour-coated wares, suggest a Late Iron Age foundation, with occupation continuing well into the Roman period. However, despite the tiles and abundant limestone rubble, the amount and quality of the pottery on this and the other sites, does not suggest much wealth, particularly when compared with finds from sites out on the Fens. This contrast between the poverty of the ceramic evidence and the wealth implied by stone-built buildings and tiled roofs is an intriguing feature of many Roman sites along this part of the fen margin.

The Car Dyke (DOW 14) runs along the fen-edge but the Roman road from Bourne to Sleaford lies well to the west of the parish. It is difficult to resist the conclusion that Dowsby was a quiet backwater in Roman times.

VII. Early—Middle Saxon

(Fig. 40)

The saltmarshes retreated eastwards during the Roman period and by Early or Middle Saxon times Dowsby Fen was probably a completely freshwater wetland. The fen symbol on Figure 40 represents a wide range of sub-environments, ranging from damp grassland through to wet woodland and even perhaps small meres. Local variations would have been common, caused for example by proximity to streams and to islands of the pre-Flandrian land surface. These, and activities such as wood cutting, peat digging and grazing animals, would have produced a mosaic of trees, grass and water. No Saxon settlements were found in the Fen and it is unlikely that any existed.

None of the Roman sites was occupied in the Saxon period. Dowsby was, nevertheless, far from empty. The Hoe Hills area contains a very important concentration of Early Saxon sites: DOW 2,3,4,5 and 8. This group continues across the parish boundary into Pointon and Sempringham. It is uncertain whether these sites (concentrations of pottery) represent settlements or a cemetery. The proximity to earlier barrows and the presence of some decorated sherds might be used to argue in favour of funerary remains. On the other hand, no grave goods are known and the proportion of decorated sherds is very low. Until an excavation improves our ceramic typology it will be impossible to be certain, but on balance the evidence points to the existence of an important Early Saxon settlement area, possibly a small village, at Hoe Hills. The sites seem to have been abandoned before or at the beginning of the Middle Saxon period (*i.e.* by about 650 AD).

The lack of survey information from the village and upland parts of the parish makes it impossible to present an adequate discussion of Middle Saxon Dowsby. The only area close to the village which was surveyed was found to contain a probable Early Saxon site (DOW 12) together with a scatter of medieval pottery and a single Late Saxon sherd. Late Saxon and medieval pottery has also been found in the past between the church and the Manor (U3 on Figure 41). Judging by the evidence from Billingborough and Pointon and Sempringham, one would expect to find Middle Saxon material in or near the centres of Dowsby and/or Graby.

Using all the available evidence one can suggest that Dowsby was absorbed into the Kingdom of Mercia in the seventh century, along with the other fen margin parishes. One consequence of the conquest could have been that the Hoe Hills area and the scattered farms were abandoned and the population was resettled in Graby, Dowsby or Pointon. At present that is only a hypothesis. It could be argued that the area was completely abandoned in the Middle Saxon period, to be resettled by the Scandinavians (both Dowsby and Graby are Scandinavian names) but that seems unlikely. The names may simply be an expression of another change in control of the settlements. Continuing the survey into the modern village might produce evidence of the missing Middle Saxon settlements but it would be difficult and time consuming to obtain permissions and visit the numerous gardens and small plots of land.

VIII. Medieval

(Fig. 41)

Similar problems arise when considering medieval Dowsby (Figure 41). Few medieval remains were found because the survey was almost entirely confined to land which was either fen or meadow in medieval times. Graby was not visited at all. However, the existence of the church and the Late Saxon and medieval pottery which has been found nearby (U3) suggest that the village of Dowsby was in existence throughout the medieval period and probably predates the Norman Conquest.

The ridge and furrow and roads depicted on Figure 41 have been inferred from the evidence of air photographs. In common with all the fen margin parishes in south Lincolnshire, the medieval landscape of Dowsby was dominated by open fields of ridge and furrow. This would have been in sharp contrast to the landscape of the silt fen parishes east of the South Forty Foot drain. The medieval road pattern is rather conjectural. There may have been a route north to Pointon along the modern road (B1177), past Little Dowsby/Hoe Hills, but the B1177 does not fit very well into the medieval landscape of this part of the fen margin and it may be post-medieval. Further south, in Dunsby, the road cuts across strips of ridge and furrow in a way which suggests that they must have gone out of use before the road came into being. Other possible routes fit the medieval field pattern better. Instead of running south (direct to Dunsby) the road may first have headed south-west, to Rippingale, following the footpath shown on the Ordnance Survey Map (1:10560), and then continued on to Dunsby. Similarly, the route north may have been about 500m west of the modern road. This would, on crossing the stream at the northern boundary of the parish, have connected with a direct route to Sempringham, along lanes which still exist.

The relationship of Graby to Dowsby and the Fen is unclear. In fact it seems likely that parish boundary changes have left a distorted picture of the medieval landscape. For example, Dowsby village is situated unusually close to the parish boundary, and because the parish does not stretch as far west as its neighbours it seems to lack upland. Air-photographs of Dowsby parish show several large blank areas, especially south of Hoe Hills,

in which no trace of ridge and furrow or roads can be seen. If the parish lacked upland in the medieval period these blank areas may have been land used as pasture in order to compensate for a shortage of upland grazing, but it would be unwise to conclude this without further research into the boundaries and field systems of the neighbouring parishes, especially Aslackby.

IX. Conclusions

In Dowsby the Survey located several important sites and achieved its objectives as a regional-scale reconnaissance. It is nevertheless clear that there is scope for further work to enhance this preliminary picture of the development of the parish, particularly on the uplands. Fieldwork is needed in the unsurveyed parts of the parish, though it would be advisable to extend the enquiry into Aslackby because the modern parish boundary appears to be irrelevant. Additional work in and around Dowsby and Graby villages would be more time-consuming but would be worth the effort and ought to yield invaluable evidence on the Middle Saxon period.

Those are probably matters of local interest, but the barrow cemetery and the Early Saxon remains at Hoe Hills are of much wider significance. They, and the putative Middle Bronze Age site buried in the Fen (A2), need further investigation to establish their true level of importance.

7. Rippingale

I. Introduction
(Fig. 42)

Rippingale is another of the strip-shaped parishes which crowd along the edge of the Fens in south Lincolnshire. The parish stretches for about 8km (5 miles) from the uplands in the west to the South Forty Foot Drain in the east. This long strip of land is generally about 2km wide, giving a total area of 1434 ha (3544 acres).

II. Topography

The highest parts of the parish lie west of the village, reaching some 50m OD. The upland section of the parish centres on a small valley containing the Old Beck. Near the Fen margin the course of the stream veers to the south before resuming its west-east course on the boundary with Dunsby parish. When the clear, fast-flowing waters of the Old Beck reach the Fens they are constrained in an artificial channel known as the Rippingale Running Dyke. Most of the land surface in Rippingale Fen lies between 2.0 and 3.5m OD.

The geology and soils of Rippingale are typical of the fen-edge parishes of this part of South Lincolnshire except that the valley of the Old Beck is quite wide and has exposed the Jurassic limestone and clays which are usually covered by glacial drift deposits (mainly chalky till). The upland soils tend to be fine (clayey), sometimes with poor drainage of surface water. They would not have been the best soils for arable agriculture in prehistoric times except where glacial or periglacial deposits of sand, or exposures of the better drained Jurassic rocks have given rise to lighter soils. The stream valley soils also tend to be clayey and poorly drained. The Jurassic deposits dip under gravel at the fen margin, producing a band of fine loamy soils, sometimes suffering from high groundwater levels east of the village. The fen margin soils merge almost imperceptibly east into the marine silty clays of the fens in a wide transitional zone, making it impossible to define the fen-edge precisely. The transitional zone is archaeologically very important.

III. Fieldwork
(Fig. 43)

The aims of the Fenland Survey, and the limited time which was available, led to a decision to confine fieldwalking to the Fen and the fen-edge. In other words, the eastern 5km of the parish were examined but the western 3km were not. Since the village of Rippingale is set well back from the Fen-edge, it was not approached very closely during the survey. For this reason little has been added to our knowledge of the Saxon and medieval aspects of the development of the parish except from a perusal of air-photographs and a consideration of the parish in the broader context revealed by the survey results in neighbouring parishes.

IV. Mesolithic—Bronze Age
(Fig. 44)

Most of the land surface which existed east of the fen-margin during this long period now lies buried beneath marine clay and silt. At the extreme east end of the parish, however, the South Forty Foot Drain cuts through an 'island': part of the prehistoric land surface surrounded by former saltmarsh deposits. This island is shared with the parishes of Dowsby and Pinchbeck.

There is a light scatter of flints along the fen margin. On the fen island several flint flakes were picked up on the Roman sites RIP 6 and 9 and two micro-cores were found nearby. Most of the flints probably date to the later Neolithic and Early Bronze Age. This scanty evidence suggests that there was little human activity in Rippingale until the Bronze Age, though given the lack of information from the upland and the buried land surface one cannot be absolutely certain. In contrast to neighbouring Dowsby, no flint or stone axes were found or appear in the museum records consulted before the survey was carried out.

RIP 19 (Fig. 44) consisted of a spread of Bronze Age sherds along the edge of a dyke. Cutting or cleaning the dyke seems to have resulted in the exposure of Middle Bronze Age remains buried under a metre or less of marine clay. On air-photographs a complex of ditched enclosures can be seen, mainly in the field to the north. If these are of similar Middle Bronze Age date, as seems likely, the site represents a fen margin settlement contemporary with the earliest phases of the excavated site at Billingborough (Chowne 1979, 246-8) but protected from medieval and modern ploughing by the clay. If so, there is a high risk of the destruction of important waterlogged remains through fluctuations in the water table.

RIP 21B (the smaller part of RIP 21) was in a similar location on the fen-edge, though situated further inland. It consisted of a small concentration of Middle Bronze Age pottery and some animal bones (including cattle). RIP 21A was a scatter of flints which may date to the Early Bronze Age, though the two groups of material slightly overlapped.

RIP 24 is also in the transitional zone where the fen margin and fen soils merge. At the time of the survey, late in the season, the cereal crop was very high and obscured most of the ground surface. There seemed to be two groups of material, Bronze Age on the east and Iron Age on the west, but the site would need re-examination in better conditions to delimit the scatters of material accurately. This site would repay further attention because chronologically it appears to span the catastrophic changes in the environment when the sea reached the fen-edge. We have very little archaeological evidence about the human response to the catastrophe. The Middle Bronze Age site presumably lay abandoned for several centuries, but an excavation to confirm this would be most valuable.

The survey results point to quite intensive Middle Bronze Age use of a low gravelly spur of land, on the north side of the Beck where it runs out into the Fens. The survey was able to pick up this evidence because the spur was slightly higher than its surroundings and so the Bronze Age remains are only lightly covered by marine sediments.

Figure 42 Rippingale: The modern landscape

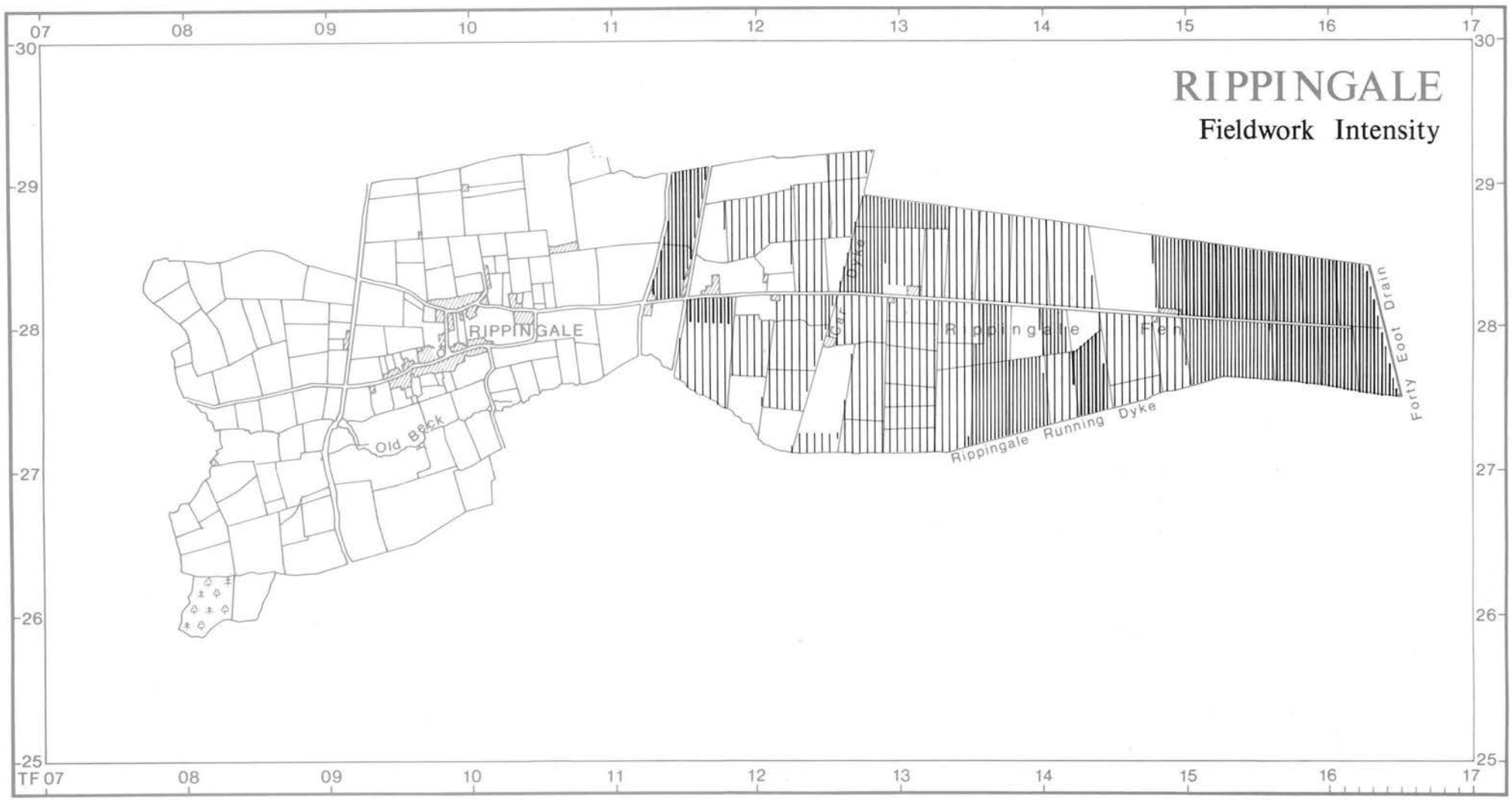

Figure 43 Rippingale: Fieldwork intensity

Figure 44 Rippingale: Mesolithic — Bronze Age

V. Iron Age
(Fig. 45)

The previous section discussed Middle Bronze Age material found in the fen-edge transitional zone, where the fen margin gravels meet and are lightly covered by marine clays associated with a network of extinct creeks (roddons) which cover Rippingale Fen. Although there are no radiocarbon dates for the marine flooding episode in Rippingale, the radiocarbon and archaeological evidence from the whole of the fen-edge discussed in this volume points to marine sedimentation starting early in the 1st millennium BC. No pottery dating to the Late Bronze Age/Early Iron Age period (05) was found during the survey of Rippingale. Although it is possible that a biasing factor is at work (perhaps the pottery from that period disintegrates more easily when subjected to ploughing) the most likely explanation is that Rippingale Fen and the adjacent fen margin were unsuitable for human settlement in that period. The vegetation on the old prehistoric land surface would have been killed by salt or brackish water, and then covered by mud as tidally flooded mudflats, or even areas of open water, covered the fen. Gradually the land would have built up towards the modern surface through the accretion of marine sediments. When saltmarsh vegetation took hold and the courses of the creeks stabilised it would have become possible to venture onto the marshes to gather shellfish and to trap fish and other wildlife. The waterlogged gravel at the fen-edge may have encouraged the growth of beds of reeds and a change to what may loosely be termed freshwater fen. This would in time have lead to the formation of peat on the surface and perhaps to the growth of water-tolerant scrub and even trees, the situation depicted in Figure 45.

It would then be possible, from the safety of the fen-margin gravel, to reach supplies of saltwater (or salt-impregnated mud) and fuel (peat or wood). These are necessary ingredients for saltmaking. RIP 20 and 22 are saltmaking sites with the very distinctive shell-tempered briquetage associated with Middle Iron Age pottery in nearby parishes (such as Hacconby). It therefore seems probable that there was a conjunction of brackish/marine and freshwater environments near the fen margin in Rippingale in the Middle Iron Age. RIP 24, discussed above in respect of its Middle Bronze Age component, probably belongs to this group, but field conditions were poor at the time the site was surveyed and the artefactual evidence from the site is inconclusive.

Judging by the evidence from Pinchbeck the fen island may have been abandoned slightly earlier in the Bronze Age than the fen margin. It is not clear when the island was resettled. No Iron Age saltmaking evidence was found there, in contrast to the fen-margin. The few Iron Age sherds found on RIP 9 and 10 may indicate the establishment of Late Iron Age sites which later developed, in the Roman period, into one of the largest settlement complexes in this part of the Fens — possibly a small village.

An Iron Age origin is also hinted at in RIP 12, a very small site interestingly placed on the flank of a roddon in the part of the fen used for saltmaking in the Roman period. Although most of the sparse scatter consisted of Romano-British sherds, some curious vegetable-tempered pottery was found which could be Iron Age in date. The site resembles the small and enigmatic Roman site DOW 10, immediately across the parish boundary, in Dowsby Fen. Thus, although there is insufficient evidence upon which to reach definite conclusions, it is arguable that the Late Iron Age saw the sketching out of a settlement pattern which came to be developed in the Roman period.

It is suggested that in the Later Iron Age a complex mosaic of fen and saltmarsh environments developed in this part of the Fens because it was sheltered slightly from the influence of the sea by the islands and the 'watershed' in Dowsby Fen.

The construction of a canal in Rippingale in the Roman period, and the existence of numerous shells of freshwater molluscs in its flood-sediments, both add weight to the suggestion that this was a part of the Fens in which freshwater conditions soon predominated over saltwater and that freshwater drainage became a problem. Although Iron Age water management features have not been identified, the possibility of their existence should not be overlooked. The technology and organisational skills were within the capacity of Late Iron Age societies, though the economic incentive for their use may have been absent. Some of the evidence must be hidden under the later sediments which run like a spectacular scar across Rippingale Fen (Fig. 45). These sediments are associated with the Rippingale Minor Canal, an extinct artificial watercourse discussed in the next section.

VI. Roman
(Fig. 46)

In the previous section it was suggested that in Rippingale the Later Iron Age and Roman periods could be viewed as a continuum of development both environmentally and in human terms. However, it needs to be emphasised that no indisputably Late Iron Age pottery was found. It is arguable, on present evidence, that there were no settlements or salterns in the area between the Middle Iron Age and Roman times. Even if there was no traumatic event comparable with the marine flooding which ushered in the Iron Age, the scale of change during Roman times is striking, and the changes towards the end of the Roman period must have amounted to a human catastrophe.

Saltmaking in the Roman period took place in the Fen (RIP 13, 14 and 15), not on the fen-edge. It is suspected that the salterns mark the landward limit of the still-active minor creeks in the 1st-2nd centuries AD, but as none has been excavated, and virtually no pottery was found on them, it is impossible to be certain.

The fen margin was not fully explored. The impression in the field was that the Roman sites on the fen-margin were not very rich — *i.e.* they had little pottery, especially fine wares — particularly in the case of the more inland sites, RIP 17 and 18. RIP 25 is a site which extends onto the transitional zone, where the gravel and the marine deposits merge. The survey and air-photograph evidence, and the results of earlier work by the Car Dyke Research Group, suggest that there were ditched fields or enclosures in this area, with stone buildings. Nevertheless, results from adjoining parishes and from the analysis of the Roman pottery (chapter 21) confirm that sites in the Fens had greater quantities of pottery, including finewares, than sites on the fen margin. The relative scarcity of pottery could be confined to the fen margin. Richer sites may exist on unsurveyed land further inland. There are certainly some rich sites on the Kesteven uplands, where a small number of villas and

Figure 45 Rippingale: Iron Age

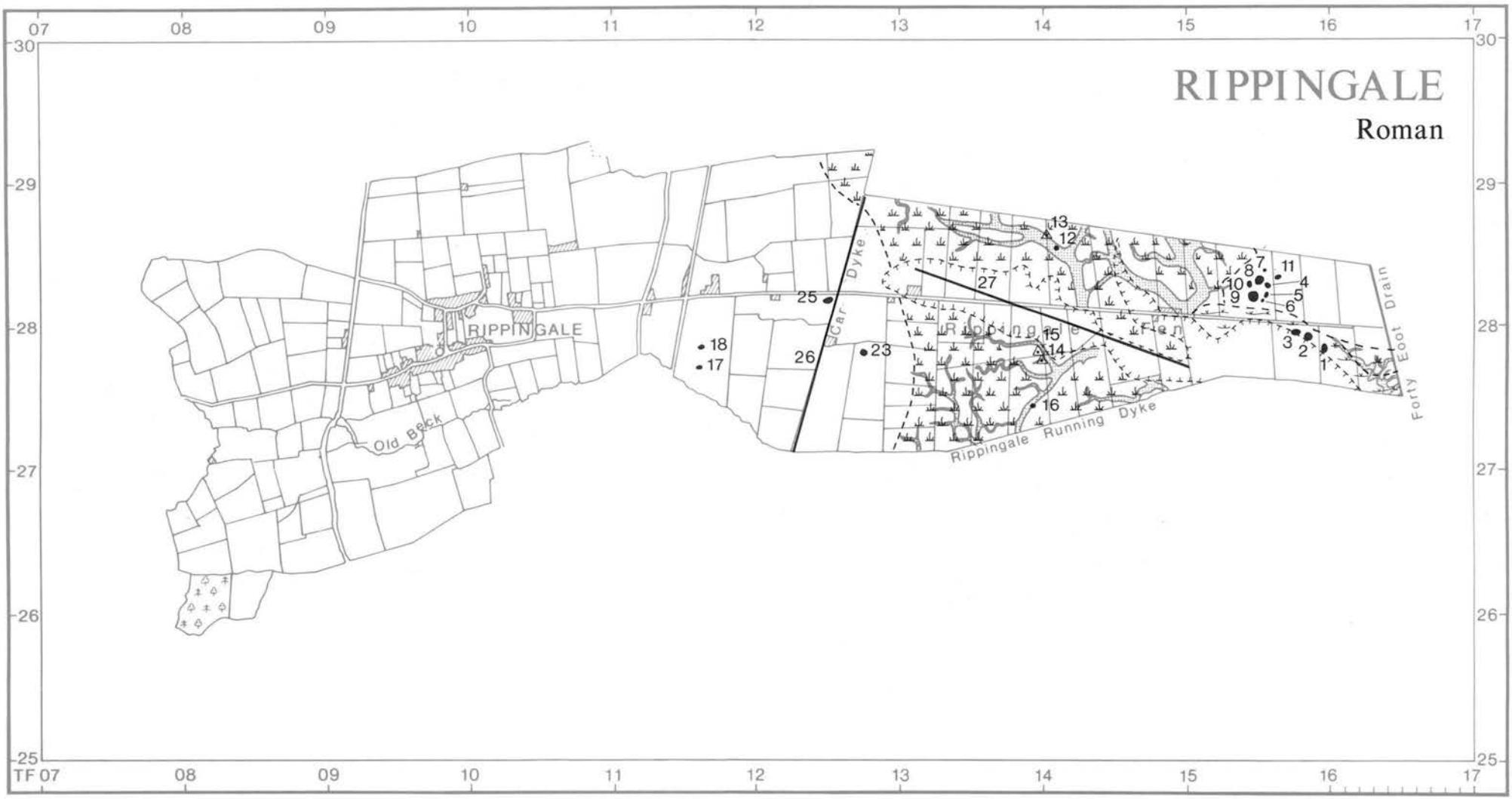

Figure 46 Rippingale: Roman

Figure 47 Rippingale: Saxon — Medieval

large nucleated settlements are known, such as those at Bourne, Stainfield, Sapperton and Ancaster.

The Roman road (RIP 28) just west of Rippingale village, seems to belong to the Romano-British communities on the uplands. There may have been a major road across Dowsby Fen to the village on the island (RIP 4-11) though this is not certain. Water transport, perhaps using the Rippingale Minor Canal (RIP 27), probably played an important part in the lives of those living in the Fen. If so, their lines of communication would have extended along the coast and up the larger rivers such as the Welland and Nene.

However, the Roman artificial waterways need not have been intended as routes. Simmons (1979) has argued that the Car Dyke (RIP 26) was constructed for land drainage rather than navigation. The Rippingale Minor Canal also looks like a drainage channel. Communication or transport are unlikely uses for a waterway which does not seem to join the Car Dyke, stopping short of it by about a field, and does not lead from or to anywhere in particular. It was however an impressive piece of engineering and by cutting through a very large roddon near the southern end of the fen island, it could have been used to improve land drainage in Rippingale and Dowsby Fens. Waterlogging and flooding would have occurred there as freshwater entering the Fens from the uplands found its route to the sea blocked by the fen islands of Aslackby, Dowsby and Rippingale Fens, and by the high silt roddon that continues south-west across Dowsby and Hacconby Fens. The scale of the problem is indicated by the extensive silt (flood deposits) around the canal. The absence of sites on the silt indicates that it was deposited in or after the Roman period.

On air-photographs an unusual system of ditches is visible on the silt south of the island. The ditches relate to neither the medieval nor the modern landscapes. The pattern suggests Roman fields bounded by ditches in an area resembling the 'washes' constructed to receive excess floodwater from post-medieval drainage channels elsewhere in the Fens, except that in this case the system is Roman. The large and wealthy community on the island may therefore have thrived as a result of investment in a local water-management system. Detailed analysis of the pottery has shown that the island community prospered in the later Roman period, in common with its counterpart in Dunsby Fen (DUN 15-19). The existence of earlier but relatively less prosperous settlement on the island is indicated by the small quantity of Iron Age and earlier Roman sherds found there. The drainage scheme was local in the sense that it dealt with a problem caused by the peculiarities of local topography. It required great effort but no great technological knowledge and it did not link up with a regional drainage network.

VII. Saxon—Medieval

(Fig. 47)

The picture in the Saxon period could hardly be more different. Rippingale Fen had become true fen. It was probably in this period that the canal silted up, causing the floods which deposited the spread of freshwater silt at its landward end. No Saxon sites were found in the course of the survey, none of the Roman settlements survived. The Romano-British settlements on the uplands need not necessarily have been abandoned like their Fen counterparts. Further survey is needed to show what happened to them.

It is strange that no Saxon material is known from the parish because the name is one of the earliest in the area (apart from Bourne). Ekwall (1960, 388) gives a reference to the Hrepingas in 675 AD. They appear to have been a group of Middle Anglians who settled in the general vicinity of Rippingale village. 'Repingale' is recorded as a name in 806. Linguistically Rippingale is a Saxon enclave, a survival surrounded by Scandinavian '-by' names (Dunsby, Hacconby, Kirkby, Dowsby, Aslackby). Survey of the remainder of the parish should, judging by the results achieved in neighbouring parishes, produce archaeological evidence of the Early Saxon settlements.

The Roman road seems to have continued in existence through the medieval period, for it lies under the modern main road. However, it is reasonable to infer from the position of the village, east of the Roman road, and the pattern of the medieval fields revealed by the ridge and furrow visible on air photographs, that the Roman road was used only for long journeys. Tracks and lanes around the open fields and along headlands probably served the everyday needs of the village. This arrangement suggests a mental map in which a route was a succession of communities rather than the shortest distance to a destination.

There is no survey evidence with which to chart the development of the village and it has not been possible to trace and examine the documentary sources which probably exist. There is, however, a deserted hamlet known as Ringstone (U1), visible from the air. Previous finds suggest that Ringstone existed in the Middle Ages and at least until late in the 17th century. Owen (1975, 20) notes the existence of a manorial chapel of St. Anne at 'Ringsdon' in 1376.

VIII. Conclusion

Although the fen margin was only partially investigated in Rippingale, the results were encouraging. One aspect of its archaeological importance is the presence of a transitional zone where a thin layer of marine clay appears to cover Middle Bronze Age remains, with Middle Iron Age remains on top of or beside the marine deposits. These sites are important because they could, if excavated, throw some light on the obscure period in the Bronze Age—Iron Age transition when the marine transgression was at its height.

The results of the survey in Rippingale Fen have been interpreted as indicating Romano-British water management involving a high investment in labour but intended to confer benefits at a local rather than regional scale. If this interpretation is correct the artificial watercourse and sites in Rippingale, Dowsby and Dunsby Fens represent one of the earliest attempts at drainage recognised in the Fenland basin. They would certainly repay further investigation. The system was probably more complex than it appears from the survey evidence. Hallam (1970, 33-34) discusses two artificial channels. Only the southernmost has been shown on Figure 46 because the northern channel could not be observed in the field. However, a number of anomalies were noticed in the roddon network (unusual straightness and differences in height or siltiness) around the 'canal'. The anomalies suggest that several deliberate changes were made to the

natural drainage system including some near Hallam's second channel, but they were too small or indeterminate to include on Figure 46. The presence of shells of freshwater molluscs in the silt spread at the inland end of the main channel and marine or brackish molluscs nearer the South Forty Foot may be an indication of chronological differences in the flooding episodes around the channel. The possibility of a Roman sluice, controlling the discharge of freshwater into a tidal watercourse cannot be ruled out without further investigation.

There is still a paucity of information concerning Early Saxon or early medieval settlement in the parish. It should be possible to remedy the situation by extending the survey westwards, around and beyond the village of Rippingale.

8. Dunsby

I. Introduction
(Fig. 48)

Dunsby is another of the strip-shaped parishes crowded along the fen edge in South Lincolnshire. The village itself straddles the junction of the Jurassic uplands and the fen margin gravels. This is a typical location which takes advantage of the availability of a good water supply from the springs occurring along the geological junction. The parish extends eastwards across the Fens as far as the South Forty Foot drain which divides the ancient administrative units of Kesteven and Holland.

II. Topography

The western part of the parish consists of the southern half of a spur of land, most of which is over 30m OD. The northern half of the spur, formerly containing a hamlet called Ringstone, belongs to the parish of Rippingale. This gives the parish an unusual shape (Fig. 48) as if Ringstone has been carved out of it. Much of the remaining part of the spur is still wooded.

The spur tapers somewhat towards the Fens and Dunsby village is situated on its eastern end, where the land dips down to the fen-edge. Most of the village lies between 10-25m OD. Below the village, on the fen margin, there is a wide spread of slightly clayey soil over gravel, bounded by the Car Dyke. The last traces of the spur continue into the Fen; though hardly discernible the land is slightly higher in places, giving rise to a small fen 'island' surrounded by land containing springs. The resulting undulations and waterlogged areas formerly contained patches of deep peat and though the peat has largely wasted away patches of very humose soil remain.

The surface of Dunsby Fen is mainly around 1.5 to 2.0m OD. Its most striking feature is a large roddon, a silty ridge over 150m wide and reaching 3.5m OD or more. The roddon was an important feature in Late Iron Age and Roman times, enabling settlements to be established in an area which would otherwise have been uninhabitable. Entering Dunsby from Hacconby Fen, the roddon extends and runs north-east across the middle of the fen, finally disappearing under the banks of the parish boundary (the Rippingale Running Dyke).

Further east, close to the South Forty Foot Drain, the soils contain more silt, the product of marine flooding from the direction of Pinchbeck North Fen.

III. Fieldwork
(Fig. 49)

Survey was confined to the Fen and a small part of the fen margin. No work was carried out west of the former railway line so the village has not been examined.

IV. Mesolithic—Bronze Age
(Fig. 50)

Nothing found during the survey appears to date to the Mesolithic period and there are no records of Mesolithic finds before the survey. While it is possible that some Mesolithic flints may exist on the fen margin or on the unsurveyed upland there is no reason to suspect that there will be very many. The survey and pre-survey finds in this and neighbouring parishes point to at most a low level of human activity in the area before the Late Neolithic—Early Bronze Age and the generally clayey soils probably supported large tracts of woodland. The Mesolithic land surface buried beneath the Fen remains a mystery.

There is virtually no evidence for Neolithic activity in the parish. A leaf-shaped arrowhead, presumably dating to the Neolithic, was found in the centre of an Iron Age saltern on the fen edge (DUN 2) but it could conceivably have been found elsewhere and carried there by the saltmakers. There are many examples among the survey finds of discarded flint artefacts reused in a later period, though most are likely to be Neolithic artefacts re-used in the Bronze Age.

A few flints found on Later Bronze Age and Roman sites (DUN 1, 5 and 6) may be evidence of some Early Bronze Age activity on the fen margin and the ring ditches (U4 and U5) could possibly date to this period. On present evidence clearance of woodland on the fen-edge seems unlikely before about the second millennium BC, though admittedly the evidence is very slight.

DUN 1 is an interesting Later Bronze Age site situated more or less on the limit of the marine alluvium and very close to the Middle Iron Age salterns DUN 2 and 3. The pottery, resembling that found in Phase 1 at the excavated site at Billingborough (BIL 2), dates to between 1850 and 1000 BC. Judging by its location DUN 1 must have pre-dated the maximum extent of the marine transgression.

Further survey of the fen margin in Dunsby would almost certainly result in the discovery of more sites belonging to the pre-transgression phase of the parish's landscape history, but enough has been found to relate the parish to the wider patterns observable in the South Lincolnshire Fens.

V. Iron Age
(Fig. 51)

In the preceding section it was suggested that DUN 1, a Later Bronze Age site, predated the marine transgression which resulted in the burial of the prehistoric land surface. In time a complicated environment of creeks, saltmarshes and mudflats was fringed on the landward edge by reed beds and then freshwater fen. Fig. 51 shows this new environment, though it only suggests one phase in a slowly developing sequence.

DUN 1 reinforced the pattern observable in neighbouring parishes: Later Bronze Age sites very close to and sometimes apparently covered by marine alluvium. Dunsby continues to follow the general pattern in the next phase, the Late Bronze Age/Early Iron Age (1000-400 BC). The evidence for this phase is negative: there is a *lacuna*, an absence of pottery. Negative evidence, though valuable, is always slightly unsatisfactory, but the repetition of a pattern becomes more convincing. In Dunsby and the adjoining fen-edge parishes the pattern is as follows. Late Bronze Age pottery occurs on the edge of

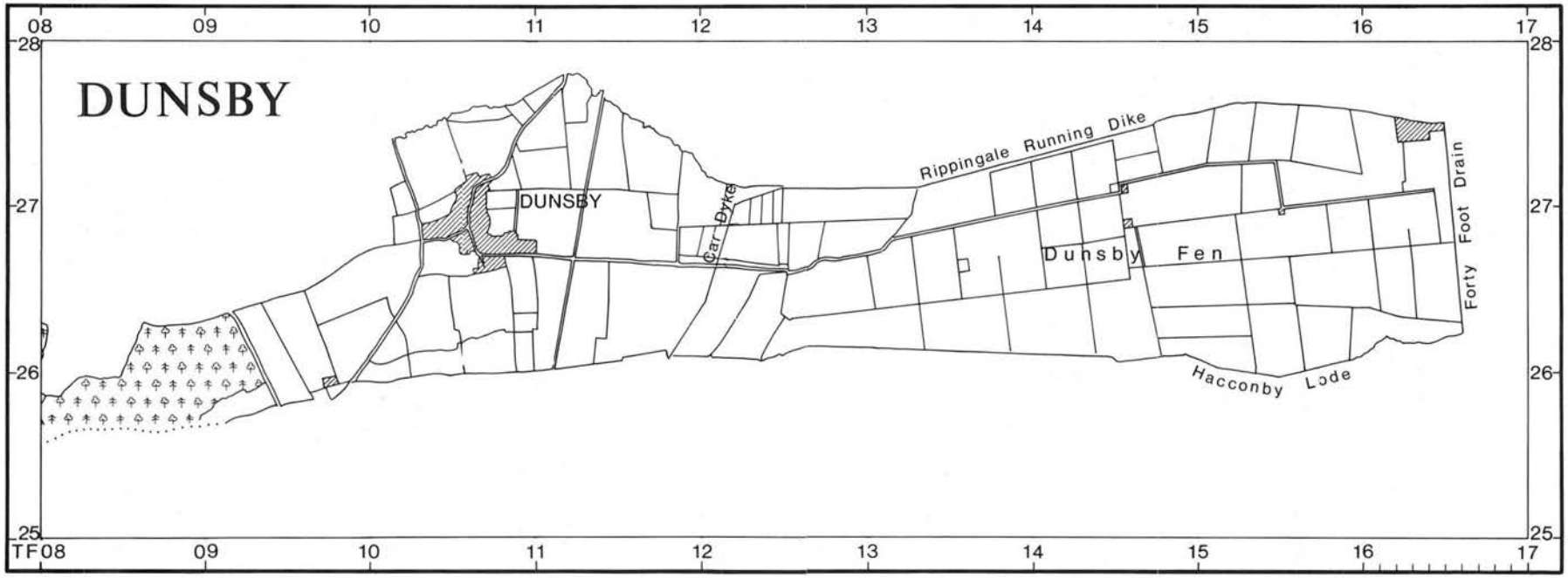

Figure 48 Dunsby: The modern landscape

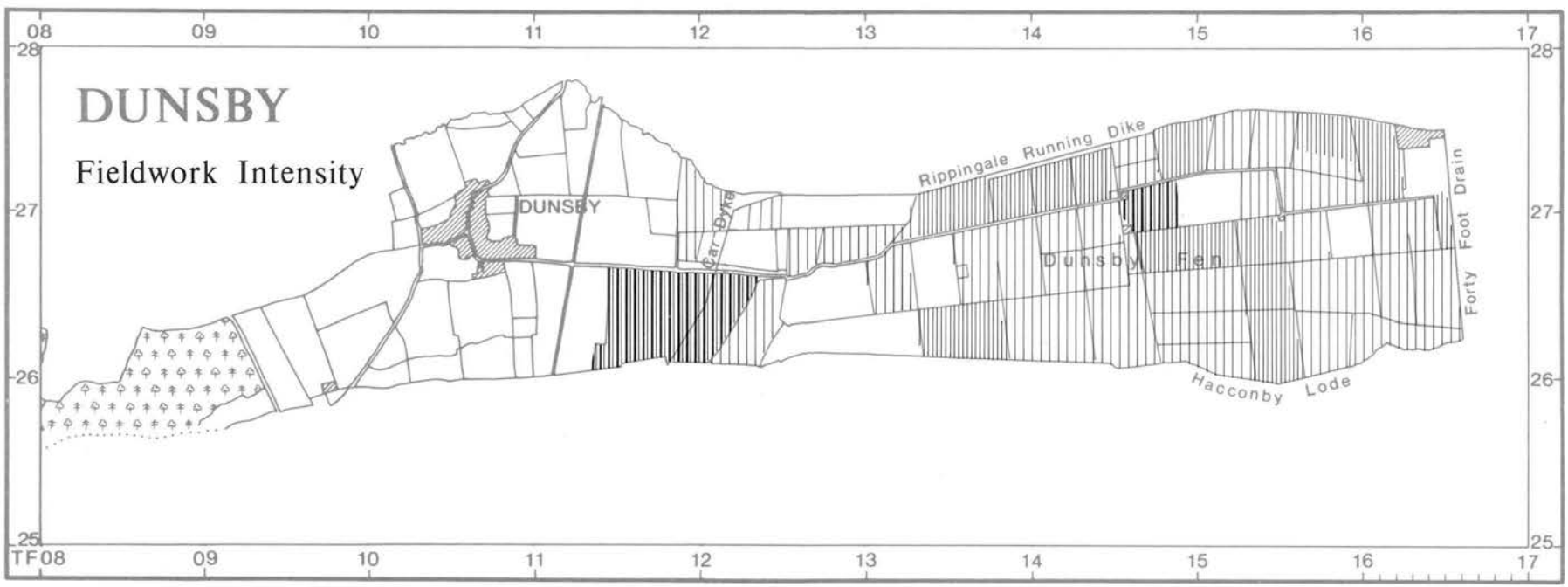

Figure 49 Dunsby: Fieldwork intensity

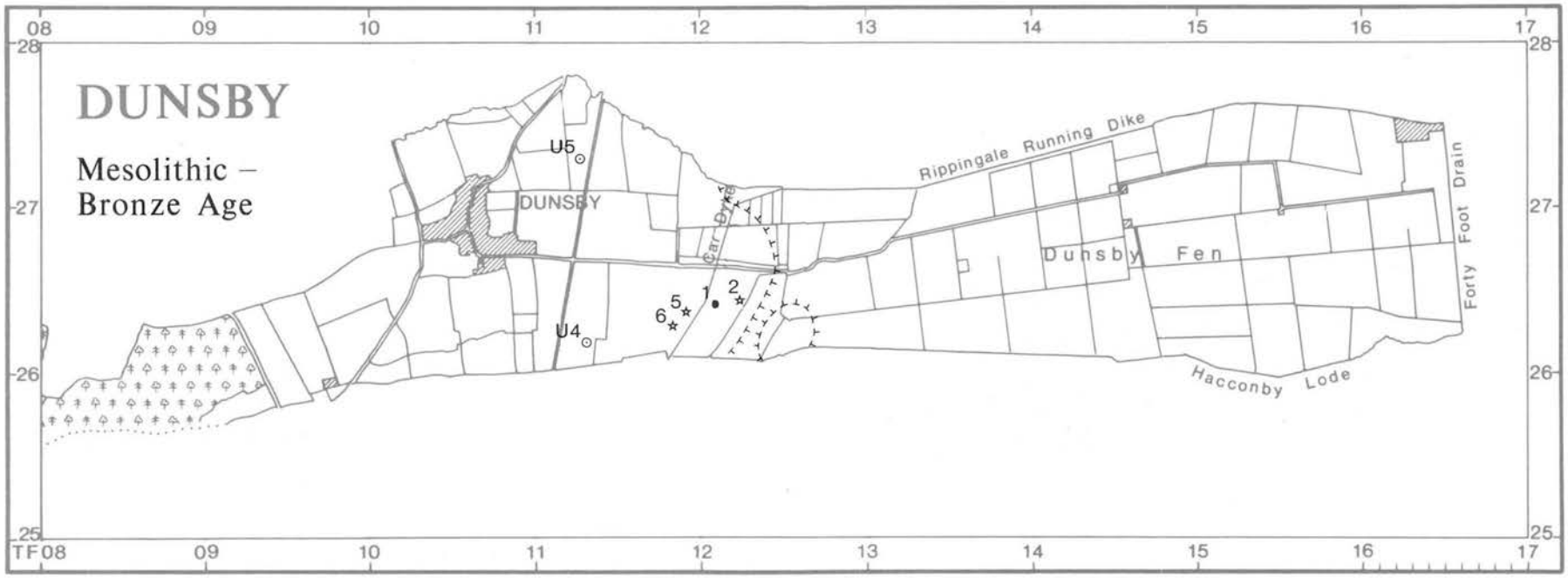

Figure 50 Dunsby: Mesolithic — Bronze Age

or under the marine deposits; there is an absence of Late Bronze Age/Early Iron Age pottery, followed by Middle Iron Age pottery and saltmaking sites on the edge of the marine alluvium (in this case sites DUN 2 and DUN 3). A break in settlement appears to occur between 1000-400 BC, though on the ceramic evidence it could have occurred as early as the late 2nd millennium and have continued perhaps as late as 250 BC. More detailed investigation is needed to produce precise dates, but the broad picture seems to be clear. There was a catastrophic change in the natural environment in the Late Bronze Age/Early Iron Age. We do not know the speed with which it happened (change may have spread gradually inland over many years) nor do we know the rate at which marine alluvium accumulated over the old land surface. What appears to be clear is that for about 500 years there was little or no permanent occupation of the immediate vicinity of the fen-edge and the newly-formed marshes.

At some time between 400-150 BC people were making salt near the edge of the marshes (DUN 2 and 3). DUN 7 also seems to be a saltern, though it is some distance from the edge of the marine alluvium observed during the survey. It is possible that the marine alluvium extended further inland and has been incorporated into the topsoil by ploughing. Usually, however, this produces discernible changes in the gravelly soil, such as differences in the cloddiness, thin films of silt on the surface of clods, or occasional patches of marine clay brought up by slightly deeper ploughing.

DUN 2 and 3 are slightly mounded, but neither they nor DUN 7 are near any roddons or other obvious sources of saltwater. Perhaps the salt was obtained in some way from the salt pans which occur naturally in the higher parts of the saltmarshes. Whatever the method it looks as though by 150 BC the marshes were well developed and were being actively exploited, though only from the fen margin.

The move onto the marshes appears to have taken place shortly before the Roman invasion (1st century BC to 1st century AD). The evidence is very slight, a few imprecisely dated Iron Age sherds in the predominantly Roman pottery of sites 18, 20 and 22: far out in the marshes, close to the eastern end of the parish.

VI. Roman

(Fig. 52, Table 5)

The Romano-British sites may be divided into three groups: a group on the fen-edge, another on the large roddon in the middle of the Fen, and a third on the edge of the silt at the east end of the parish. Although the number of sites is a little small as a basis for generalisation, the patterns revealed by the groups are so consistent with the regional patterns of change discussed in chapter 21 that it is worth considering the archaeological evidence for the Roman period under those three landscape headings. In this way Dunsby will serve as a good example at the local level of the more general problems discussed in chapter 22.

The sites in the fen-edge group (DUN 4,5,6,8 and 21) are situated along the landward (west) side of the Car Dyke. They were probably close to the lowest limit of the Romano-British arable land, with meadow or good pasture between them and the fen which would by then have formed along the edge of the saltmarshes. The limit of the arable land in medieval times was no more than 200m or so west of these Roman sites, and the likelihood is that soil conditions (especially drainage) were rather worse in medieval times, due to the increased extent of the fen. Alternatively, the Roman sites may have been entirely surrounded by grassland, specialising in the production of animals and animal products. Even if the inhabitants practised mixed farming (arable and pastoral), the pastoral element would have been very important. These fen-edge farms appear to have had substantial buildings. Limestone rubble and clay roof-tiles (particularly tegulae) are common.

The second group of sites is on the large roddon which runs across the centre of Dunsby Fen. The group consists of two clusters of sites (DUN 9-13 and 22-26) which more or less correspond to the complexes numbered 1326 (N and S?) and 1427 on Map 2 in Phillips (1970). The clusters consist of large numbers of small enclosures defined by ditches, and the clusters are linked by what appears to be a track with a ditch on each side. This track or drove leads north-west, giving access to dry land. It also continues south, linking the Dunsby Fen site with their counterparts in Hacconby Fen.

The sites on the large roddon differ from those on the fen-edge in several respects. Although consisting of impressive complexes of ditches, they seem to have lacked the stone buildings with tiled roofs which characterise the dry-land group. Presumably buildings in the marshes were made of clay (or wattle and daub) roofed with thatch, but there is as yet no excavated evidence with which to confirm this. The visual contrast, quite apart from the landscape setting, must have been very striking to anyone travelling out from the fen margin. The sites on the roddon, especially the inner cluster, also contain salterns, which are lacking on the Dunsby fen-edge in the Roman period. Other differences are found in the pottery associated with the sites discussed below.

The third group of sites is on the edge of a large expanse of silt, most of which is Pinchbeck North Fen. These sites (DUN 15-20) more or less fall within complex 1626 of Phillips (1970).The group is one of the most important in this part of the Fens. Roof tiles, including tegulae and stone tiles (resembling Collyweston slates from Northamptonshire) were scattered over the ground in some quantity. This is most unusual for Romano-British sites on marine alluvium, as is the possible hypocaust tile from DUN 19. DUN 16, which consisted of moderate quantities of saltern debris and domestic pottery forming two more or less distinct but overlapping concentrations, lacked tiles.

The pottery found on sites in the three groups shows an interesting pattern of variation. Table 5 sets out the pottery from the larger sites divided into the main identifiable categories. Sites with less than 90 sherds have been omitted in order to exclude unreliable samples. The figure for each category is the percentage of the pottery found on that site (thus 67% of the pottery on DUN 4 was greyware). These percentages are then converted into an average for the group. The result of each calculation has been rounded to the nearest whole number. The analysis has its deficiencies compared with the graphical analysis in chapter 22 but it is easier to relate to the actual sites. Both analyses result in very similar patterns. It has already been noted that less pottery was found on the fen margin than out in the Fens (Hayes, 1987b, 24). Table 5 shows the same pattern: on the fen-edge the larger sites (90 or more sherds) have much less pottery than those on the

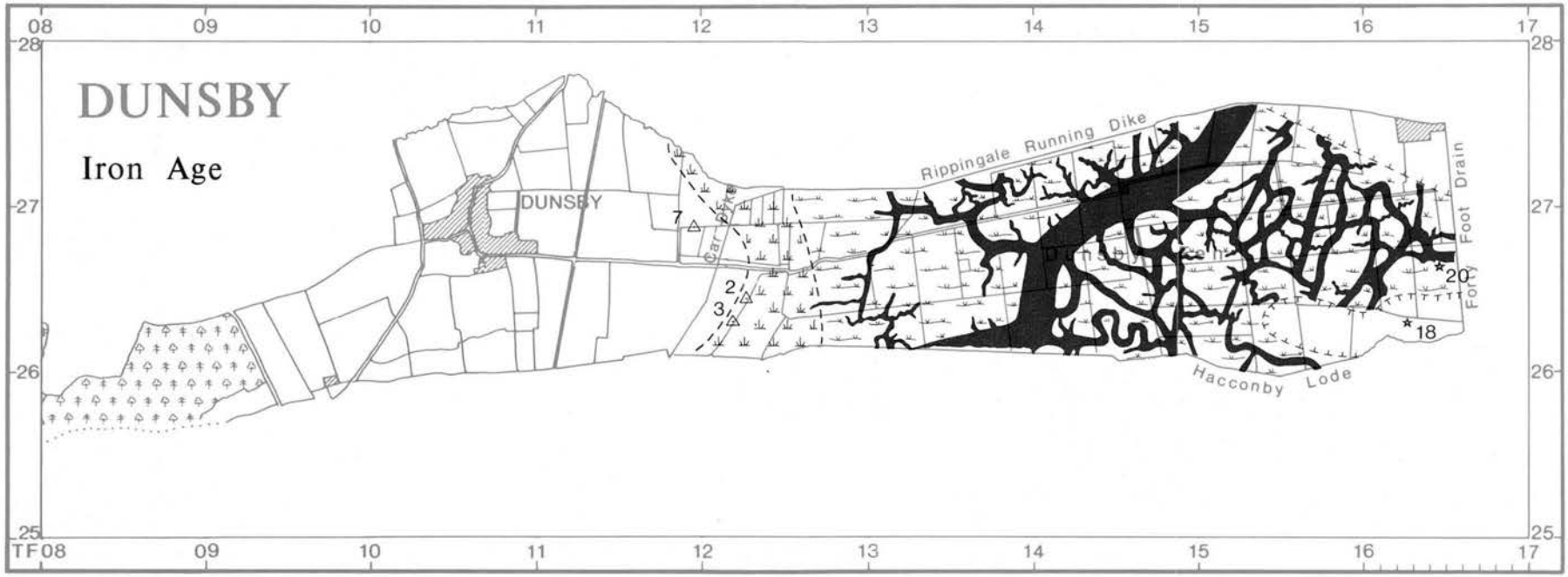

Figure 51 Dunsby: Iron Age

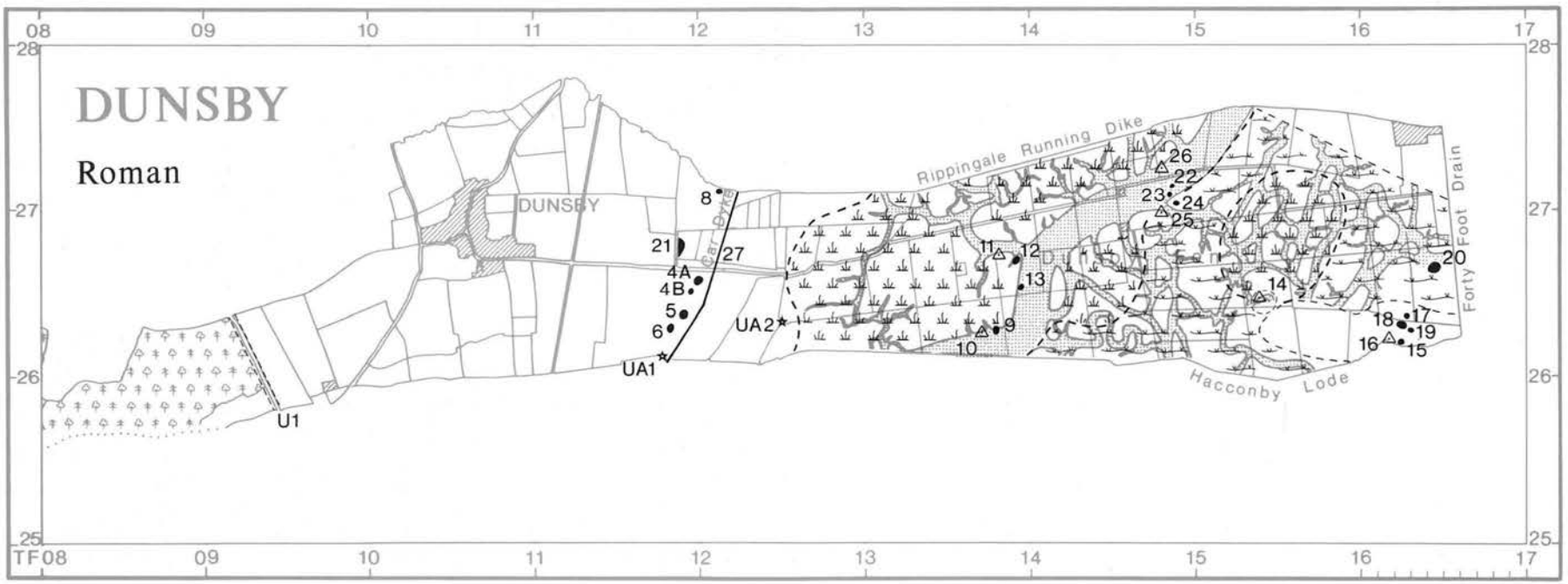

Figure 52 Dunsby: Roman

Site No.	Grey %	Shelly %	Samian %	Mortars %	C. Coat %	White %	Amph %	Site Total
Fen-edge								
DUN 4	67	29	4	0	0	0	0	99
DUN 5	56	30	3	1	10	0	0	135
DUN 6	53	24	6	3	14	0	0	96
DUN 21	66	15	2	1	15	0	0	170
Average	61	25	4	1	10	0	0	125
Roddon								
DUN 9	77	15	4	1	2	2	0	93
DUN 22	59	20	5	2	14	0	0	132
DUN 24	63	22	4	3	9	0	0	102
DUN 25	37	43	5	1	13	0	0	307
DUN 26	65	22	6	1	5	0	0	427
Average	60	24	5	2	9	0	0	212
Silt Edge								
DUN 15	54	17	4	1	24	1	1	303
DUN 17	35	15	2	1	46	0	0	204
DUN 18	55	23	2	3	15	2	0	235
DUN 19	54	11	3	1	32	1	0	200
DUN 20	43	27	4	4	21	0	0	183
Average	48	19	3	2	28	1	0	225

Table 5 Percentages of main classes of Roman pottery from three groups of sites in Dunsby Fen. Sites with less than 90 sherds have been omitted to exclude poor samples. Note: a) the figures have been rounded to whole numbers because that is the chosen level of accuracy; b) sometimes the % figures for a site will total just over or under 100.

edge of the silt. There is some overlap between the fen-edge and the roddon groups (DUN 9 and DUN 24) but the difference is clear. It is odd that there is no correlation between the quantity of pottery found on the sites and the presence or absence of tiles and building debris, given that both are generally taken as evidence of 'wealth'.

In most other respects the pottery found on an average site in the fen-edge group resembles the pottery found on the sites on the large roddon. DUN 25 is anomalous due to its exceptionally high proportion of shell-tempered pottery. This may relate in some way to the large amount of saltmaking debris found on the site.

The silt-edge group is notable for the high proportion of colour-coated pottery (46% of the total on DUN 17) and the relatively low proportions of grey and shell-tempered wares. Samian is also relatively scarce, especially in comparison with the sites on the large roddon.

Taking all the survey, air-photograph and pottery evidence together, one can suggest the following sequence of development. During the 1st and 2nd centuries the three main groups took shape. Iron Age, or possible Iron Age, pottery is present in each group but only in small quantities, and only two amphora sherds were found altogether. During the 2nd century the sites on the large roddon seem to have been prosperous. Their prosperity seems likely to have depended to a significant extent on saltmaking. In the 3rd and 4th centuries prosperity shifted to the group on the edge of the silt. The reasons for the decline of the sites nearest the fen-edge remain uncertain but the gradual spread of freshwater fen seems likely to have been a significant factor. Figure 52 depicts only a single phase of landscape development, perhaps reflecting conditions early in the 3rd century, but this must remain somewhat speculative in the absence of evidence from excavations and palaeoenvironmental investigations.

It is possible that some sites were totally abandoned well before the end of the Roman period, sites 'rich' in samian and 'poor' in colour-coat such as DUN 4, 9, 26. It is not known how late in the 4th century the other sites continued to be occupied, but there is no sign of 5th century or later (Saxon) pottery on any of the sites, not even those on the fen margin gravels.

VII. Early—Middle Saxon

(Fig. 53)

The decline of the inner Fen sites in the Roman period, a similar decline in Rippingale, and the absence in both parishes of Saxon pottery on the surveyed parts of the fen margin and Fens, suggest that freshwater fens spread across the whole area east of the Car Dyke. Judging by the results from some neighbouring parishes, Early Saxon sites may exist closer to the modern village. Fen reached its maximum extent in this period or the next, when it was useful for summer pasture, peat cutting, fishing and similar activities, but empty of any permanent settlement.

VIII. Medieval

(Fig. 54)

The survey produced mainly negative results for this period. This was only to be expected, since most of the fieldwork was carried out on land which would have been fen in medieval times, but that in itself is interesting. It is clear from historical sources that the fen was a valuable resource and that people used it for a variety of purposes. The absence of any medieval pottery on the surface, even on high parts of the major roddon, or the high silts at the north-east corner of the parish, serves both as a

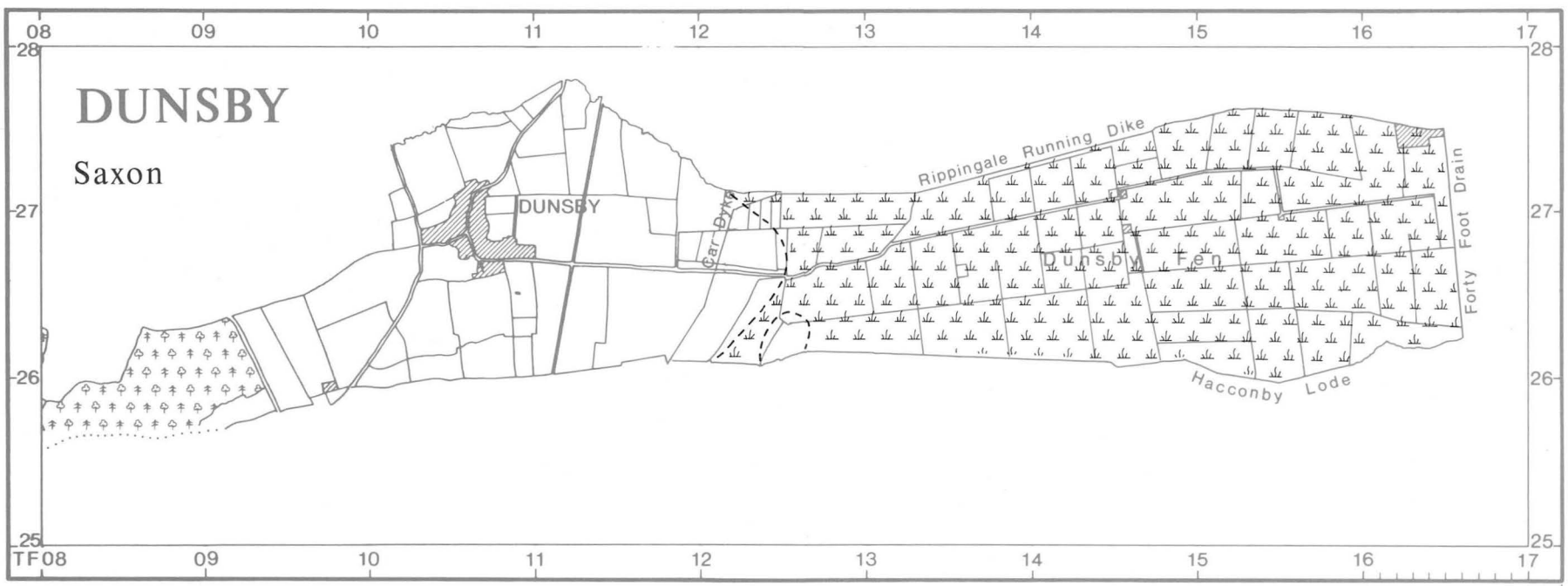

Figure 53 Dunsby: Early — Middle Saxon

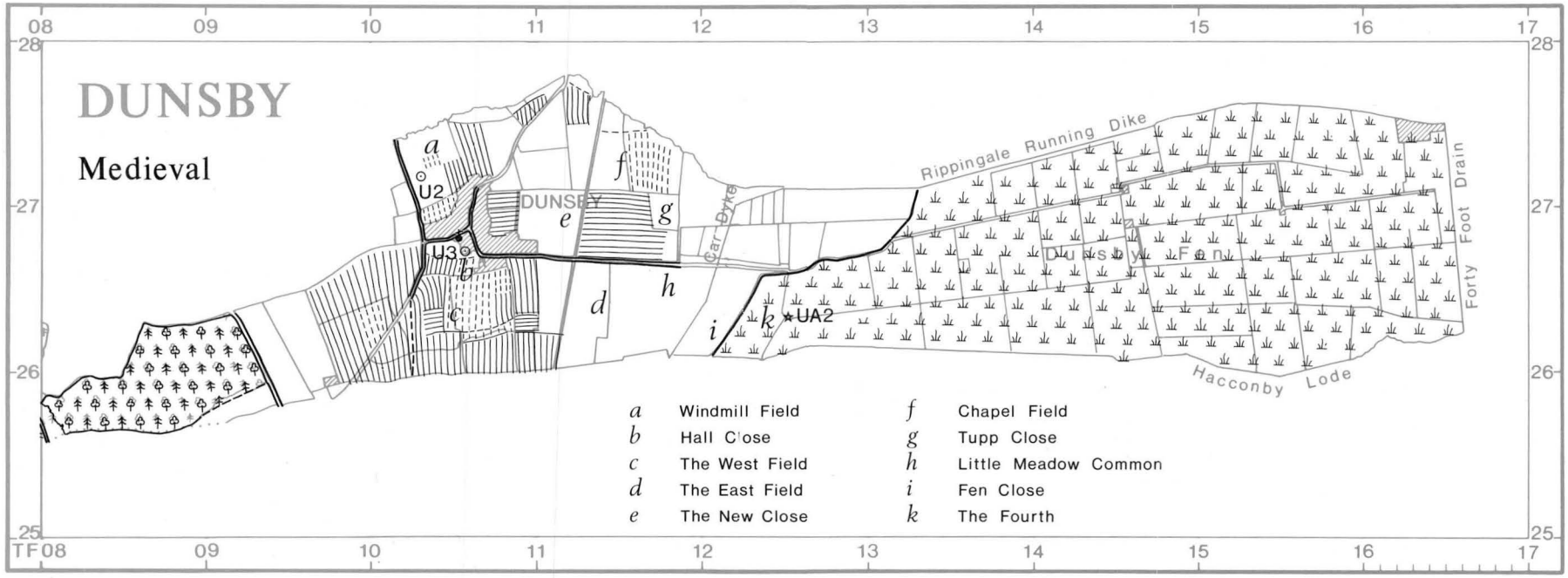

Figure 54 Dunsby: Medieval

reminder that activities such as fishing and shepherding are likely to leave no archaeological trace, but also as support for regarding even small numbers of sherds as important when they are found in otherwise empty areas. Consistent scatters of sherds of medieval pottery, often abraded, occur on land which was used for arable agriculture (though perhaps only temporarily) and do not occur on permanent meadows and pasture.

This gives archaeologists a simple and effective way of defining arable and non-arable land, though the wide date range of the pottery may cause problems. The Dunsby survey offers a reasonable example. The fields containing sites DUN 1-3 (prehistoric) and 4,5,6 (Roman) were walked in 30m lines in good conditions (Fig. 49). The sites themselves were intensively sherded, that is to say an attempt was made to pick up all visible artefacts. No medieval pottery was found on the sites. However, medieval sherds were found towards the western end of the field containing DUN 4,5 and 6 indicating that the arable land ended there. This inference may be tested by referring to the air-photograph and documentary evidence.

Air-photographs in the NMR include some taken shortly after the last war by the RAF, at a time when much of the ridge and furrow was still preserved in old pasture or showing clearly as soilmarks in recently ploughed land. These photographs, and others, have been used to reconstruct a large part of the medieval arable field system (Fig. 54). The field containing DUN 4, 5 and 6, is blank on all the photographs, though the field on the north side of Dunsby Drove (the route to the fen pastures) contains clear evidence of arable strips.

The absence of visible strips on an air-photograph is inconclusive: ploughed ridge and furrow can not always be seen on photographs. Fortunately there is a second source of evidence available, a map of Dunsby dated 1647. Photocopies of parts of this map were shown to us by Mr. Dorrington of Dunsby. These show quite clearly that the sherd scatter occurs in what was then still known as The East Field: part of the medieval open field system. The areas without sherds were known as Little Meadow Common and Fen Close. In 1647 the Car Dyke had fallen into disuse and water was being diverted north-east, between Fen Close and The Fourth, before discharging into the Rippingale Running Dyke, on the northern boundary of Dunsby parish. It is reasonably safe to infer that in medieval times Little Meadow Common was a small area of hay meadow separating the arable land (East Field) from the fen, which at that time reached as far as the Car Dyke. Late medieval or early post-medieval enclosure subsequently took in Fen Close and The Fourth, probably also as a meadow or high-quality pasture. Fig. 54 therefore shows a late stage in the process. The fields known in 1647 as the New Close and Chapel Field both contain traces of ridge and furrow. They may therefore have been part of a third open field ('The North Field'?) but there is no direct evidence for this.

The 1647 map portrays the gradual breaking-up of the medieval open-field system and its replacement by individually owned fields enclosed by hedges. If a North Field had existed, and was the first major arable area to be enclosed, it would have been divided up and renamed. The New Close would certainly not be out of place in a scenario of that sort. It may have been used for sheep pasture. Tupp Close, discretely located in a quiet corner overlooking stream and fen, would also have been grassland. The 1647 map also shows a windmill (U2) in Windmill Close, and a hitherto unrecorded moated site (U3) which may well date to the medieval period.

The Bourne-Sleaford road would have catered for long-distance traffic, and was probably reached by a track or small road running west along the present day boundary between Dunsby and Rippingale. As mentioned in the introduction, the north-west part of the parish looks as though Ringstone Hall (the site of which is now in Rippingale) was carved out of land formerly in Dunsby. The west end of the parish also presents some anomalies. Dunsby Wood probably existed as woodland in the medieval period, though this has not been proved. The presence of ridge and furrow at the extreme west end of the parish indicates that the land was farmed by another village or hamlet and Dunsby's land may not have extended west of the Stainfield to Kirkby Underwood road in medieval times, and need not have included the area shown as Row Wood on the 1:10560 Ordnance Survey Map.

IX. Conclusion

Much more remains to be discovered about the village and upland parts of Dunsby, especially for the Saxon and medieval periods. The picture for the Fen is now reasonably clear, at least in outline. The pre-Iron Age land surface is buried, though in places it is near enough to the modern land surface to be exposed by activities such as land drainage. UA1 (in the gazetteer and on Fig. 52) is an example of Roman pottery discovered in that way, and other examples are to be expected in the future. Some potentially important fields on the edge of the marine alluvium were under pasture or crops which made them impossible to survey so there is the distinct possibility of discovering more Bronze Age, Iron Age and Roman sites on the fen-edge.

The pattern of landscape development and past human activity in Dunsby Fen revealed by the survey is consistent with the results from neighbouring parishes. The Mesolithic, Neolithic and Early Bronze Age periods remain obscure; any evidence is probably buried under marine alluvium or is confined to the higher parts of the parish not visited during this survey. On the fen-edge, there is evidence of human activity in the Later Bronze Age (DUN 1). The marine transgression which led to the burial of the old land surface under marine clays and silts probably occurred in the Late Bronze Age/Early Iron Age. By the Middle Iron Age saltmaking was taking place at DUN 2 and 3, just east of the site of the abandoned Late Bronze Age site. The location of the salterns on the fen-edge suggests that most of Dunsby Fen was saltmarsh and mudflats flooded too regularly and severely for any permanent settlement and too far from a source of fuel for saltmaking. After several centuries the saltmarshes matured, the inland parts of the creeks were contained within natural banks or levees, built up by repetitive deposition of silt through tidal flooding, and freshwater fen existed where the Middle Iron Age saltmaking had formerly taken place. There are signs, though only a few sherds of pottery, that the fen margin, the large roddon in the centre of Dunsby Fen, and the edge of the higher silt at the east end of the parish, began to be occupied in the Late Iron Age. This development was consolidated in Roman times, leading to the formation of three groups

of sites. Their respective fortunes seem to have fluctuated during the Roman period, suggesting that the freshwater fen was spreading east and causing problems. None of the sites was occupied in the Early Saxon period.

The Saxon period remains Dunsby's 'Dark Age', though survey closer to the village would doubtless remedy this. By the Middle Ages the village was firmly established in a typical location, the spring-line at the west edge of the fen margin gravel. It had an open-field system of the usual type, probably with hay meadows near the Car Dyke (which fell into disuse) and common pasture in the Fen. This agricultural system gradually disintegrated at the end of the medieval period, paving the way for the drainage and enclosure of the Fen and its eventual conversion into the arable land which exists today.

9. Hacconby

I. Introduction
(Fig. 55)

The village of Hacconby (sometimes written Haconby) lies east of the main road (A15) from Bourne to Lincoln, some 8km north of Bourne. On this part of the fen margin the villages are closely spaced along the fen-edge (from north to south) and the parishes extend in long, narrow strips from the uplands on the west to the Fens in the east. As the crow flies the neighbouring villages of Dunsby and Morton are only about 1.5km away, to the north and south respectively. Between them the parish of Hacconby stretches from west to east in a narrow band, 10km long but only 1km wide.

II. Topography

The land west of the village is part of the uplands of South Lincolnshire. Near the hamlet of Stainfield, at the western end of the parish, the land reaches about 50m OD. Dipping gently eastwards, the land surface reaches about 25m at the main road (believed to have been a Roman road), continues downwards to about 10m at the village, finally disappearing beneath gravel and postglacial deposits (marine alluvium) at the fen-edge, at about 3m OD.

Hacconby Fen contains the south-west end of a large roddon that enters Hacconby from Dunsby Fen. The roddon runs along the boundary between the two parishes for almost 1km before turning south-westwards, down to Hacconby Drove, where it breaks up into what were formerly minor, tributary creeks that fan out towards the fen-edge. The main roddon takes the form of a low ridge of siltier soil (very silty at deeper levels) up to 250m wide. It rises to about 3m OD. The land between the tributary roddons tends to be low (1.5m OD), clayey and often peaty. It is quite clear that from the time when the creek system was actively tidal (probably starting between 1000-500 BC and continuing to at least AD 200) and the post-medieval drainage of the Fen (a period of nearly 2500 years) there was no arable agriculture in Hacconby Fen, except possibly on garden-sized plots on the highest and siltiest roddons at the furthest eastern end of the parish. The modern landscape, almost entirely arable, is a very recent development indeed.

The marine clays and silts in the Fen conceal an older landscape. It is buried, though not very deeply, and is exposed in the sides of dykes and drains when they are cleaned. The sides of the drain on the north side of Hacconby Drove were cleaned in connection with drainage work during the first year of survey and from personal observations and work carried out by Peter Chowne of the South Lincolnshire Archaeological Unit, it is clear that the marine deposits and the buried, prehistoric land surface (resting on glacial till) are an extension of the deposits in Morton and Pinchbeck Fens investigated by J.N. Jennings nearly forty years ago and published (with a section drawing) by Smith (1970).

The recent (1983) 1:250,000 Map of the Soils of Eastern England and Wales and its companion book (Hodge *et al* 1984) indicate that the upland part of Hacconby, west of the village, is part of a distinctive area of loamy soils stretching southwards past Bourne as far as Baston. The soils have been classified and mapped as part of the Curdridge soil association and, on slopes leading down to streams, the Aswarby association. Although these associations contain a variety of soils, even including some wet clays, they are described as characteristically loamy, often sandy, being formed respectively on the Kellawys Beds and Cornbrash and Oolitic limestones. As such they would have been particularly suitable for arable agriculture in pre-medieval times because their easily worked and free-draining properties suited the farming methods and technology then available. Detailed survey would be needed to map the complex of clays and loams and identify the areas most suitable for early agriculture. It is unlikely to be coincidental that the major Roman settlements at Stainfield (in Hacconby parish) and Bourne lie within this complex of loamy soils.

III. Fieldwork
(Fig. 56)

The general aims of the Fenland Survey and the limitations imposed by the time available for fieldwork precluded any investigation of the upland part of the parish. Hacconby village is closer to the fen-edge than nearby villages to the north (*e.g.* Dunsby and Rippingale) and the field survey reached the eastern edge of the village. This meant that part of the favoured zone for Saxon settlement, near the spring line at the upland junction, came within the surveyed area, resulting in the discovery of two Early Saxon sites.

Fieldwork was concentrated on the fen margin and Fen. Unfortunately, access to much of the area had to be restricted to the end of the fieldwalking season in order not to interfere with pheasant shooting. Although this reduced the time available for work in the parish, and meant that several fields were lost because the cereal crop had grown too long, the consequences were not serious because a substantial part of Hacconby Fen is too low lying and peaty to merit detailed survey. Also, the air photographic coverage is good. Some fields could profitably be examined in the future, but the fieldwork carried out in the Fen is more than adequate to fulfil the aims of this survey. These remarks do not apply to the fen margin and uplands, which would certainly warrant further work.

IV. Mesolithic—Bronze Age
(Fig. 57)

As explained in the introduction, the loamy soils characteristic of the uplands between Hacconby and Baston do not extend further east than the centre of the Hacconby village. It is thus no surprise, given the consistent correlation between prehistoric (especially pre-Middle Bronze Age) material remains and light soils, that the survey revealed nothing of significance relating to this period. Some worked flints were picked up on, and near, HAC 12 (a Saxon site): the nearest the survey came to the loamy soils. Ring ditches (U7) are also known from air-photographs of that part of the parish. It is a little

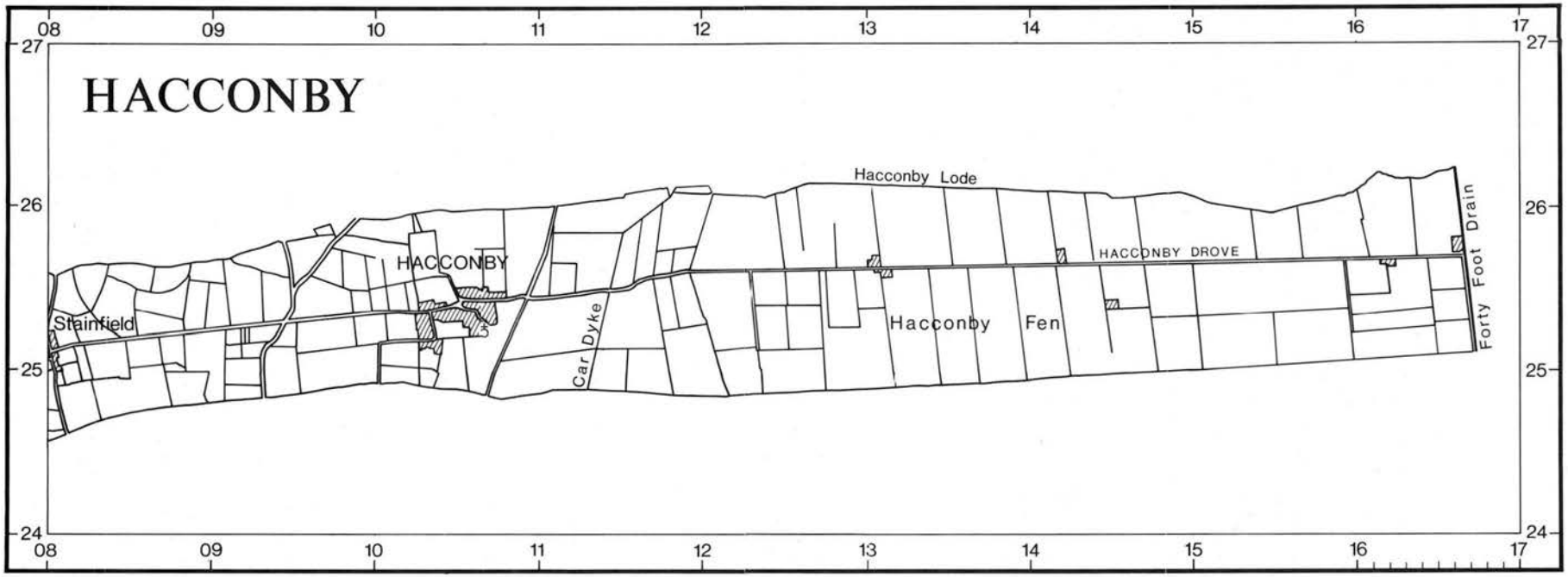

Figure 55 Hacconby: The modern landscape

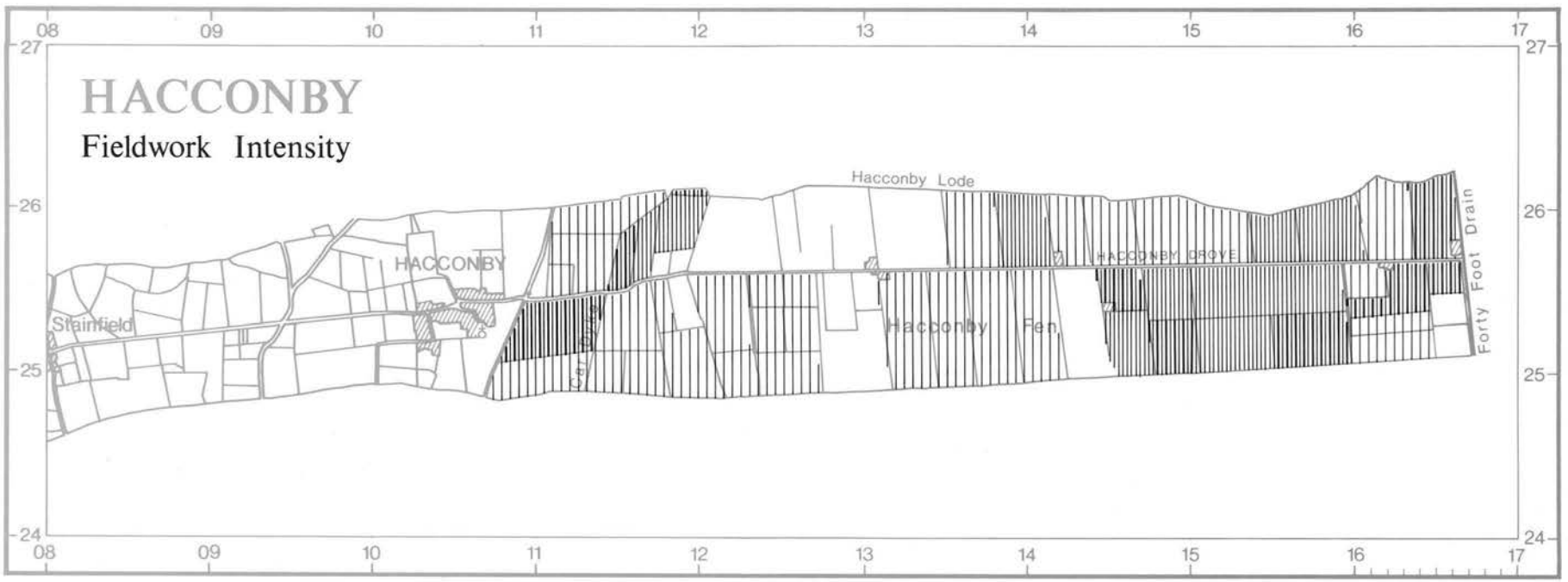

Figure 56 Hacconby: Fieldwork intensity

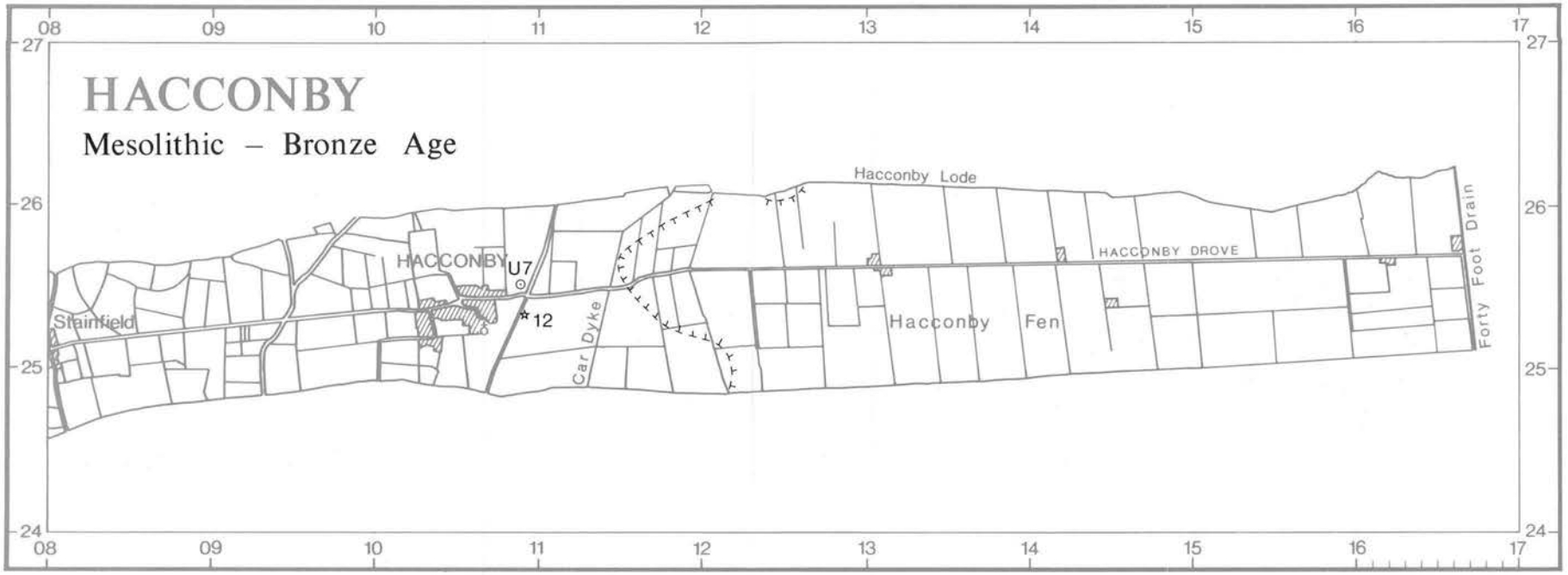

Figure 57 Hacconby: Mesolithic — Bronze Age

surprising that no Later Bronze Age pottery was found, as it occurs on the gravel to the north, but this may simply be due to chance.

V. Iron Age

(Fig. 58)

Iron Age saltmaking was known from the parish through the discoveries (recorded in the SMR) made by the Car Dyke Research Group in 1973, when saltern material had been found in the vicinity of HAC 25 or 26. The present survey resulted in the discovery of another important group of Middle Iron Age salterns and possible settlement sites (HAC 21-24). Over a hundred sherds of pottery dating to 400-150 BC were collected from HAC 21-24, together with animal bones, burnt stone and a great deal of briquetage. The sites are on the fen-edge, very close to, but not on, marine alluvium.

No material of comparable date was found on marine alluvium in Hacconby Fen. On HAC 5, a large Romano-British site (see Figure 59), eleven of the shell-tempered sherds appear to be hand-made (not wheel-turned) but are more likely to be Romano-British than Iron Age. The results of the survey suggest that marine conditions persisted close to the fen-edge well into Iron Age times, rendering most of Hacconby Fen unusable for saltmaking or settlement.

If this is so, the absence of any identifiable Late Iron Age material remains (150 BC-AD 50) in Hacconby Fen could simply be due to the hostile environment which existed there. The saltmarshes may have been flooded by the sea with regularity and severity. But what of the absence of Late Iron Age sherds on the large sites that existed on the fen margin gravel in Roman times? It could be argued that since Hacconby Fen was virtually unusable there was no point in settling close to it (because it is more economical to place a farmstead near the centre of the land which it farms than at one end) but that is not a very convincing argument. The fen margin was large enough to support farms without using the fen. The reason may lie in the social organisation, economy and politics of the Late Iron Age tribe which occupied South Lincolnshire, the Coritani or Corieltauvi, a tribe said to have controlled a large part of the East Midlands, with major centres at Lincoln and Sleaford. A discussion on that scale would be outside the scope of this parish essay: see Lane (1988). The lack of Late Iron Age pottery should, however, be noted, as it is a recurrent phenomenon in the results of the survey that is difficult to explain on present evidence.

VI. Roman

(Fig. 59)

The main concentration of Romano-British salt making was, as in most other parishes, well out in the Fen. HAC 8, 9 and 10 are near the boundary with Dunsby; HAC 27, 29, 30 and 32 belong to a group which continues south into Morton Fen. Here the extremities of the Hacconby creek system petered out into freshwater wetland. Two fen-edge salterns (HAC 14 and 26) have been included on Figure 59. In the present state of knowledge they may be Roman or Iron Age in date, though neither has characteristically Roman briquetage.

Romano-British settlements in the surveyed part of Hacconby fall into two distinct groups, one on the fen-edge and one at the eastern end of the parish. They are separated by an empty area where the very large roddon, noted earlier, enters Hacconby Fen from Dunsby Fen and splits into minor roddons. The soil between, and in places over, the roddons is still peaty, suggesting a considerable depth of peat in medieval times. Although it is possible that one or two sites, especially salterns, may have been missed, it is unlikely that there were any substantial sites (comparable with those on the major roddon in Dunsby Fen) because these should have been visible on air photographs. It is reasonable to conclude that although a tidal channel existed within the main roddon, at least in the early part of the Roman period (from which brackish water entered the minor creeks and provided raw material for the salterns), the creek system was silting up and freshwater fen was spreading between the roddons, making the area unsuitable for settlement. The construction of the Rippingale 'Canal', to the north, may have affected the tidal flow and rate of silting when it was cut through the major roddon only a mile north-east of Hacconby Fen.

Analysis of the pottery recovered from the settlements in Hacconby Fen supports this picture of a group of sites in an unstable environment, changing from saltmarsh to fen, perhaps enjoying a period of prosperity in the earlier Roman period, when saltmaking may have been at its most profitable, followed by a decline in fortunes after about AD 225. Samian is common on sites HAC 1, 2, 3, 6, 7 and 28. Amphora fragments were found on HAC 1 and 2 and a piece of mica-dusted ware (1st-2nd century) on HAC 31. With one or two notable exceptions the quantity of later pottery is less than on sites in the more environmentally stable parishes. This is true both of later grey-wares and colour-coated wares. Two exceptions are HAC 3 and HAC 5. The former is particularly interesting because it is one of the few Roman sites in this part of the Fens on which Saxon pottery was found. Survey conditions were poor when HAC 1 was visited and it is possible that it, too, continued into the fourth century. The fen margin sites appear to have developed slightly later than those deep in the fen, and in pottery terms they are not especially rich. No amphora fragments were found on them, though samian was present on HAC 16 and 17.

VII. Early—Middle Saxon

(Fig. 60)

In the previous section it was noted that Hacconby Fen was in a state of transition from saltmarsh to freshwater fen during the Roman period. This environmental instability was reflected in changes in the settlement pattern and the quantity of pottery found on the sites. The eastern end of the Fen, close to the higher silts of Pinchbeck Fen (to the east), was favoured by both early and late Roman settlements.

The transition to uninhabited freshwater fen was completed in Early Saxon times. The only probable Early Saxon settlement sites found by the survey, HAC 11 and 12, are at the extreme western end of the area surveyed, well away from the Fen. Deep in the Fen, HAC 3 continued to be occupied well into Late Roman times. 471 sherds were collected at the site. Of these, nine sherds were Saxon, and within this small Saxon assemblage both Early and Middle periods were represented. However, the small number of sherds, and their location deep in the Fen, contrasts with the findings in Pinchbeck North

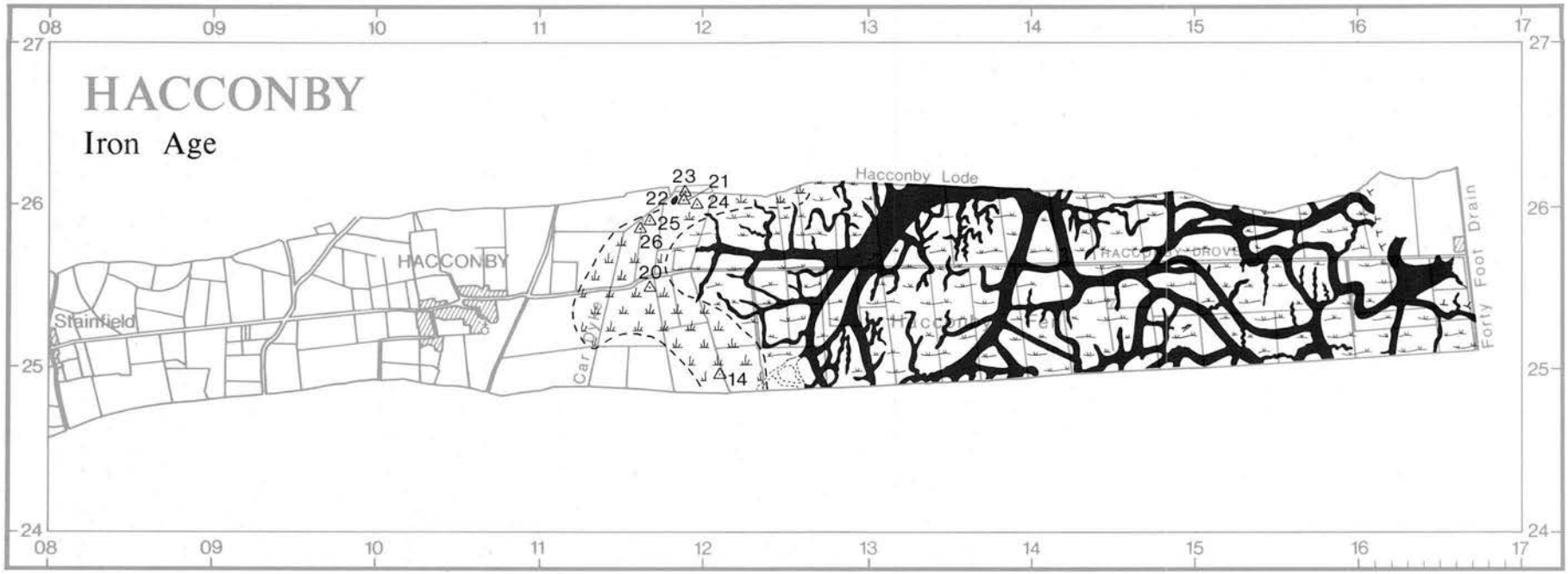

Figure 58 Hacconby: Iron Age

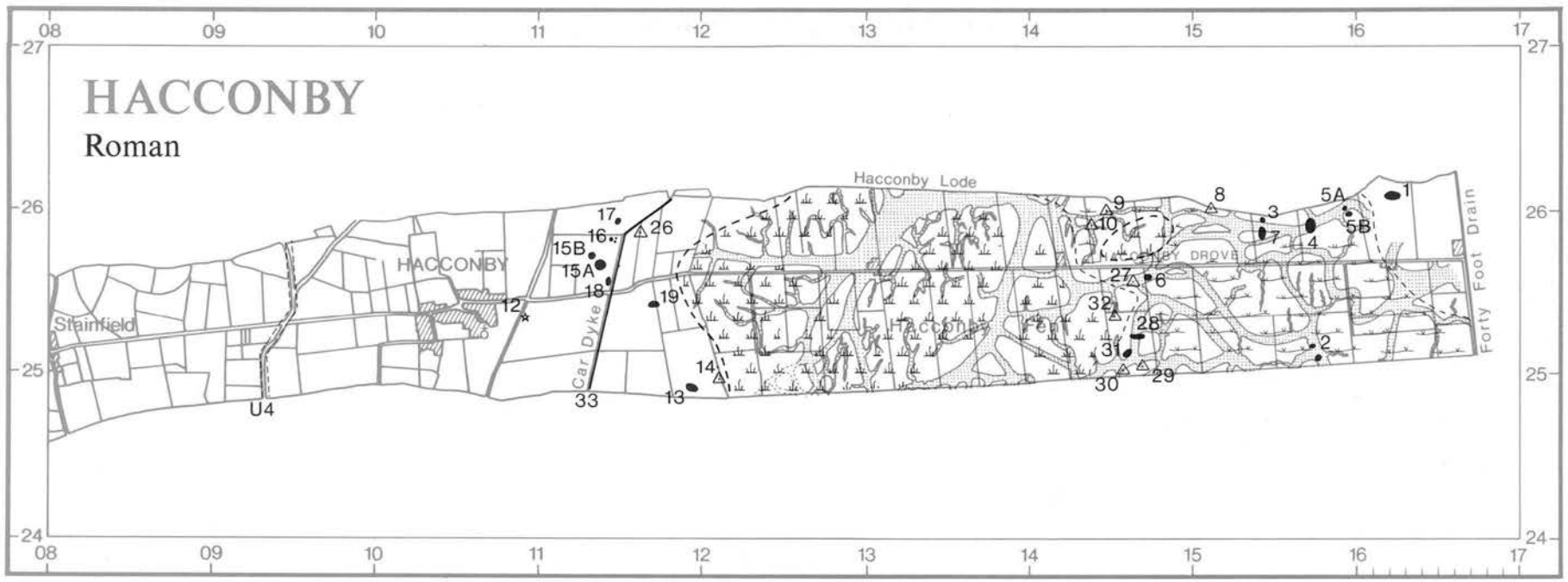

Figure 59 Hacconby: Roman

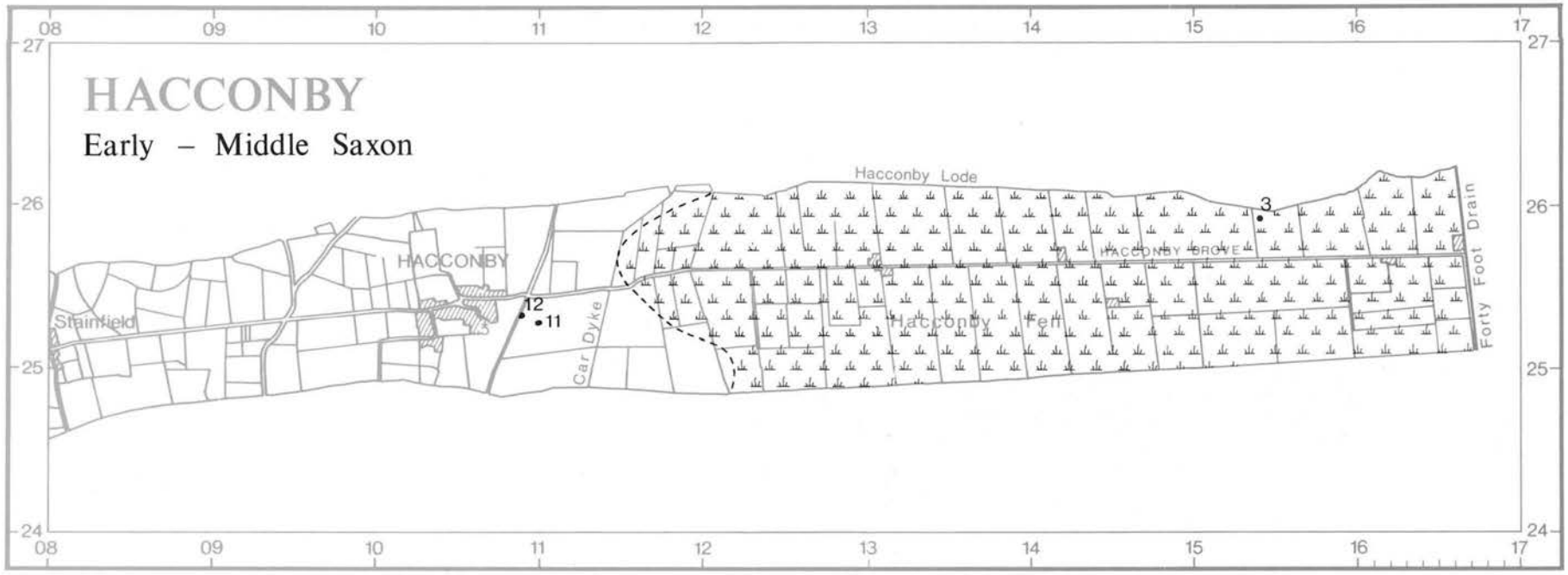

Figure 60 Hacconby: Early — Middle Saxon

Fen, immediately east of Hacconby Fen. HAC 3 is beside Hacconby Lode and it seems probable that a small stream ran out through here in Saxon times. The Roman site is on a high bank of silt beside the Lode and may have been used for fishing or some other fen activity, perhaps on a seasonal basis rather than as a permanent settlement. Alternatively, occupation of the Romano-British farmstead in a particularly favoured location may have lingered on for a few centuries. Only excavation can resolve a case of this kind.

Although the name of Hacconby village is Scandinavian, it is most unlikely that there was no Early Saxon settlement in the vicinity. Most of the sherds on HAC 11 and 12 could well be Early Saxon but in the present state of knowledge of undecorated domestic coarse-wares it is impossible to be certain. From the pattern suggested by the Survey results in nearby parishes, such as Billingborough, one would expect to find a scatter of small Early Saxon sites set well back from the fen-edge, near the spring line. HAC 11 and 12 look like part of the eastern edge of such a scatter, and further survey, especially on patches of sandy loams, ought to locate further examples. Experience in neighbouring parishes would suggest that the Middle Saxon period probably saw the abandonment of many of the Early sites and the formation of nucleated sites, many of which would have grown into medieval villages. Hacconby village may have developed in that way but the survey did not continue far enough inland to be certain.

VIII. Medieval

(Figs 61, 62)

The heart of medieval Hacconby lay just west of the surveyed area. The remains of a moated site (U6) are still visible, a little to the east of St Andrew's church and the present Manor House. There is also reputed to have been a small priory (U5) west of the church.

A substantial proportion of the medieval arable field system is still discernible on the ground, as distinct ridge and furrow in grass fields, or at least as low ridges (former headlands) and faint dark and light bands of soil in ploughed fields or on air photographs. These sources of information have been used to reconstruct the pattern of the ridge and furrow shown (schematically) on Figure 61. Given the absence of fieldwork over most of the medieval arable land, heavy reliance has been placed on air-photographs.

East of the village the air-photographic evidence has been supplemented by the results of the field survey. Medieval arable land tends, at least in Lincolnshire, to be recognisable because of a general scatter of medieval sherds presumed to have been distributed across the ploughed fields when manure heaps and middens were transported to the fields and spread on them to improve the fertility and structure of the soil. No medieval sherds were found on the Roman sites on the fen-edge (HAC 15 to 18). This agrees with the air-photograph evidence; the medieval arable land north of Hacconby Drove extended no more than half way between the Car Dyke and the former railway line. The field evidence on the fen margin south of Hacconby Drove also agrees with, and perhaps adds to, the evidence from air-photographs. No medieval pottery was found on the Roman sites HAC 19 and 20 (east of the Car Dyke), but a few medieval sherds were picked up near the railway line, on the Saxon sites, HAC 11 and 12. The large field immediately south of Hacconby Drove, between the railway line and the Car Dyke was walked in 30m lines in good conditions and all the off-site finds were collected. In addition to a scatter of worked flints there were three or four Roman sherds, one possible prehistoric, three Saxon, two medieval (Bourne 'B' ware, AD 1400 or later) and eleven late medieval or post-medieval (Bourne 'D' ware).

Putting all the evidence together it seems to be safe to conclude that the broad extent of the ridge and furrow visible from the air is correct, as it agrees with the fieldwork evidence , but that 'blank' areas within the system were probably covered by ridge and furrow in the past. The arable area was being extended eastwards in the fifteenth and sixteenth centuries. The boundary with Morton may have been a stream, the former course of which is visible on air-photographs running north-east from the present boundary. After crossing the Car Dyke, which may not have been in use, at least in the later Middle Ages, the stream continued as far as an extension of Scotten Dike which entered Dunsby Fen from Morton Fen and ran north-east, parallel to the Car Dyke.

West of the village there is still no field survey evidence. It is clear from the air photographs that the medieval open fields stretched west towards Stainfield. There may have been some woods between the hamlet and the village, remnants of the extensive woodland which had once continued north into Dunsby. There are certainly some large blank areas on the air-photographs, but that is by no means a reliable indication of the absence of ridge and furrow.

Stainfield has the appearance of a small, but possibly independent, settlement. Documentary evidence should be available to throw light on its relationship to Hacconby but the necessary research lay outside the scope of the current survey. There is no obvious medieval route from Hacconby to Stainfield. Indeed, the pattern of ridge and furrow roads visible on the air-photographs suggests that medieval transport and communication requirements differed quite significantly, not only from those of the present-day but also from those of a century or two ago. There seem to have been only two major routes suitable for wheeled vehicles; a precursor of Hacconby Lane, curving just north of the present route, and the main Bourne to Lincoln road. Hacconby Drove ran eastwards into the fen, useful for taking beasts to pasture but otherwise leading to nowhere. There was, and still is, no direct route north to Dunsby village (except on foot) and Morton Lane may also have been no more than a path zig-zagging along the headlands. The modern B1177 cuts obliquely across the medieval strips and may be post-medieval, or very late medieval. In the medieval period heavy produce, requiring wheeled transport, was presumably transported along the old Roman road, which ran from one market town to the next, with short side lanes leading to the villages. The villages appear self-contained; communication between them did not call for routes more substantial or direct than paths along the headlands of their open fields.

IX. Conclusion

In the early part of its post-glacial history, the area now known as the parish of Hacconby lay close to two important environmental boundaries. The upland part of the parish, which has not been surveyed, was situated at the

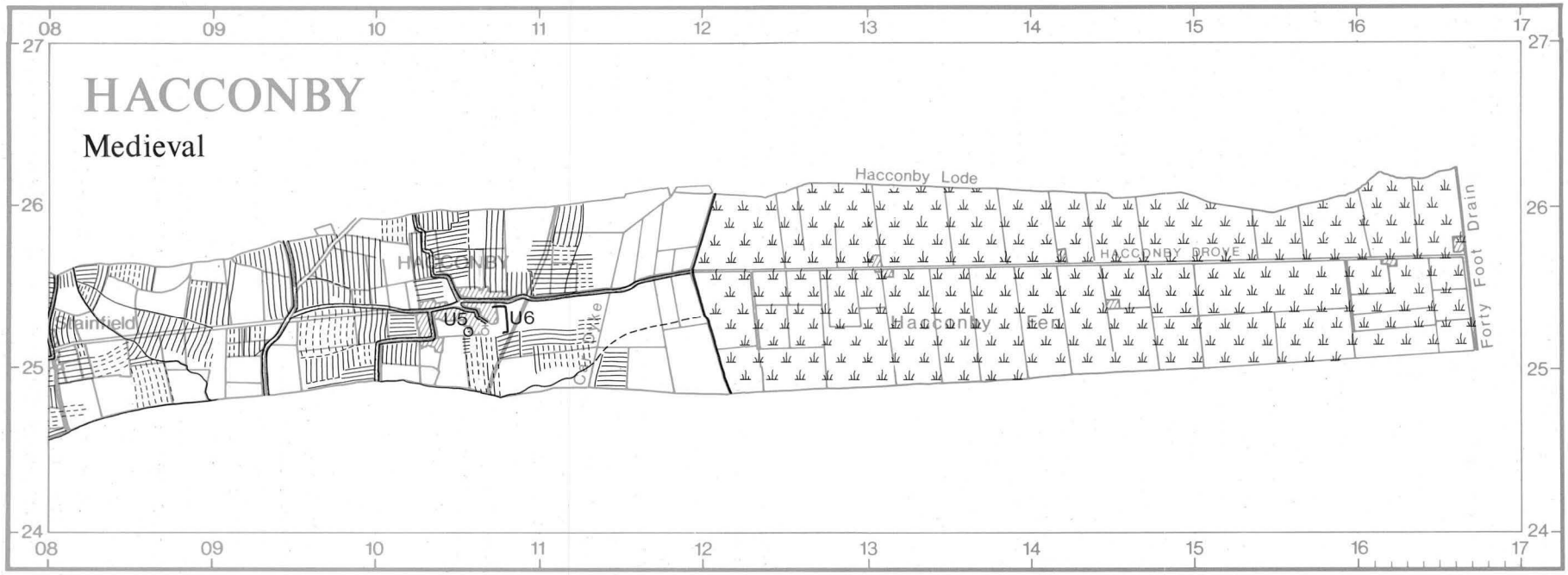

Figure 61 Hacconby: Medieval

north end of what was probably an agriculturally rich district, centred on Bourne. Its soils should have attracted early settlement but apart from some flints, other artefacts and air-photographs of ring ditches, there is little evidence predating the Middle Iron Age (400-150 BC). By that time there was an extensive tract of marine sediments stretching south from Hacconby Fen to Bourne and Deeping Fens, on top of which freshwater fen had developed and was actively depositing peat. Marine conditions were still affecting its seaward fringes. Hacconby Fen itself was more open to marine influences. Its marine sediments seem likely to date mainly to the Late Bronze Age/Early Iron Age (1000-400 BC) and were laid down in association with creeks running north-east, through Dunsby and Pinchbeck North Fens towards Gosberton and the Wash inlet of Bicker Haven.

In the Iron Age and through the Roman period Hacconby Fen was an unstable transitional zone bounded on the south by more stable but inhospitable fens of considerable size. Some of the creeks in Hacconby Fen were still tidal, probably to within half a mile of the present village, but patches of reeds and fen would have been developing where the tidal influence was weakest. The opportunities offered by this complex, changing, landscape were not ignored. Saltmaking was under way at least by the Middle Iron Age on the fen-edge and continuing, in the Roman period, further east, presumably remaining close to the inner limit of the tides, where controllable salt water close to peat or scrub provided the necessary raw materials for saltmaking.

Settlement in such an unstable environment must have been risky. The earliest known attempts seem to be towards the eastern edge of the Fen in the early Roman period. After a century or two of expansion and prosperity settlement again contracted to the prime sites in the east. In the Dark Ages Hacconby Fen became a true fen and only one site shows signs of human activity. The main area of Saxon settlement was probably, as in prehistoric times, the upland area west of the modern village, but the uplands were mainly outside the scope of the survey. Consequently, only two sites were found, both on the edge of the present-day village.

By medieval times the instability of settlement associated with environmental change in earlier periods had come to an end. Freshwater wetland, true fen, covered all of Hacconby Fen and the Fens belonging to neighbouring parishes. Hacconby became a typical part of the orderly medieval landscape of the Kesteven fen margin. Upland, fen and the intervening loamy soils were brought together into one economic unit by the efforts of the inhabitants of the village. Arable land, perhaps with some woodland and grazing, on the upland and around the village, was farmed in individual strips within communally organised open-fields. The eastern part of the fen margin lacks evidence of arable agriculture and could have been meadowland, producing hay for winter. The fen offered summer pasture, peat, fish and other wild products. The natural environment was still a significant factor affecting the livelihoods of the inhabitants, but environmental change ceased to be an important force acting on their lives. In future, changes in the landscape and its use were to be the result of human activity rather than natural processes.

Miscellaneous finds

(Fig. 62)

1. **Bead**. Brown and purple decoration on grey surface. Billingborough (BIL 25).
2. **Bead**. Blue glass. Probably Romano-British. Pinchbeck (PIK 3).
3. **Bronze fragment**. Bangle? Pointon and Sempringham (POI 46).
4. **Skull fragment modified for use as comb**. From Iron Age site. Morton (MOR 51).
5. **Worked bone point**. Probably Romano-British. Bourne (BOU 13).
6. **Loomweight**. Fired sandy clay with crushed shell inclusions. Black. Romano-British. Bourne (BOU 17).
7. **Loomweight**. Fired clay with grog inclusions. Red/brown. Bronze Age. Morton (MOR 53).
8. **Clay ball**. Incomplete. Fired clay. Buff exterior, dark grey interior. Romano-British. Bourne (BOU 17).
9. **Clay ball**. Incomplete. Overfired clay. Dark brown. Romano-British. Gosberton (GOS 10C).
11. **Clay ball**. Incomplete. Fired clay. Red/buff. Impressions of former organic content. Romano-British. Gosberton (GOS 11).
12. **Kiln bar?** Part of cracked, overfired clay bar. Dark grey. Limestone inclusions. Probably Romano-British. Thurlby (THU 3).

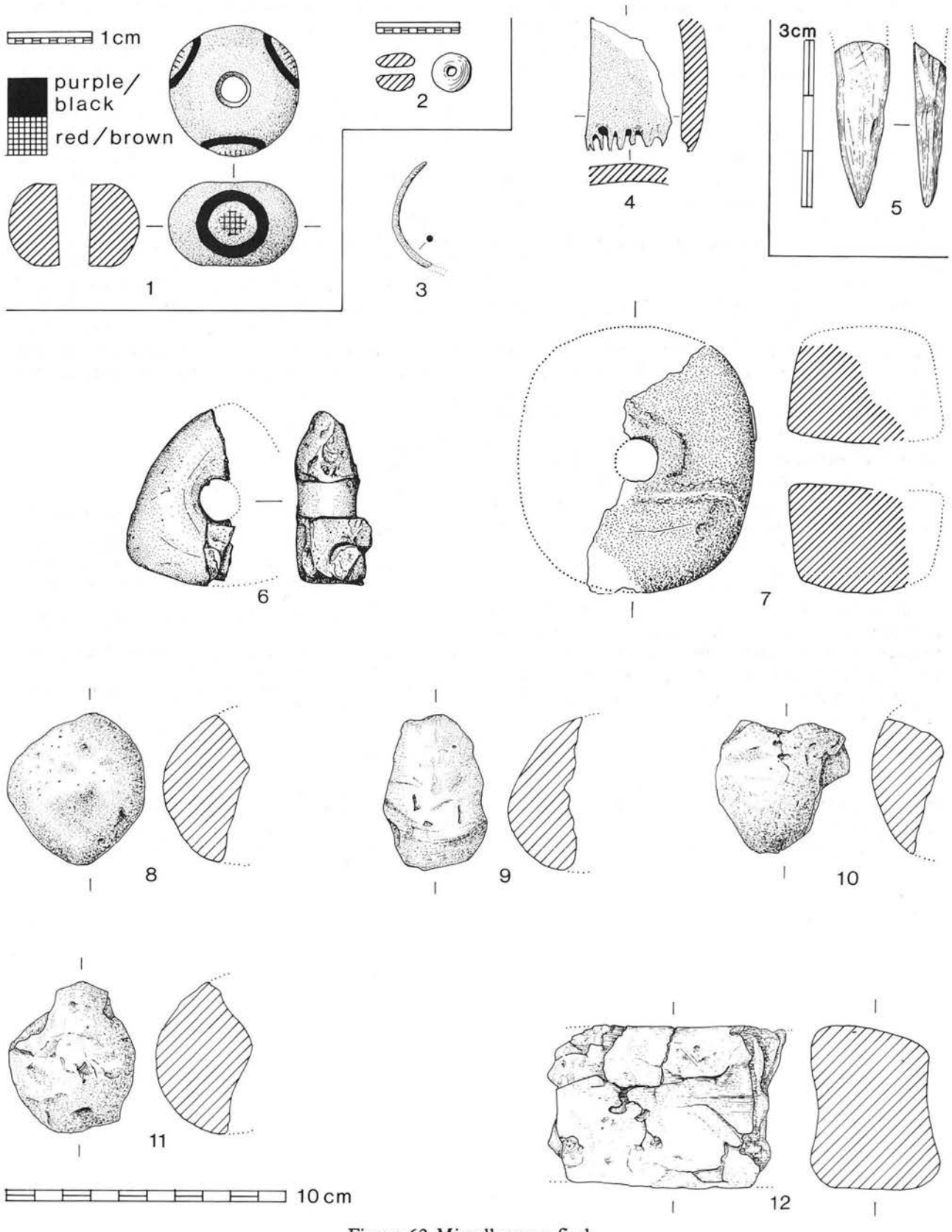

Figure 62 Miscellaneous finds
1. Bead BIL 25 (RB or Sax); 2. Bead PIK 3 (RB); 3. Bronze object POI 46 (IA?);
4. Bone comb? MOR 51 (IA?); 5. Bone pin BOU 13 (RB); 6. Loomweight BOU 17 (RB);
7. Loomweight MOR 53 (BA); 8. Clay ball GOS 18 (RB); 9. Clay ball BOU 17 (RB);
10. Clay ball GOS 10C (RB); 11. Clay ball GOS 11 (RB); 12. kiln bar? THU 3 (RB)

10. Pinchbeck (North)

I. Introduction
(Fig. 63)

The parish of Pinchbeck occupies 5684 ha of siltland just north of Spalding. It was only possible to include the western edge of the parish in the Survey but the area was considered essential because of its importance in landscape terms. The western part of Pinchbeck is a transitional zone where the clay fens merge eastwards into the rather flat complex of silts and very silty clays generally referred to as the siltlands or, sometimes, the high silts. This is an area where air-photographs, so useful on the clay fens, cease to be of any great assistance to the landscape archaeologist for roddons and Romano-British ditch complexes appear as disconnected fragments, if at all. However, on the ground, both roddons and sites often continue to be visible for several kilometres to the east of the limit of cropmarks. This transitional zone yielded crucial evidence for our understanding of the extent and fate of the more seaward of the Romano-British sites. It came as a surprise to find, in addition to Roman, both prehistoric and Saxon sites, though none were known in the area before the Survey.

The western part of Pinchbeck proved to be doubly transitional. In addition to the clay-silt transition (from west to east) there is a major landscape-history boundary between Pinchbeck North and South Fens. One of the main general conclusions of the Survey of the South Lincolnshire Fens is that there is a time difference of several centuries between similar landscape changes in the north and the south. The former creek systems in the south drained towards a large inlet, presumably the Welland estuary, near Spalding. These creeks silted up several centuries before the creeks further north, which drained towards the Wash inlet known as Bicker Haven (an area now totally reclaimed). This time difference has important repercussions because archaeological sites on most of these deposits cease to be occupied at around the time when the creeks silt up, presumably because freshwater fen then develops over the former saltmarsh deposits and renders them uninhabitable. This seems to be why one part of the Fens may have many Roman or Saxon sites, and another, not very far away, has none. In Pinchbeck North the roddons silted up rather late and it is rich in finds from the later periods (especially Saxon). The southern part, Pinchbeck (South), is discussed separate-

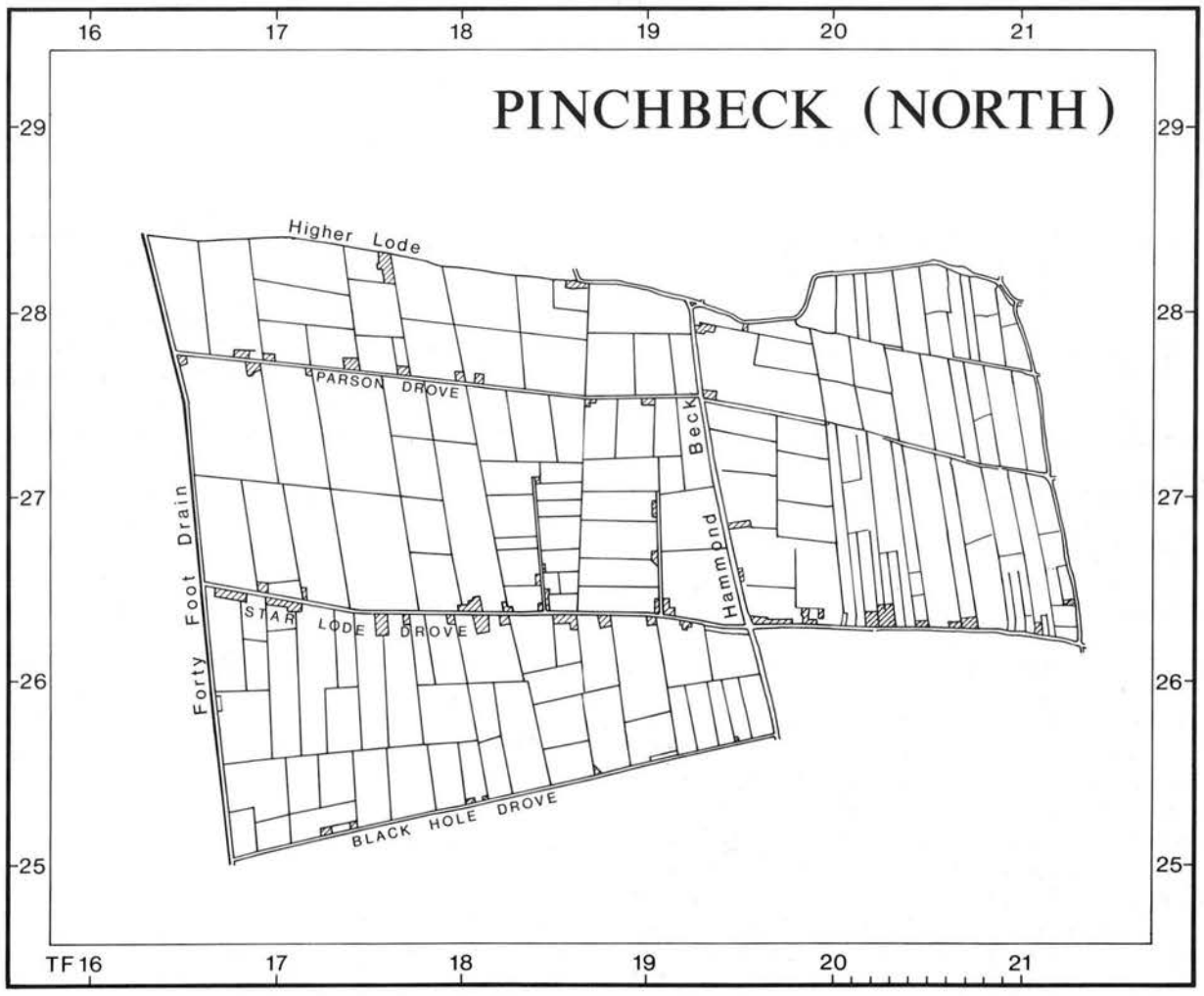

Figure 63 Pinchbeck (North): The modern landscape Scale 1:40,000

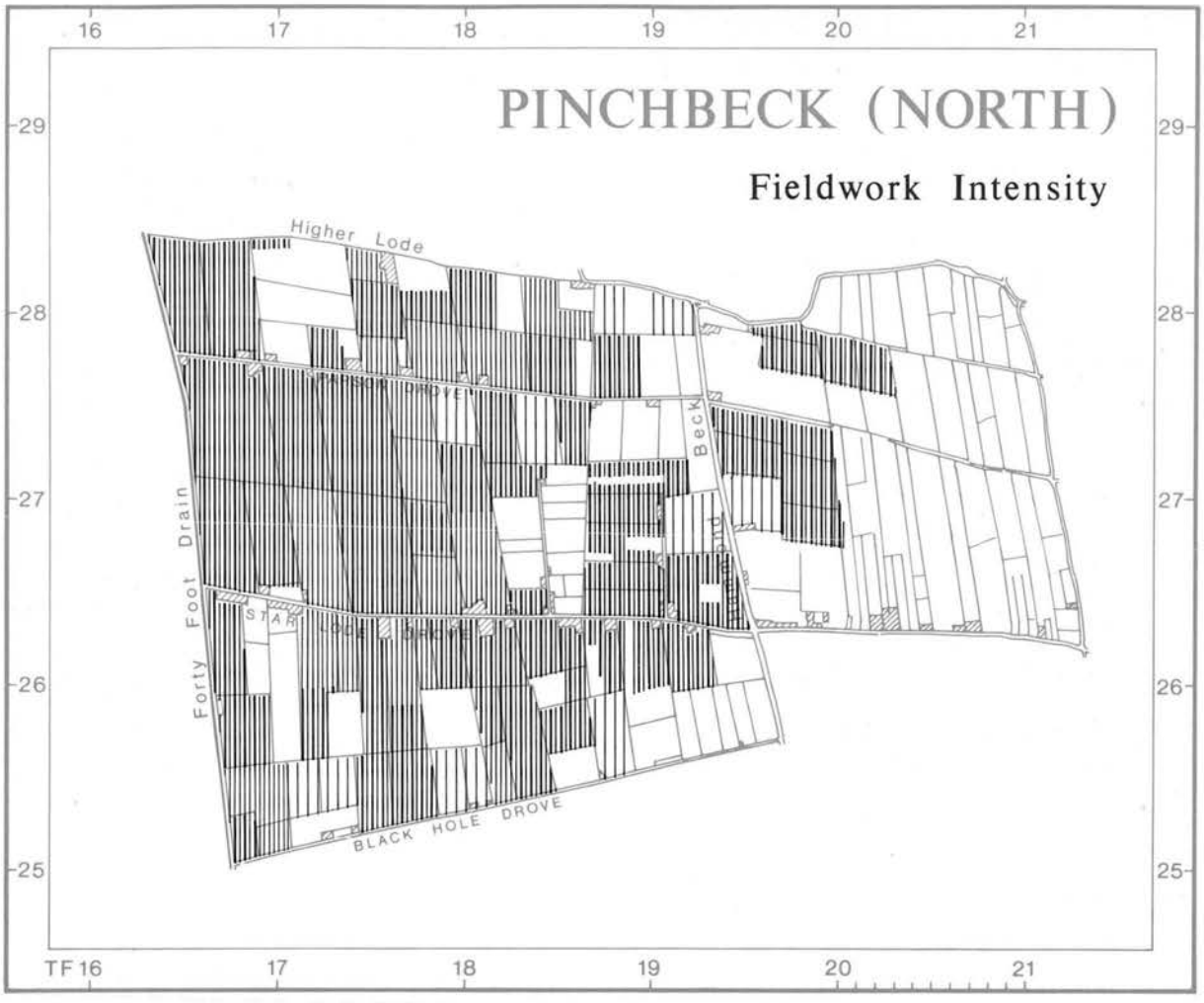

Figure 64 Pinchbeck (North): Fieldwork intensity

ly. It reached its peak rather earlier and is rich in Iron Age finds, though, as will be seen, that is rather an oversimplification, and some later silting also occurs there.

II. Topography

Pinchbeck North Fen contrasts sharply with the depopulated clay fens just to the west, with their high density of archaeological finds and high winter cereals and oilseed rape. The silts of the North Fen support a large number of resident farmers, mainly smallholders, producing vegetables, bulbs, cereals and sugar beet, often subdividing the fields into strips of different crops. The road from Spalding runs south-north through the Survey area, along a medieval fen bank, with the well-preserved remains of a medieval moated site (New Hall Grange) on its east side. Most of the residents live on the minor access roads, the three largest of which are Parson Drove, Star Lode Drove and Black Hole Drove. None of these afforded access across the Forty Foot Drain, which was the boundary between the parts of Lincolnshire known as Kesteven (to the west) and Holland, and the Drain remains an important boundary for local government administration. The north-west of the Survey area is also cut off by water: the Higher Lode and the Hammond Beck, though the latter is crossed by the main road.

The soils are generally silty and the centre of the Survey area is mostly rather flat, but in detail both soil texture and the ground level are surprisingly variable and these variations, though slight, proved to be archaeologically significant.

Soils range in texture from heavy clay, slightly silty, in the extreme south-west to sand in the extreme north-west. Both these areas are exposed parts of the prehistoric landscape.However, the Fen is dominated by a band of silt up to half a mile wide, running diagonally from south-west to north-east. This is the product of floodwaters bringing sediment from the Wash along a major creek which enters Pinchbeck North Fen from the direction of Gosberton Cheal (more or less where the main road crosses the Hammond Beck). The moated site (PIK 24) stands on a subsidiary, but still significant, band of silt coming in from the east. There are a number of small hollows around the main silt band which probably contained peat in medieval times. These features are best observed on the map for the Roman period (Figure 66 below). Most of the land surface of Pinchbeck (North) is around 3.0 to 3.5m OD.

III. Fieldwork

(Fig. 64)

Only a few fields were missed, due to unsuitable crops or the problems of contacting distant landowners. Generally, the intensity of fieldwork was high and visibility conditions were good. Therefore the lack of Saxon sites

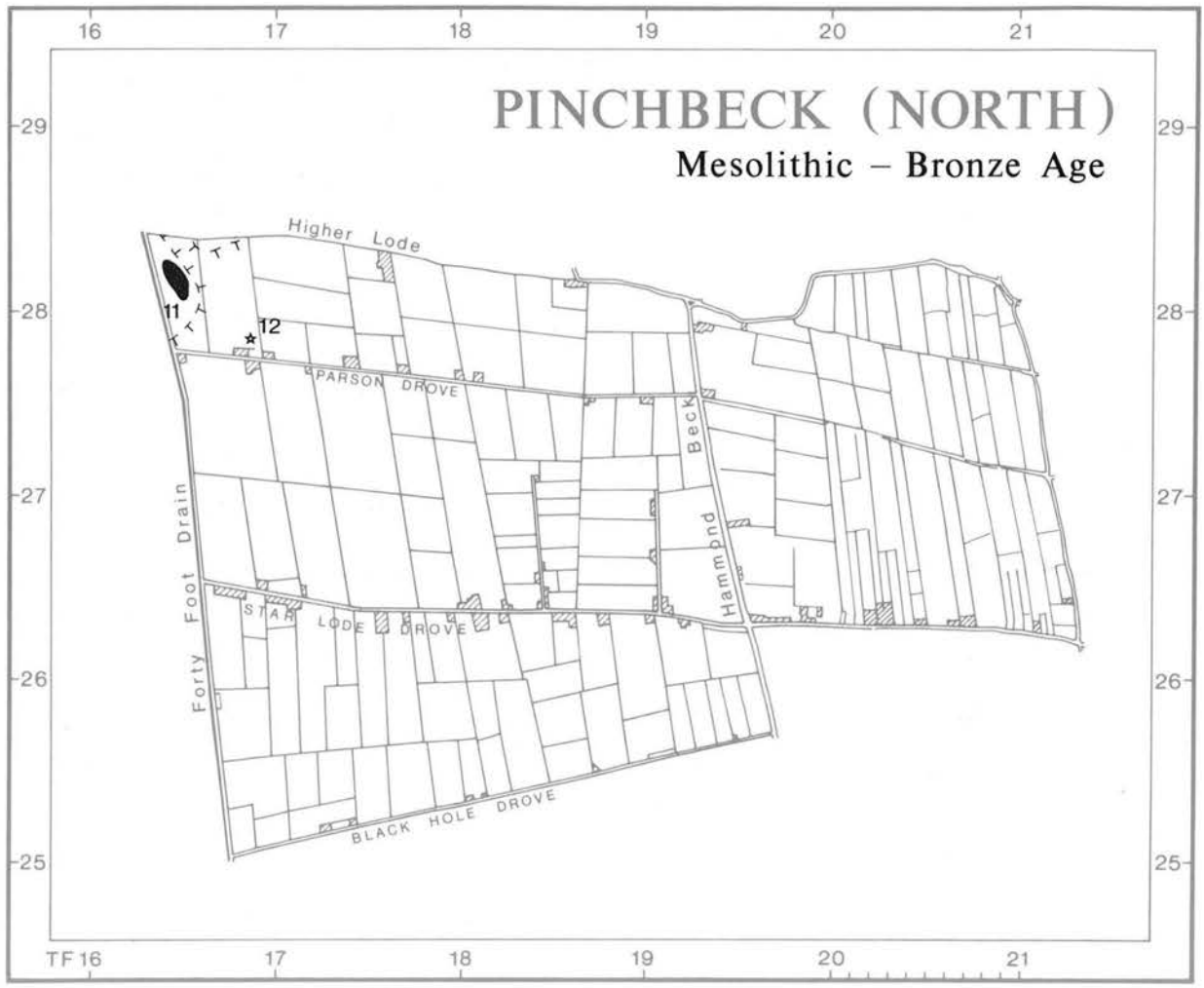

Figure 65 Pinchbeck (North): Mesolithic — Bronze Age

on the west, and of Roman in the centre and north (see below), appear not to be due to inadequate fieldwork.

IV. Mesolithic—Bronze Age

(Fig. 65)

Figure 65 serves two purposes. First, it is a reminder of how much lies hidden from surface survey. Almost all of the Survey area is covered by post-Bronze Age sediments. Mud from the Wash has buried an entire prehistoric landscape. Part of that landscape will have been lost, not just buried. The diagonal band of silt across the Fen probably contains former creek channels which will have scoured away the prehistoric remains and cut deeply into the underlying geological deposits. Nevertheless, around these channels there will be large areas which will remain undisturbed.

The second reason for including Figure 65 is to illustrate the remarkable site PIK 11 which was found on a small, previously unrecorded 'island' of sand. It was represented by a considerable spread of worked flint and Bronze Age pottery. In addition, a round feature, possibly ditched, is just visible on air-photographs and in the field but it is impossible to be sure whether it is the remains of a round barrow. Although the flints have not been examined by a lithics specialist, they can be seen to include both debris from flint working and some finished pieces. No definitely Mesolithic artefacts were identified, and the overall impression remains that the flints are Late Neolithic or Early Bronze Age. The pottery includes decorated Earlier Bronze Age (2250-1850 BC) and probably Later Bronze Age (1850-1000 BC) sherds.

A very unusual stone implement was found (Figure 150 No.2). This has been petrologically examined by R.V. Davis and has been classified as coarse grained Group XX. It would appear to be contemporary with the Earlier Bronze Age pottery (Smith 1979, 20) and to have originated in the Charnwood Forest area of Leicestershire (Clough and Cummins 1979, 127). The implement can scarcely be considered to be an axe; perhaps it was used as a pestle, or as part of an agricultural implement.

From this material, collected on a single visit to a prehistoric site unusually far out in the South Lincolnshire Fens, several inferences may be drawn. In earlier prehistoric times there must have been a slight rise in the land surface, where Pinchbeck North Fen joins Rippingale and Dunsby Fens. Soils on this ridge were gravelly in Rippingale but sandy in Pinchbeck. People were in occupation of the sandy soil, making and using flint tools towards the end of the third millennium BC, perhaps earlier. Certainly by the Earlier Bronze Age there is every likelihood that the ridge had become settled and was being farmed. This use of the area continued into the Middle Bronze Age but by about 1000 BC the site had to be abandoned. By then the surrounding fens had become waterlogged, trees had died, and marine flooding

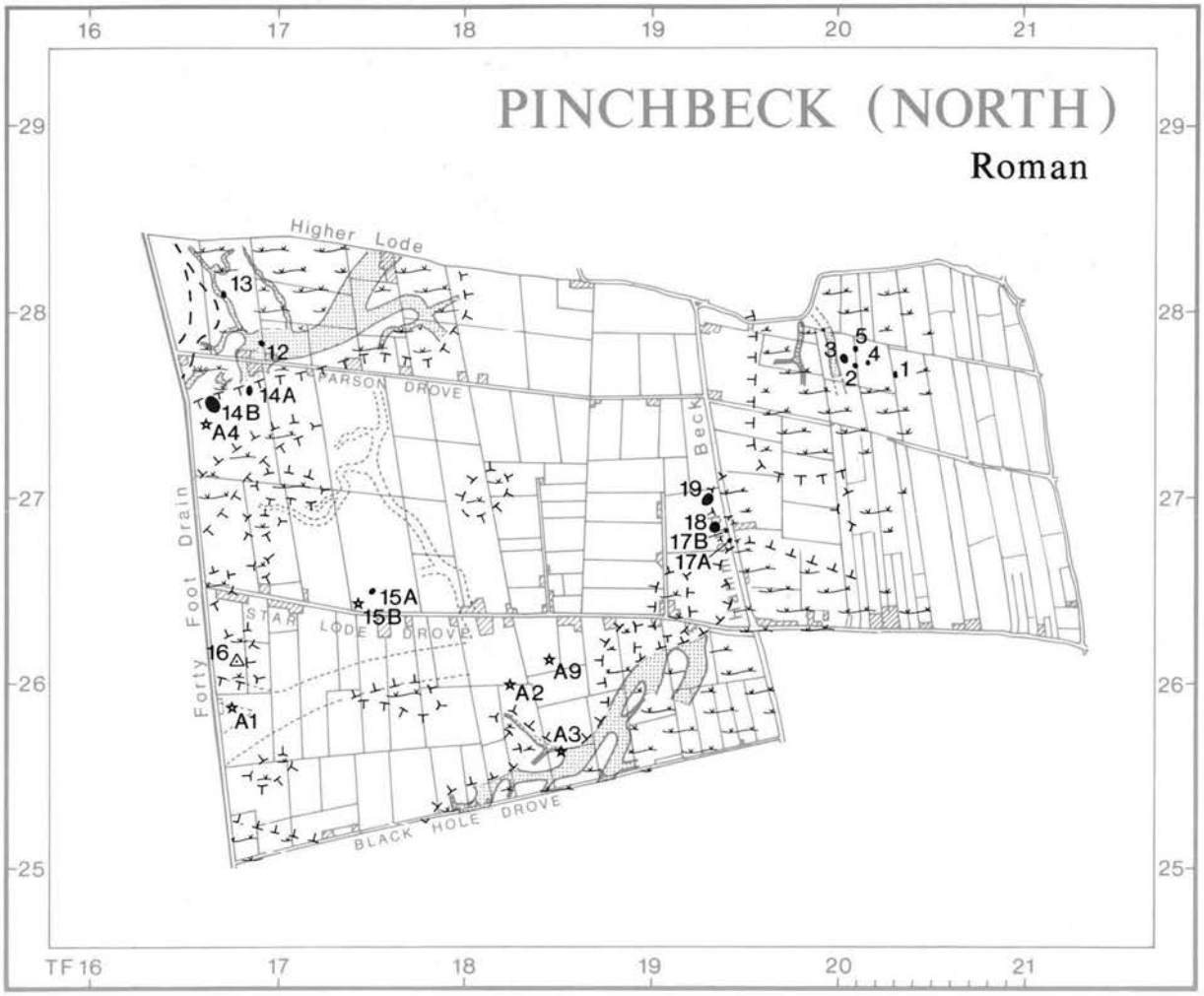

Figure 66 Pinchbeck (North): Roman

was occurring. Saltmarsh then developed and sediments built up until the ridge became visible, if at all, only as a variation in the natural vegetation.

A few sherds were found on the clay soil next to the main scatter, indicating that the archaeological evidence probably continues away from the present extent of the 'island' under the marine deposits, mostly just out of reach of the plough. If so, the site is important because of the extreme scarcity of prehistoric evidence away from the fen margin and because this site was occupied earlier than known fen-edge sites nearby. If the marine clay and permeable sand have between them created waterlogged conditions, sealed from air and agriculture, then the site is even more important because of the likely preservation of perishable remains and, therefore, evidence of the environmental changes before and leading to abandonment.

V. Iron Age

No map has been prepared because the evidence is uncertain. The 'island' would have been surrounded by a range of near-marine environments, possibly varying from open tidal flats to saltmarsh, perhaps with reeds on the island itself. A substantial creek must have existed just south of the island leading to the large roddon in Dunsby and Hacconby Fens.

In Pinchbeck South Fen, which matured earlier, there is considerable evidence for Iron Age activity on top of the marine deposits. Such evidence in the North Fen is, to say the least, elusive. The small number of sherds found on PIK 12, a predominantly Roman site, include seven handmade, prehistoric sherds but unfortunately these cannot be closely dated. They are unlike the Middle Iron Age pottery (400-150 BC) common further south, and taken with their presence on a Roman site they may date to the Late Iron Age, a period rarely recognised in the Survey finds. However, in view of the uncertainty, PIK 12 has been included on both Figures 65 and 66. A few sherds which may be Iron Age were found on the Roman sites PIK 5 and 15B.

In so far as we can make anything of the present evidence, Pinchbeck North Fen appears to have been uninhabitable almost throughout the Iron Age. A few attempts at saltmaking or settlement may have taken place after 150 BC, continuing and increasing into Roman times.

VI. Roman

(Fig. 66)

The Roman landscape in Pinchbeck North Fen now seems to be visible only in fragments. Marine silt and silty clay covers much of the landscape, possibly as a result of catastrophic sea floods in the second half of the Roman period or soon afterwards. Overall there is a certain lack of clarity in the available evidence.

On the clay fens west of the Survey area the roddons are usually distinct and sites easy to define, with clear concentrations of sherds and soilmarks, and the sites consistently relate to the roddons. Roman pottery is rarely found away from sites. From the air the ditches of the site complexes are clear and droves and enclosures are easily visible. In Pinchbeck North Fen few, if any, of the sites are completely typical, stray finds of sherds are unusually common, and air-photographs reveal a fragmentary, obviously incomplete, pattern. To illustrate the last point, sheet B of the maps accompanying Phillips (1970) shows a total absence of identified sites east of the South Forty Foot Drain, whereas on the west there are dense concentrations of soilmarks and several numbered site complexes.

In the field the pattern of near-surface sediments inferred from soil textures, observed in dyke sections or sporadically exposed by ploughing, was complex. There was obviously more than one phase of sedimentation, but the structure of the deposits and their dating proved extremely difficult to determine. Over most of Pinchbeck North Fen roddons seem to have been buried. Coarse yellow silt or fine sand was frequently ploughed up from the subsoil. The coarseness of the yellow silt/sand and its extensive occurrence implied inundation by floodwaters with unusually high energy levels, comparable with those in the main creeks in Dunsby and Hacconby Fens.

The Survey results present two major problems. First, whether sediments obscuring the roddons were pre-Roman, Roman or post-Roman; second, had the Romano-British settled around, and too close, to an inlet or small estuary which flooded, burying at least some of the sites, and which gradually silted up? Alternatively, is the band of silt entirely a later product, concealing a network of roddons with sites dotted along them, *i.e.* a seaward extension of the system mapped in Dunsby and Hacconby Fens? If that is the case the silt must have come from the roddons, spilling over into the land between them, perhaps as a result of a rise in the sea-level, or unusual storms, or failure of any artificial drainage and flood protection system.

Parts of a roddon system can be seen in the north-west, north-east and south-west. Most of the Survey area was covered by silty deposits in which a complete roddon network could not be identified, though traces were visible (the more definite of which are indicated by broken lines on Figure 66). In the west and south-west the surface was decidedly undulating and the silt soils varied towards clayiness, especially in the hollows. Broad ridges of silt disappeared into the banks of the Forty Foot, in line with generally much smaller ridges and roddons in the Fens to the west. The impression in the field was that the silt was deepest in the centre and north of the Survey area and thinned out towards Black Hole Drove, an observation supported by the distribution of archaeological finds. There are sites in the north-west, north-east and south-east, with scattered stray finds (A1-A3) and possibly buried sites in the south, towards Black Hole Drove.

Evidence relating to the first major problem outlined above, the date of the flooding which deposited the extensive silts, points to the Late Roman period or later. A site complex in the north-east (PIK 1-5) provides some important clues. The group of sites lies just off the silt but close enough to suggest that they could scarcely have been in use during a period of high-energy inundation. Pottery from the complex includes early material, such as amphora, early grey-wares (late 1st to late 2nd century AD) and samian, as well as late grey-wares (late 3rd to late 4th century). But the outstanding feature of the pottery assemblage is the unusually high proportion of colour-coated wares. Site 1 has 70%, but may be discounted because the sample is small. Nevertheless, a figure around 50% is the norm: Site 2 — 42%; Site 3 — 53%; Site 4 — 62%; Site 5 — 48%. The colour-coated wares collected by the Survey have not been analysed in detail but they are likely to be predominantly 3rd-4th century wares from the Nene Valley, and to include the coarser wares which tend to be 4th century according to Howe *et al.* (1980, 9).

At the other end of the silt, site PIK 15A and the finds at PIK 15B, contribute further important evidence for the date of the silt. PIK 15A has the appearance of a partially buried site. There was no soilmark and the finds were scattered sparsely down a low mound onto the surrounding silt. They consisted of Roman sherds and an oyster shell. Cockle shells occur all over the silt and must be natural but oysters are associated with human occupation. The mound was one of a small series resembling bends in almost completely buried roddons. At PIK 15B the finds consisted of a few sherds, including one hand-made, possibly Iron Age, together with bones (cattle and pig). They were found right beside, and almost certainly had been dug out of, a dyke. Only 25 sherds were found at PIK 15A/B so it would be unwise to push their interpretation very far. Nevertheless, the presence of shell-tempered ware (including possible Iron Age), grey-wares (including Nene Valley), and colour-coated wares is consistent with 1st-3rd centuries occupation, probably continuing into the 4th century.

Taking all this evidence into account, including the later Roman shift in prosperity towards the silt revealed by the graphical analyses described in chapter 22, the earliest silting seems likely to date to no earlier than the 4th century AD and probably to be later than that. The presence of Saxon sites on the silt, including Early Saxon (AD 450-650) in the north (see next section) makes it difficult to accept a date later than the 6th century, bearing in mind that the land has to dry out sufficiently to enable occupation. So, in the present state of knowledge the extensive silts were probably deposited around the 5th century AD . Further work is both possible and needed to test this, including excavation at one or more carefully selected sites.

The second major problem outlined above is the nature of the Roman landscape (settlements around an inlet, or a continuation of the roddon network?) and the reasons for its inundation.

In the field the 'silt' band was found to vary from silty clay to quite coarse silt. The variations created a complex pattern which contradicted any attempt to understand it as the product of an inlet or single large roddon entering from the north or north-east. Site PIK 14 A/B is on a continuation of the silts in Dunsby Fen into which the Rippingale 'canal' discharged itself, or under which it lies concealed. Here in Pinchbeck North Fen the silt almost takes the form of a roddon, with Site PIK 14 on its northern side. This roddon-like feature is not shown on Figure 66 because it cannot satisfactorily be distinguished from the general spread of silt but it appeared to run just north of east. After crossing Parson Drove the larger silt feature then turns north-east and

passes out of the parish under the west-east stretch of the Hammond Beck.

Almost parallel to this roddon-like band of silt, but at the southern end of the Survey area, a large roddon enters from Hacconby Fen. It seems to run eastward under the silt, generally visible only as a slight rise where it intersects the north-south dykes between Star Lode Drove and Black Hole Drove. Its course is indicated by broken lines in Figure 66. It probably turns north or north-east and crosses Star Lode Drove, and then either runs north to join the first roddon or swings east under the moated site (New Hall Grange).

Neither of these roddons was visible on the air-photographs examined in connection with the Survey. Joining them, however, is a roddon running almost north-south, which is visible both from the air and on the ground. It is shown on Figure 66 by means of broken lines and unstippled not because its course is unclear but because its date is uncertain. In the field just north of Star Lode Drove the roddon is high and visible from quite some distance away, an unusual feature on the silt. It seems to consist of coarse yellow silt beneath silty clay, though that has only been inferred from material revealed by ploughing. It is remarkable that no sites were found on such a prominent feature. This strongly suggests that the roddon did not exist in the Roman period, or that it remained sufficiently active to bury any sites on its flanks. This unusual roddon seemed to have turned east when it crossed Star Lode Drove, perhaps following the course of the buried roddon, and passing through PIK 9, before swinging north again, to recross Star Lode Drove, but it was not sufficiently clear to record with certainty. This curious roddon probably belongs to the closing stages of the marine sedimentation.

Two more roddons enter from Hacconby Fen, also probably running just north of east, but they disappear almost immediately into the silt. There may also be a roddon running in from the south-east under Black Hole Drove.

Taken as a whole the Survey evidence does not lend much support to an interpretation of the silt as an inlet or a single, large roddon. It is much more consistent with the suggestion that a conventional roddon system underlies the silt, with four or five substantial roddons entering from Hacconby, Dunsby and (perhaps) Pinchbeck South Fen. The general trend of the buried roddons is east to north-east. The saltern site (PIK 16) implies that tidal waters were present in the Roman period. The Rippingale Canal, just to the west, is evidence that the northernmost watercourse was important enough to justify the effort and expense of digging and embanking to direct and control the water. In the south-eastern part of the Survey area, floodwaters (probably from now buried roddons) spread silt over some of the Roman sites in the 4th-5th centuries. Further north there may be similar sites, buried a little more deeply, but it is possible that a confluence of major roddons more open to the sea, was simply not settled in Roman times because of the frequency of tidal floods. These suggestions are tentative because they are a first interpretation of evidence from a reconnaissance survey, but they are amenable to testing by further work, especially augering, to establish the stratigraphy and nature of the marine sediments.

VII. Early and Middle Saxon

(Fig. 67)

During the period AD 450-850 the natural environment altered profoundly. Figure 67 is no more than a single snapshot of a changing scene. It appears as a simple picture because it is based on little evidence. The influence of the sea, so strong in the Roman period, must have declined because it is clear from historical sources that by medieval times the saltmarshes lay further east and freshwater fen covered much of the Survey area, but the speed of change is not known. There are no known Early or Middle Saxon saltmaking sites in Pinchbeck (or anywhere in Lincolnshire) to act as markers of the edge of the saltmarshes.

The Survey results do, however, offer some clues — the diagonal boundary across Figure 67 is not entirely arbitrary. The presence of Saxon sites on the silt, especially the deep silt, and their absence on the roddons in the north-west show that the marine flooding which deposited the silts was over and that the earlier roddons, favoured for settlement in Roman times, were no longer suitable locations for sites. The distribution pattern of the Saxon sites, especially their absence in the western part of the Survey area, suggests that freshwater fen, advancing from the west, had crossed what is now the line of the South Forty Foot Drain and was affecting the edge of the silt. The eastward advance of the fen was inexorable. In the medieval period the Saxon sites shown on Figure 67 lay abandoned in the fen which by then extended as far as the medieval bank which helped to prevent its further advance.

The difference between grazed high-level saltmarsh and grazed high fen need not have been very striking, both would be forms of damp grassland. When the creeks silted up and freshwater conditions started to prevail, the land must have become less well drained. As waterlogging increased the grassland would have become prone to invasion by reeds, then rushes and sedges. This would happen first on the west, along watercourses, and in the low, clayey, hollows, but later it would spread onto the lower parts of the silt. Grazing would prevent the natural succession to fen woodland, and dykes and banks might delay the changes or protect the higher areas, but eventually, as the historical evidence shows, the silt occupied by the Early and Middle Saxon sites was covered by the fen. These deductions are open to dispute, being based on inferences from limited evidence and one of several possible models for the natural processes of change, but they help to make sense of the Survey findings and they are testable if datable waterlogged deposits exist at the sites. Unfortunately, continuing improvements to the land drainage system (essential for farming the land) are likely to destroy the environmental evidence through lowering of the water-table.

All the pottery from the Saxon sites has been examined, described and classified by Hilary Healey. Given current knowledge of local Saxon coarse wares the chronological categories are broad and there are few diagnostic criteria. Only excavation can provide the dated typological information needed to make full use of the Survey finds. For the present the sherds have simply been divided into three chronological categories: definitely Early Saxon (AD 450-650); definitely Middle Saxon (AD 650-850) or Early/Middle Saxon (AD 450-850). In contrast to the results further seawards (*e.g.* in Quadring) no

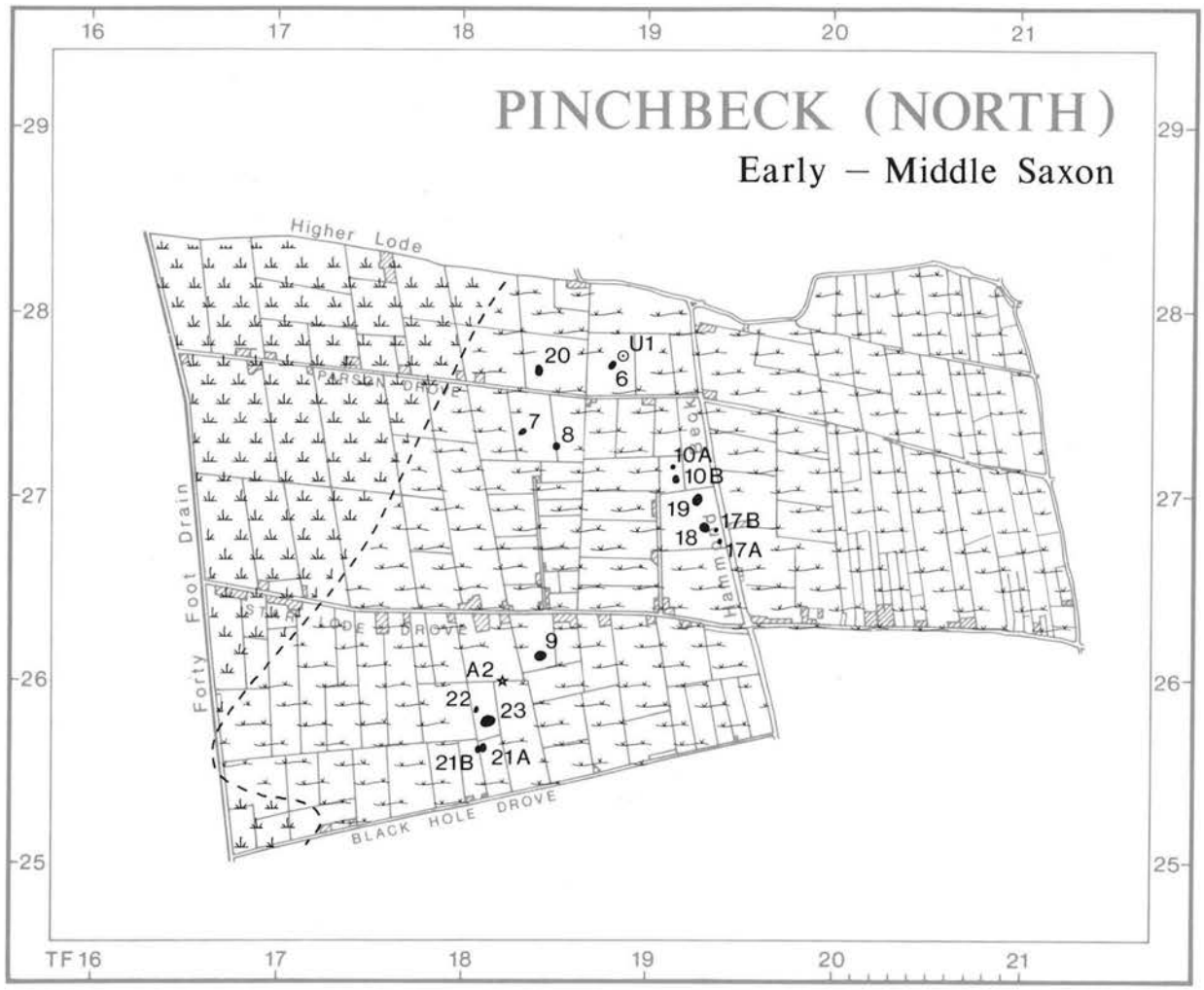

Figure 67 Pinchbeck (North): Early — Middle Saxon

Late Saxon sherds (Saxo-Norman, AD 850-1150) were found on or off site, and only two medieval sherds. Few of the Saxon sherds could be placed with certainty into the Early and Late categories. But although most sherds fell into the wider 'Early or Middle Saxon' category it was possible in the majority of cases to add that the sherd was more likely to be Early than Middle (or vice versa) and that additional information has been taken into account in the following summary.

In the field it seemed obvious that there were two sorts of Saxon site (though with some intermediate examples). The typically Middle Saxon sites had previously been recognised in Quadring and Gosberton. These are visible at a distance as low mounds, they have large quantities of animal bones, mussel shells are commonly found, but sherds are relatively scarce. Other regular finds are fragments of quern (lava or millstone), hones, and the occasional spindle whorl. The second category of site seemed to be Early Saxon and was more difficult to find. It was typically not mounded, often with fewer bones and no lava, but comparatively greater quantities of sherds, though these could be hard to see as they tended to be small and dark. The two sorts of site were not geographically separated and tended to occur together, perhaps forming loose clusters.

For convenience the Saxon sites will be discussed in three groups. The first, in the north, contains sites PIK 6, 7, 8 and 20. Of these, site PIK 20 is a typical Middle Saxon site, mounded (though possibly using a natural mound, a partly buried roddon), with much bone (cattle, sheep and pig were recognised), mussels, only seven sherds (but including Ipswich and Maxey wares), a hone and a piece of lava. PIK 6, in contrast, had mainly Early characteristics; it was not mounded and had 56 sherds, though it was somewhat atypical in having animal bones in abundance. There was also a little slag and some residues fused onto sherds. The pottery included definite Early Saxon wares. There was no recognisable Middle Saxon, though some sherds could be of that date. Site PIK 7 is Middle Saxon and PIK 8 includes Middle and probably Early sherds.

In the second group, Sites PIK 17, 18 and 19 are predominantly Roman with only small numbers of Saxon sherds (5 on each) so the nature of the sites is uncertain. There is probable Early Saxon material, and definite Middle Saxon on PIK 19. Although Site PIK 10, nearby, is not on a Roman site, some Roman pottery was found there. In general though, PIK 10 looked in the field like a typical Early Saxon site. Unfortunately, although 86 sherds were collected, none is incontrovertibly Early Saxon in the present state of knowledge, though many sherds look likely to be Early and none likely to be Middle.

The third group, in the south, comprises Sites PIK 9, 21, 22 and 23. PIK 21 is a remarkable site, predominantly mounded with a dark soilmark. The bone

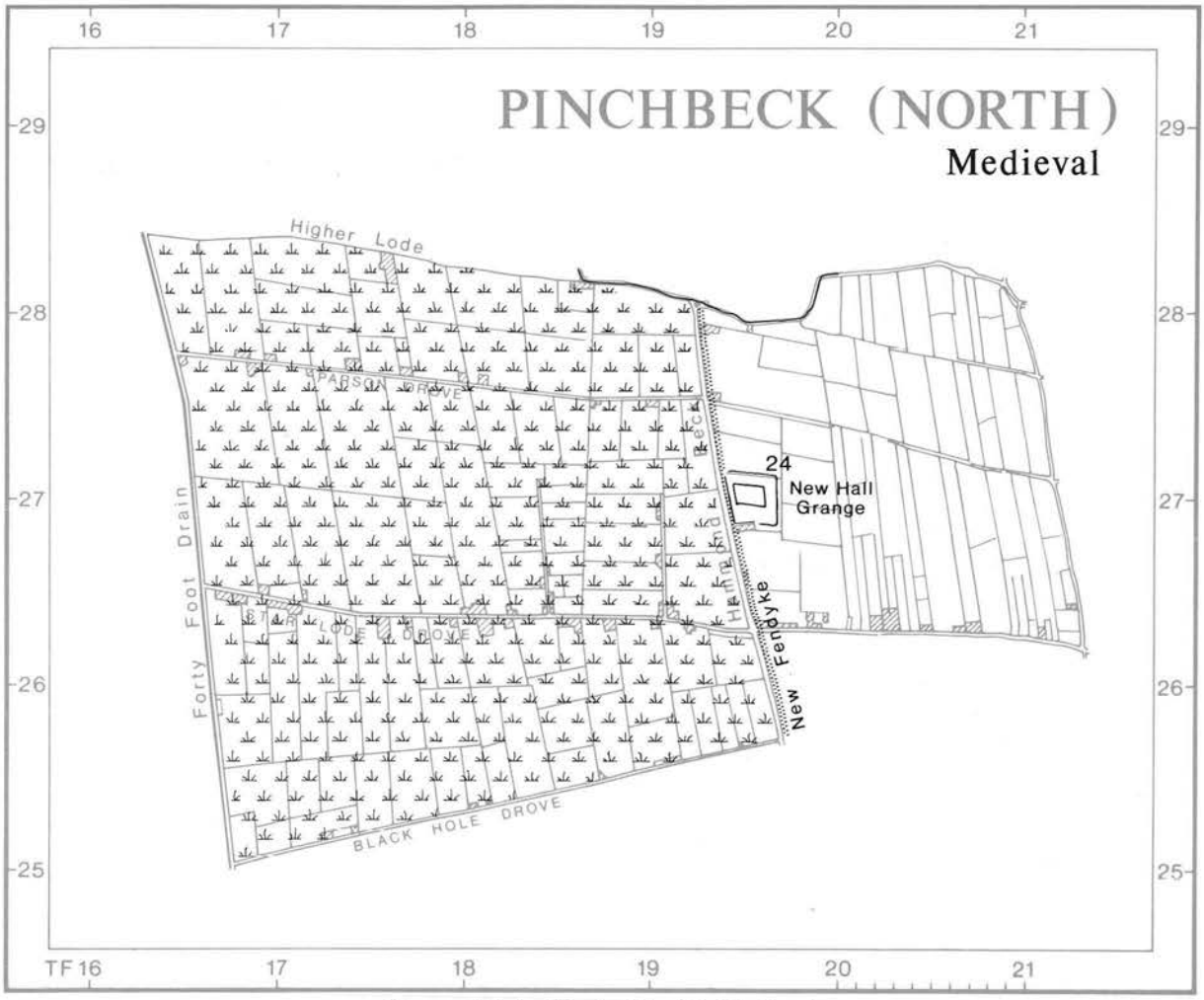

Figure 68 Pinchbeck (North): Medieval

includes cattle, horse, sheep, pig, bird (large) and sawn antler. Shells include an oyster and many mussels. There are definite Middle Saxon sherds (Ipswich and Maxey types) and probable Early, as well as some Roman. PIK 22 is a typical Middle Saxon site. PIK 23 is an unusual site. In the field it looked Early, but again, despite the collection of *c.*40 sherds there was nothing diagnostic. It was noted though, that the sherds had a generally Early Saxon appearance, which was also true of the sherds from PIK 10 (above). Vegetation had been used as tempering in some of the sherds from PIK 23. None had shell tempering (a Middle Saxon characteristic) and only one sherd looked at all likely to be Middle Saxon. Some Roman sherds were found, and one rim looked Roman in form but Saxon in fabric. Site PIK 9 is also enigmatic, more probably Early than Middle Saxon and with some Roman sherds.

Early Saxon pottery was rarely found by the Survey on Romano-British sites in the South Lincolnshire Fens. There are possibly some Early Saxon sherds on the Roman site complex (PIK 17-19) but the unusually low numbers of possible Early Saxon sherds casts doubts on continuity of settlement from Roman to Saxon times. This is reinforced by the low proportion of colour-coated Roman pottery and the absence of later grey-wares, suggesting abandonment of the site complex before the end of the Roman period. This makes the discovery of Roman pottery on several of the Saxon sites quite interesting. Taken alone there would not be enough Roman sherds to warrant their description as a site, but they might well be taken as evidence of the possibility of a site just buried beneath the silt. It is perhaps noteworthy that the Saxon sites with Roman sherds (PIK 9, 10, 21 and 23) occur where the silt thins out and Roman sites appear to be just under the surface.

The Saxon sites nearest to the presumed source of the silt (PIK 6, 7, 8 and 20) have no Roman pottery on them. This may just be a coincidence, but it suggests the possibility that where Roman sites lay just under the surface of the silt, they produced a topographical or vegetational anomaly which attracted settlers in the Early Saxon period. Romano-British sites not buried by silt appear to have been avoided (*e.g.* the Romano-British sites PIK 1-5).

VIII. Late Saxon and Medieval

(Fig. 68)

There appears to be a total lack of settlement in the Survey area in Late Saxon and early medieval times. One assumes that people moved east, to the higher silts where the later medieval villages were situated. Although the eastward spread of the fen may have been a contributary factor, other causes (perhaps economic or political) must have been involved.

For the medieval period, the Survey did not add substantially to existing knowledge of the area, most of

which is derived from historical sources. Hallam (1965, 53-54) identified the fen bank (now under the main road) as a medieval construction called the New Fendyke. Its documentary references go back to around 1240, though Hallam believed the bank to be older than that. The moated site (PIK 24) belonged to the Priory of Spalding. A grant of land in 1229-53 referred to the 'new place' which Hallam identifies as New Hall. Presumably the name changed when Prior William of Littleport (1274-94) built a manor house there.

The absence of medieval pottery in the fields around New Hall, even to the east of the fen bank, makes it unlikely that the land was used for arable agriculture to any significant extent because such use produces a thin scatter of sherds, probably from midden deposits spread on the land in the course of manuring. Some very slight ridges and hollows were visible just east of New Hall which might be the last vestiges of dylings, but they were far from conclusive. If they were dylings they would almost certainly have been primarily used for sheep farming.

The Rippingale Running Dyke probably made its way across the northern part of the area to the Hammond Beck. There is a short stretch of freshwater alluvium (containing shells of freshwater molluscs) which runs north-east from Parson Drove towards the junction of Higher Lode and the Hammond Beck. This is likely to have been a stream or dyke but it could be pre-medieval and it would not be traced very far. Similarly, part of the probable course of a freshwater stream was found west of New Hall, between the two short north-south droves. Again, it was only a short stretch and it is undated, though it may have carried water from the Hacconby Lode, which must have flowed across the Fen from the south-west corner of the Survey area. Medieval streams in these Fens seem to have left extraordinarily little trace. Perhaps they were shallow, mainly confined to the peat, and carried clear, sediment-free, water at low speeds. If they left any recognisable deposits they must nearly all have disappeared as a result of peat loss and ploughing of the mineral soil.

The early post-medieval by-laws relating to Pinchbeck Fen published with a commentary by Hallam (1963) give valuable insights into the uses to which the fen was put in medieval times. They also show how communal use of the fen was regulated and how the maintenance work essential to prevent the natural succession to scrub and woodland was organised.

The almost total absence of any archaeological evidence for many centuries of human activity is a salutary reminder of the limitations of our evidence and the inferences we are entitled to draw from it. On the other hand, it does strengthen the case for accepting the earlier sites at their face value, as permanent occupation sites, rather than as evidence of temporary or transient use of the area.

IX. Conclusion

Despite its small size Pinchbeck North Fen is an archaeologically important area with high potential for future work. Much of its importance stems from its location on the edge of the so-called 'Wash Silts' and the presence of slightly buried sites and land surfaces, including an 'island' of pre-Flandrian deposits, on which there are prehistoric flints and pottery. The area also contains Roman sites, some probably buried beneath marine alluvium, as well as Early and Middle Saxon sites. There is great scope and need for additional work to elucidate the date when, and the way in which, the former creek systems ceased to function, the dating of and reasons for the extensive flood silts, and the way in which Saxon sites came to replace Roman. The Saxon sites themselves, and those in parishes to the north and south, are one of the most important discoveries of the Survey. From the Survey evidence it is suggested that Iron Age activity, although probably present, was probably at a low level. In the Roman period there was prosperity, especially in the 3rd-4th centuries. Extensive flooding, probably in the 4th-5th centuries, deposited silts over some sites. Resettlement was rapid and successful, continuing to around AD 850. The Late Saxon period is enigmatic; presumably, settlement withdrew to the villages further east. Freshwater fen spread east across much of the area. The medieval landscape was stable, with the advancing fen halted against the New Fendyke, now the road from Spalding. The most prominent medieval feature was New Hall, a monastic grange right on the fen-edge, a site which is still reasonably intact.

The Parish Essays: Morton to Crowland

Towards Lincolnshire our progress layd
We through Hollands ditches wade
25th song from Polyolbion
Michael Drayton (1622)

Plate IV Roman landscape, Morton Fen. The Bourne—Morton canal connects with another watercourse top centre. The clay Fens to the west were formerly peat covered and traces of peat extraction can be observed near the junction with the siltland (lighter tone). The lighter area immediately to the right of the peat cuttings at the bottom is the northern part of Guthram island. *Cambridge University Collection; Copyright reserved (RC8-EY-71)*

11. Morton

I. Introduction
(Fig. 69, Plate IV)

Morton Fen can be viewed almost as a microcosm of the western Fen region for within its boundaries are surface traces of the three major phases of marine alluvial deposition commonly found in the region as a whole. Remnants of the once more extensive peats are also present. The marine sediments derive from the mid-2nd millennium BC and Early Iron Age transgressions and also from the localised incursions that occurred between the Early to Middle Iron Age and Late Roman periods in the south-east of the parish.

In the Fenland these interface zones often contain surface soil and sediment patterns of baffling complexity. Such is the case in Morton Fen where the patterns are classically illustrated on the RAF's 1947 vertical air photograph published by S.J. Hallam (1970, pl. IX pp. p. 36), and on Plate IV in this volume.

Surface soils and sediments have provided some evidence to indicate fluctuating environmental conditions in Morton Fen. Fortunately for the purposes of dating, the surface of many fields proved to be rich in archaeological debris. Over 70 'sites' were recorded and they yielded broadly datable finds which helped to refine the chronology of landscape change.

Some recent research has been undertaken in Morton Fen into the archaeological applications of remote sensing (Donoghue and Shennan 1987, 46-52). Palaeoenvironmental and stratigraphic studies were included and reference is made to this work.

II. Topography

Like the parishes to the north, Morton has a narrow, *c.* 2km north-south axis, but from west to east stretches for 10km. East of the village the Fen extends for 5km between Scotten Dike and the Forty Foot Drain. Gravels bordering the margin of the western Fenland extend south into Morton. To the east, the adjoining pre-Flandrian surface is mainly one of sand which had been buried by thin peat and, in turn, covered by shallow brackish/marine alluvium. Near Scotten Dike exposures of sand form 'islands'. In the south-east of Morton there is a further, more substantial, island (Guthram), which is composed of glacial clays and gravels. It represents an exposed crest of the ridge that extends north to Dowsby but which, for the most part, lies submerged beneath thin alluvial cover. This same ridge can be seen on the Morton-Pinchbeck section which Smith (1970, 150) reconstructed from borehole data.

Canalised courses of ancient streams which drained the upland regions extend across the Fen. Lane Dike forms the boundary with Hacconby and, to the south, Dyke New Dike separates Morton from Bourne.

Morton village is sited on glacial clays and sands, some 2km inland from the Fen. A secondary settlement, Hanthorpe, lies less a further 2km to the west.

III. Fieldwork
(Fig. 70)

The Bourne-Sleaford trunk road, based on the Roman course of Mareham Lane, bisects Morton and Hanthorpe villages and formed the western limit of the fieldwork. The Fen received adequate attention but the limited time for survey resulted in less extensive coverage in the village area, away from the Fen. No attempt was made to investigate the archaeology of the uplands around Hanthorpe.

IV. Mesolithic-Early Bronze Age
(Fig. 71)

Flood deposits obscure much of the pre- second millennium BC landscape. Therefore the finds and information compiled for this period are sparse and have been incorporated into one map. The isolated early prehistoric finds in Morton reflect the general pattern along the western fen-edge. Morton may have hosted more of the early population than nearby parishes for much of the sand which now underlies the later alluviated fen is not common in the parishes further north. It would have been dry and available ground of the sort favoured for early prehistoric settlement. In a number of places where the sand is higher than the subsequent flood level, scatters of flint were found (MOR 25, A1, A2, A4, A11, A12, A13). These almost certainly continue beneath, and are therefore sealed by, the waterborne deposits. A Neolithic polished flint axe (MOR UA1) is a previously recorded find from the sands while, on the gravel edge to the west, a further axe fragment (MOR A9), was found during survey. Prior to marine sedimentation in the Bronze Age, impaired drainage seawards caused flooding of the freshwater streams in parts of Morton Fen. Peat formed over the lowest areas of sand and gradually spread over the remaining land surface of Morton Fen. It could be seen in a newly cleaned section of New Dike. Smith's section (1970, 147-150) shows peat present to a depth of at least 3 metres at the lowest part of the fen (*c.*TF 145244). Recent radiocarbon determinations from samples of the basal peat taken from the area of Cross Drove produced an earliest date of Q-2579 4430 ± 100 BP (3305-2920 Cal. BC).

V. Middle Bronze Age
(Fig. 72)

Sometime after the mid-second millennium BC Morton Fen underwent one or more brackish/marine inundations which deposited a slightly silty clay over the earlier peat. Tidal creeks drained the marsh towards an estuary in the Spalding area. Later marine sediments have obscured the earliest deposits in the north and east of Morton Fen. In that area traces of undated creeks which may relate to this early phase are shown on Fig. 72 as parallel broken lines.

Sites that are broadly contemporary with this transgression are grouped on the Fen margin. Pottery from these sites closely resemble that from the excavated

Bronze Age site at Billingborough (Chowne 1980, 297). Similarly, a loomweight fragment from MOR 53 (Fig. 62, No.7) appears identical to a complete example from Billingborough (P. Chowne, pers. comm.)

VI. Iron Age

(Fig. 73)

The diminishing tidal influence in the Bronze Age marsh enabled a return to predominantly freshwater conditions over much of the southern part of the western fens. Once more peat formed, this time above the marsh clays and silts. Shennan obtained dates between Q-2577 2960 ± 70 BP (1290-1060 Cal. BC) Q2527 and 2630 ± 70 BP (850-795 Cal. BC) from this peat where it was sealed by later silts.

Late in the Bronze Age or in the Early Iron Age a further marine incursion deposited extensive silts and clays in the north of the surveyed area. Bicker Haven was the source of this episode and its influence reached as far south as Hacconby and the northern part of Morton Fen. Its dates are imprecise.

Saltmaking sites developed around the limits of the flood zone, west of Scotten Dike and north of Morton Drove. These lie at the junction of the northern, active, system and the southern zone, which by this time had returned to a freshwater-dominated peaty condition.

During the Iron Age the pattern of settlement was established which was to expand in the Romano-British period. The fen-edge sites (MOR 17, 27, 29, 30) east of the Car Dyke, which later became extensive Roman settlements, were founded in the Middle Iron Age. In the Fen MOR 12 also has Romano-British material on a Middle Iron Age site. Despite this re-use of the same sites there is no obvious sign of continuity, for all the dated Iron Age material that was collected belongs within the date range 400-150 BC (06). Definite Late Iron Age wares have eluded discovery along this part of the fen-edge but the desertion of the area at such a time seems an unlikely exodus.

Other than the sites numbered above, Middle Iron Age pottery was found on five of the saltern sites (MOR 9 and 50 in the fen, 13, 31, and 68 on the fen-edge). MOR 37, 38 and 39 are collections of sparse briquetage from discrete damp spots in a broad but indistinct area of silt. Other sites of that nature would not have been recognisable during less favourable conditions. (During fieldwalking on these particular sites a considerable wind rapidly dried the surface of the field. In the Fenland, in areas of shallow silting, earlier and buried silt features such as roddons can sometimes be identified subsequent to precipitation and during a strong, drying wind. The buried features retain moisture and continue to appear as damp areas in a predominantly dry surface. The salterns in question may be shallowly buried, moist, silt 'mounds'. Their burial would account for the paucity of briquetage).

The briquetage (Type 2, see chapter 20) from salterns MOR 8, 24, 26 and 69 is possibly Iron Age but this identification must be regarded with some caution. MOR 47 may also contain some Iron Age wares but they are undistinguished and more probably Roman.

MOR 17, 27, 29 and 30 are predominantly Roman but with some Iron Age wares. It was not possible during rapid survey to identify the limits of the Iron Age finds within the overall distribution, therefore a site symbol has been arbitrarily placed within the overall Roman boundaries of these sites to depict an Iron Age presence.

These fen-edge sites survived in marginal territory adjacent to the peat and at the apparent mercy of the fluctuating water levels in the fen. This was achieved without obvious flood protection. It is tempting to consider the nearby Scotten Dike to be aligned on an ancient, perhaps even pre-Roman protective feature. Its position, reflecting the fen flood limit, is that which the Car Dyke occupied further north before the latter monument commenced its curious migration inland, one which takes it 1km west of the fen in Morton and in Dyke sees it ascend to the 7.6m contour.

Part of the parish underwent further marine flooding in the Iron Age, this time initially depositing clay, which, in a soil profile, can be seen to change to silt. Sedimentation affected an area extending north-west from Guthram island. A further tongue of silt then extended for 1.5km south-west towards Bourne. This could be interpreted as the levees of the later Bourne-Morton canal but could also represent the natural silting of a major outlet which had developed in Iron Age peat which has long since wasted. The onset of this flooding came some time after Q-2527 2630 ± 70 BP (850-795 Cal. BC) which is the youngest date obtained from peat underlying this marine phase. The silt appears to have been deposited in an environmentally unstable area which was, perhaps, subject to intermittent inundation over a period of centuries. It is certainly all but free of Romano-British settlement evidence on the surface (see below) in stark contrast to that on the marine sediments adjoining to the north where there is evidence of many sites.

VII. Roman

(Fig. 74, Plate V)

It is clear from the Iron Age finds that the Fenland had, to a degree, been colonised before the Roman conquest. In Morton, at least, the Roman achievement was to bring economic maturity to an infant landscape.

From the air the clearest and best known of Morton's Roman landscape features is the Bourne-Morton Canal (MOR 70). It appears as a narrow band of sand/silt aligned, in Bourne, on the main Spalding road from where it continues north-east for *c.* 6km. From the point where they cross Morton Drove, the levees of the canal become wider and may incorporate an earlier silted natural water course. Near North Drove Draining Pump the canal joins a second watercourse which was mapped a short way north towards Hacconby and also south-east into Pinchbeck North Fen where, near Nunnerly House, its traces disappeared. Its central channel can clearly be seen as a band of humose soil which connects with the canal (Pl. V). Further east another man-made channel leaves the watercourse to follow a curiously indirect route to the north. The watercourse which connects the canal and Pinchbeck takes a meandering route, but is a canalisation and is, perhaps, of wholly artificial construction. It may represent part of a system which attempted to control the unstable area, and it was, at the very least, an integral part of the main canal system. Its general appearance on air photographs (Pl. IV) is identical to that of the northern end of the straight course of the Bourne-Morton canal which strongly suggests it received the same maintenance and management as the canal itself.

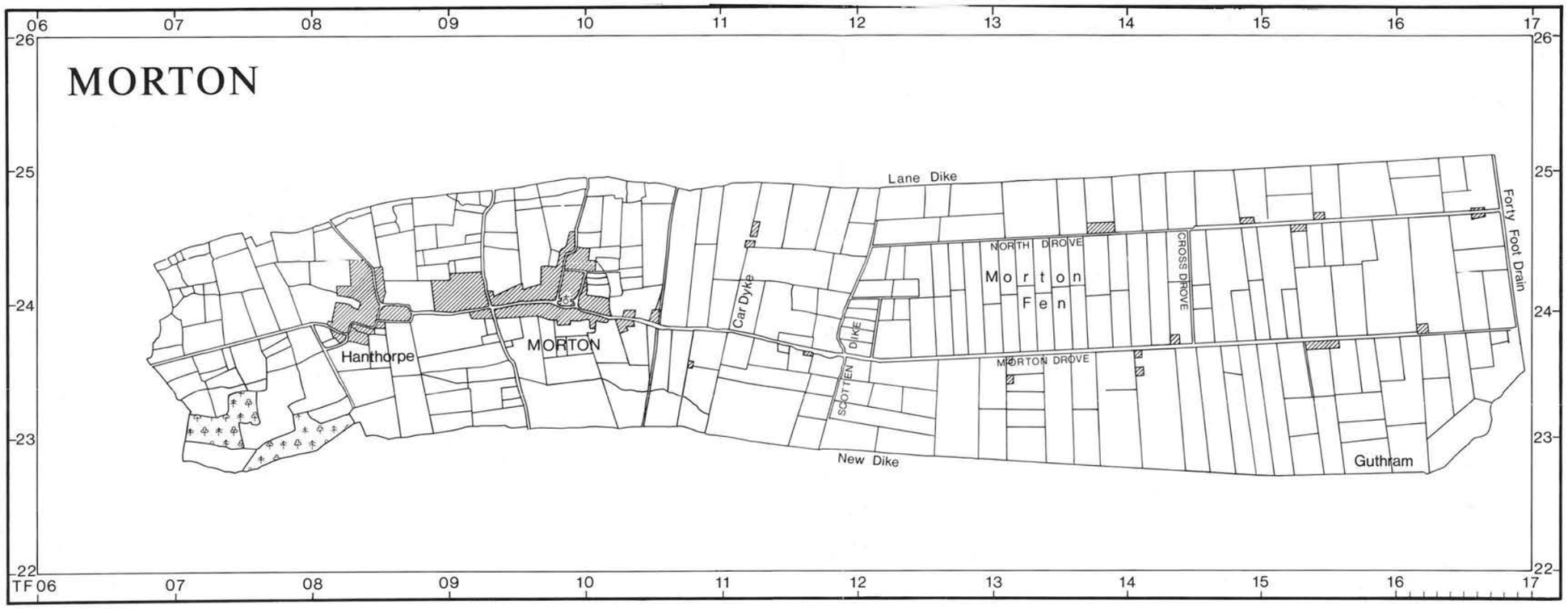

Figure 69 Morton: The modern landscape Scale 1:40,000

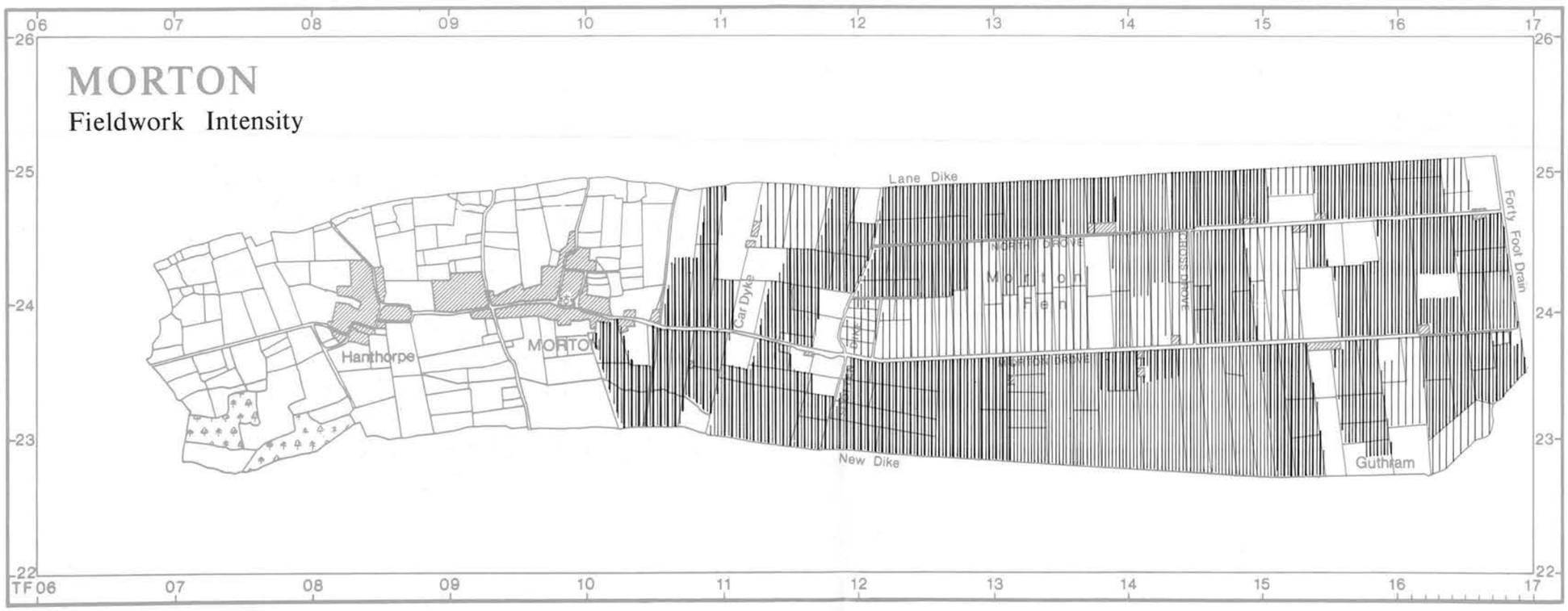

Figure 70 Morton: Fieldwork intensity

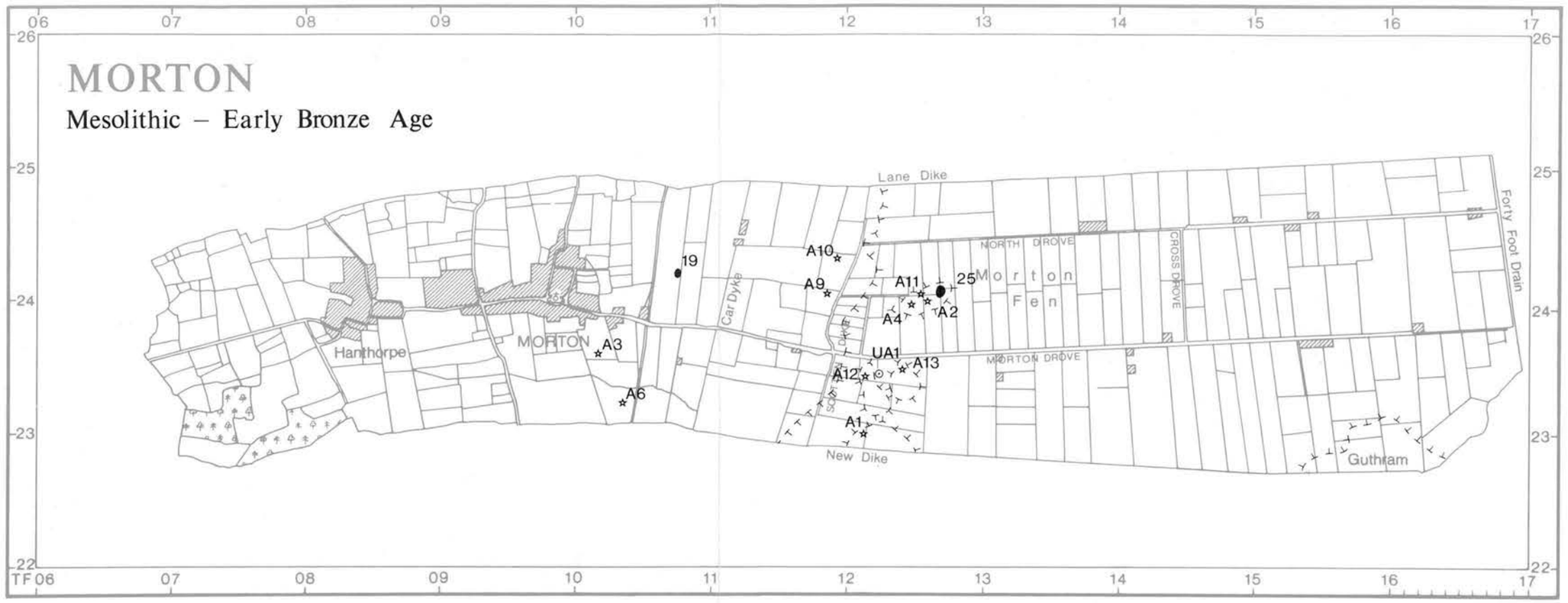

Figure 71 Morton: Mesolithic — Early Bronze Age

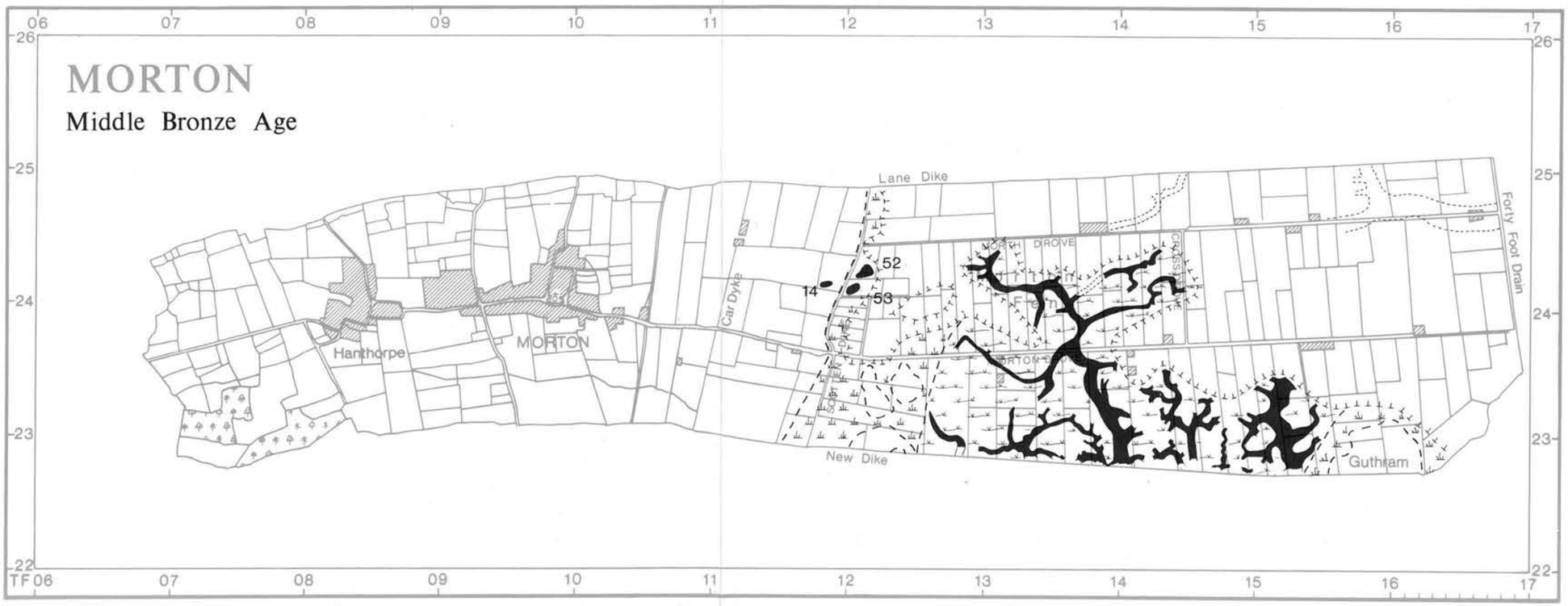

Figure 72 Morton: Middle Bronze Age

Plate V The Bourne — Morton canal looking south-west towards Bourne
Cambridge University Collection; copyright reserved (BBA 38)

The unstable area adjoining the watercourse is now visible as a tract of sandy silts (identified on Figure 74 as the area in which the saltmarsh symbols are underlined) on which the lack of Romano-British settlement evidence is striking. Had these high silts been formed and firmly established prior to the Roman conquest, this plateau would have been a prime settlement zone. Instead only two small areas of occupation, MOR 11 and 33, were located. The latter is a partly buried site identified by a dark soil stain and sparse pottery sherds, most of which derived from silt upcast during land-drain excavations.

To the north of MOR 33 discontinuous traces of an east-west watercourse were recorded. Elsewhere within this silt area are traces of other artificial channels. One of these departed from the maintained Pinchbeck watercourse near Morton Drove and took an indirect south-west route for over 1km. Here it divided, one of its channels aiming towards the canal while the second continued to the south-west and terminated in a zone of parallel ridges of silt (MOR 73). These bands are aligned south-west to north-east, rarely exceed 150 metres in length, and extend from north of the canal to Guthram island (MOR 72, 73, 74). They can be clearly seen on the R.A.F. air photograph published by S.J. Hallam (1970 pl. IX, facing p.36) and on Plate IV. Hallam also mapped the features (1970, map 3) describing them as 'fields' (1970, 65-66). Their position, however, at the seaward extent of the Roman peat throws doubt on that interpretation for if they served as fields they would have been frequently waterlogged. They are more likely to represent the vestiges of late Iron Age or Roman turf-cutting preserved through the action of the marine flooding which filled with silt the voids left by extracted peat.

As a line of communication the canal itself would have both a local and a regional importance, creating a link between the Morton and Hacconby Fen sites and potential markets at Bourne. Perhaps more significantly, it provided Bourne with a link to the sea and to the stimulus of coastal or international trade.

No civil engineering project in the Roman Fenland could ignore the drainage aspect and a second function of the canal may well have been to expel the waters of the Bourne Eau and perhaps, though less likely, the River Glen. Further work is required to establish fully the nature of the landward section of the feature for the possibility exists that it took the form of a sand/silt capped causeway nearer to the town. For it to function as a navigable watercourse into Bourne itself would have meant that there existed either substantial and elevated peat in the fen (which is probable; see above comments on turf-cutting), or a system of locks, or both. These would be necessary on current land levels, for the surface of the central section lies at *c.* 0.5m OD, substantially lower than to landward, where it is *c.* 4.0m OD at Spalding Road, Bourne, and to seaward, *c.* 2.5m OD at the terminus. A possible junction of a combined canal/causeway system would be south of Morton Drove where the silty levees of the canal terminate rather abruptly (Plate V at the further of the two buildings above centre). Finds of fired clay and sparse Roman pottery (MOR A7, A8) adjacent to the continued course of the canal through this otherwise archaeologically empty zone were not helpful in understanding the nature of the monument. On balance, benefits gained from creating an outlet for the Bourne Eau suggest the 'canal' feature existed as a watercourse for its entire length and it appears on the map in that form. However, further investigation by means of sectioning the feature nearer to Bourne could clarify its precise nature.

Cropmarks of ditches have been recorded on the levees of the canal at its seaward extent (Hallam, S.J., 1970, 256 and Map 3). These not only show the main central channel of the canal and a series of smaller parallel 'soak' dikes, but include apparent ditched enclosures. They also relate to an interesting group of saltern and settlement sites (MOR 47, 48, 49) which operated adjacent to the main course of the canal. The sites yielded little in the way of closely datable pottery, and MOR 48,

only briquetage. MOR 47 had unusual calcite gritted wares of unknown but possible late prehistoric date and origin. Whether the sites underwent shallow burial as the levees of the canal developed or whether they were deliberately sited on the existing silt is inconclusive but the existence of cropmarks (Hallam, S.J., 1970, map 3) would suggest the latter. The cropmarks strongly relate to the line of the canal implying an early date for the canal's construction. MOR 49, in this group the furthest away from the canal, is the one with the most evidence to suggest a buried site. No finds were made there during Hallam's visit to the site in February 1951 (1970, 256) though conditions then may not have favoured artefact retrieval. Briquetage was collected from the site during the Fenland Survey when it was particularly densely concentrated in rows where recent ploughing had brought it to the surface.

Away from the canal, salt continued to be manufactured on the fringes of the northern flood zone. MOR 55 has pottery from early in the Roman period. Two salterns nearby have briquetage only. This complex group of sites corresponds to that of Hallam's 1424 (1970, 256) where the early content was also noted. Less than 1km to the west and on the same tidal creek system, further salterns (MOR 64, 65, 66, 67) were associated with early Romano-British wares including part of a 1st century AD mica-dusted bowl. Roddons on which these sites were located remain relatively high. Several discrete and intense concentrations of burnt clay identified the location of hearths. These salterns are in one of the last fields in the region to have undergone the conversion from pasture to arable land and, as such, they remain better preserved than many other examples in Morton Fen.

A third group of salterns lies nearer the fen-edge. None of these (MOR 1, 2, 3, 4, 5) had associated domestic pottery but they could easily have been worked from the main fen-edge 'village' (see below). Elsewhere there are further groups of briquetage sites; MOR 20, 21, 22, 23 are in the south-east and the source of their saline supply is not now apparent; MOR 40, around which three early Roman domestic sites were grouped (MOR 41, 42, 43), is at the northern end of the latest silts; MOR 12A, which also has early pottery, lies at the eastern end of the parish on silty clay soils.

The apparent demise of saltmaking in Morton during the early Roman period may reflect the diminishing tidal energy of the Hacconby creeks. In the constant, fluctuating battle between freshwater and saltwater conditions the former would once more have dominated and resulted in northward and eastward expansions of peats. Settlement continued in the relatively stable north-east corner where site MOR 44, for example, which is located directly on silty clays as opposed to a more usual position on the flanks of roddons, yielded much in the way of colour-coated pottery from later in the Roman period, and also tile. Just to the north MOR 36 had tile and traces of limestone rubble which indicates a degree of wealth and stability.

Perhaps the most striking pattern of Roman settlement in Morton occurs on the Fen margins. MOR 29, 30, 17 and 27 form what amounts to a fen-edge village which extends north into Hacconby. To the south, an extinct stream course separates the main group from MOR 28. In total the site extends for almost 2km north to south and has limestone building rubble and tile strewn along its entire length. From sites MOR 27 and 17, which survived as splendid rectilinear earthworks until after 1947, came pottery from later in the Roman period. It seems, therefore, that the presence, and comparative opulence of these sites cannot be directly related to a salt trade which seems to have declined early in the period, at least in its recognisable form. However, a fen-based economy must surely have provided the *raison d'être* for sites so conveniently located, and stock rearing almost certainly figured prominently.

Away from the edge MOR 32 is possibly aligned on an east-west track. South-east from there MOR 62 consists entirely of building rubble and abundant Roman tile which may, in some way, relate to a nearby spread of iron slag (MOR 63) to form an industrial complex adjacent to the Car Dyke.

West of the village the projected lines of Long Hollow (MOR U4) (Bourne to Ancaster) and King Street (MOR U5) (Bourne to Sleaford) are shown on Figure 74.

VIII. Early-Middle Saxon

(Fig. 75)

The wealth of surface finds relating to the Roman period provided information which was useful when charting the changes in the landscape. Unfortunately for the medieval and, in particular, the Saxon periods, such extensive guidance was not forthcoming, the Fen area being almost devoid of any post-Roman finds.

The decreasing marine influence enabled Early Saxon movement on to silts in Pinchbeck North Fen (chapter 10). This indicates a reduction there of marine alluviation which would also have affected Morton's unstable area. A result of this drying would be a gradual easterly advance of peat. Despite this, a small site (MOR 57), with Early Saxon pottery, was founded on a roddon near to salterns which had been abandoned early in the Roman period. Its position is not easily explained and it must remain, for now, a rogue. On the fen margins its contemporary, MOR 18, fits more easily into an established pattern, that of Early Saxon settlement flanking streams. MOR A5 must have been a similar site but it is more elusive; six sherds were recovered from the north-west corner of the field but without an obvious site focus. MOR A14 and A15 are isolated sherds.

No Middle Saxon sherds were found, either on the Fen or the Fen margins. This would suggest that nucleation of settlement was under way on the fen-edge and traces of settlement in this period could be expected to be found in the modern village area. Placename studies confirm Morton as being an Old English name simply meaning 'Tun', or settlement, 'by a fen' (Ekwall 1960, 331)

IX. Medieval

(Fig. 76)

The early medieval centre of Morton, around the church, is linked by direct route to the ancillary settlement of Hanthorpe and crosses the Bourne-Sleaford road. This latter route follows closely the line of the Roman 'King Street' which was likely to have remained functional here as it did in the town of Bourne. The Roman route coincides with the modern road near a former mound (MOR U2 see below) and again on the Hacconby boundary. Nowhere does the modern road meander more than 100 metres from the projected alignment of King Street.

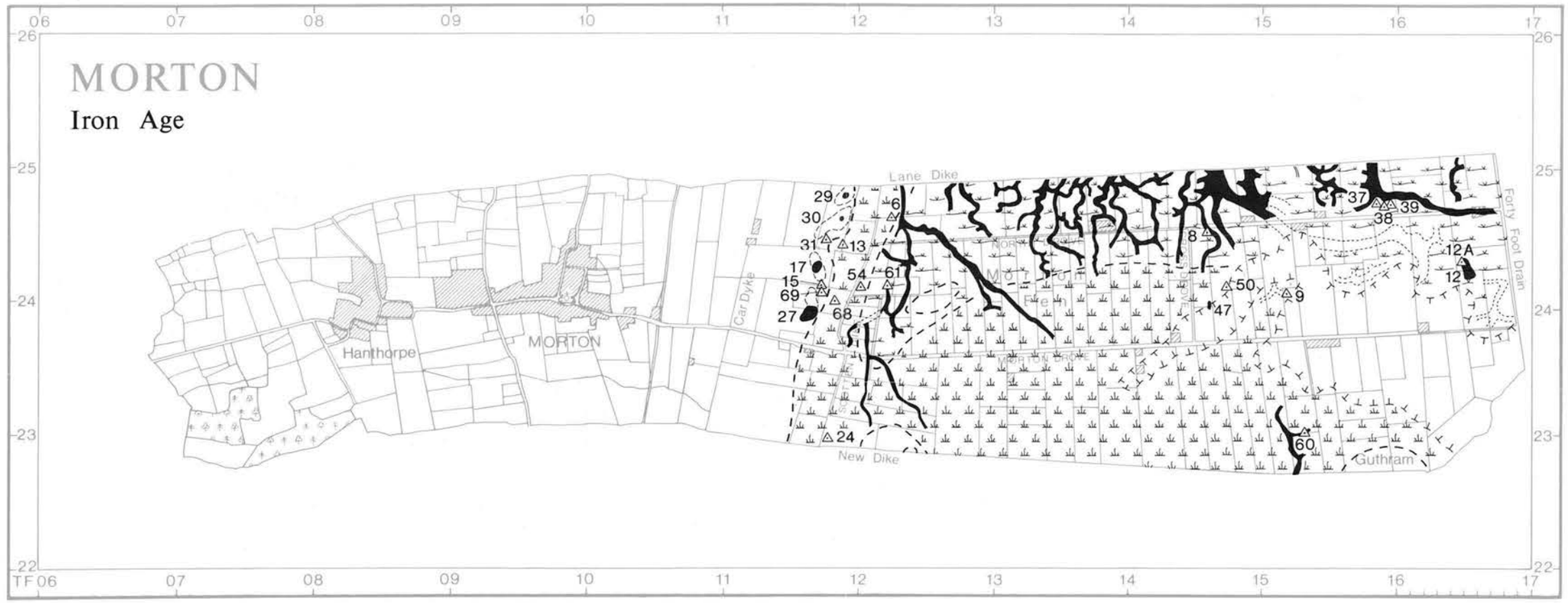

Figure 73 Morton: Iron Age

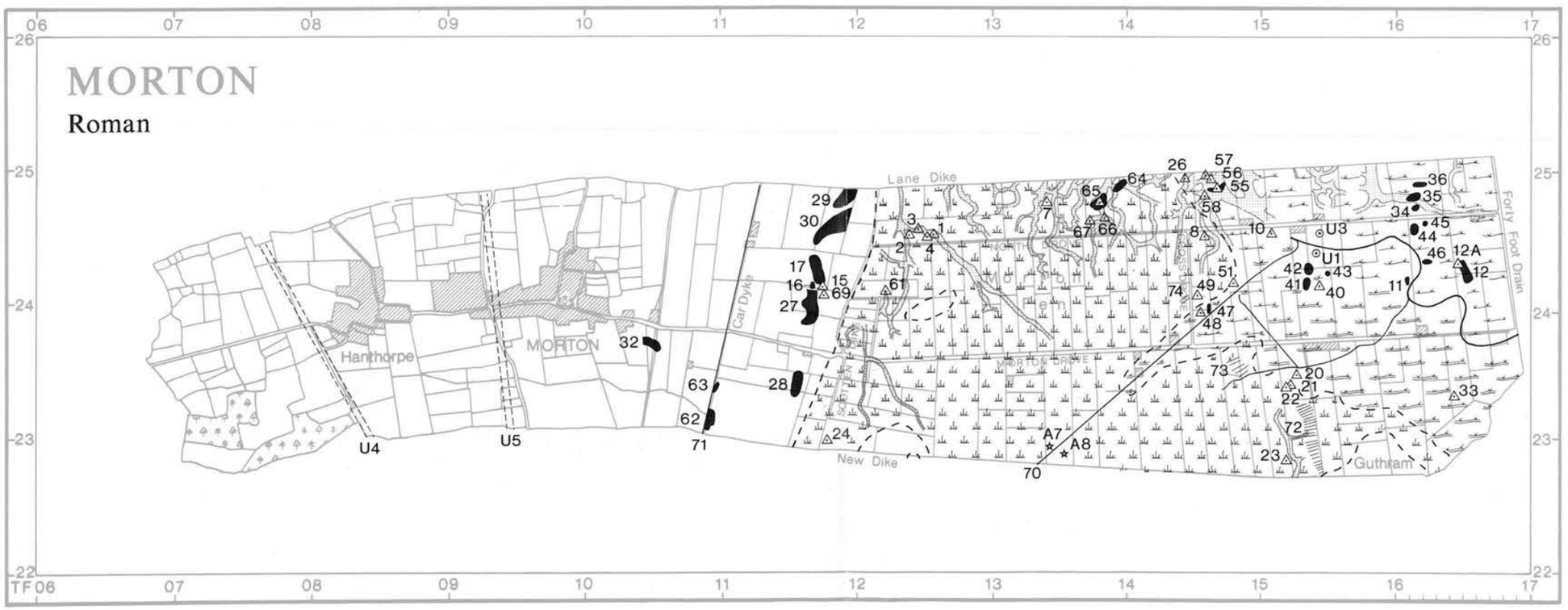

Figure 74 Morton: Roman

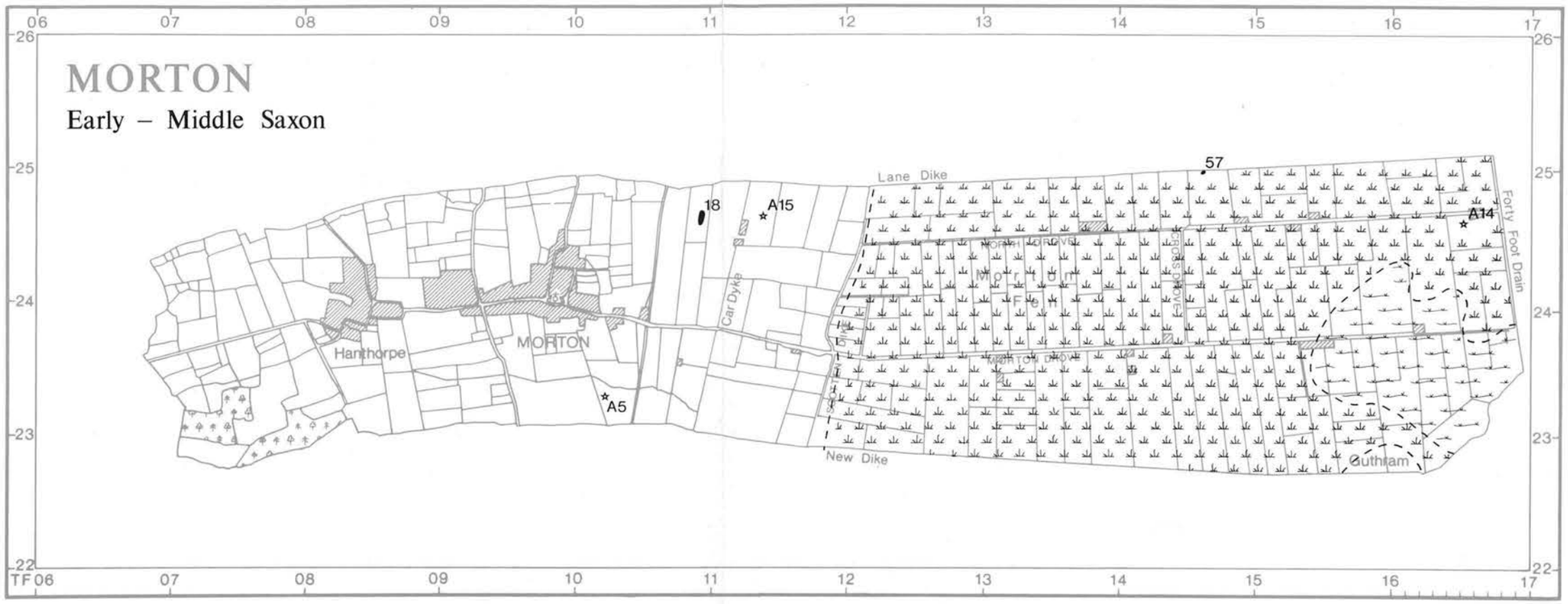

Figure 75 Morton: Early — Middle Saxon

Figure 76 Morton: Medieval

Secondary settlement may have formed around the crossroads of King Street and Hanthorpe Road with infilling towards the church. South of the crossroads a flat-topped, probable mill-mound (MOR U2), now destroyed, was sited adjacent to the modern road, again suggesting the road's medieval usage. Medieval roads linking Morton and Hacconby still exist and respect the ridge and furrow of the medieval fields but any assumed direct routes to Dyke have been obliterated.

West of Hanthorpe medieval woodland was extensive in the Fox Wood and Nub Wood areas. East of Morton village, Scotten Dike separated the fen from the meadowland to the west. It remains a noticeably elevated feature in Morton and has the appearance of an early protective fen bank. Meadows occupied the fen-edge between Scotten Dike and Car Dyke. Potential meadowland was also available south of the village by the stream in Southmoor Field, whose 'moor' element is commonly used in Lincolnshire to describe wet areas, often with thin peat cover.

The Enclosure Map of Morton identifies a number of post-medieval fields, enough to suggest that Morton and Hanthorpe operated separate medieval field systems. In Morton, Mill Field had extended east of the Car Dyke by 1327 (Hallam, H.E., 1965, 108). Traces of ridge and furrow from this encroachment can be seen near Car Dyke Farm. Late in the medieval period this remained the only arable land between the Car Dyke and the fen. Meadows continued to flank Scotten Dike but south of Car Dyke Farm there was an area of common known as Cow Pasture, probably a late development which served as winter ground for livestock, though such commons appear to be rare north of Bourne.

Direct evidence for usage of Morton Fen is sparse. The fen comprised extensive tracts of peat accessible in the summer though drowned during the winter months. The peat was no doubt suitable for extraction, but this practice had ceased by the 19th century when Skertchly (1877, 135) noted that 'some parts of Bourne, Morton and Dunsby Fens contain turf of sufficient thickness to afford fuel but it is not utilized'.

Localised drainage improvements and water management schemes continued throughout the Middle Ages. In 1420 Morton figured in a 'presentment against the town of Brunne . . . and Morton . . . for turning the fresh waters towards the north which ought to run eastward to the sea' (Dugdale, 1772, 197). Some success in diverting waters away from the fen had been achieved by 1550 when the course of Dykewell was said to flow 'agenst the north betwene the meadows and fennes of Dyke, Morton, Haconby and Donnysby unto that it came to a certen sewer called the South Dyke of Repynghale' (Kirkus 1959, 41). This course is along Scotten Dike to the Rippingale Running Dyke. Ironically, the original hardships created by this move were probably felt by the people living on the siltland east of the fen, for they would have utilized medieval streams across the area for their own purposes. While a northward re-routing might suit the needs of people in Bourne and Morton the cessation of a regular and controllable fresh water supply would disfavour those in, for instance, Pinchbeck.

Streams crossing the fen feature prominently in early maps of the area. They are usually depicted with cartographic licence but generally appear to flow north-east towards the present Glen/Welland estuary. These now extinct streams through wasted peat fen are the most difficult watercourses to map for they seldom leave traces except occasionally in the form of bands of freshwater molluscs. Recognisable silt deposition along these courses is generally rare.

X. Conclusion

Morton's story is as complex as one might suppose from a parish in the front line of the conflict between ancient environments. Such areas need more widespread stratigraphic investigation than has been undertaken up to present. However, the survey has assimilated the surface evidence to provide a framework for dating. The paucity of evidence for the early prehistoric period has been counter-balanced by a wealth of later material. Iron Age saltmaking features strongly in Morton's history. Saltmaking was also prominent in the Roman period during which time a large village grew up along the edge of the fen and artificial watercourses made their mark on the landscape. Little is known about Morton's later history. The scatter of Early Saxon sites probably nucleated to form the predecessor of the modern village around the 6th century AD. Villagers used the fen particularly in the medieval period to graze sheep and cattle, and as a source of fuel.

12. Bourne

I. Introduction
(Fig. 77)

Of the modern settlements situated along the western edge of the survey area Bourne is the most substantial in terms of population and area. It incorporates the formerly detached civil parish of Dyke and its hamlet Cawthorpe. Close to the town itself the site of Austerby, once the nucleus of the Manor of Bourne Abbots, is now a victim of industrial expansion.

Numerous finds of the Romano-British period have been made in the vicinity of the town (Hallam, S.J., 1970, 254; Birkbeck 1970, 1-3). Pottery was manufactured in Bourne during 3rd-4th century AD, and again from the 13th to the 17th centuries. A castle and Arrouasian Abbey were features of the medieval town.

II. Topography

Bourne North and South Fens are separated by the Bourne Eau, the artificial course of which carries the waters of a strong spring east to join the River Glen at Tongue End. Peat covers the South Fen and much of the landward edge of the North Fen where it has undergone limited commercial exploitation since 1985. Away from the Fen margins drainage has completely eroded surface peat in Bourne North Fen. Even a century ago Skertchly (1877, 134) had noted that 'within the last 20 years it [peat] has vanished from considerable tracts in the neighbourhood of Bourne . . .' The loss of this peat has revealed a surface of silty clay marine alluvium dissected by extinct saltmarsh creeks (roddons). Part of the pre-Flandrian surface is exposed above the level of the marine deposits near Black Sluice Farm and so forms an 'island' (referred to as Guthram).

Extensive boulder clay west of the town continues to support woodland, though it is now mostly replanted softwood. The Fen margin is mainly composed of river-terrace gravels and sand to the north, while tracts of Oxford Clay are found in, and south of, the town.

III. Fieldwork
(Fig. 78)

Survey was confined to the area east of the main A15 Peterborough-Sleaford road and concentrated on the Fen and its non-alluviated margins.

The environs of the Car Dyke have previously been studied (Simmons 1975a and c, and 1979, 183-96) and areas mainly west of the town have been visited or fieldwalked by various local groups and individuals (notably Mr. N. Kerr). Fen deposits have previously received comment from Skertchly (1877), Smith (1970), Shennan (1982, 1986a and 1986b) and Booth (1983).

IV. Mesolithic — Early Bronze Age
(Fig. 79)

An early prehistoric course of the River Glen flowed north into Bourne Fen from Kate's Bridge, Thurlby (p.152). It is not visible in Bourne as a surface feature though its approximate buried course has been traced by the Soil Survey of England and Wales by means of augering (R.G.O. Burton pers. comm.). After continuing north-east towards Dyke Fen (beyond the limit of Burton's mapping) the early river may have turned south again past Guthram towards Spalding, along the same route taken by a major tidal creek which formed later, during the Bronze Age.

Early in the Bronze Age, Bourne Fen became increasingly waterlogged as freshwater from rivers and streams failed to penetrate sediments accreting on the coastal zone. The resultant backing up of streams led to freshwater flooding. Peat formed eventually killing off the woodland which grew on the old land surface east of the modern town. After falling, the timbers were preserved from decay by the peat and are now re-appearing as the peat erodes. The species were predominantly oak and yew in Bourne Fen (Skertchly 1877, 170). In addition Wheeler (1896, 459) has identified beech in nearby Thurlby Fen.

Archaeological traces of the early period are restricted to isolated or occasional scatters of flint (*e.g.* BOU A6, A7 and the flints from BOU 10) which are probably Neolithic in origin. A stone axe from the same period is known from the edge of Dyke Fen (BOU UA4). The provenance of a polished flint axe (BOU UA7) is within the later marine flooded zone. It is little more than a kilometre from Guthram island and, if the correct findspot was recorded, the axe may have been upcast during dyke construction or maintenance. However, the recorded provenance is that of the hamlet of Twenty and it may originally have been found 'near Twenty', on the nearby island of Guthram.

West of Bourne the boulder clay zone was almost certainly wooded at this time and little trace of prehistoric activity was noted during the fieldwalking of Kerr and others (Lincolnshire Museums Sites and Monuments Record (LMSMR) and TLASMR).

Similarly, few finds of Early Bronze Age date are known. Single pot sherds (BOU A4, A10) were found during the survey and previously-known finds, a barbed and tanged arrowhead 'found in peat in Bourne Fen' (Skertchly 1877, 204) and a tanged arrowhead (BOU UA5), offer an equally insubstantial perspective of the period. Birkbeck (1976, 4) describes the discovery of a small bowl (10cm diameter) supported on three crude legs (2.5cm high). This tantalising item (BOU UA8), which Birkbeck suggested might have been a food vessel, was found near to a 'metal spearhead'. From this description, however, the finds could equally be Early Saxon and they lie near an Early Saxon centre on a site which is now a housing estate.

V. Middle Bronze Age
(Fig. 80)

Shennan (1982, 1986a and 1986b) has conducted detailed palaeoenvironmental investigations in Bourne Fen. Analysis of information recovered from a series of boreholes and small excavations led him to conclude that the destruction of early woodland by the peat was followed by growth of alder, a fresh water tolerant species.

Figure 77 Bourne: The modern landscape Scale 1:40,000

Figure 78 Bourne: Fieldwork intensity

Figure 79 Bourne: Mesolithic — Early Bronze Age

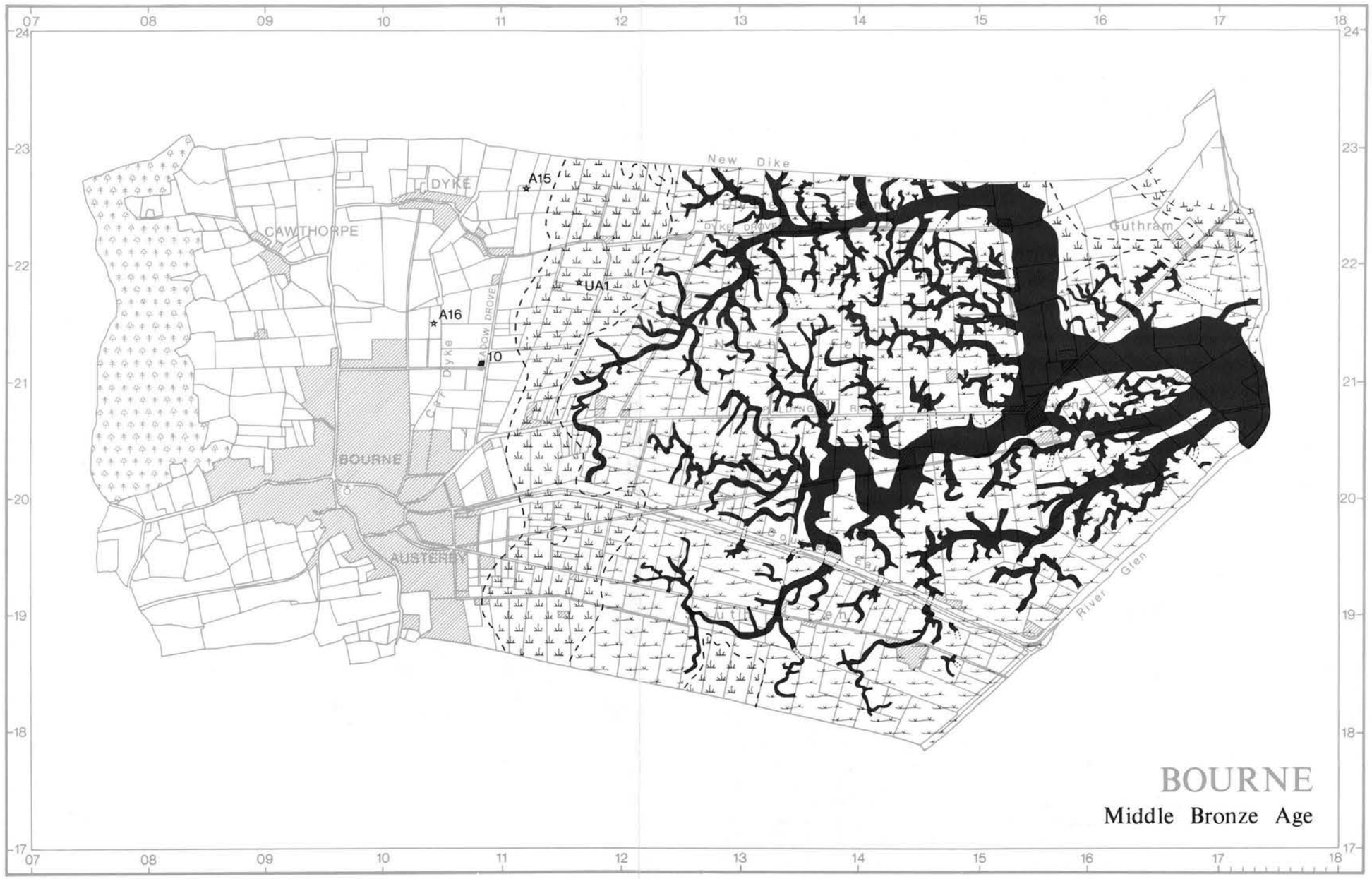

Figure 80 Bourne: Middle Bronze Age

Conditions deteriorated further and a reed swamp formed (Shennan 1986a, 129) closely followed by marine/brackish flooding which deposited clays that sealed the earlier peat.

Radiocarbon dates from the top of the lower peat have suggested that the marine flooding had reached Bourne parish by the middle of the 2nd millennium BC. (Shennan 1982, 56; 1986a, 129). Clay depositions, referred to previously, indicate that the active marsh came to within 2km of the modern town. The marsh drained by means of a network of substantial creeks which remain visible in the modern landscape and reveal the contemporary courses of the rivers Bourne Eau and Glen. The former drained north-west, then, in Dyke Fen, it turned south past Guthram into Deeping Fen. Connecting with this channel at Twenty was a predecessor of the Glen. In the east of the parish Guthram remained a peat-fringed island within the marsh.

Successive radiocarbon dates of HV-8644 2970 ± 65 BP (1300-1130 Cal.BC) HV-9267 2780 ± 70 (1010-875 Cal.BC) and HV-9266 2625 ± 65 (845-795 Cal.BC) were obtained from peat which developed above the marine clay (Shennan 1986a, 129) and indicate a relatively rapid decrease in marine influence at the landward edge with a return to a freshwater environment.

Soon after marine flooding had affected the area a settlement (BOU 10) was created on the uplands close to the waterlogged zone. Pottery on this site ranges from Billingborough types (O4) through to Late Bronze Age/Early Iron Age wares (O5). A hearth was ploughed out from this site along with abundant fired clay fragments including daub. Much of the pottery recovered was frost damaged and friable.

A bronze dirk is a previously known find from Dyke Fen (BOU UA1, Davey 1973, 82).

VI. Iron Age

(Fig. 81)

Clays and silts deposited during the marine flooding episode which occurred in the Late Bronze Age/Early Iron Age in the area north of Morton, failed to penetrate into Bourne Fen. Peat development here, no doubt, continued throughout the Iron Age and extended across the fen to, at least, the principal roddon near Guthram. Two small salterns (BOU 2 and 3) operated during the middle part of the Iron Age. No domestic pottery was found on either of these sites but their date is inferred by the briquetage which is similar to that associated with Middle Iron Age (06) pottery on the fen-edge between Morton and Rippingale.

Traces of a site (BOU 27) yielding pottery dated between 1000-400 BC (05), contemporary with the development of post-marine peat, was located within the existing peat area of South Fen. Gravel intermixed with the peat suggests the site was founded on slightly higher ground which, due to shrinkage and desiccation of the peat, now lies within range of the plough. Despite its elevation the site would have occupied an extremely marginal location during its term of Iron Age use and its function in this watery setting remains speculative. BOU 7, adjacent to South Fen, would also have been in a marginal area. Little can be ascertained of the nature or date of this site from its finds and although it appears on the map of the Iron Age, it may in fact belong to an earlier period. Its friable pottery is fragmentary and the small assemblage contains sherds that also resemble Early Bronze Age and Early Saxon wares.

A further site, BOU 28, was found on the peat margins near Dyke Drove close to alluvial traces of an extinct stream. Sparse Type 1 briquetage was noted on the site despite its location west of the deep peat tract. In this latter respect it is, at present, unique in Lincolnshire. The quantity of briquetage found on the site is, however, insubstantial and it may represent limited early, and perhaps failed, attempts at salt extraction along a stream.

VII. Roman

(Fig. 82)

Prior to the work of the Fenland Survey there existed sufficient data to infer that Bourne may have been a local economic and perhaps political focus in the Roman period; its communications were good and it enjoyed a certain prosperity. The latter is indicated by such chance finds as tesselated floors. One was recorded at 'Park Farm' (Trollope 1872, 36-7), probably in the south-west of the parish, one from north-west of the town (BOU U8), one from near the modern South Street (BOU U12) and a fourth from near the railway (BOU U13).

A small bronze figure of a horse, now in the British Museum, is an unprovenanced find from Bourne (Whitwell 1970, 127) and the county SMR contains numerous references to finds of pottery and coins in the town. The latter includes a hoard (BOU UA3) from a now scheduled area. These discoveries are summarised elsewhere by Hallam, S.J., 1970, 254 and Birkbeck 1970, 1-3. They appear to represent the trappings of a substantial Romano-British community, probably a small town (and called here for convenience a 'town'). The discoveries centre on an area outside the survey limits in the south-west of the modern centre and, for the most part, within the urban area.

Two major communications routes, the Bourne-Morton canal (BOU 33) and King Street (BOU U14), focussed on the area. The former afforded access to sites seaward of the peats. King Street was a first century AD military road (Whitwell 1970, 47) which branched off Ermine Street at Longthorpe near Peterborough and continued towards Sleaford, where it is more commonly called Mareham Lane.

North of the town another early road, Long Hollow (BOU U15), linked King Street to the Roman town at Ancaster and, once again, Ermine Street. Margary (1973, 233) regarded this as the more important of the two northern routes out of Bourne.

Whilst it was not possible to investigate the area of the apparent 'town' the recent survey has considerably expanded knowledge of the region by revealing settlements along the Fen margins and on Guthram island, and has afforded the opportunity to view Roman Bourne in the setting of its local contemporary environment.

Ribbon development, which aligned on the Fen margins and was evident in Hacconby, and Morton to the north, continued into Bourne in the form of sites BOU 4, 5, 28, 29 and 1. BOU 1 was founded adjacent to the Bourne-Morton canal near to the sherd scatter BOU A5, and to BOU A4, the latter being a quern.

The most substantial area of settlement comprises sites BOU 11, 25, 26, and 30, all of which occupy rising ground on the west of, and adjacent to, the Car Dyke.

They represent one substantial settlement area that was walked at different times as, and when, fields became available. Clusters of limestone building rubble and tiles, including hypocaust fragments, litter the area. Dated pottery indicates the site was long lived, and the Early Saxon pottery (see below) hints at continuity. This site complex is 2km north of the unverified Roman 'town'. The modern urban area masks the extent of the finds and the relationship between the two centres.

Across the fen a group of predominantly early Roman settlements formed on Guthram island (BOU 12, 13, 14, 15). Associated cropmarks of ditches were noted on air photographs and these cropmarks continue north into Morton. Within these sites lies the probable domestic nucleus for salterns, BOU 16 and 19. Both of these are now some way 'inland' from alluvial deposits surrounding Guthram and they mark the likely extent of the Roman peat. BOU 19 is adjacent to a silt roddon which, unusually, lies on glacial clay and, therefore, must have formed in peat which is now wasted. This watercourse, or one adjacent on an area that was not surveyed (but is visible from the air), may have bisected the island and provided the saline source for a further saltern, BOU 21.

Flooding in the triangular area between the River Glen, Spalding Road and the major roddon has left a complicated pattern of silting. Further evidence of peat cutting exists here (BOU 32). These cuts form a different pattern compared to those in Morton and this may indicate a chronological difference. Also, in Bourne, there may have been exploitation of peat underlying the shallow silting. The saltern BOU 20 in this area may have obtained its saline muds from the Pinchbeck South creek which terminated close by.

Despite its location on the major roddon, BOU 22 is unlikely to have drawn on tidal waters from within that channel for, by this time, marine influence in the channel seems to have been confined to the seaward of the Rookery Farm area of Deeping St Nicholas. In spite of clear cropmarks (Hallam, S.J., 1970, map 3, site 1620) BOU 24, also on the main roddon, yielded few finds. It represents a likely northern outlier of the group of generally small sites which formed on the proto-Glen/Bourne Eau roddon in Deeping Fen and all of which appear to have suffered abandonment early in the period. Off Guthram is a long lived site (BOU 17) with a nearby saltern (BOU 18), the former on a low silt/clay area at the southern limit of a silt plateau which forms part of the environmentally unstable area in Morton Fen (p.122).

Throughout the Roman period Bourne Fen was affected by freshwater flooding and peat continued to develop. This extensive peat was traversed by the Bourne-Morton canal. The latter can be seen in Bourne parish extending south-east towards the junction of Meadow Drove and Spalding Road, which then continues its line into the modern town. In the Fen the canal takes the form of a slightly elevated linear band of sand/silt. Near the scatter BOU A2 it was seen in a ditch section as a 20cm-thick layer of reddened silt. Twelve pot sherds were found scattered on the field surface adjacent to the ditch section. In this same field the 'mound' of the canal was levelled in the early 1970s. Finds of pottery made at the time were all said to have been (with the exception of a Nene Valley flagon) products of the 3rd-4th century kilns found at Bourne Grammar School (TLASMR). These finds are from the vicinity of BOU A2. Further seaward, BOU A1 represents five Roman sherds, which came from the field surface at a point where the canal cuts a roddon.

The chapter on Morton concluded that further fieldwork was required to establish the nature of the feature in Bourne as either a canal or causeway. The finds made in Bourne do not serve to clarify that nature. Despite intensive ploughing the feature remains strikingly obvious. The lay-out of early medieval enclosures ignores the 'canal' east of the junction between Meadow Drove and Spalding Road and precludes its medieval continuation or re-use as either canal or causeway. The feature has been depicted on Figure 82 as an artificial watercourse. Its unverified route west of Meadow Drove appears as a broken line extending to the Car Dyke, thus taking it close to the source of Bourne Eau which may have played an integral part in its functioning. Indeed, the canal's purpose may well have been to combine limited, local drainage, by expelling the spring waters that are now taken by the Bourne Eau while, at the same time, providing access to the sites seaward of the peat.

This projected course also takes the canal close to the kiln (BOU U11) where calcite-gritted pottery was manufactured in the 3rd-4th century and to the suggested Roman 'town' area. The modern course of the Bourne Eau has also been included on Figure 82 as a broken line to depict its possible late Roman re-routing (see Thurlby p.159). This unverified course is based on the modern Bourne Eau, a line which may have evolved during the medieval period. The modern course of the Glen is also shown as a conjectural late Roman canalisation (discussed in chapter 14).

The continuing expansion of Bourne may preclude the chance of revealing the full extent of Roman activity in and around the town. The origins of this apparently commercially successful centre remain unclear. They may have been military as suggested by the early road pattern. Equally it is not beyond possibility that Roman Bourne may also have developed as a Late Iron Age proto-urban centre similar, perhaps, to Old Sleaford, though there are no recorded Iron Age finds within the modern town. Examination of any surviving pottery from there is beyond the scope of this survey but is perhaps a desirable next step.

VIII. Saxon—Medieval

(Fig. 83)

Although the evolution of the Roman 'town' remains unclear, handmade Saxon pottery on BOU 26 and 30, suggests a possible continuity of Roman settlement into the Early Saxon period. Numerous finds of Early Saxon pottery reflect the Roman pattern of considerable settlement on this site. Nearby, the discovery of pottery (BOU A12, 13, 14) further pinpoints the area as a focus of post-Roman occupation. The Saxon element of the main area of the site fits the recognised local pattern of Early Saxon settlements near streams which flow into the fen. From the north MOR 18, Morton A5, Bourne A3, the combined BOU 26, 30, A12, 13, 14 and THU 24 all flank streams and are west, but within a kilometre, of the Car Dyke. From this pattern a similar settlement can be predicted around the Bourne Eau in the developed area of the town.

No Middle Saxon pottery was found and any traces are likely to be beneath the town centre. No direct evidence exists for the state of the Saxon fen, but it most probably remained a peaty morass.

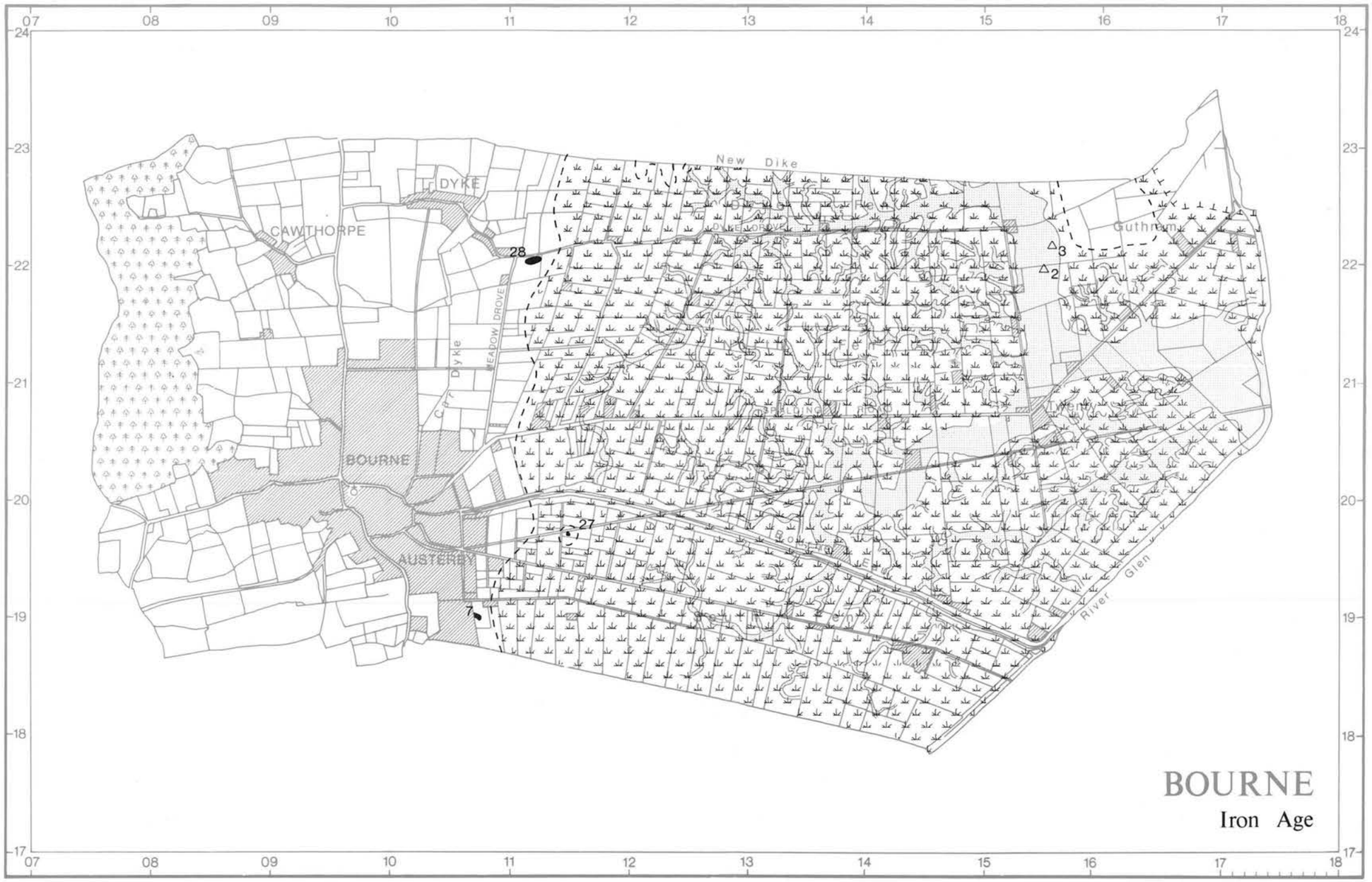

Figure 81 Bourne: Iron Age

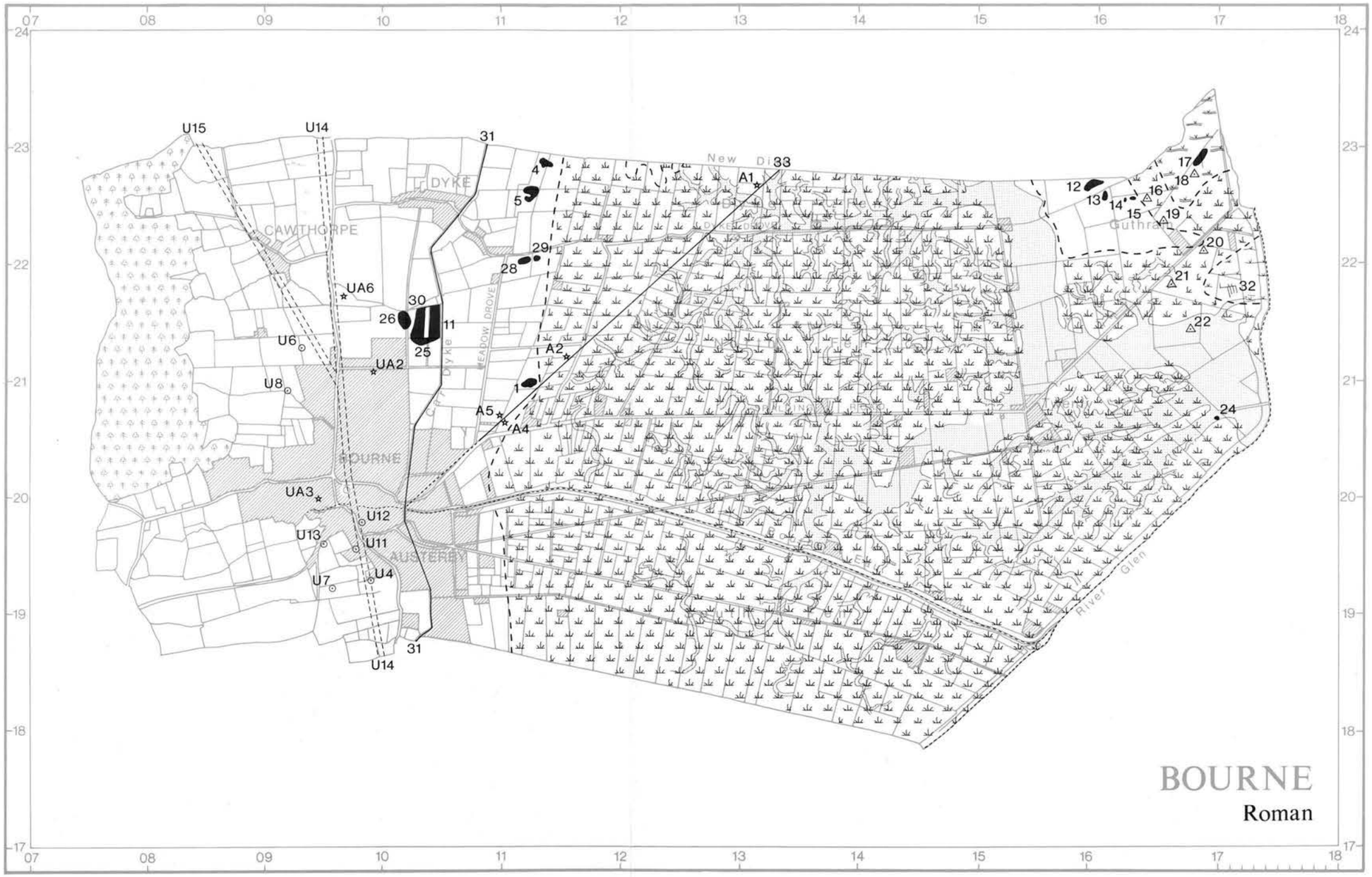

Figure 82 Bourne: Roman

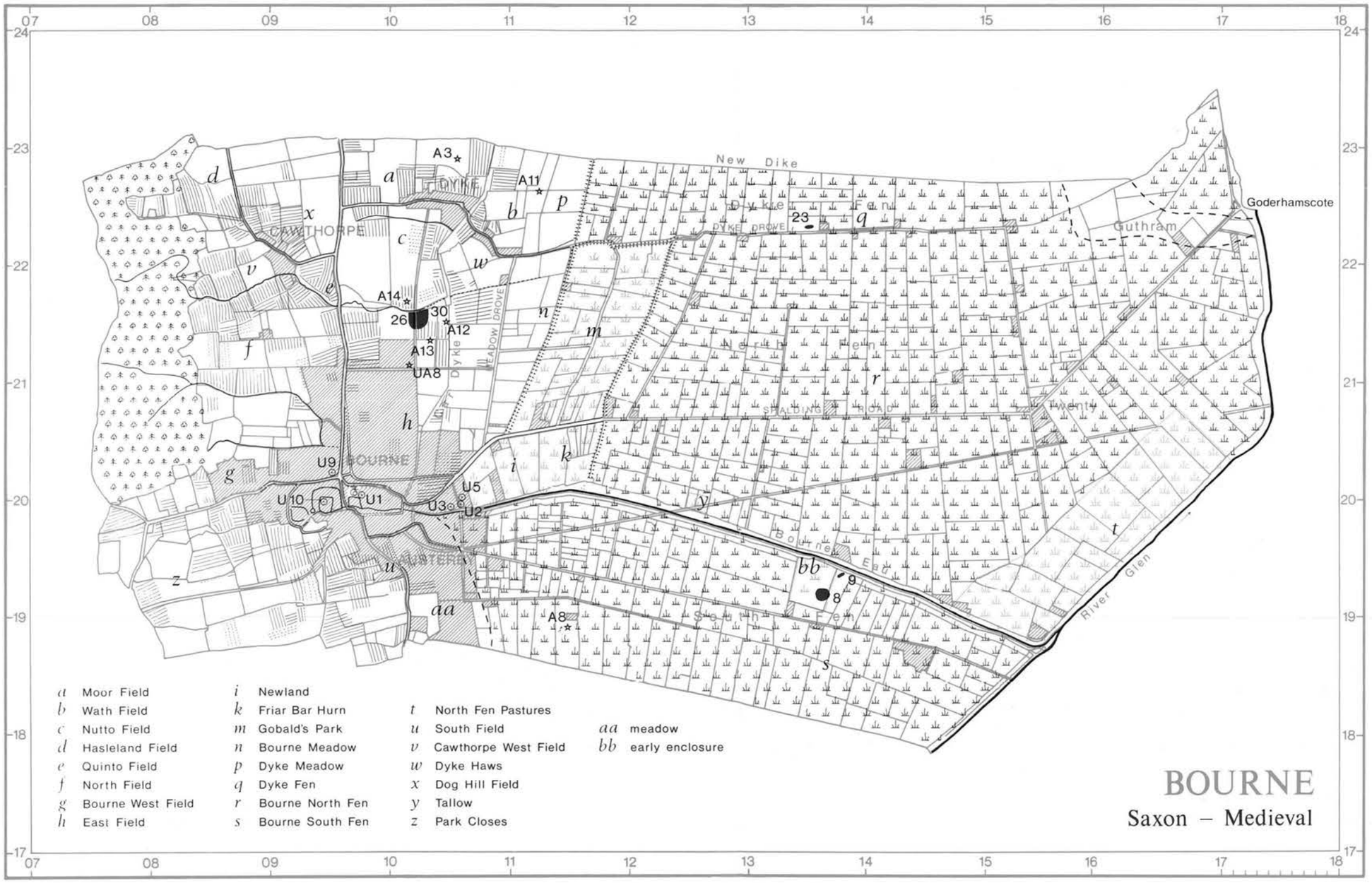

Figure 83 Bourne: Saxon — Medieval

Settlements with Scandinavian place-name elements frequently occur along this edge. In many cases they appear as secondary to established Early English names (*e.g.* Hanthorpe to Morton). Cawthorpe and Dyke are thus related as are Austerby and, to the north-west, Bourne. Origins and development of those smaller settlements and their relationships to the existing villages are little understood. The settlements themselves appear superficially different within Bourne parish, for Cawthorpe, unlike Austerby, warranted a *Domesday* mention and retained its own open field identity and strips. Urban expansion from Bourne has enveloped Austerby, though the place-name is still used.

Domesday affords a primary, if selective, historical perspective of the landscape around Bourne. Woods, meadows and arable land are recorded along with the economically important fenland fisheries. In the parish as a whole (including Dyke and Cawthorpe) recorded woodland amounted to 146 acres plus areas 1 league 8 furlongs long by 1 furlong wide and 1 league 8 furlongs long by 4 furlongs wide. These substantial tracts would have been on the Till in the west of the parish where Bourne Woods are still situated.

Some of the recorded meadowland totalling 80 acres could have been in the permanently damp areas along the edge of the fen. Twelve of the thirty recorded fisheries belonged to Oger the Breton, six of which rendered 24d whilst the remainder were listed as rendering 2500 eels.

In addition to these, the *Domesday* book records land in the fields on the uplands. The familiar stripped ridges and furrows of the medieval fields have been mapped using a combination of ground survey and plotting of air photographs. The complete ridge and furrow pattern can only demonstrate the maximum extent of arable in each direction. Lost within this pattern are the trends of expanding and diminishing medieval arable land-use which reflect fluctuating population densities and economic stresses.

Fields along the edge were subject to reorganisation throughout the medieval period. Fragmentation or consolidation of pre- and post-*Domesday* estates augmented this reshaping. Documentary sources suggest that in many of the villages on the western fen-edge two main fields were utilized, a system which later developed into three or four fields (Hallam, H.E., 1965, 137-142). Prior to the Enclosure Act, Bourne, Cawthorpe and Dyke each had four fields. Bourne's East Field existed before 1327 when it had extended beyond the Car Dyke (Hallam, H.E., 1965, 108). No fields are specifically associated with Austerby which may have had a more fen-based economy. Medieval acknowledgement of the latter settlement in documents is scant and uninformative. A paper privately circulated by David Roffe records that Austerby was a nucleus for four out of the six *Domesday* Manors but, at least by the 12th century was part of the community of Bourne.

Reclamation and enclosure were well under way by the late 13th century. In a charter of 1270 Baldwin, son of Hugh Wake, granted 10 acres in Bourne 'Newland' to Spalding Priory (Hallam, H.E., 1965, 108). 'Newland', identifiable by the modern Newland Farm, lies within the angle of the modern Bourne Eau and the former Outgang or drove road which was aligned onto the old Bourne-Morton canal. This alluviated area wherein the Bourne Eau formerly debouched represented a prime area for early reclamation. By this date another area of fen to the north had also undergone enclosure, for the location of the Prior's new land is described as 'abutting north on the way to Gubaldispark'. This name survives today as Gobbalds Park.

With Baldwin's grant to the Prior came 'free entry and exit and common in the marsh of Brunne to dig and mow ... and for upkeep of horses in the said land' (CH.R.11 1257-1300, 127). The Newland park or enclosure was probably the work of the renowned Wake family's Manor of Bourne. A survey of the head manor of Baldwin Wake at Bourne in 1282 revealed 100 acres of park in addition to 47 acres of meadow, 204 acres of arable, 200 acres of woodland and three unmeasured areas of pasture (Platts 1985a, 97). There are, however, constant references throughout the Middle Ages to woodland parks in Bourne and therefore the nature of these 100 acres is uncertain even though 200 acres of woodland are listed separately. The Wake's Manor had derived from the *Domesday* holding of Oger the Breton which, at that time, totalled 59 acres of meadow and 56 acres of woodland together with the woods listed by area.

The tenurial history of Bourne, stemming from no less than six *Domesday* Manors, is fragmentary and further complicated by grants to religious institutions. A notable one, complete with various lands, tithes and rights, was made by Baldwin, son of Gilbert (successor to Oger the Breton) when founding Bourne Abbey (BOU U1) in or before 1138. The Abbey, housing Austin canons of the Arrouasian reform, incorporated the parish church (Mahany 1987, 41-42). Throughout the Middle Ages the 'Manor of Bourne Abbots' was a substantial and influential holding and it is unfortunate that few of its monastic records survive for they could contribute much to the region's history.

Roffe's research suggests that the foundation of the Abbey and the resulting creation of an Abbey precinct, caused a complete re-planning of the town including the construction of the moderately sized Bourne Castle (BOU U10) to act as an administrative centre for the major holding.

The Abbey grounds and the earthworks of the Castle are recorded on the modern Ordnance Survey map as major features within the town. King Street, the Roman route, was probably still used early in the medieval period. The Abbey Precinct appears to impinge upon its supposed route, probably causing the road to be diverted to the west, thereby creating the modern route, between the Precinct and Castle. It would seem that through-travellers then headed directly north (along the present day North Street) to rejoin the old road north of Mill Drove. Consequently the Market Place moved west to resume its function at the new crossroads.

The modern South Street, between its junction with Willoughby Road and the cemetery, is post-medieval and cuts through ridge and furrow. It formerly ran north from the cemetery.

During the medieval period Bourne Fen underwent commercial exploitation, sporadic enclosure and, by necessity, constant management. Numerous documentary sources allude to the fen activities. Prominent among these was fishing and among Baldwin's grants to the Abbey in *c.* 1138 were his fisheries in Bourne Marsh (Birkbeck 1970, 24). In 1234 one Ralph de Brunne exchanged certain rights for 'common of fishery in all trenches and turbaries of the marsh of Brunne' (Birkbeck 1970, 18). In addition to fishing and turbary, stock rear-

ing and grazing, mowing of rushes and meadows and wildfowling would all have taken place on a grand economic scale. The quality and extent of the fen grazing attracted outside stock and the revenues paid in 1381 ensured the 'profit of strangers cattle' was equal to that of the 'turf digged yearly there' (Coles 1772, 197). This same source indirectly refers to an important industry in the town itself by its mention of Potter Lane in *'Brunne'*. The street name indicates a ceramic industry well established by that date. Some of the medieval kilns have been excavated (by N. Kerr) and analysis of the pottery undertaken (Healey 1969a, 108). The industry appears to have continued until the 17th century (Birkbeck 1970, 43). The main production area (BOU U2, 3, 5) around Cherry Holt Lane is now inaccessible for survey.

The quotations from Dugdale used above are from an interesting passage that describes the apparent limits of 'Bourne Fen' in the 14th century. In addition to the portion of Fenland adjacent to the town it seems 'that the marsh, called Brunne Fen, did extend itself from a certain place called Arfth Wenth, to Potter Lane in Brunne: thence to Merton, thence to Litildyke: and thence to the ditch belonging to the Prior of Spalding . . .' The whereabouts of Arfth Wenth is unknown, but presumably it was situated south of the town, perhaps near Austerby. 'Merton' would seem to be Morton, 'Litildyke' the Little Dyke which ran between Neslam, in Pointon and Sempringham parish, and the 'ditch belonging to the Prior of Spalding' which was the New Fendyke. After listing the income from the area for turf cutting and pasturage the document notes a 'yearly commodity called poundage taken in the said fen . . . from Morton to Sekholme', (the location of which is not known) 'thence to the gates of Wrigbolt' (Rigbolt on the New Fendyke in Gosberton), 'thence to Dewe hirne', (Dovehurn also on the New Fendyke at West Pinchbeck), 'then by Brunne Ee', (now the River Glen), 'thence to Goder hamcoates', (Guthram), 'thence to Estcote; and thence to the cross at Esthouse, and thence to Medylhouse; and thence to Arfth Wenfth' (Dugdale, Coles (ed.) 1772, 197). Thus Bourne Fen covered a large area, part of which was in Holland. The ancient boundary between Kesteven and Holland, the *Midfen dike*, was said to be 'so obscured that no certain knowledge could be thereof' in 1337 and it wasn't until 1525 that the boundary was ordered to be 'made and digged', or probably re-made. The place chosen was from 'Gotheramscote unto Nestilholm corner' (Coles 1772, 204), or Guthram, on the island, to Neslam in Pointon and Sempringham. This is quite probably the line of the earlier *Midfen dike* though it is unclear how early the original division was. By selecting the island of Guthram and a prominent roddon on which Neslam was situated the medieval surveyors had merely joined two major features in an otherwise unvarying landscape.

The Enclosure map of the South Fen records an old enclosure belonging to the Earl of Exeter, to whom the Manor of Bourne had eventually passed. This adjoins the Bourne Eau to the south and can still be traced on the modern OS map (bb on Fig. 83). In and around this enclosure, on deep peaty soils, two substantial, if unexpected, pottery scatters (BOU 8 and 9) were located. Other than a few 17th century sherds, which may relate to the later use of the site as a decoy, the pottery from BOU 8 was identified as being exclusively from the 14th century Bourne kilns and the material from BOU 9 as being similar. On the latter site a single sherd from a fish-smoker, resembling those found along the River Witham (White 1984, 31), may hint at a primary use of these riverside sites in Bourne.

The passage of upland waters through the peat has left surprisingly few traces. A confined route can only have been assured by careful construction and regular maintenance of banks such as those now seen along the modern Bourne Eau. Its present course is clearly artificial though its history and the date of construction go largely unrecorded. In 1316 the (presumably) same course was referred to as the Burne Auld Ea when an inquiry stated it should be 'repaired, raised, cleaned and maintained by the town of Burne and the Abbot of Burne from Brunne to Gooderamescote' (Coles 1772, 202). Nine years later an inquisition at Thetford (near Baston) decided the 'River of Brunne ought to be enlarged from Levebrigg in Brunne unto Tollon and be made 2ft higher and 12ft thick' (Coles 1772, 202). The whereabouts of Tollon is unknown unless it accords with a riverside enclosure called Tallow which existed in the North Fen at the date of the Enclosure.

The same useful inquisition at Thetford mentions the unidentified watercourse, the Narwe hee, which also apparently flowed from Bourne to Guthram, and it gives insight into the nature of fenland waterway improvement and management. 'All the corners in the Narwe hee, where the course of the river was hindered from the town of Brunne to Estcote ought to be taken down. And . . . all the trenches drawing water from it ought to be stopped up when the occasion requires' (Coles 1772, 202). Another Thetford inquisition investigating why 'All the ditches and banks from katebrigg in Kesteven into the sea in Holland, were broken on each side' noted that the 'said town of Brunne had in that place straightened the channel' (Coles 1722, 201-2). It seems probable that the cumulative effect of these early medieval improvements brought about the present direct course of the Bourne Eau through Bourne Fen. Whether the straightening returned the Bourne Eau to an approximate line from which post-Roman neglect had allowed it to meander, or whether it constituted a virgin channel, remains cause for speculation.

Gradual enclosure for meadows and pasture continued. By the 1570s the modern parish was shaped by 'the construction of Newedyke [New Dike] in Dyke Fen from Ea Dyke Bridge into Holland Fendyke' (Coles 1772, 242). This now separates Bourne and Morton parishes and, incidentally, was dug through the island at Guthram. Its construction heralded the era of large-scale drainage.

At about the same time as the Newedyke was constructed a small settlement (BOU 23) grew up along the high roddon in Dyke Fen.

Figure 83 represents a *c.* 14th century look at Bourne Fen with the second of three stages of reclamation complete in Gobbolds Park and further enclosure having created Friar Bar Pastures. Ancient fen enclosures as defined on the maps that accompany the Enclosure Awards are outlined and named, where known. The symbol of a bank is used along Scotten Dike east of the meadows though without positive evidence for its existence. However, further north in Morton the same feature is clearly elevated. Considering the local use of the word dyke to mean ditch, bank or both of these, and the position of the feature as an early division of fen and upland, embankment seems plausible. Perhaps a bank

around Gobbolds Park is less convincing. The faded fen symbol on Figure 83 is used to indicate areas of known enclosure in the fen and is not necessarily indicative of a different environment from that represented by the normal fen symbol.

IX. Conclusion

Marine flooding around the middle of the 2nd millennium BC turned the area now known as Bourne Fen into a saltmarsh which drained towards Spalding. The channels are still visible as raised bands of silt. Freshwater fen conditions soon returned and peat formed above the marsh clays. The Roman period saw extensive settlement in the Bourne area and a major early road connected Bourne to *Durobrivae* in the south and, to the north, Ancaster. Another line of communication was the Bourne/Morton canal which joined the town to the waterways of the saltmarshes. There is some evidence for Early Saxon occupation though the full extent is not known. By the medieval period Bourne had become a regional market centre. The fen continued as a peaty tract until the effects of the post-medieval drainage began its decline.

13. Pinchbeck (South)

I. Introduction
(Fig. 84)

Following the system devised by David Hall in Cambridgeshire, complete parishes have been studied where possible by the Fenland Survey. Parishes were chosen partly for convenience during pre- and post- survey consultation of existing records, such as documents, which are generally filed by parish. However, where appropriate, survey was modified to fit the specific objectives of the survey programme as a whole. Pinchbeck, a considerable parish of 5684 ha, belongs to the latter category. Only the North and South Fens, the important interface of the clay and silt fens, were investigated. The area was further divided as Pinchbeck (North) and Pinchbeck (South). The remaining easterly part of the parish is on deep silts and essentially belongs to an awaited, and much needed, study devoted more exclusively to the problems of that silt landscape.

The area covered by this report encompasses all of Pinchbeck South Fen, west from Dozens Bank to the parish boundary and also parts of Pinchbeck North Fen, north from the River Glen to Black Hole Drove.

The area, though sparsely populated now, is one which saw large-scale habitation in the Roman period. Many of these settlement and saltern sites were previously known and had formed a subject of discussion by Hallam, S.J., (1960 and 1970) and Nenquin (1961). However, until the Fenland Survey, pre-Roman occupation had not been recognised and Saxon activity north of the Glen was also unknown. At the east end is the low-lying Pode Hole. The Pumping Station sited here played an essential role in the post-medieval drainage of Pinchbeck and Deeping Fens (Miles 1965).

II. Topography

The main Bronze Age course of the rivers Glen and Bourne Eau passed through the southern tip of the area that is now called Pinchbeck South Fen. On its northern side there is a low area of clay soils of marine origin with some humose traces of a former peat cover.

North of Holland's Chase the clay surface is overlaid by later silts. Here traces of roddons which ran north-east towards the modern Glen were recorded (Lane, 1986, 9-11). Outer margins of Guthram island extend from Bourne parish into the extreme north-west of Pinchbeck South Fen. In these margins sub-surface gravels beneath thin marsh deposits have been incorporated into the ploughsoil. The soil here is locally humose. The present artificial course of the Glen cuts through the edge of Guthram island.

North of the river the land surface altitude increases and soil patterns become increasingly more complex. Between the Glen and Leaves Lake Drove the highest silts proved to be archaeologically sterile. Elsewhere the depth of silting is variable and has no recognisable pattern of deposition. Roddons appear intermittently, though again no obvious pattern or phasing is distinguishable. To the north of Leaves Lake Drove there are occasional elevated roddon-like features that consist of silty-clay soils and contrast with the more widespread general silting.

Near the Forty Foot Drain between Leaves Lake and Black Hole Droves are lower, and locally humose, soils. Presumably peat, which formed here, is the reason behind the otherwise ominously sounding name of the latter of the two Droves.

III. Fieldwork
(Fig. 85)

Coverage was reasonably complete, the only significant omission being around Pinchbeck Bars where certain of the fields were unavailable for survey.

IV. Middle Bronze Age
(Fig. 86)

With the exception of the peripheral gravels of Guthram island the entire pre-Bronze Age land surface was buried under marine sediments. A schematic section across Morton and Pinchbeck Fens, devised from borehole information by Smith (1970, 147-53), indicates an increasing depth of overlying clays and silts seaward of the Forty Foot Drain. At the western end of Leaves Lake Drove the old land surface, capped by thin peat, could be seen during the survey, in a roadside ditch section *c.* 1.5m below the surface. A Neolithic polished stone axe (PIN UA1) was found earlier this century by workmen cleaning this particular ditch. Although the findspot is recorded as being *c.* 1.5km east of the Forty Foot Drain (TLASMR) the Neolithic land surface there lies well beneath the ditch bottom and the find is more likely to have been made further west, nearer to the Drain. Because Flandrian sediments mask the early prehistoric land surface no interpretive landscape mapping for the period is possible and this single find appears on Figure 86.

Creeks, which were active during marine flooding, were mapped seaward through Deeping and Pinchbeck South Fens. The major estuarine creek, through which flowed the prehistoric predecessors of the combined rivers Glen and Bourne Eau, traversed the southern tip of Pinchbeck Fen. Two substantial creeks further north appear to be distributaries which connect with the main channel east of the surveyed block and the whole system seems to have been destined for a major estuary in the Spalding area.

South of Clay Drove is a broad, low roddon some 600m wide which can be traced north-west for a short distance before it becomes indistinct and is finally masked by later silts. These extinct creeks are characteristic of former saltmarsh conditions created during a major marine flooding episode.

V. Iron Age
(Fig. 87)

In Bourne (p.135) and Cowbit (p.177) the marine phase was known to have been followed by a swift return to freshwater-dominated conditions which, eventually, initiated further peat growth, this time above the marine sediments. The peat is likely to have extended gradually across Pinchbeck South on the low ground west of Pode Hole.

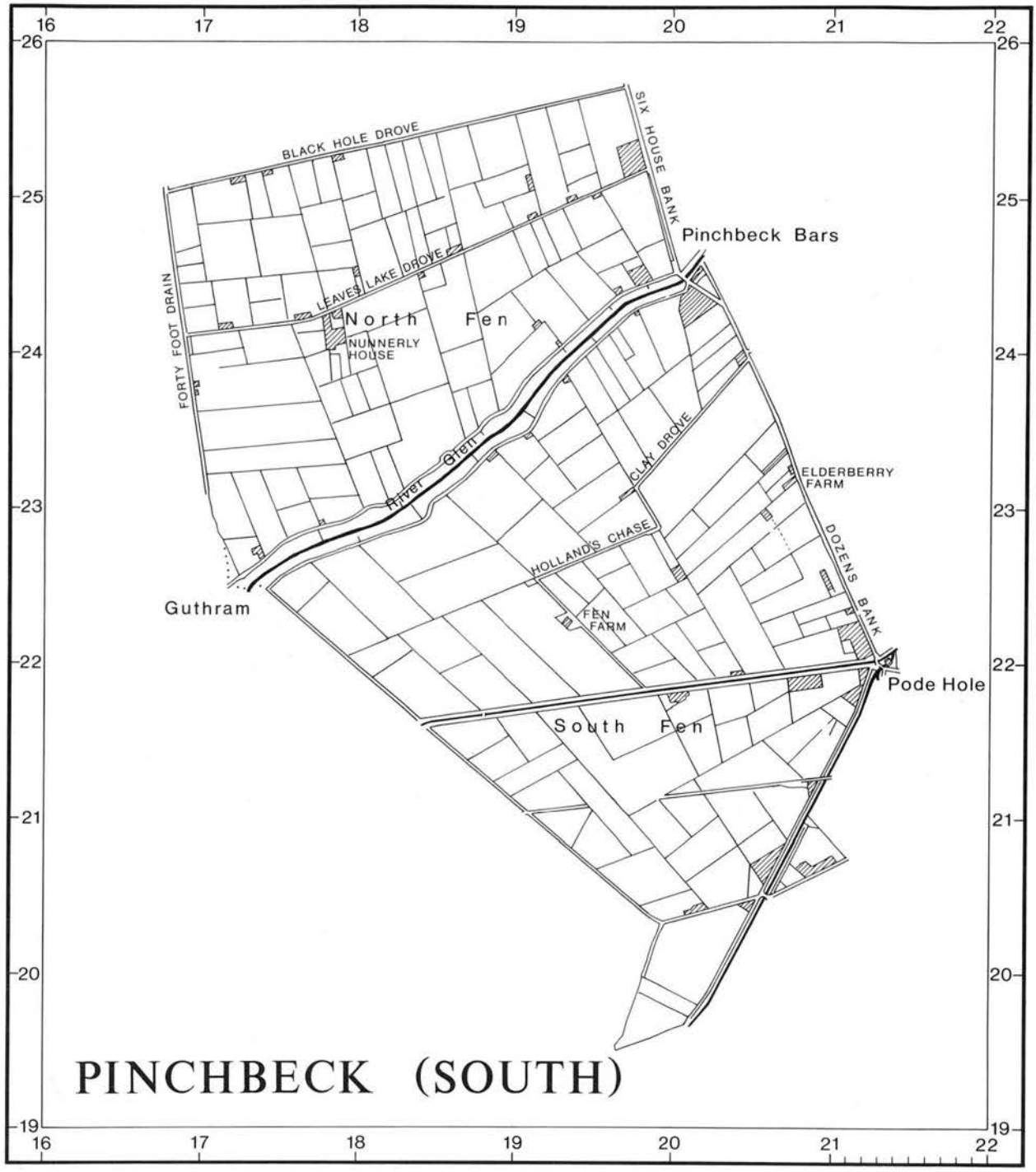

Figure 84 Pinchbeck (South): The modern landscape Scale 1:40,000

A creek extending from Elderberry Farm west through Fen Farm played an important, if not always comprehensible, role in the Iron Age development. Its major significance lies in the formation of its levees which proved to be sufficiently stabilized to support settlement in the 3rd or 2nd centuries BC. The largest of its sites, PIN 55, yielded over 100 sherds dated to that period. Much of the pottery had been ploughed out from a band of dark soil *c.* 5m wide which separated areas of 'clean' silt. Fragments of burnt stone and cobbles were also noted and the soil stain in which they were situated was of grey appearance. Many animal bones were collected; it has been observed that animal bones commonly occur in greater abundance on Iron Age and Saxon settlements than on similarly located Roman sites (p.253) Burnt cobbles and a grey soilmark are also characteristic of certain Iron Age sites on the fen-edge (see Thurlby p.157).

Near to the large Iron Age site is PIN A6, which represents a scatter of animal bones and a grey soil stain, though no pottery was found. Further Iron Age activity was found on the Elderberry Farm roddon. On Figure 87 sites PIN 17 and 19 each represent sparse Iron Age sherds found on predominantly Roman sites. Two further Roman sites, PIN 18 and 28, are noted as having a small number of sherds which were not positively identified by period specialists. These were, however, thought to be most probably Iron Age and are here assigned codes PIN A1 and A2. All these finds are closely grouped near Fen Farm.

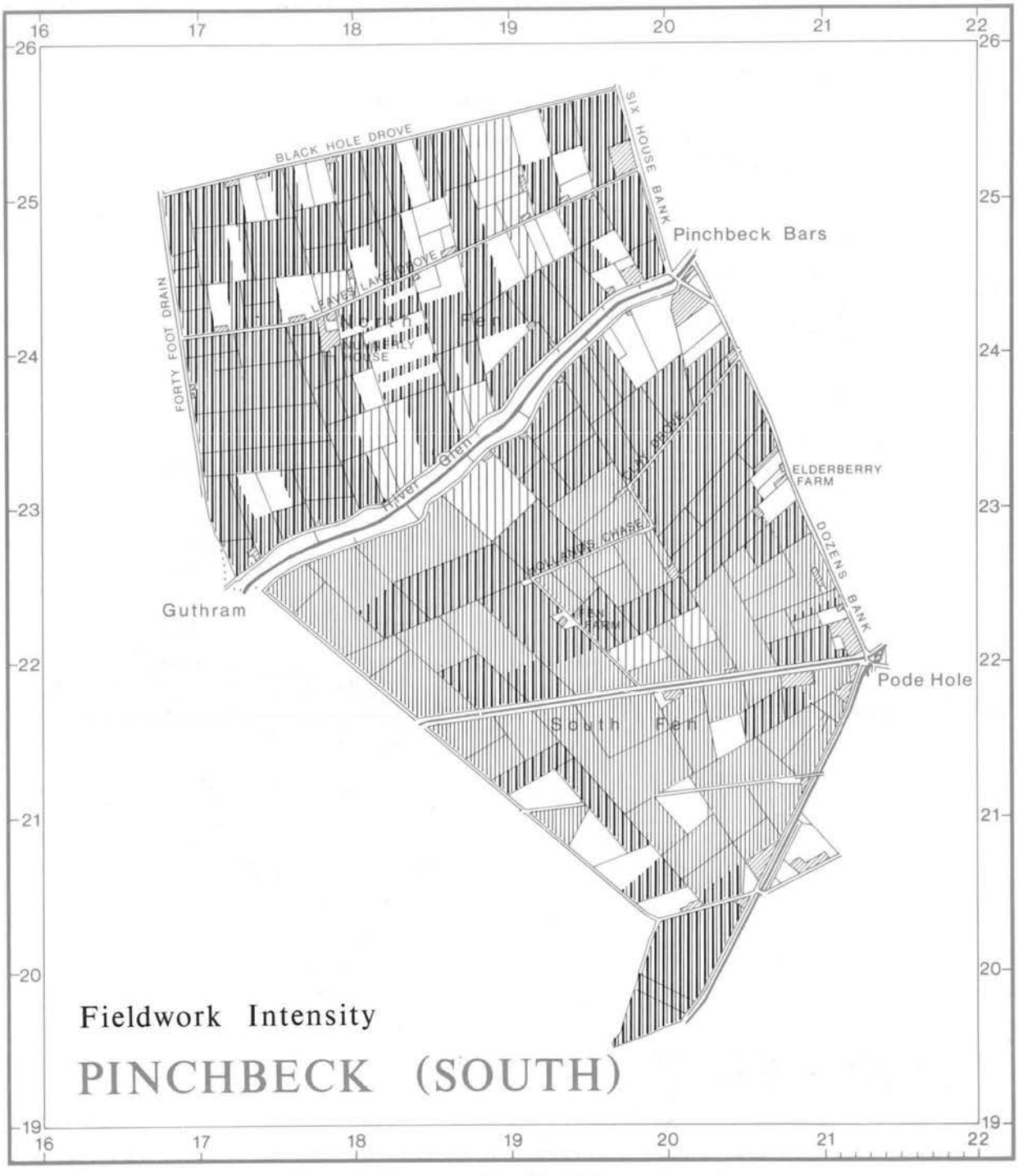

Figure 85 Pinchbeck (South): Fieldwork intensity

Less than a kilometre to the east, on the same roddon, a further Roman site, PIN 60, also had Iron Age sherds. No briquetage was associated with any of these sites and therefore salt production does not offer a *raison d'être* for their presence. The date indicated by the pottery analysis is very early, given previous accounts of the area's history. However, contemporary sites to the south in Cowbit (chapter 16), and in Deeping Fen (chapter 15), also demonstrate that the land could be occupied during the Iron Age, though perhaps seasonally. A possible reason for the presence of these pioneer settlers is for exploration of the resource potential of an emerging landscape. A similar movement has been proposed to explain gradual colonisation of Iron Age saltmarshes in the Netherlands (van Gijn and Waterbolk 1984, 101-22).

The roddons north of Holland's Chase are thought to have been active during the Iron Age and probably represent traces of the flooding which affected the area north of Morton.

VI. Roman

(Fig. 88, Plate VI)

A considerable body of evidence now exists to confirm the Roman presence in Pinchbeck South Fen. Whilst a certain satisfaction may have been obtained in locating their cultural remains, the exact nature of their environment, particularly north of Holland's Chase, remains

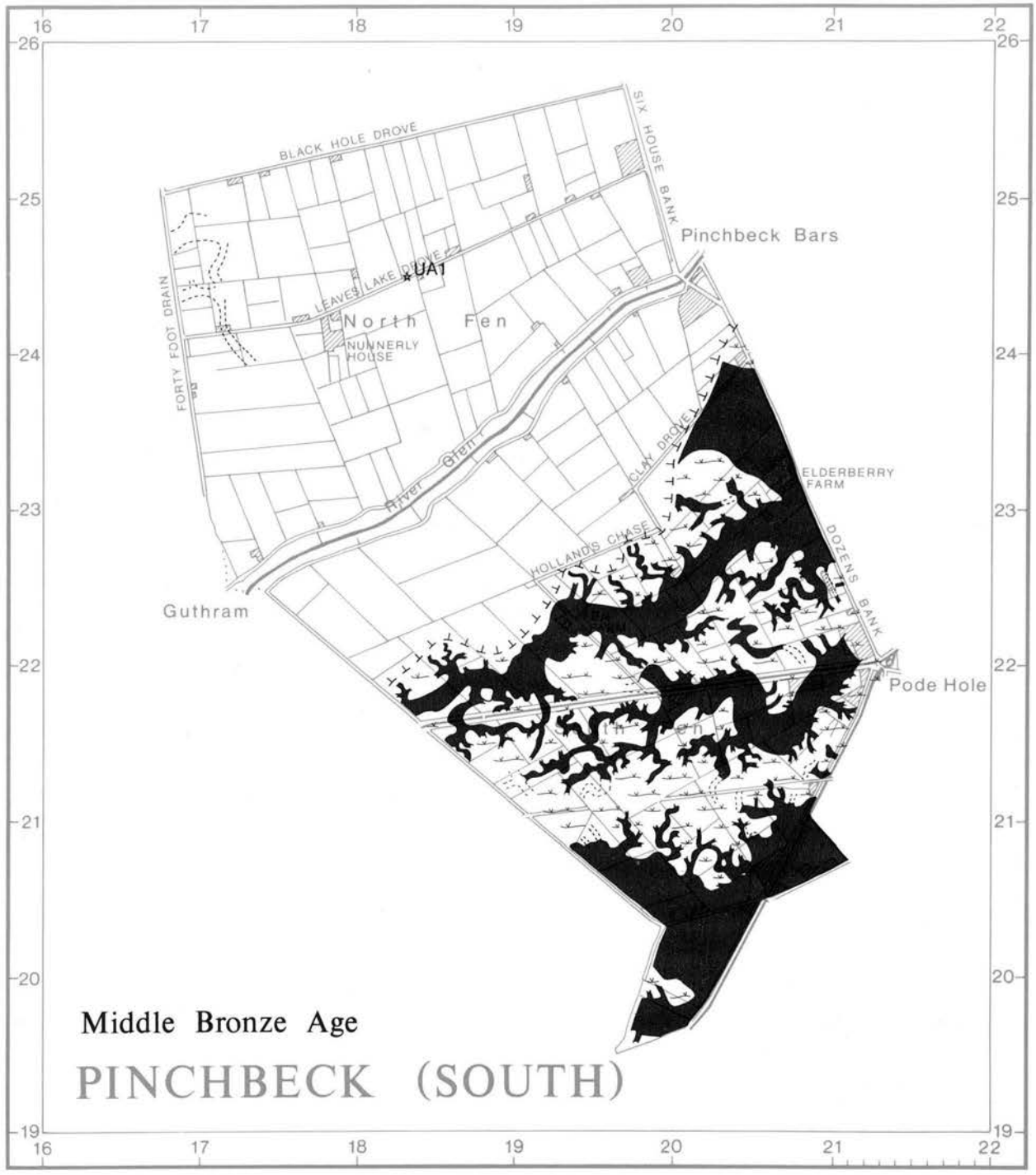

Figure 86 Pinchbeck (South): Middle Bronze Age

frustratingly uncertain. Post-Bronze Age sedimentation has, in this case, created a pattern of silting that is not easy to phase and differs on either side of the River Glen. To the south are traces of low, narrow roddons which drained to the north-east. The Glen appears to cut these roddons and they are not apparent north of this river where silting is deeper and more extensive. South and west of Nunnerly House the silts represent a continuation seaward of those which are largely devoid of Roman (indeed any) settlements in Morton and Bourne. The highest of this siltland has been indicated on Figure 88 by an underlined marsh symbol. Peat from beneath these silts in Morton has been dated to Q-2575 2630 ± 70BP (850-795 Cal.BC) suggesting that silting started in the Iron Age. The silt area is now the highest, and seemingly the most suitable, occupation zone in the area but the lack of Roman settlement evidence from there also indicates a changing, and unstable, local environment during, and perhaps for a time after, the period.

A waterway which connected with the Bourne/Morton canal flanked the northern side of the silt in Pinchbeck North Fen but could not be traced past Nunnerly House. Its direction at that point is to the north-east from where it may have eventually connected with the broad silt channel in Pinchbeck (North) (Fig. 66). The artificial course of the Glen appears to have played a key role in the pattern of silt deposition. Its construction date remains unknown but is important to the understanding of the

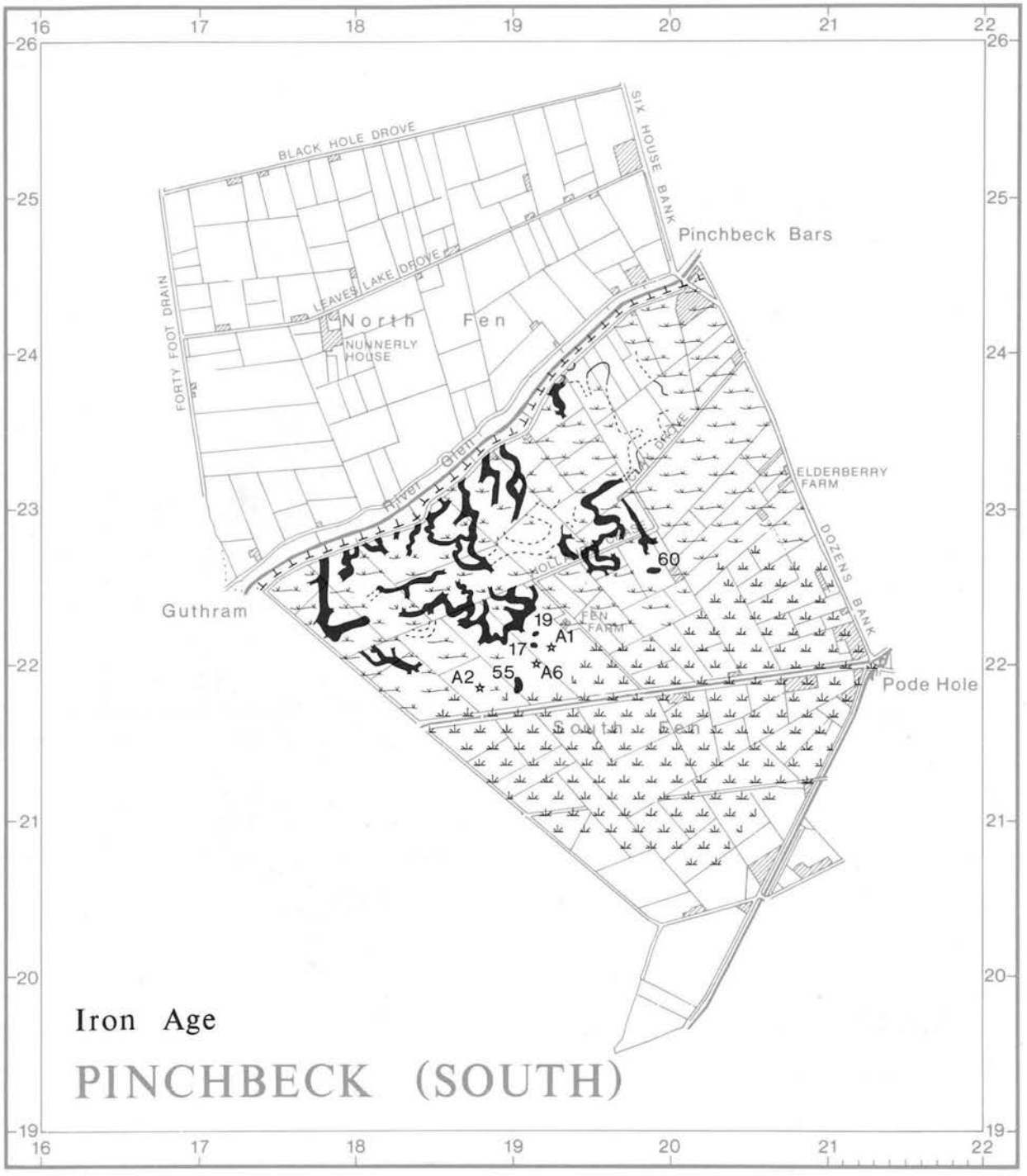

Figure 87 Pinchbeck (South): Iron Age

developing landscape. The Thurlby chapter (p.159) acknowledges S.J. Hallam's (1970, 38) idea that the obviously artificial channel of the Glen between Kate's Bridge and Guthram Gowt (Fig. 96) may be Roman though evidence for this in Thurlby is, at best, inconclusive. However, the complete course seen today may not have been planned and constructed as one project and could have been subject to diversions whenever the changing environment deemed it necessary. The more or less straight alignment north-east from Kate's Bridge terminates in the centre of the main Bronze Age creek course, and an initial construction phase may have taken the Glen to this point in order for it to drain along the old creek channel towards Spalding. This channel nevertheless seems to have accreted quite early and most of the sites along its course in Deeping (Fig. 102) were abandoned at an early date in the Roman period. A secondary phase could have then extended the Glen north along its slightly sinuous route past Guthram and so into the channel draining the Morton canal through Pinchbeck North. Further difficulties along this course, as suggested by the extent of the silt (flooding) area in Pinchbeck North Fen and Morton, may possibly have created a need for further modification in the form of the present seaward course east from Guthram. This final, suitably banked course, on the line of the modern Glen would consequently have altered the natural pattern of deposition and explain the seemingly unconnected soil pattern north and

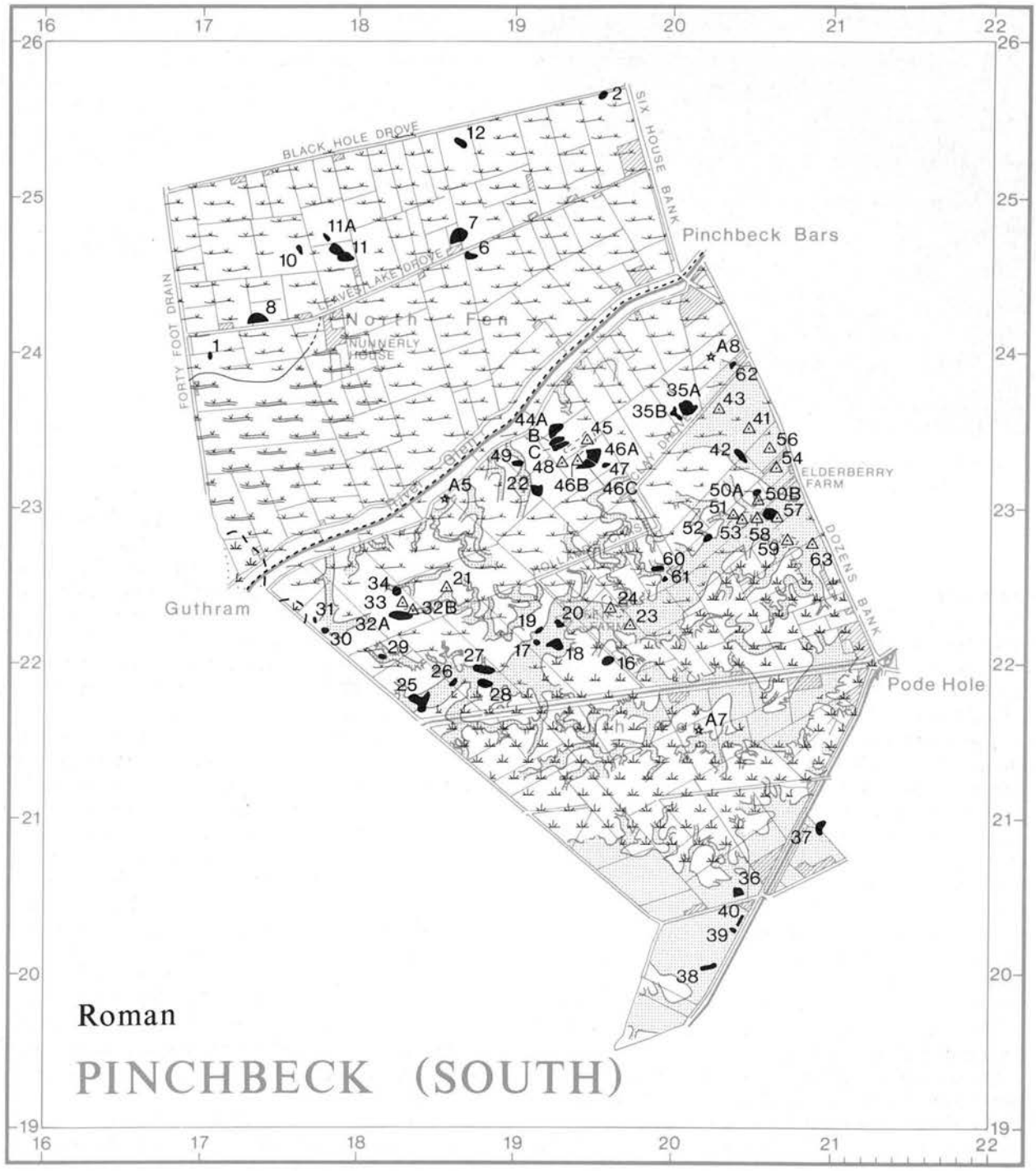

Figure 88 Pinchbeck (South): Roman

south of the river.

Although this may be a plausible sequence of events a Roman origin of the modern Glen course is by no means proven and perhaps never can be. To acknowledge this fact the modern course is shown on Figure 88 and is represented by a broken line indicating an unconfirmed course. The early medieval and current courses seem to correspond (see p.149) and a construction date anywhere between the early Roman and early medieval periods is possible. Any group of people within that time span had the technology to undertake the project, but given the known settlement data in that area it may be judged to have benefitted Romans more obviously than Saxons whose presence in Bourne Fen and Pinchbeck South Fen seems to have been limited.

The junction of the silt and the peat around Pode Hole is along the line of the high Elderberry Farm – Fen Farm roddon, on which the Iron Age settlements flourished. Roman settlements and salterns are sited at regular intervals along the roddon. The roddon itself may not have had an active channel by the Roman period, for the brine necessary for saltmaking would have been present in the north-south creeks. Construction of the final Guthram-coast stage of the Glen would automatically prohibit this supply although it may, in any case, have postdated the saltern phase. Fuel for the salterns would have been locally available in the adjacent Pode Hole peats to the south. North of the Glen only PIN 8 has associated

Plate VI Romano-British settlement in the Fens. Pinchbeck South Fen. *Photo Jim Pickering (TF 195 234 6.6.82)*

saltern activity. Guthram island is the nearest obvious fuel source to PIN 8 and peat may also have formed in nearby hollows between the site and Black Hole Drove.

On silt away from the hollows PIN 10 is largely buried but nearby sites PIN 11 and 11A are strikingly apparent on a roddon. PIN 11 also has Saxon pottery. PIN 12, like 10, appears to remain partially buried. Sites PIN 2, 6 and 7 emphasise the variability of the silting for they have soil marks and appear not to have been buried.

In the extreme south settlement took place along the edge of the major roddon. PIN 39 and 40 have only sparse pottery though their soilmarks are pronounced. Between these sites and the Elderberry Farm roddon, the low Pode Hole area is devoid of settlement evidence except for PIN A7, where three Roman sherds were associated with a dark soil stain atop a roddon. This is the area of S.J. Hallam's cropmark site 2021, (1970, 287), a group of rectilinear enclosures. No finds were made by Hallam and the whole site may represent a failed attempt to colonise an extremely marginal location.

On silt south of the river the complex of sites comprising PIN 44, B, C, 45, 46A, B, C, 47 and 48 is a Scheduled Ancient Monument which has produced spectacular cropmarks (Pl. VI). In the vicinity of PIN 46B and C, there exists a series of low hillocks on which briquetage is abundant and the site represents one of the largest settlement/saltern complexes encountered during the survey.

VII. Early—Middle Saxon

(Fig. 89)

In Pinchbeck (North) the pattern of silting is marginally clearer and, perhaps remarkably, Saxon sites occur there on the main silted channel. Tidal activity along the channel would appear to have prevented Roman occupation or, alternatively, buried the evidence. The appearance of the Saxon sites would imply a rapidly accreting Late Roman/Early Saxon landscape (at least locally).

An Early Saxon site, PIN 5, was found in Pinchbeck South on high siltland. Nearby, PIN 4 has two definite Middle Saxon sherds of Ipswich-type ware and several other sherds of unmistakable Saxon character but not closely datable to either period. Saxon pottery, with Early characteristics, was found on PIN 11, a chiefly Roman site. PIN 3 is a Middle Saxon (Maxey ware) mounded site with thinly scattered finds. A further Middle Saxon site, PIN 9, has a narrow soil mark extending across the field. Three groups of finds (9A, B, C) were made at intervals along the soil mark.

The junction shown between fen and marsh environments is speculative but is partly based on the likelihood of the preference for marsh rather than fen as a settlement location.

VIII. Late Saxon—Medieval

(Fig. 90)

Subsequent to the abandonment of the sites in the Middle Saxon period there was little further settlement of the area. The receding marsh gradually enabled freshwater fen conditions to dominate. Eventually peat would have begun to form on certain of the lower spots (for instance, in the west between Leaves Lake and Black Hole Droves) and would have continued to develop around Pode Hole. The existence of peat is attested in 1327 when land to make a saltern on the coastal marshes of Pinchbeck was granted to Bourne Abbey along with common in Pinchbeck Fen 'for fuel for the saltern' (Hallam, H.E., 1965, 170). In many similar grants of salterns the accompanying rights in the fen specify turbary (for example in Holbeach, Hallam, H.E., 1960, 92).

Little information exists as to the condition of Pinchbeck Fen between the Middle Saxon abandonment and 13th century documentation except by implication. Protective banks had been constructed east of the area of Middle Saxon habitation which suggests the freshwater fen had continued to develop and move east.

This surveyed block is bounded to the east by the last of the fenward banks, the 'Newfendike' (now known as Six House Bank or Dozens Bank). The date of its original construction remains unclear though it was known to have been well established by the 13th century. Also in existence by that date was Dovehirn, a settlement near the Glen/Fendyke junction. It frequently occurs as a place-name in historical records, and is provenanced by the present-day Dovehirn Farm. Adverse cropping prevented walking in this area.

Other places along the Glen are noted in the records of the Commissioners of Sewers, notably the frequently cited and variously spelt Goderhamscote and Merehirn or Matehirne, recorded as being south of the Glen in 1301 (Dugdale 1772, 230). Dugdale puts the former place on the north side of the river where it generally corresponds to the modern Guthram Gowt. A charred and fragmentary map of the area dating to the late 15th century places Guthramshende at Guthram Gowt with Gotheramskote further along on the south side of the Glen (Owen 1986, 289-91). On this same map Merehirne is in the area of Dovehirne which receives no mention. The presence of any medieval map, even this sad fragment, is indeed a luxury to those engaged in topographical research. That it contradicts other documentary sources is irksome.

Later maps are a source of information in respect of other watercourses which traversed the fen. An unsigned map of 1822 in the Wheeler collection in Boston Museum, indicates that a sinuous watercourse called Leaves Lake flowed near the modern Drove of that name.

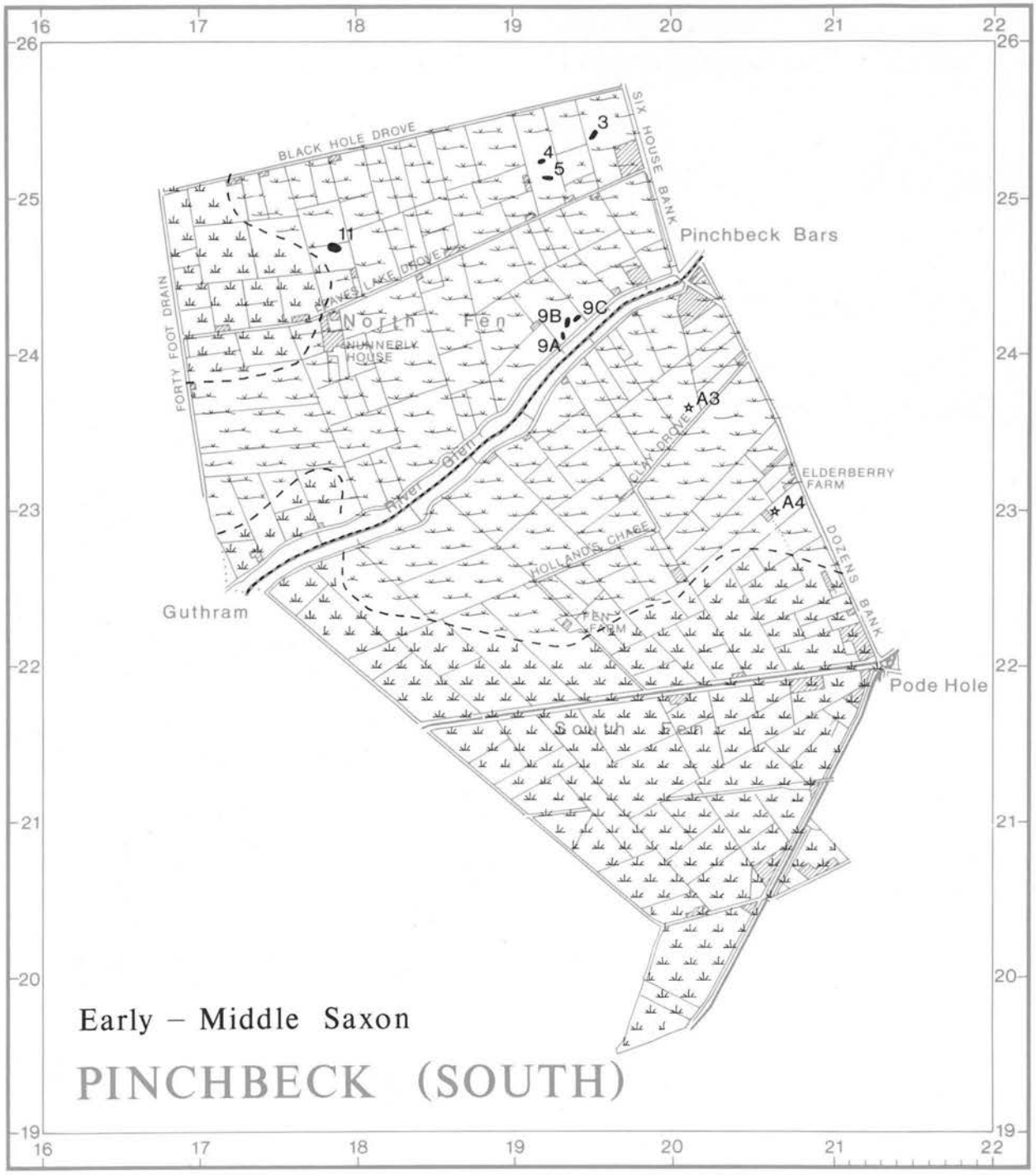

Figure 89 Pinchbeck (South): Early — Middle Saxon

No trace of this was found during the survey unless it coincided with a short (250m) shallow depression in silt north of the road. Such freshwater streams which flowed through peat, which has now wasted, leave little or no trace other than, occasionally, a linear band of molluscs.

Through Pinchbeck South the major waterway was undoubtedly the Glen though many minor streams and dykes existed. The efficiency with which this pre-drainage landscape operated as an economic unit is nowhere more evident than in Pinchbeck and Spalding from where the Fen Bylaws have survived. These ancient regulations, 'Agreed upon for the general Good and profits of ye Inhabitants of Spalding and Pinchbeck and for their more Commodius taking of the Benefitt in the ffen', were edicts strictly controlled in order to protect the fen environment and thus its sources of income for those with rights of common. The Bylaws of 1591 (Hallam, H.E., 1963, 40-55) succinctly indicate the nature of the medieval wetlands as well as highlighting the degree of organisation and control involved. Regulations indicate that turf, reed, wood, rush, down, fish, fowl and eggs along with grazing, snaring and hunting with dogs were all sources of profit to the commoner. In return for a share of these spoils it was the duty of the commoner, in effect, to manage the landscape, by their communal efforts in cutting bushes, cleansing dykes and other vital maintenance tasks.

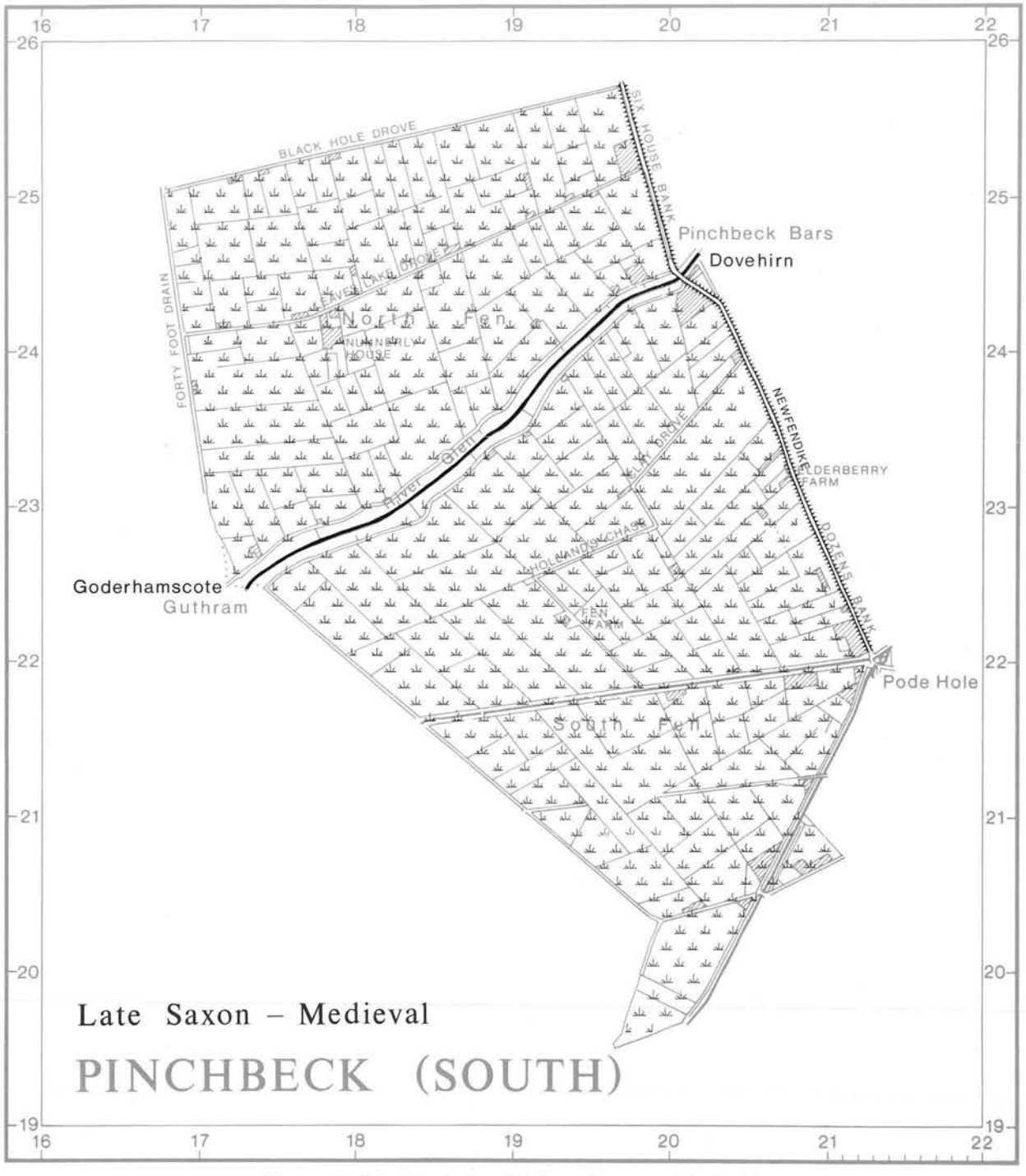

Figure 90 Pinchbeck (south): Late Saxon — Medieval

IX. Conclusion

Traces of the creeks which drained the Bronze Age marsh are clear in the South Fen. No continuation was seen north of the Glen where the soil pattern is complex and suggests a long period of instability. The levees of the Elderberry Farm roddon remain a prominent landscape feature and are particularly elevated near Fen Farm where there is evidence of occupation in the Middle Iron Age. The roddon marks a distinct junction between marsh and fen and may have served as a natural embankment against flood waters from the north-east. As a prominent feature it was densely populated during Romano-British times. Discontinuous surface silts north of the Glen are confusing to map and difficult to relate to specific flooding episodes. However, there are some Roman settlements present and also Early and Middle Saxon sites which were subsequently abandoned. The construction of a series of defensive banks in either the Late Saxon period or early in the medieval period shows that conditions once suitable for settlement eventually deteriorated despite there being a number of riverside habitations along the Glen during the later Middle Ages.

14. Thurlby

I. Introduction
(Fig. 91)

The orderly pattern of medieval strip parishes sited every 2 or 3km along the Fen-margins, changes south of Bourne. Thurlby parish is separated from Bourne by an unnamed drain and from Baston to the south by an artificial channel of the River Glen; this has created a triangular shaped area of fen. The north-south line of the fen-edge swings through ninety degrees in the south-west and runs parallel with the modern river which flows along the edge of the gravel for some 3km. The fen-edge then reverts once more to a broadly north-south axis.

The present village constitutes ribbon development between two early centres; one near the church, the second a kilometre or so to the west. Between the western centre and Bourne is the secondary settlement Northorpe and, to the south-west, the near-deserted Obthorpe. Kate's Bridge is an area on the southern parish boundary. It is an ancient and interesting place-name that has been in use since at least the mid 13th century when part of the Glen flowing through the area was referred to as 'the waters of Catebrigg' (Noble 1987, 65).

The main A15 road, which runs through the village, is based on the line of the Roman road King Street (Margary 1973, 232-4), and crosses the Glen at Kate's Bridge. A number of important sites are aligned along the northern banks of the Glen near the edge of Thurlby Fen and these range in date from the Bronze Age to Early Saxon, at which time a village was sited alongside King Street. South of the Glen in Baston are undated cropmarks suggesting rectilinear fields and a large circular defensive enclosure of likely prehistoric date. Also due south of the river are the remains of the medieval village of Thetford which straddle the Car Dyke.

II. Topography

There is a gradual decrease in surface altitude from west to east. Jurassic limestones and clays, which attain a height well in excess of 30m OD west of Northorpe, slope towards the Fen where surface peats lie little above one metre OD. Woodland survives in the north of the parish. Much of the remaining area west of the A15 was cultivated during medieval times.

Thurlby Fen comprises a variably deep and distinctly woody peat formed on the pre-Flandrian land surface. The peat is rapidly eroding and in the years prior to 1976 a shrinkage rate of 12" (30cm) in 10 years had been confirmed in the adjoining South Fen of Bourne (Miles 1976, 24). Below the peat, in the south, is an undulating gravel surface identified as a river terrace by Booth (1983, 8). At some time this surface has been abraded, presumably by pre-Flandrian outwash activity, and striations of alternate gravel and silty clay are visible near an extinct course of the Glen. Several of these linear bands of gravel are beginning to appear as the peat erodes and are a particularly striking feature on air photographs.

In Northorpe Fen, peat has formed above a blue/grey marine clay which, in turn, seals another, basal, peat layer.

On parts of the fen-edge, exposures of Oxford Clay form a heavy adhesive soil on which occupation is rare. Regular flooding of the Glen has deposited freshwater alluvium over the gravels near Kate's Bridge. Its lateral extent to the north and west, where it merges with the Oxford Clay, proved difficult to determine.

III. Fieldwork
(Fig. 92)

No fieldwork was undertaken west of the A15. Available areas of the fen-edge were walked at 30m intervals whilst coverage in the fen varied between 30m (Class 1) walking, and field visits (Class 2 and 3). The shallow deposits maintained the possibility of discovering ploughed-out finds and meant more Class 1 walking was undertaken than is usual on peat fens.

IV. Mesolithic—Early Bronze Age
(Fig. 93)

The early prehistoric wooded nature of the modern Fen area in Thurlby is dramatically evident Impaired drainage, a rising water table and consequent peat growth, dating from at least early in the Bronze Age, created an alien environment for the trees. Having died and fallen they were preserved within the peat and traces of the woodland survive as 'bog-oaks', a catch-all term for buried timbers. In Thurlby Fen they mainly comprise oak, yew and beech (Wheeler 1896, 459) and also species of conifer (Noble 1987, 15). Through this ancient woodland ran the prehistoric River Glen on a north-eastern course into Bourne Fen. Its former route is visible south of Long Drove. North from there its approximate course is known from boreholes made by the Soil Survey of England and Wales (R.G.O. Burton, pers. comm.).

Little evidence of early prehistoric human activity exists in the surveyed area except on the gravels and clays around Kate's Bridge. Here, perhaps surprisingly, flints occur only sparsely, but with occasional high quality pieces such as a finely worked, but broken, Neolithic arrowhead (THU A3, Fig. 23, No.6). Nearby a Group VI stone axe (THU A4, Fig. 150, No.3) was found on the multi-period site THU 12. Skertchly (1877, 205) noted a similar axe 'found in peat at Kate's Bridge'. A flint scatter (THU A1) came from exposed gravel within peat, and similar finds (THU A2) from the fen-edge. Two heavily ploughed low mounds (THU 26 and 27) which are devoid of surface finds have been tentatively interpreted as round barrows. A third mound, probably a barrow, at the south end of THU 22 is visible on air photographs as an earthwork site, although the land has since been ploughed.

Figure 93 shows these sites in relation to the area which later became waterlogged. The division defines the approximate present extent of peat deposits. Peat extended further south and west after the Bronze Age and has since retreated. Mapping precise boundaries within this desiccating, eroding landscape is hazardous since peat-shrinkage creates a mobile boundary. The soil colours are not helpful in identification of peat/skirt/flood-free boundaries for these colours change dramatically with moisture content. It is interesting to see that the humose skirtland, a medium brown colour when dry, takes on its former black peaty appearance after even the briefest rainfall.

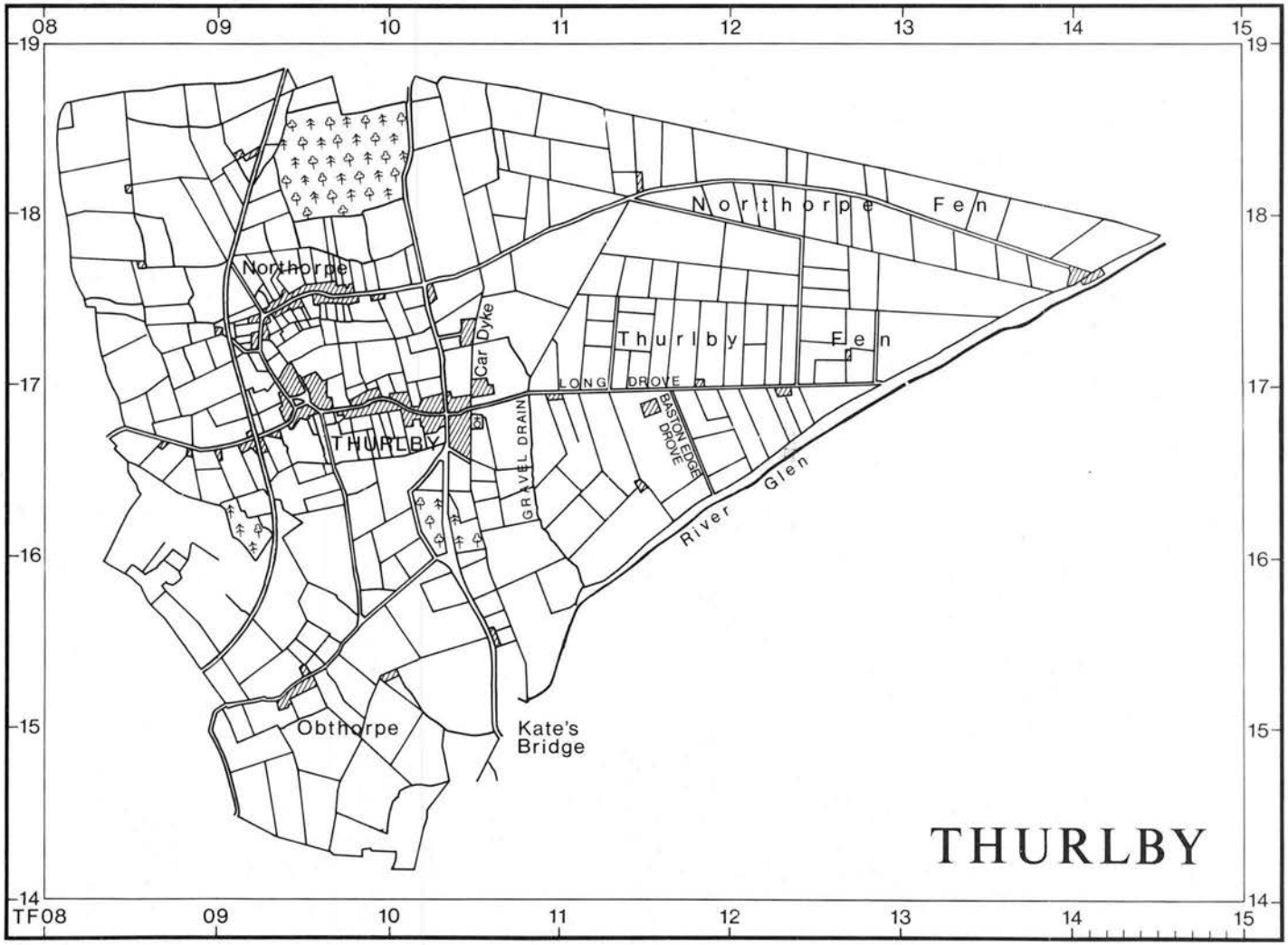

Figure 91 Thurlby: The modern landscape Scale 1:40,000

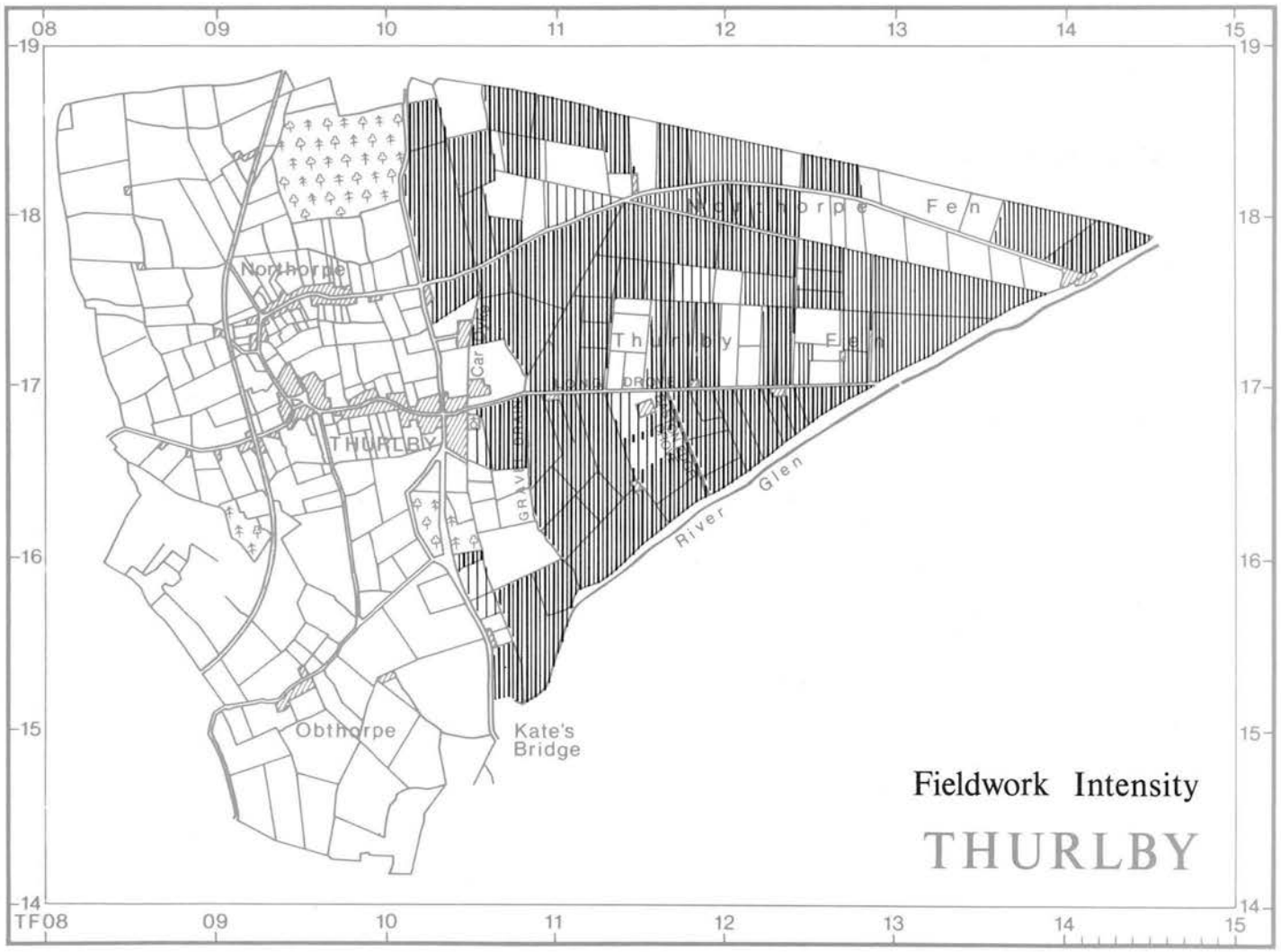

Figure 92 Thurlby: Fieldwork intensity

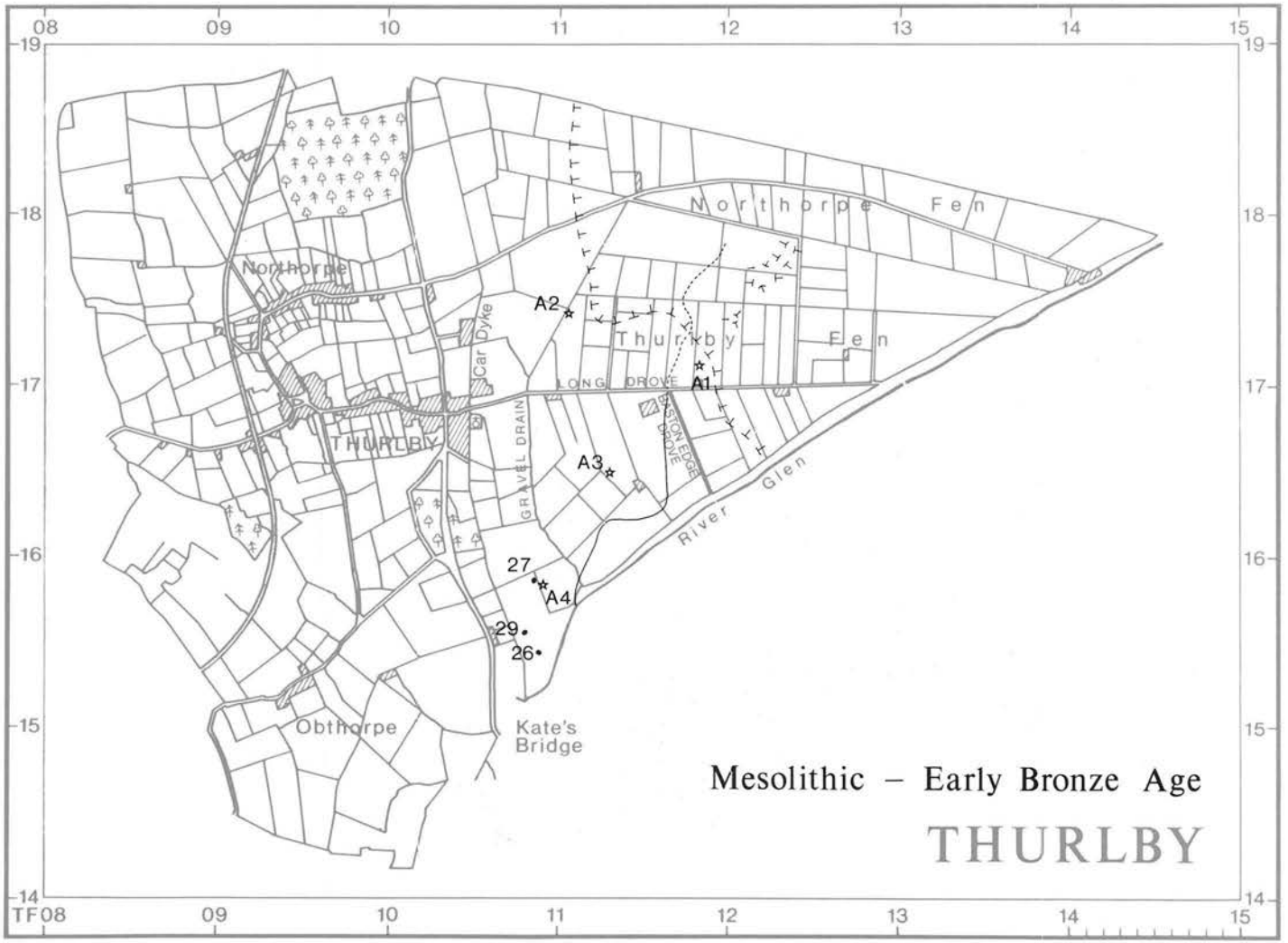

Figure 93 Thurlby: Mesolithic — Early Bronze Age

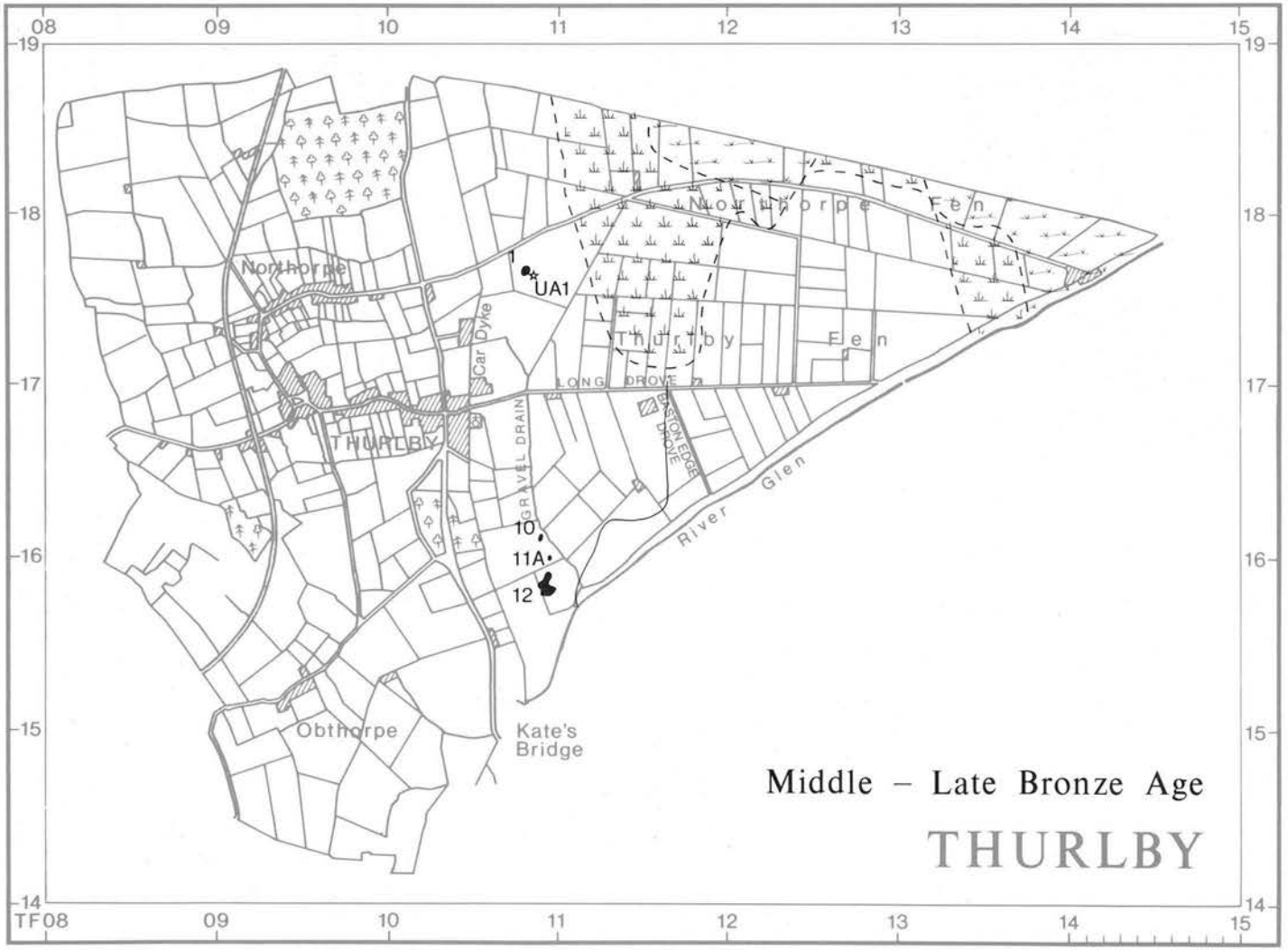

Figure 94 Thurlby: Middle — Late Bronze Age

V. Middle — Late Bronze Age
(Fig. 94)

The deteriorating conditions in the Early Bronze Age fen which caused the growth of peat, and ultimately the destruction of woodland, was followed by floods from the sea. This episode affected much of the Lincolnshire Fenland south of Morton and encroached into Thurlby on either side of a peat-fringed promontory which formed the eastern terrace of an early prehistoric forerunner of the River Glen. For the most part this feature retains variable peat cover. The Survey's normal sequence of maps would depict it as 'covered by later deposits' but in this instance it is shown in its contemporary dry state in order to emphasise the local topography. If there are any settlements they remain covered by peat and therefore the blank aspect of this area on Figure 94 need not necessarily reflect a lack of occupation.

The marsh zone is identified by fragmentary traces of roddons and by discontinuous zones of blue/grey (marine) clay mixed with peat on the field surface. The approximate landward limits of the marsh have also been recorded by Booth (1983, 6) and Burton (unpublished work of Soil Survey) using information from boreholes. More subjective than the marine clay limit is that of the contemporary peat fringe. It may have extended along the river to at least Long Drove.

The largest Bronze Age settlement found in the parish is THU 12. Pottery on this gravel knoll is of the 04 type (Middle Bronze Age) resembling that excavated from Billingborough. Towards the end of the Bronze Age the settlement emphasis moved to THU 1, a site characterised by tiny fragments of friable pottery. A bronze palstave (THU UA1) had previously been found here. THU 10 and 11A, which also appear on the Iron Age map, are small sites, typically prehistoric in character, with dark soil stains and numerous burnt stone fragments. THU 10 is slightly hollowed, THU 11A slightly mounded. Pot sherds from the sites display no definitive characteristics by which they may be dated though they are hand-made and of general Bronze Age/Iron Age appearance. Other distinctive soil stains marking potential sites were observed on the unsurveyed area of the field.

VI. Iron Age
(Fig. 95, Plate VII)

The marine flooding was short lived at its extreme landward fringes and peat soon re-formed on top of the clays and silts. The southern end of the old course of the river can be seen as a peaty depression meandering towards the junction of Long Drove and Baston Edge Drove, from which point surface traces largely disappear. On entering blanket peat, the river may well have divided into diverse channels and pools rather than maintaining one defined route.

Occupation areas flank the north-west of the river near Kate's Bridge. These settlements subsequently follow the line of Gravel Drain north to Long Drove, to indicate the likely extent of the contemporary fen. Some of the sites have been partly buried by alluvium, and pottery was often found coinciding with conspicuous lines of dark occupation soil (perhaps the best example of this is on the Roman THU 13) on partly buried sites that have been disturbed by ploughing. Iron Age pottery is almost exclusively of the 400 BC—150 BC (Middle Iron Age 06)

Plate VII Multi-period sites on the Fen-edge gravels alongside the River Glen at Kate's Bridge, Thurlby. In the top right of the picture a prehistoric course can be seen continuing to the north.
Photo Jim Pickering (TF 109 155 27.6.76)

date range. Cropmarks of enclosures and field systems can be seen on air photographs along the northern edge of the old river (Pl. VII) and some disappear beneath alluvial cover. No one specific date can be suggested for the flooding that deposited the alluvium. Intermittent flooding from the river is likely to have happened in all periods.

The most northerly of the Iron Age sites is THU 19, a splendid example east of the church. In addition to pottery, animal bones and a piece of quern stone, the site is littered with fragments of burnt stone. The presence of settlements and enclosures adjacent to the fen is interesting. It has been suggested that further north, in Pointon and Sempringham, enclosures and sites yielding similar pottery were specifically sited where the peat bordering the fen was at its most shallow, in order to afford easy access to the saltmarshes further east. Thurlby's sites are located where the peat was deep and several kilometres wide. However, the land to the south-east, adjacent to Deeping Fen, may have provided grazing land. Now part of Baston parish, this area is formed on a band of low-lying gravels which extend east for several kilometres.

Pottery from these settlements is of similar character and date to that from sites on the Fen margin north of Bourne, a number of which were associated with saltmaking. Thurlby is, however, landward of a much broader tract of peat, one that was sufficient to preclude penetration by the salt waters. The economic development of the Iron Age fen-edge sites north of Bourne is likely to have been stimulated by salt manufacture. There was little positive evidence to suggest that the salterns and the associated settlements in the north continued late into the Iron Age. If their decline was due to changes in the salt industry, such as falling demand or the re-location of manufacturing centres, then this same decline should not neccesarily have affected Thurlby where salt was never

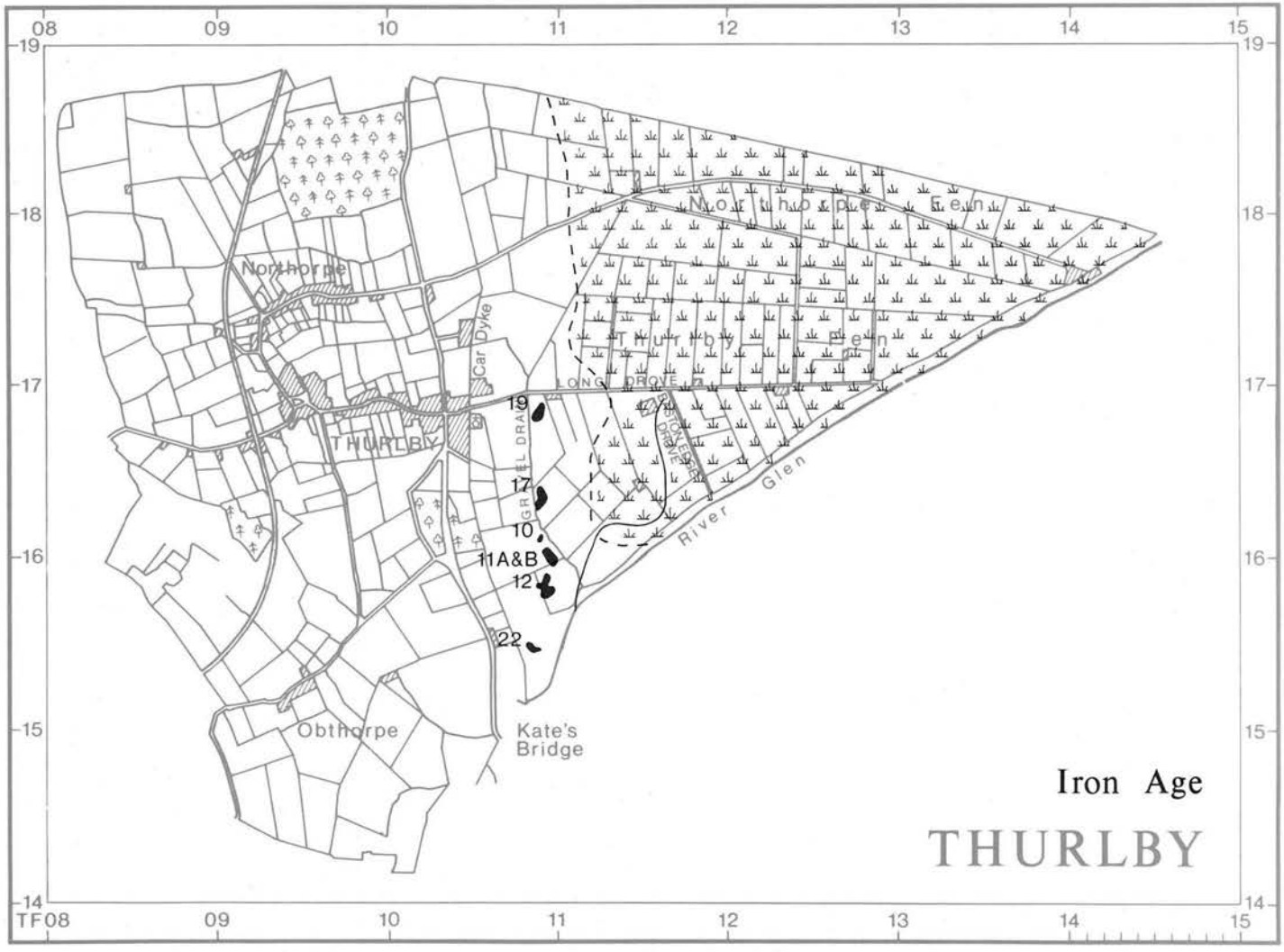

Figure 95 Thurlby: Iron Age

manufactured. However, there is in Thurlby, as in the more northern areas, a marked lack of sites and finds that can be attributed to this Late Iron Age period. The bedevilling problems, in either locating (if it exists) or recognising Late Iron Age pottery, have resulted in a blank aspect to the end of the Iron Age in Thurlby.

VII. Roman

(Fig. 96)

In the same way as Late Iron Age people are predictably elusive so the Romano-British can be relied upon for making their mark on the landscape and for leaving traces of their habitation sites. In the surveyed area of Thurlby evidence of Roman occupation was found on both sides of the natural course of the Glen.

Before discussing the pattern of settlement it might be appropriate to consider in more detail the river and its courses. What has already been established is that the prehistoric route of the Glen ran north-east towards Bourne Fen. Its present canalised course is a more direct alignment towards Surfleet. This has left archaeologists with a major problem: who canalised the Glen? Numerous documentary sources imply that the modern and medieval courses were similar, or at least they do not refer either directly or indirectly to any major reconstruction of the Glen. The work can therefore be considered as having taken place prior to the Middle Ages. Hallam, S.J., (1970, 35-39) suggests the modern course of the Glen between Kate's Bridge and Guthram Gowt is based on an original Roman layout. She also considered the stretch east from Guthram to be probably later on the basis that it truncates Roman channels. The modern course of the Bourne Eau, which joins the Glen in Bourne Fen, was suggested by Hallam to be a Roman diversion, its need created by the silting of the Bourne Eau's suggested former outlet, the Bourne-Morton canal.

This suggestion may lose some credibility here for the inferred new outlet of the Glen/Bourne Eau is to the north-west *via* Pinchbeck North Fen, the very area that was actively silting, causing flooding there and in Morton and creating the problems with the canal. If the course between Kate's Bridge and Guthram was indeed Roman it can be presumed to have had three options for its outfall: south to Spalding by way of the major creek, north towards Gosberton through Pinchbeck Fen, and east towards Surfleet. The southern option seems unlikely for settlements along this roddon were all abandoned early, though not before extensive ditched enclosures had been established. The cropmarks of these extend across the roddon and leave little room for an active watercourse. Problems with the northern outlet, namely the silting of Pinchbeck North Fen, are outlined above and in Chapters 10 and 13 and this leaves the present route east from Guthram (see Pinchbeck South) as the option favoured for a Roman course. Although it cuts through Roman channels, the salterns in Pinchbeck South Fen, which they fed, may well have gone out of use by the time such a cut needed to be made. Therefore an adverse economic affect may not have been felt.

It is perhaps the overall relationship with the Roman layout that leads to the tentative suggestion that the Glen could have been re-routed along its present course during the Roman period. Also relevant to the discussion is the founding, and long term survival of two settlements, THU 25A and 25B. These sites, with a broad range of pottery and querns, are remarkably located in the peat zone on a narrow, extinct former channel of the Glen and their presence would seem to indicate a drier period on the fen-edge of the sort which a re-routing scheme might create. Limited local drainage would also have improved conditions on the remaining marginal sites THU 2, 3, 4, 5, 6, 7, and 18.

Conversely THU 2 could, in fact, provide the strongest evidence for a continued natural route of the Glen in the Roman period, for the site is clearly aligned along the prehistoric course. However, the site's position could have been established before a diversion of the Glen, and have been maintained afterwards. THU 4 is also problematical. The site, which has much limestone building rubble, is cut by the modern bank of the Glen (though not necessarily by a presumed less substantial Roman equivalent). The group of sites in which THU 3 and 4 are situated may, in fact, continue south into Baston where rectilinear cropmarks of Roman appearance are known from air photographs in the Cambridge University collection. Even if the present river does cut through Roman cropmarks, the channel may post-date the setting out of the cropmarks yet still fall within the Roman period. Evidence for the present course being the Roman original can be seen to be at best circumstantial and, therefore, both courses are plotted on the period map.

Recently another optional course has been forwarded for the Roman Glen. Penhey (in Noble 1987, 17) suggested its waters were diverted north to Bourne along the Car Dyke then into the Bourne-Morton canal, although, in view of the problems at the Pinchbeck end, this may seem unlikely.

The one thing not in doubt is the Roman capability to implement any of the schemes. Indeed, one reason for considering that the canalisation of the Glen may have been Roman, is that they were known to have undertaken similar schemes on the Bourne Eau to the north (Bourne-Morton canal) and the Welland to the south (see chapters 15 and 17). However, both the Bourne-Morton canal and the Welland courses can be seen as important for communications between the sea and the comparatively wealthy centres at Bourne and Frognall. If the new course of the Glen was Roman, and for transport, what was there at Kate's Bridge that would warrant a major engineering project such as the new cut? If the new course was solely for drainage purposes the overall effect would be to diminish an important resource, one which could provide fishing and fowling opportunities, and turves, both for fuel and building purposes. The peat fen was an area which would have been exploited by the large populations both on the landward and seaward sides. Draining, in effect, would destroy that resource, and might understandably bring the same angry reaction from the local population as did similar plans in the Fenland during the 16th, 17th and 18th centuries.

Overall the Roman settlements in Thurlby do not indicate particular wealth. Pottery, found on the sites adjacent to the Car Dyke (THU 8 and 9), was sparse. However, limestone building rubble appeared on THU 4 and was also present on the largest site (THU 2) along with tiles. THU 3 yielded possible kiln furniture (Fig. 62, No. 12) and it is tempting to associate this site with the fire-crazed grey-ware sherds (though these were not strictly wasters) from THU 2 and 25. The partly buried sites clustered north-west of the Glen (THU 11B, 12, 13, 14, 15, 16, 20, 21, 22, 23) are notable for their high

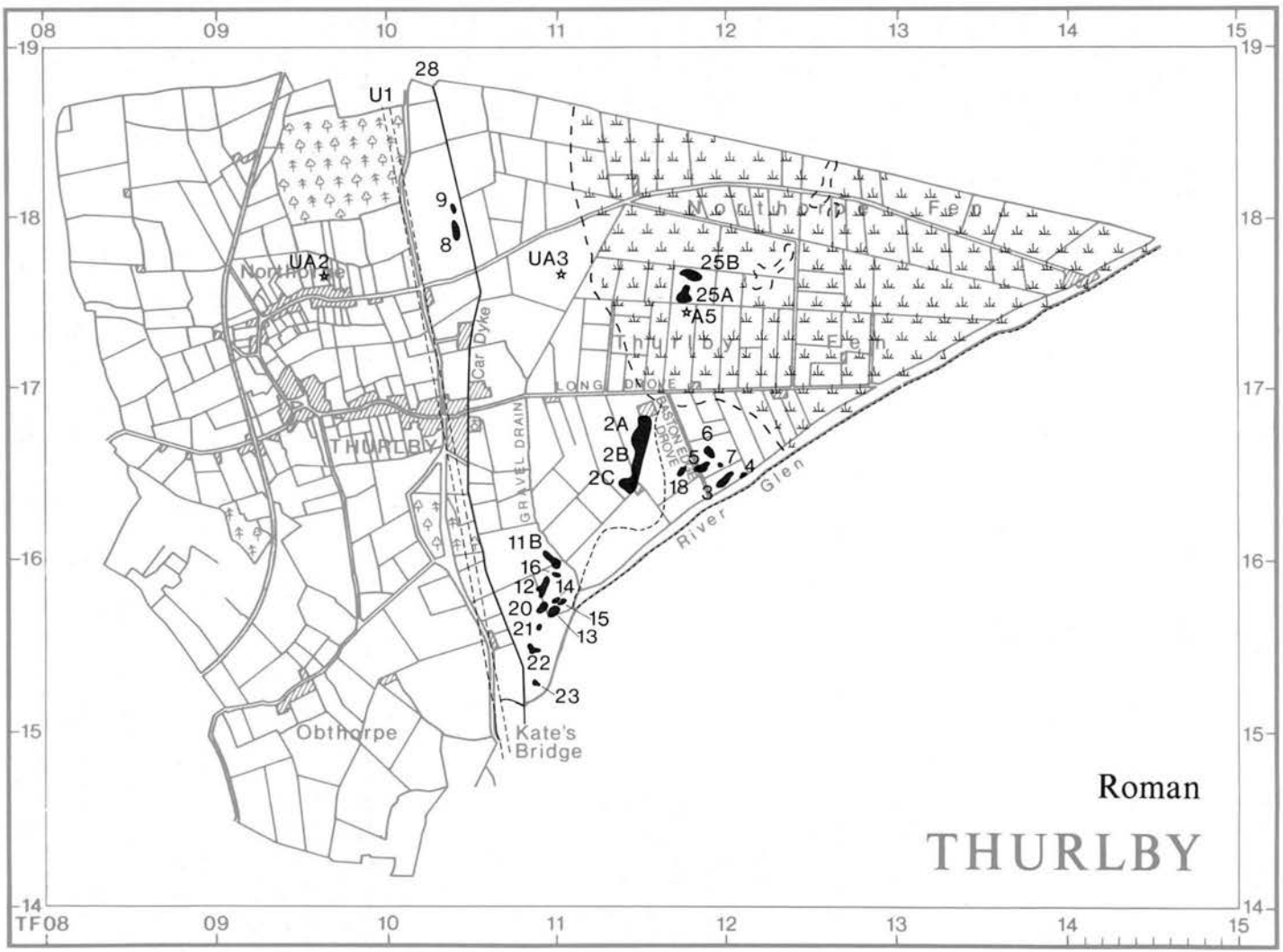

Figure 96 Thurlby: Roman

proportion of calcite-gritted vessels which may indicate a specialised function or, perhaps, Iron Age origins (Lane, 1988).

'Romano-British remains', noted on the modern Ordnance Survey maps of Thurlby near the Fen margin, relates to the discovery of a quern (THU UA3). C.W. Phillips also reported 'some sort of wattle and daub building at the point where the quern was found' (LMSMR), but nothing was observed during the survey. From west of the surveyed area a fragmentary sculpture, (THU UA2), has been recorded by the Ordnance Survey. Little is known of the actual find but it indicates that, inevitably, further sites await discovery on the upland part of the parish.

Another feature on Figure 96 is the Car Dyke (THU 28) which broadly follows the 7.5m (25') contour but goes through a series of unexplained changes of direction. It exists in earthwork form near a short modern diversion in Park Wood. Also depicted is the supposed route of King Street, the principal highway linking the centres of *Durobrivae* and Bourne.

VIII. Saxon — Medieval

(Fig. 97)

Subsequent to the abandonment of the Kate's Bridge Roman sites, extensive peat appears to have blanketed the area. North of Thurlby village the maximum landward extent of the peat can be reasonably mapped from the ground and from air photographs, though south of the church the limit is less clear. However Gravel Drain forms a likely westerly limit of the fen and indeed, in the Enclosure Award of 1810, is described as 'lying between the meadows and fens'. Peat continued to cover the fen throughout the medieval period until post-medieval drainage began its decline. Even so, in the 19th century peat in Thurlby Fen was said to be 'between 3 and 5 feet deep' (Wheeler, 1896, 458).

A major Early Saxon settlement (THU 24) was found near the crossing of the Glen at Kate's Bridge. The site covers at least 2.2 hectares and may continue into the adjacent unsurveyed areas west of the A15 and also south of the river. Over 200 sherds were collected from the field, some clustered in discrete groups. Few of the sherds are decorated. The site, with its animal bones, burnt stone fragments and clay spindle whorl (Fig. 33, No.2), was one of habitation rather than burial and it doubtless controlled the crossing point of the nearby Glen.

Close to King Street, little more than a kilometre to the south in Baston, is an Anglo-Saxon cemetery whose dates range from the mid-fifth to late sixth centuries AD (Mayes and Dean, 1976, 6).

No Middle Saxon pottery was found during survey in Thurlby. Late Saxon stonework is incorporated into the fabric of the church (TLASMR). The building itself is prominently sited on a spur of relatively high ground adjacent to the Fen and east of the Car Dyke. Its position prompts the speculation that it may occupy an earlier religious site. The unusual dedication, to St Firmin, a former Bishop of Amiens in France, who was murdered in the 4th century AD (TLASMR) is one of only two such dedications in Britain.

Peterborough Abbey owned one of the *Domesday* Manors of Thurlby and was an early influence on the developing landscape. Its local centre is unknown unless it relates to Abbots Cote mentioned by Dugdale (1772, 247) which, in 1307, occupied an unlikely riverside setting in the fen. Other possible sites lie some 150 metres and 600 metres north of the church. The latter is known as 'The Grange'. Little is understood of the former (THU U1) east of the Car Dyke. It is now called 'Manor House' and was once moated, having the name Broomsby Abbey (Marratt, 1816, 54).

Prior to Enclosure four fields operated in the upland: North Field, West Field, Middle Field and Cates Bridge Field. Clearly much reorganisation and amalgamation of the fields had taken place during the Middle Ages. The 'Estfeld' of Thurlby which existed in the 11th or 12th centuries (Hallam, H.E., 1965, 109) at some time fell victim to these changes. The extent of the medieval fields has been mapped and indicated on Figure 97. It was entirely plotted from aerial photographs and no work was undertaken on the ground to verify or augment the plotting.

Meadows lay on the clay land east of the Car Dyke and south of Long Drove. The Enclosure map records meadows extending as far as Gravel Drain. Northorpe would also have had its share of meadow adjacent to the fen though this does not appear on the early post-medieval maps for, by the 17th century, Northorpe Fen and the greater part of Bourne South Fen were enclosed and privately owned.

The suggested medieval road system on Figure 97 shows three access routes into the fen. Those from Northorpe and Thurlby have modern equivalents but the route from Obthorpe and Wilsthorpe is conjectural. A direct route may have served these villages for they enjoyed rights of common in the fen and certain responsibilities. In 1293, for instance, the towns of 'Baston, Turleby, Obthorpe and Wyvelsthorpe' were ordered by the Commisioners of Sewers to 'repair, cleanse and raise in the banks... the... Baston Ea', now called the Glen (Coles, 1722, 227).

An insight into the watery nature of Thurlby Fen in the Middle Ages can be gleaned from a document of 1125 wherein work services due to Peterborough Abbey included 'a scythe-boon for cutting a cart load of reeds' (Hallam, H.E., 1965, 207).

Little else specific is known about the medieval fen of Thurlby. Some enclosure may have taken place but conditions would hardly be favourable for concerted reclamation, particularly in the east.

Through, and often over, this already watery landscape flowed the River Glen with its need for constant surveillance and maintenance. Perhaps it did not always receive the necessary attention: one recorded example of neglect occurs in 1325 when an inquisition decided the 'Baston Ea ought to be digged and cut as it anciently used to be' (Coles, 1772, 202). This is interesting for its early reference to the well-established and organised nature of waterway management.

In many ways the Glen has emerged as the most interesting and enigmatic of the watercourses traversing the fen. Its ancient (Roman?) canalisation remains a splendid feat of wetland workmanship. Earlier medieval references term the river variously Baston Ea in 1293, Edyke in 1355, and as late as 1673 it was still known as Baston Dyke. Only at a very late date does it appear to establish a permanent identity as the Glen. It is perhaps then typical that this river should provoke such opposite reactions from two stalwarts of fen drainage. To Dugdale (1772, 177) it was 'the least of all the rivers in the fen'.

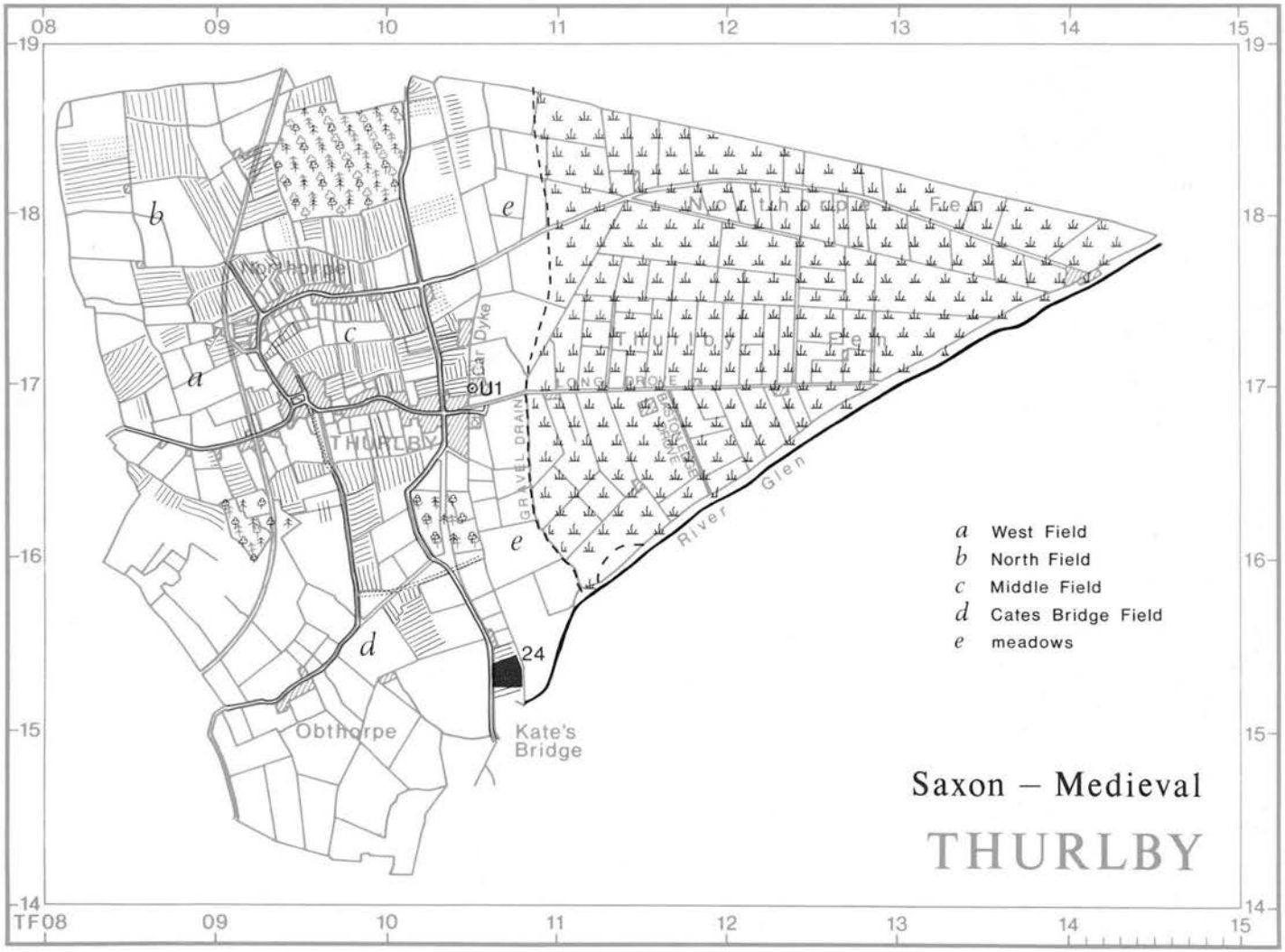

Figure 97 Thurlby: Saxon — Medieval

In contrast, one of the most respected of the modern drainage engineers, Mr. W.D. Miles, found himself forced to live by the maxim. 'Never turn your back on the Glen' (Miles, 1976, 28).

IX. Conclusion

Freshwater flooding caused by rising sea-levels began the demise of the early prehistoric woodland in the area now known as Thurlby Fen. Peat developed over the trees as they fell and preserved them from decay. Since that initial peat development the area changed little over a long period of time. It remained boggy and peat-covered until piecemeal drainage work commenced in the early 17th century and its natural state began to change. Where the Glen entered the fen country near Kate's Bridge regular settlement took place alongside the river from the Bronze Age to Early Saxon times. Other than on these sites, little in the way of settlement was found adjacent to the fen in Thurlby. The riverside settlements had at their disposal the products of the peat fen, including some summer grazing during drier spells. Grazing was also close at hand on the Baston gravels and use would have been made of arable land adjacent to the west. Roman Bourne was the probable market for produce from the Thurlby region. King Street could have afforded a route for the exchange of goods and other ephemeral requirements. An Anglo-Saxon site grew up alongside King Street near the Glen crossing. The extent of its pottery suggests it was more of a village than the small isolated farmsteads that are characteristic of the period. The site did not survive into the Middle Saxon period and it is assumed that the focus of the settlement moved to the unsurveyed area behind the early church. A reason for the change from a river crossing to a less strategic location less than 2km north along the same road is not immediately clear. Throughout the medieval period the fen products would have been utilised in the same manner as they had been for centuries forming an integral part of the economy.

15. Deeping Fen

I. Introduction
(Fig. 98)

The bounds of Deeping Fen were recorded during a perambulation in 1381. The bounds extended from East Deeping (now Deeping St James), to Crowland Bridge, along the River Welland to Spalding, continuing to Dovehirn (West Pinchbeck), following the River Glen to Baston Barre and finally returning to East Deeping. At that time Deeping Fen really was a fen, a vast tract of unenclosed wetland. The modern landscape is very different. After drainage and enclosure, a new parish, Deeping St Nicholas, was created, covering the greater part of the Fen; only some peripheral parts fall within adjacent parishes. For convenience of presentation of the survey evidence, and to produce a coherent landscape block, parts of three other parishes will be included in this discussion. On the landward side, it was originally planned to include parts of Langtoft and Baston in order to map the fen-upland interface but in the event access was denied to much of Langtoft. On the seaward side (the east), Spalding Common has been included to give better coverage of the change to siltland.

The modern village of Deeping St Nicholas straddles the main A16 trunk road, once a causeway connecting Market Deeping with Spalding. Although there are a few hamlets, such as Tongue End and Pode Hole, the modern settlement pattern is mainly one of dispersed farms and their associated dwellings. It is a rectilinear, post-medieval, landscape. St Nicholas's church was constructed in 1845; a year later Deeping St Nicholas became an ecclesiastical parish, and in 1856 it was made into a civil parish (Wheeler 1896, 331). Those events were the culmination of earlier, less successful, attempts to drain Deeping Fen, starting with a scheme by Thomas Lovell in 1603. The Fen is considerably lower than the siltlands to the east and this difference in height posed a major problem for the early drainage engineers. Originally wind power was used to expel the surface water from the Fen; later steam and more recently diesel power came to be utilised. Unfortunately, some moderate success in draining the Fen led to further problems. Shrinkage of the surface peat necessitated lowering the scoop wheels of the pumping engines three times in the latter part of the 19th century. The total reduction in height amounted to about a metre (3ft), (Miles 1965, 44).

II. Topography

Along the fen margin there are gravel deposits which Booth (1983, 8) has classed as First Terrace deposits derived principally from the outwashes of the Rivers Glen and Welland. The gravel is considerably more extensive alongside Deeping Fen than north of the River Glen, and this valuable mineral resource is being extensively quarried west of the surveyed area.

East of the fen-edge, gravel shelves beneath Flandrian deposits which comprise a basal peat overlain by marine clay. Nearly all of the upper peat has now wasted away, though a thin layer survives in parts of the south, especially adjoining Crowland Common. In many of the areas formerly covered by peat the clay soil is still conspicuously humose. The surface peat has been lost mainly through wastage following drainage of the Fen, but wind erosion, which still occurs, has also been a factor. When marine conditions prevailed the marshes were drained by a dendritic network of creeks, the largest of which discharged into a common estuary in the Spalding area. Early courses of the River Welland ran north of Crowland via Cowbit into the same Spalding estuary. Silt was deposited in and around the estuary and the main creeks, raising the surface of the marshes seaward of the Fen and producing the adverse gradient that caused problems for the drainage engineers. Loss of peat on the Fen has accentuated the height difference; levels of 3m OD on Spalding Common can be compared with little more than 1m near Tongue End.

III. Fieldwork
(Fig. 99)

Both Field Officers were involved in the fieldwork. Whilst one officer investigated the peripheral areas of Baston, Langtoft, Spalding Common, and Deeping St Nicholas north of North Drove Drain, the other was responsible for the remainder of Deeping St Nicholas. In order to avoid confusion with site codes the officer surveying in the north used a DSN prefix whilst the remainder was logged under DEN. On the parish plans the DSN sites are marked with the prefix. For DEN sites only the appropriate suffix number is recorded. No archaeological remains were found in the central, formerly peat-covered, zone, other than traces of the Baston Outgang, a Roman road known from previous research. As usual, fieldwalking intensity was varied to maximise the area covered without prejudicing the consistency and effectiveness of the survey. Coverage on the formerly peat-covered marine clay was relatively rapid, though more time was needed than was originally anticipated to map the roddons (many of which were not visible on aerial photographs) and to check that the apparent lack of saltmaking sites was a reliable piece of negative evidence. The speed of survey was considerably slower on the archaeologically rich silts, the larger roddons, and the gravel edge.

IV. Mesolithic — Early Bronze Age
(Fig. 100)

Except for the westernmost gravel edge, all the early prehistoric land surface lies buried beneath Flandrian alluvial deposits. Although the evidence for this period is necessarily limited, a few valuable conclusions can be drawn. These remarks apply only to the area shown on Figure 99 and not necessarily to unsurveyed land further west.

There is no conclusive evidence of Mesolithic activity on the fen-edge gravel. A few worked flints were collected in the course of the survey, mainly as isolated finds, but they could well date to the Neolithic or Bronze Age. A Neolithic flint axe is known from Baston (UA1), but in general it can be said that there are few traces of human activity before the Late Neolithic — Early Bronze Age. While that statement holds true for the whole of the

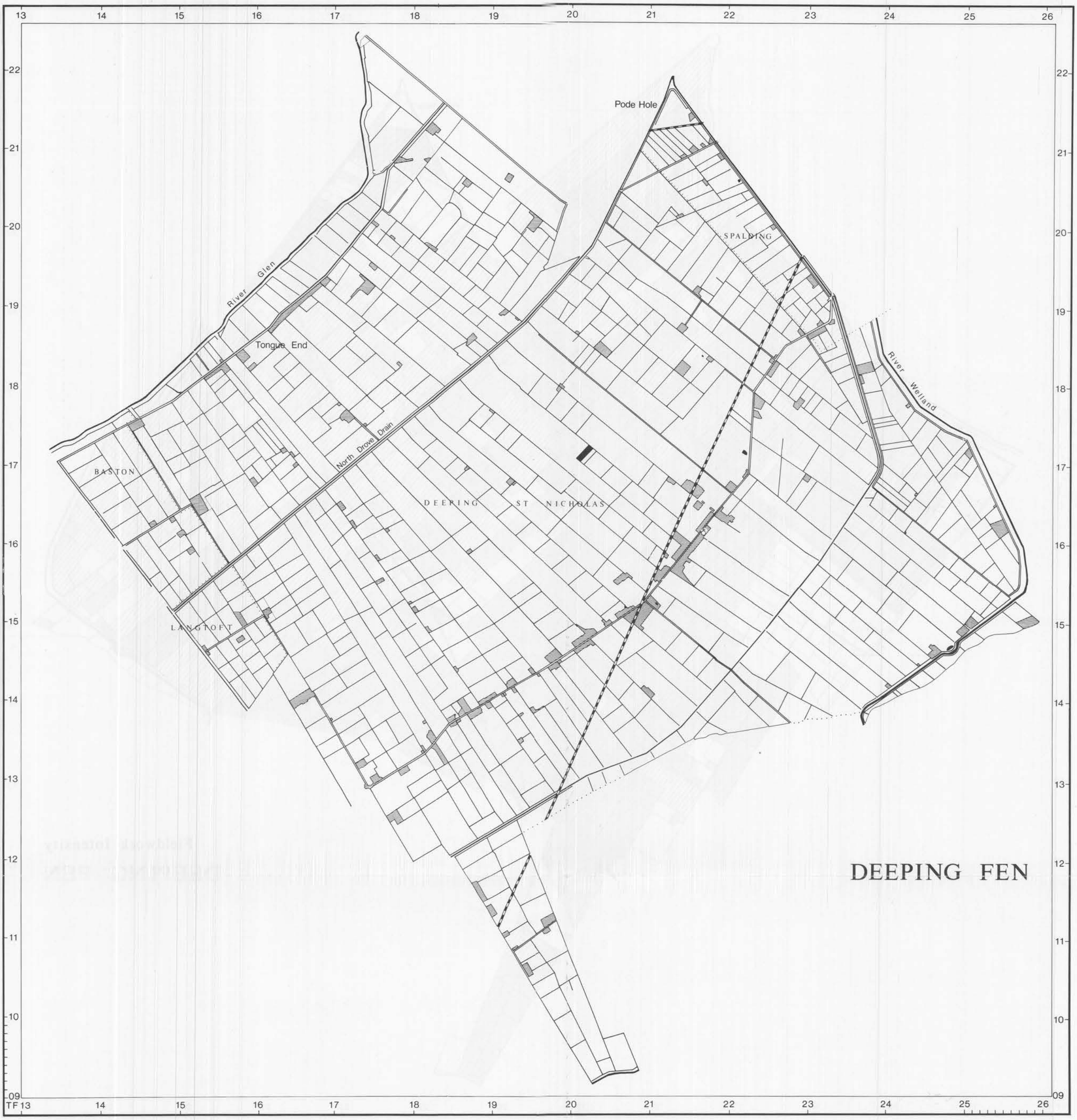

Figure 98 Deeping Fen: The modern landscape Scale 1:40,000

Figure 99 Deeping Fen: Fieldwork intensity

Figure 100 Deeping Fen: Mesolithic — Early Bronze Age

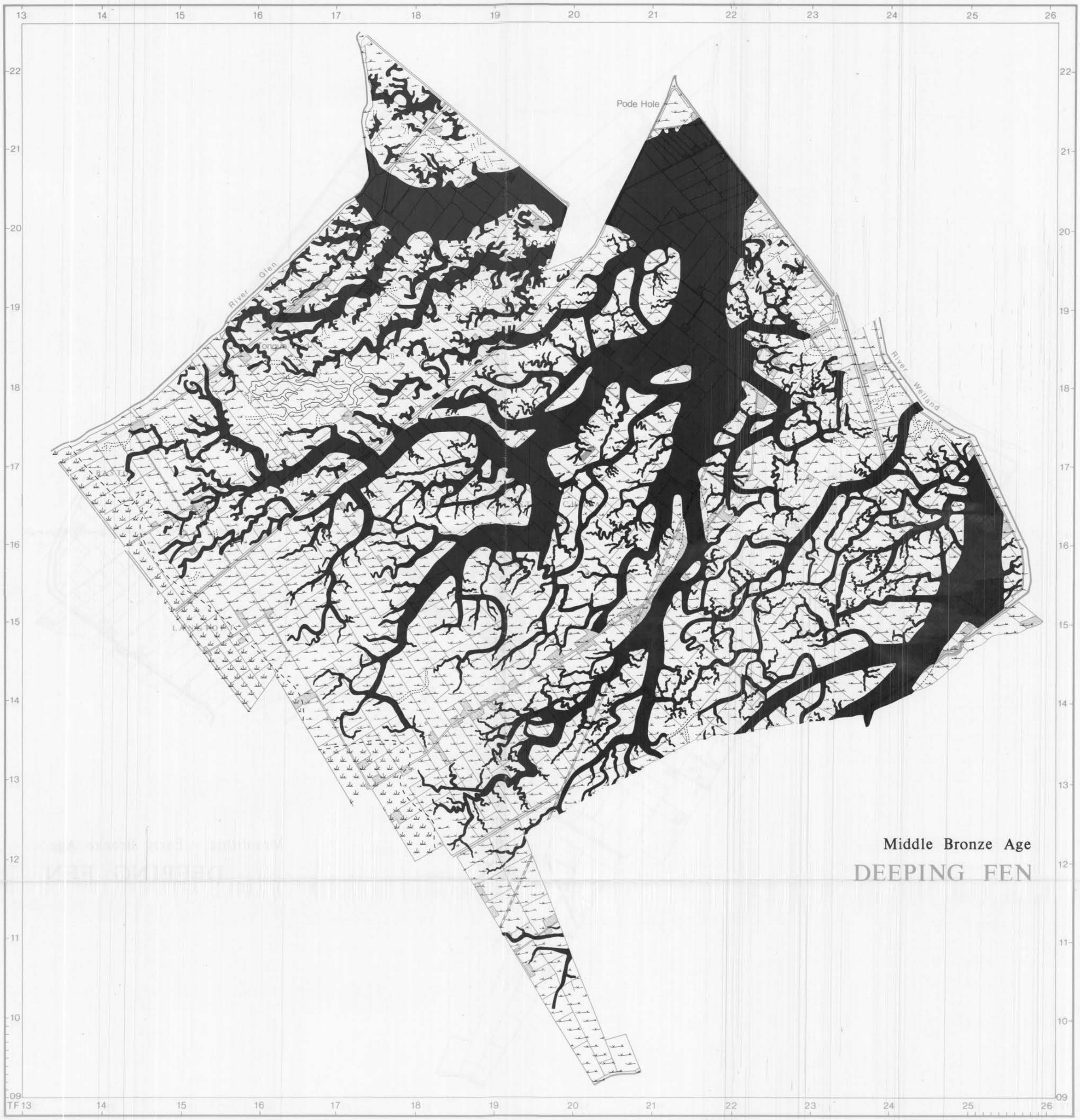

Figure 101 Deeping Fen: Middle Bronze Age

Figure 102 Deeping Fen: Iron Age — Roman

surveyed area, the Early Bronze Age evidence from the edge of Deeping Fen (including Market Deeping and Deeping St James) is far from typical. DEN 2 is one of the few sites on which Early Bronze Age pottery was found, and the only one from which Beaker pottery has been recognised. In addition, six probable round barrows were found (DEN 24—28, and BAS 1). Aerial photographic evidence suggests that the barrowfield continues into Langtoft but it was impossible to check this by fieldwalking because of insurmountable difficulty in gaining access to the land. Four possible barrows (U11-14) were identified in Langtoft from air photographic evidence. The survey evidence suggests that there was a high level of Early Bronze Age activity on the gravel bordering Deeping Fen, a conclusion reinforced by the evidence from Market Deeping and Deeping St James.

V. Middle Bronze Age

(Fig. 101)

A second millennium BC date seems likely for the onset of the marine and brackish conditions which led to the deposition of the clays and silts which overlie the basal peat in Deeping Fen. This cannot be conclusively demonstrated by means of radiocarbon dates but the roddons within the marine deposits are part of the same system as that near Bourne, for which a Middle Bronze Age date has been inferred. However, even if the Deeping Fen creeks were part of the same system, and sharing a common estuary, the flooding in Bourne and Deeping Fens may not have been entirely synchronous. Local variations in topography, vegetation, and even basal peat growth, could have produced slight variations in the timing or the rate of environmental change. Some variation within the system is indicated near Tongue End Farm where an extinct roddon appears to be crossed by the tail end of an active creek. However, no attempt has been made to identify sub-phases within the roddon system (particularly in view of the lack of radiocarbon dates) as they may represent only minor re-alignments within an active system. Figure 101 depicts the landscape in its most marine-dominated phase.

No Middle Bronze Age artefacts were found in the survey area. This part of the fen margin appears to have been abandoned by the middle of the second millennium BC. It is worth noting that several of the Early Bronze Age barrows are very close to the marine deposits. At least one barrow (DEN 25) is surrounded by marine clay and is less than 100m from a roddon. It seems most unlikely that the barrows were constructed during or after the establishment of marine conditions, because the land would have been impossibly wet. Archaeologically, therefore, the deposition of the marine sediments appears to post-date the Early Bronze Age. As the next section will show, by the Middle Iron Age the marshes had matured sufficiently to allow saltmaking to take place on top of the marine deposits several kilometres out from the fen-edge.

VI. Iron Age — Roman

(Fig. 102)

On the landward edge of the Bourne marsh the active marine phase was comparatively short lived and peat soon covered the surface again. A similar pattern of events can be adduced for Deeping Fen. Peat probably soon covered all but the highest roddons and continued to develop and be sustained until the 17th century. However, there is some evidence for Iron Age activity on the highest roddons and silts in the east, in the form of saltmaking sites apparently dating to between 400 and 150 BC. Five saltern sites on, or close to, the main roddon had pottery or briquetage of apparent Iron Age date (DEN 1, 4, 10, 11 and 16). They also had pottery which might indicate some degree of Romano-British activity. Sites DEN 4 and 10 had definite Iron Age pottery (06). DEN 11 had some hand-made pottery but it might be Romano-British; the briquetage, however, is considered to be an Iron Age type (T8). Some of the pottery from DEN 1 and 16 is prehistoric but has not been precisely dated.

Small quantities of Iron Age (06) sherds, undifferentiated prehistoric (presumably Middle or Late Iron Age) and non-wheel made pottery (possibly Iron Age) were also collected on three of the predominantly Roman settlement sites (DEN 5, 6 and 8).

The Romano-British salterns and settlements on the marine sediments in Deeping Fen form a general pattern familiar from other parts of the survey area, although here the unoccupied expanse of peat fen adjacent to the fen-edge is about 5km wide compared to little more than 1km north of Morton. Figure 102 vividly illustrates the reluctance of the Romano-British to settle on the peat.

Although Deeping Fen had by this time become a significant barrier to communication, it was crossed by a road, the Baston Outgang, the course of which is still visible. The road takes the shortest route across the peat between Deeping Fen Farm and the silts south of Corner Farm. It is visible on the ground as a linear band of gravel, presumably the capping of a long-destroyed wooden causeway. Once on the silt the course of the road is marked on aerial photographs by parallel lines which continue east towards Spalding until, in the area of Raceground Farm, they turn to the north-east. As a result of the survey this change of direction can be seen to be a re-alignment needed to keep the road on the major roddon, which here is well in excess of 1km wide. The Roman date of the Baston Outgang is not in question. As Hallam, S.J. (1970, 30) has pointed out, its integral relationship to the lay-out of the Romano-British ditches near Rookery Farm, Spalding Common (near sites DEN 18, 21, 22 and U9) shows that it is Roman.

There may have been a decline in tidal activity within the main expanse of silt after the Iron Age saltmaking phase discussed above. The evidence is not conclusive, but the salterns known to have been used in the Roman period are over a kilometre nearer the present coastline than the Iron Age salterns. The reason for the uncertainty is that Roman pottery was found on some of the Iron Age saltern sites. Although the Roman pottery might be surface material accidentally transported from nearby Romano-British settlements, or re-use of a disused saltern, none of this can be proved or disproved without excavation. DEN 21, DSN 1 and DSN 2 appear to be the only definite Romano-British salterns. It can be seen from Figure 102 that they are seaward of their Iron Age counterparts. DSN 1 and 2 are on the end of a roddon which continues into Pinchbeck South Fen where it is associated with numerous other Roman salterns.

Aerial photography has produced spectacular cropmark evidence of Romano-British settlements and enclosures at the north end of Deeping Fen. One particularly impressive group spans the Bourne arm of the

creek system from the Glen to Ironbar Drove, a distance of 2km. Several scatters of domestic pottery (U5, U6, DSN 5, 6 and 7) were found within the ditchlines. It is also one of the few areas surveyed in these Fens that boasts a thin scatter of pottery sherds, such as may be attributed to the results of manuring, thus implying that the roddon silts were, to some extent, used as arable land.

Analyses of pottery from the Romano-British settlements in Deeping Fen suggest that most of the economic activity took place early in the Roman period, certainly before the middle of the third century AD. Early grey-ware sherds (as defined in chapter 22) preponderate over late grey-wares, and Nene Valley Colour-Coated Wares are relatively uncommon. The survey results thus match the conclusions of Hallam, S.J. (1970, 46). These findings are strikingly at variance with the survey results north of Morton.

It is not certain what caused the early economic decline of the Romano-British settlements in Deeping Fen. Continuing easterly encroachment by the fen might have been one factor, but that was a problem shared by all the marsh settlements and there are no indications that efforts were made to halt the advancing peat. Indeed, it is even possible that environmental deterioration was accidentally hastened by interference with natural watercourses, such as canalisation of the Welland and the possible reshaping of the course of the Glen in Thurlby. Hallam suggested a series of floodings starting early in the second century, with serious but not completely insuperable problems in the third. There are indeed signs that marine floods have affected Roman sites in the area. Some, such as DEN 9, may be partly buried by silt; they lack soilmarks and have a diffuse scatter of artefacts, without a clear focus. However, even if they are partly buried under flood-borne silts, the flooding could have happened long after their abandonment. So, although the survey has made valuable additions to the Iron Age and earlier Roman history of Deeping Fen, it has added little to the Late Roman story. The area seems to have become empty of settlement and to have remained so for the next one and a half thousand years or more.

VII. Saxon and Medieval

No evidence of Saxon and medieval occupation was found. The whole of the area became freshwater fen. Therefore no map has been produced for these periods.

Continued use of the Baston Outgang has been inferred by Hallam (1965, 110, 112-113) from the existence of an Anglo-Saxon cemetery near the supposed junction of the Outgang with King Street in Baston, the existence of an important Middle Anglian tribe (the Spaldas) at the other end of the road, near Spalding, and medieval documentary evidence.

However, the Roman road which Hallam termed the Baston Outgang does not seem to have joined King Street (the north-south Roman road on the fen margin) near the Saxon cemetery. To do so it would have had to change its alignment, by turning slightly to the south-west near Hacks Drove. On aerial photographs the Roman 'Outgang' appears not to turn but to continue its direct route, joining King Street nearer Kate's Bridge, north of Baston village. The Baston Outgang, like the Langtoft Outgang and the Towngate Outgang of the Deepings, was presumably a medieval or early post-medieval road or drove into the common fen but the evidence that it continued to Spalding is debatable. The evidence consists of extracts from four medieval documents and a passage from Marrat and these will now be given brief consideration.

Marrat (1814 (3), 33) describes the discovery of a fine gravel road which ran from Spalding to a manor farm at Thetford (near Kate's Bridge) and adds that 'this road, which had been grown over, and lost, was discovered when the fens were inclosed.' That would appear to be a credible account of the discovery of the Roman road but it is not evidence of Saxon or medieval use. Indeed, it would be surprising if one of the few routes across the fens, allegedly in use for a millennium, was given up without provoking litigation or even comment. Marrat attributes the road to 'the abbey of Spalding'. Hallam points out that Spalding Priory was never an abbey but he accepts that the road was in use in the Middle Ages.

A grant of land in Baston made to Robert, son of Simon, by the Abbot of Reading in 1172-91 imposes a duty on Robert 'aperire exitum vie ante januam suam in Baston'. Also, in 1191-1236 a grant to Robert's son, Simon of Driby, uses the phrase 'de exitu de Baston'. It may be possible to infer from these documents that the Baston Outgang, the route to the common, existed, in the late 12th century, but neither suggests the existence of a road from Baston to Spalding.

Hallam's third reference does refer to a road across Deeping Fen to Spalding but unfortunately the document was written by the Pseudo-Ingulph, who forged documents for the benefit of Crowland Abbey and whose words are not always to be trusted. Hallam demonstrates that the Pseudo-Ingulph's tale contains some imaginative additions, namely the nature and location of the road and the date of its first construction. The reliable version of the tale (taken from Hallam's fourth reference) seems to be that one Egelric, a monk of Peterborough, was Bishop of Durham for fifteen years; around 1150 he returned to Peterborough a considerably richer man than when he left. Egelric used his new wealth for, among other things, paving roads across marshes. The location of the roads in the Fens is not stated in the reliable document. Hallam translates the Latin as meaning that the roads were repaired by Egelric, not newly constructed. According to the Pseudo-Ingulph, writing around 1400, Egelric 'had built, through the middle of a most vast forest, and through the deepest fens of Deeping as far as Spalding, a solid causeway for wayfarers, made out of logs and sand . . . which until now and to the future, as long as it shall last, will take its name from its maker Egelric, that is, Elrichrode.' Hallam infers, and it seems a fair inference, that even if the Pseudo-Ingulph misused the historical evidence, he wrote about a causeway which was in existence *c.* 1400 and which ran across Deeping Fen to Spalding. However, the Pseudo-Ingulph did not mention Baston and he described a causeway made of wood and sand, not gravel. A route from the Deepings to Spalding would fit the evidence equally well. Decay and the plough could have destroyed all traces of the causeway, or it might lie under the modern main road to Spalding (the A16). It is more likely, perhaps, that the causeway skirted the river Welland, a route followed by minor roads today and shown as the only road on a map published in 1648 (Petty and Fairclough, 1978).

The survey has provided little positive evidence for medieval activity in Deeping Fen. A few widely scattered sherds on the silts may indicate sporadic, transient,

attempts at cultivation, but even that is by no means certain. The lack of pottery makes it safe to conclude that there was no permanent settlement in Deeping Fen in Saxon and medieval times. Though uninhabited, the fen was a resource, not a wilderness. Indications of the uses to which the fen was put are to be found in medieval documents, especially records of disputes and litigation. For example, in 1294 there was a dispute between the Prior of Spalding and the men of John Wake of Deeping concerning enclosures round the Prior's turbary in the common fen (Darby 1956, 83-4). In 1332 the men of Thomas Wake of Deeping mowed rushes on the Crowland Abbey meadows at Baston, Langtoft, Pinchbeck and Spalding, and also took hay, turves and cattle. These records illustrate the economic usefulness of the fen. Dugdale (1772, 197) records that profits accrued from turves, from 'poundage to yearly twice taken of all the cattle within the marsh', and from 'fishing newly taken by reason of the overflowing of the waters on the north part towards Spalding'. Deeping Fen continued to be used for those and similar purposes throughout the medieval period. The archaeological invisibility of centuries of use serves as a warning to anyone attempting to draw conclusions from survey results: a lack of evidence cannot necessarily be equated with a lack of activity. On the other hand, it is reassuring to note that there is no sign of spurious 'sites' produced by activities such as seasonal grazing.

VIII. Conclusion

The major marine flooding phase in Deeping Fen took place in the middle of the 2nd millennium BC and came to within a short distance of an earlier group of round barrows. Subsequently, the clay deposited during this episode was covered by a freshwater environment in which peat developed. Saltmaking took place on the marshes in the east of the area in the Iron Age. Roman settlement followed but by the 3rd century AD had all but ceased and the area reverted to an uninhabited freshwater fen.

16. Cowbit

I. Introduction
(Fig. 103)

Cowbit lies at the junction of the clay and the peat fens, and the broad band of silts that fringe the coast. The parish consists of land which was formerly part of Spalding. Cowbit village evolved in the 13th century near the junction of the drove road leading to the fen from Spalding, and Stone Gate, the third in a series of early medieval fen banks which protected the silt land towards Spalding from the winter floods. Between Stone Gate and Goldyke, the fourth fen bank, a grange of Spalding Priory was established in the late 13th century. Traces of this site, Goll Grange,and in particular its geometrically arranged strip fields, were observed during survey.

West of the village is the post-medieval washland created to contain the overflow of the River Welland during periods of flooding. Cowbit Wash is up to 1km wide and lies between the medieval (eastern) and present, courses of the river. This area remained unploughed until the 1950's but is now entirely given over to arable agriculture. Initially parts of Cowbit Wash were grazed as summer ground when available, and also provided a rich hay crop. In winter, it served as a fishing and fowling resource. Contemporary accounts indicate the watery nature of Cowbit Wash and its gradual improvement over a period of years. White's Directory (1856, 820-1) notes 'the greater part of Cowbit Wash is always covered with water and the whole is often flooded in a wet season'. Even by the time of Kelly's 1930 publication the 'Wash is in some years as much as 8 months underwater'. Wheeler (1896, 310) gives the depth of water in the washes of Cowbit and Crowland as 'up to 5 feet' (1.5m) and goes on to proclaim Cowbit Wash as affording the

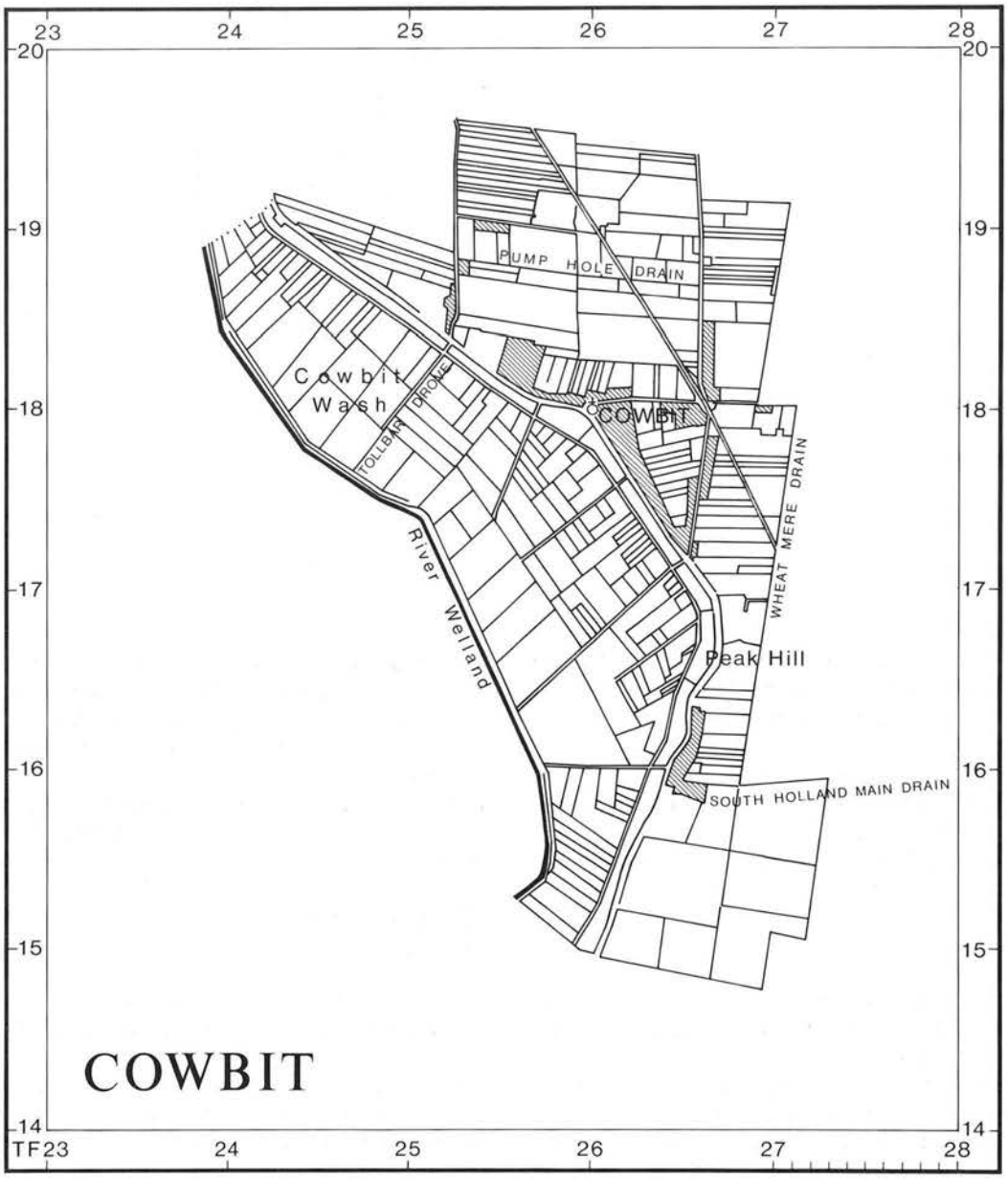

Figure 103 Cowbit: The modern landscape Scale 1:40,000

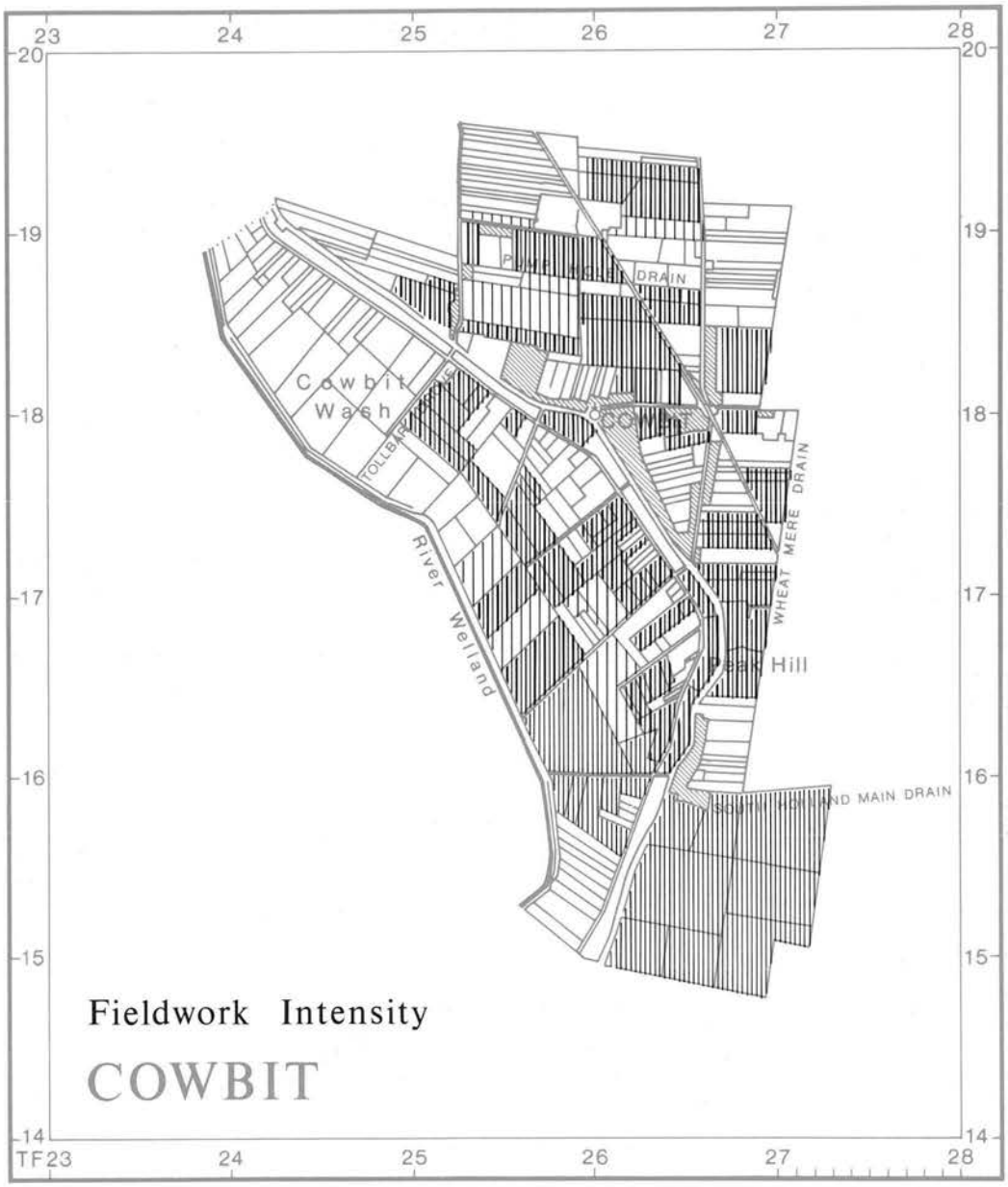

Figure 104 Cowbit: Fieldwork intensity

best skating — an important recreational activity and seasonal mode of transport for the Fenman. The more prolonged flooding took place at the southern (lower) part. This tended to preserve surface peat in addition to depositing some freshwater alluvium. Intensive arable use of the Wash over the last 20-30 years has caused rapid desiccation of the peat and lowering of the ground level. Previously protected Iron Age and Roman settlements and salterns now lie within range of the plough.

II. Topography

Though surface peat still blankets underlying marine clays in the southern Washes, adjacent land, east of the Wash (Barrier) bank, is now peat-free; only the place names Bellesmere (originally Bellesmore) and Turfpits Farm indicate the former organic nature of the surface. North of the South Holland Main Drain surface sediments grade from clay into variably coarse silts through which roddon traces are intermittently present. In the far north of the parish silting is extensive. The prehistoric course of the Welland north of Pump Hole Drain is indistinct. Drain Bank probably represents its western limit but the observable silty channel is some way to the east. A roddon of an apparent later date than that created by the prehistoric course of the Welland enters to the north-east of Cowbit near Decoy Farm, Spalding.

III. Fieldwork

(Fig. 104)

In the silts and silt/clay interface zones, such as Cowbit, creek ridges are frequently traceable only for short distances before they become absorbed into broader expanses of silt. Also, in this region, crops such as brassicas and bulbs are more common and therefore reduce the amount of land that is available for survey. The nature of the tenure in the siltlands, one with a high number of smallholders and holdings, is unmatched elsewhere.

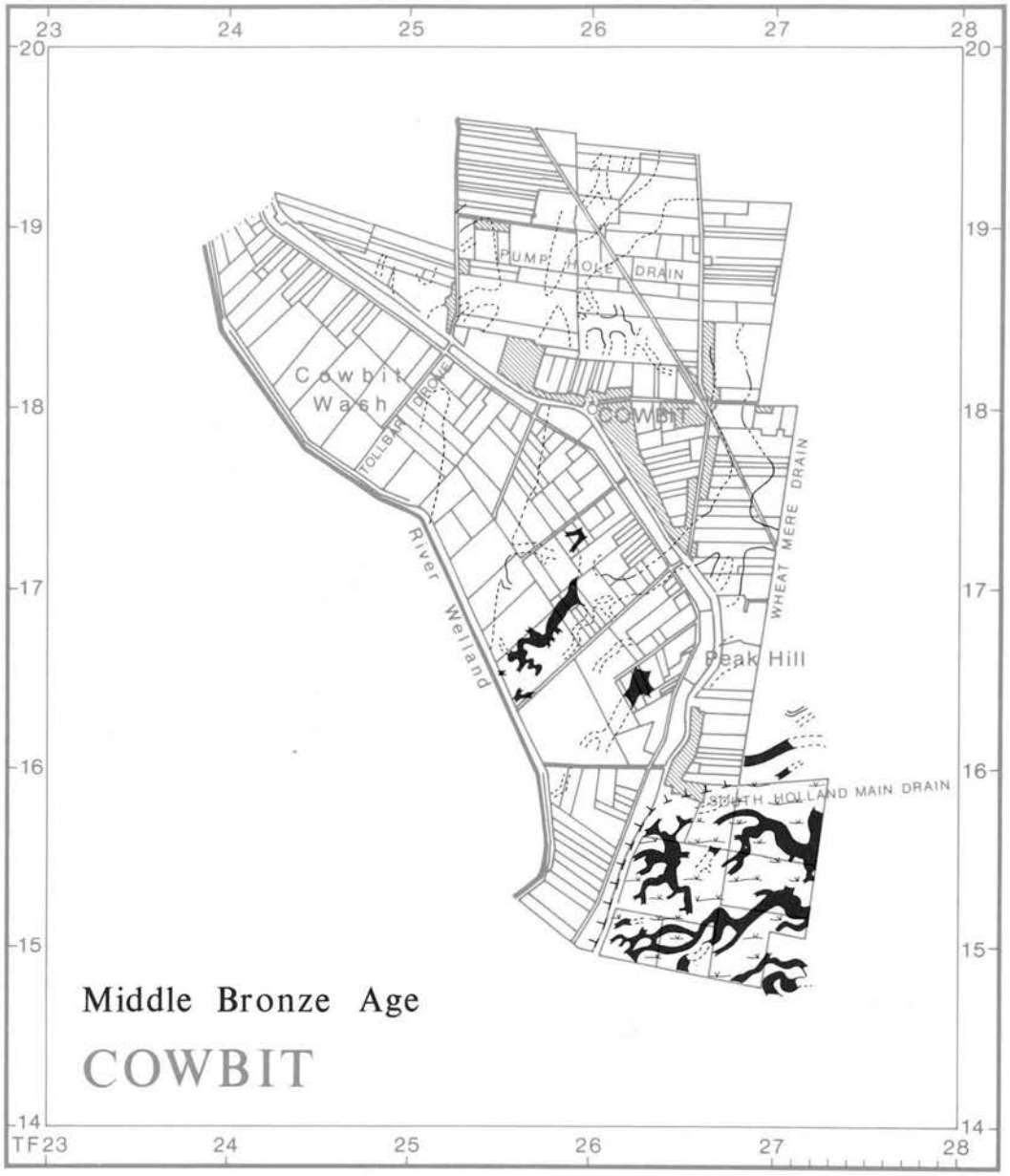

Figure 105 Cowbit: Middle Bronze Age

The pattern of tenure is related to the soil fertility which in siltland is high enough to ensure a living from a relatively small acreage. Holdings are themselves often fragmented with some fields farmed from distant bases. Permissions can, therefore, be time consuming and costly to obtain. Added to this difficulty in the preparation work is the increased walking time, for the land is all walked at 30 metre intervals and background scatters are almost always present. Thus time needed in walking the siltland is generally greater than that necessary on the peat or clay, and gaps in the coverage resulting from adverse crops, or access problems, is greater.

Despite these constraints coverage in Cowbit was sufficient to establish the broad pattern of ancient drainage and to map much of the prehistoric seaward route of the Welland. Only three blocks remain largely unsurveyed; the central village area and the contiguous fields (mainly pasture) between the church and Tollbar House, the Wash south of Peak Hill where it still retains a peat cover, and the alluvial silts in the Wash north of Tollbar Drove where air photographs suggest some activity, probably Romano-British.

In addition to the work in Cowbit one adjacent field in Weston was surveyed. This one field contained seven sites and these are listed under the prefix WES.

IV. Middle Bronze Age

(Fig. 105)

The Mesolithic land surface is buried by up to 10m of Flandrian sediments. Shennan (1986a and 1986b) investigated the sequence of deposits by sinking a series of boreholes in Cowbit Wash along the northern boundary with Spalding. Radiocarbon dates were obtained from organic material found in borehole CW7. This dated sequence indicates peat formed during the Neolithic on weathered Till at -6.0m OD. Dates for this peat range between Hv-10807 5675±115 BP (4710-4380 Cal.BC) and Hv-10806 5570±70 BP (4490-4360 Cal.BC). A subsequent short period of marine/brackish sedimenta-

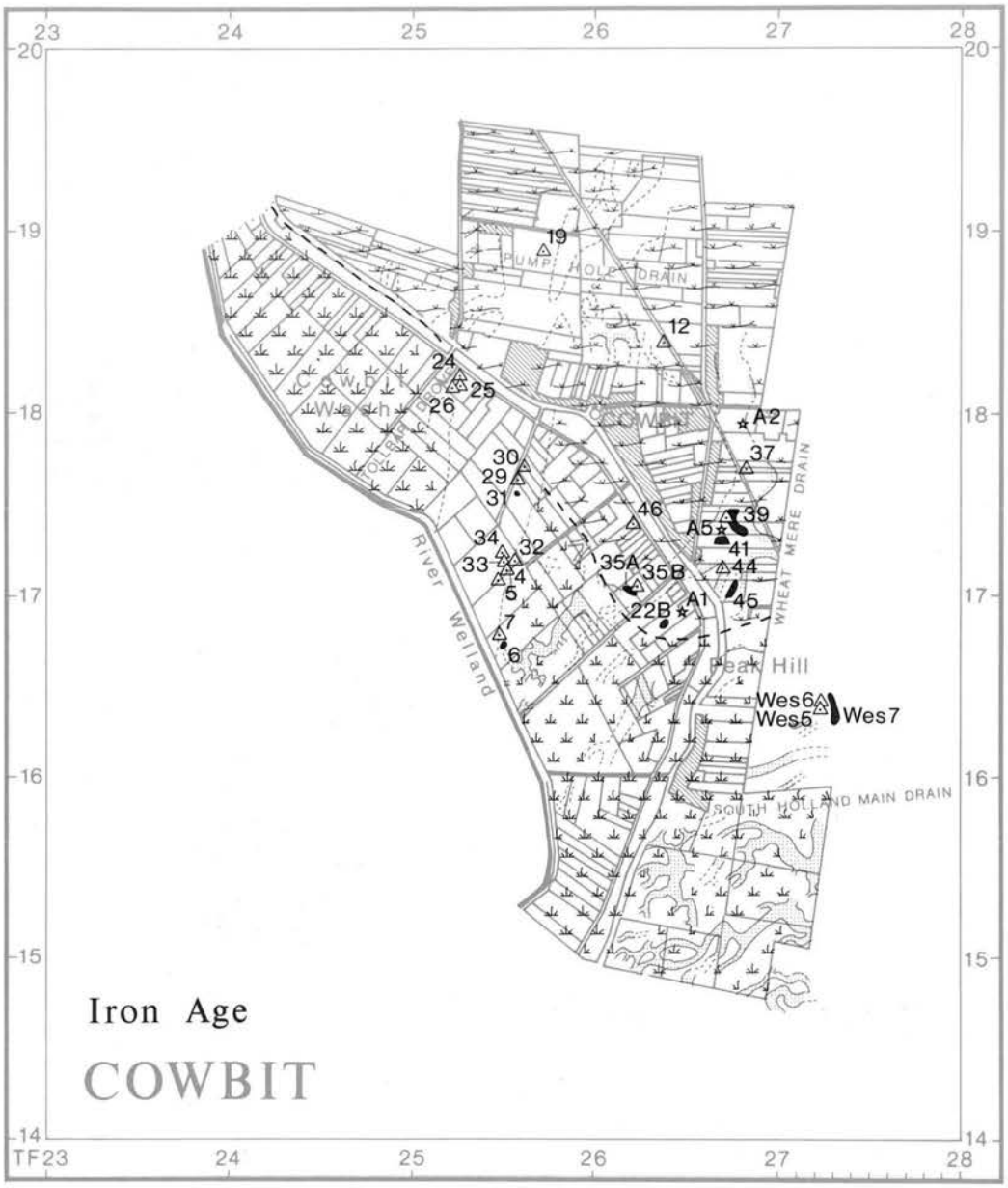

Figure 106 Cowbit: Iron Age

followed by further peat development between Hv-10017 5435 ± 70 BP (4365-4345 Cal.BC) and Hv-10016 5075 ± 50 BP (3980-3805 Cal.BC). There then followed extensive marine/brackish sedimentation. At -3.33 OD this was interrupted and a thin organic layer formed, which was of insufficient substance to provide samples for radiocarbon determinations. Pollens suggested this layer formed in a high saltmarsh/coastal reed swamp environment. After further marine/brackish deposition peat again formed and from it a single date of Hv-10808 2595 ± 60 BP (830-790 Cal.BC) was obtained.

This stratigraphical sequence closely resembles that from the undated section (BF1) recorded *c.* 4km south-east, in Weston Fen near the boundary with Cowbit, by Jennings and published by Smith (1970, 153-5). Dangers are inherent in correlating isolated borehole data in such a complex landscape but these are uncommonly similar at their lower levels. However, the highest peat in the Cowbit section is not matched in Weston. A similar peat would have formed on the surface at Weston but due to drainage it has now eroded. The uppermost peat in Cowbit is sealed by freshwater alluvium (Shennan 1986a, 141) which is only partly the result of post-medieval flooding in Cowbit Wash. A similar alluvial spread was noted in Deeping Fen (see p.171) where, in the 14th century, flooding of the 'north part (of Deeping Fen) towards Spalding' was implied to be recent (Dugdale 1772, 197).

The pre-upper peat landscape of Cowbit was characterised by a salt-marsh environment through which flowed creeks and the prehistoric River Welland.

V. Iron Age

(Fig. 106)

Cowbit is remarkable for yielding finds and features of Iron Age date. This facet of the parish's archaeology derives from a landscape previously considered to be at best acutely inhospitable and at worst sub-marine.

Salterns, in particular, are now known to have flourished on the wide levees of the Welland and other

major creeks. Three major groups, COW 4,5 and 32-34, COW 29 31 and COW 21 26 produced briquetage and domestic pottery (Fig. 132 and Lane 1986, 10) of recognised Middle Iron Age (06) style. Spreads of briquetage were generally *c.* 30m in diameter and a number of these sites were slightly mounded. Sites COW 24,26 and 46 remain largely protected by silts from the now defunct medieval course of the Welland. Likewise COW 31 appears to remain reasonably intact under peaty alluvium though black layers containing abundant charcoal had been ploughed out from this site prior to survey. Among pottery within these ploughed out layers were two rim sherds resembling Early Iron Age (05) ceramic types and, also, decorated body sherds in keeping with a Middle Iron Age (06) date. The largest group of Iron Age salterns on the levees of the Welland lies close to the modern, artificial course amid sinuous, peat-filled ancient channels. COW 4 is the most prolific of the group in terms of finds though it has been cut by a modern field dyke, the spoil of which has no doubt increased the quantity of finds in the ploughsoil.

Proximity to both the peat and freshwater sources would have been a requirement for the Cowbit saltmakers. The Welland would have been tidal well into Deeping Fen; the adjacent peat, a sample of which was dated in the Cowbit Wash borehole, would have provided ample fuel to aid evaporation of the briny muds. Unfortunately the profound changes in the overall pattern of natural landscape development which stemmed first from erecting medieval flood defences and, later, from the creation of Cowbit Wash has hampered the precise identification of a marsh and fen boundary. Therefore, a boundary that is subjective, perhaps more than most, has been proposed.

Away from the Welland domestic Iron Age pottery was also found on COW 35A which has an associated, though discrete, saltern COW 35B. Pottery came from the area of a distinct soilmark on a roddon, the soilmark appearing greyer than the characteristic black equivalents on Roman sites.

Much of the Iron Age pottery found outside Cowbit Wash is of a fabric unrecognised by the relevant specialist. Of the finds from a group of sites in the east of the parish, those from COW 39 were considered to be Middle Iron Age, those from COW 41 to be Late Iron Age and those from COW 22B, in the Wash, as either one or the other. This last site also has Romano-British sherds and extensive salterns. Pottery on WES 7 is predominantly Early Roman though some sherds remain unidentified and could be Iron Age.

COW 41 and 22B are the only likely Late Iron Age sites. As elsewhere a decrease in identifiable levels of activity from Middle to Late Iron Age was noted.

VI. Roman

(Fig. 107, Pl. VIII)

The zone of salterns in the Roman period moved slightly further east as peats encroached from the direction of Deeping Fen.

Peats continued to blanket the south and west. The low number of known sites on the silts to the north of Cowbit parish is likely to be the result of intermittent flooding which has masked the crop marks on some sites (systematic survey is needed north of Cowbit in order to identify any settlements which may be visible on the ground).

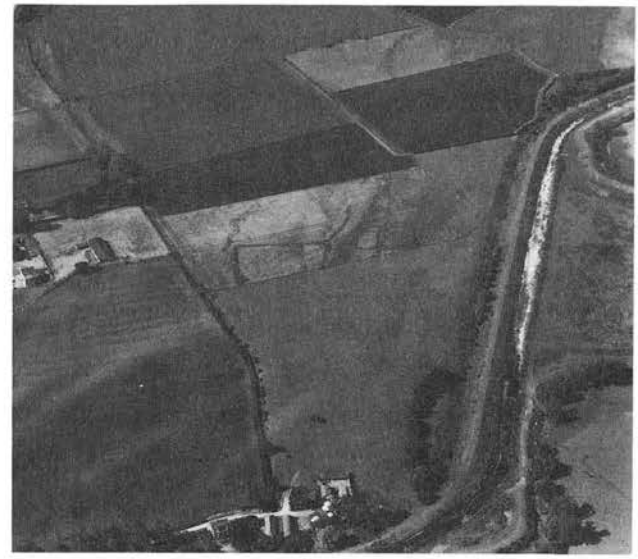

Plate VIII Romano-British settlement in the Fens. Cowbit Wash *Cambridge University Collection; copyright reserved (BBF 40)*

In addition to the sites recorded on Figure 107 more are likely to be found in Cowbit Wash on unsurveyed land north of Tollbar Drove where crop and soilmarks are known from air photographs (Pl. VIII).

In the Roman period the Welland maintained a similar course to that in the Iron Age, but sometime between the Roman and the medieval periods, the river drastically changed course. The discovery of the Roman sites COW 27 and 28 which are still largely buried beneath the overflow silts of the medieval river indicate that this same route is not the Roman course as suggested by Hallam S.J. (1970, 35). The realignment and creation of an artificial course is more suited to a Late Saxon date and may relate to the activities of Crowland Abbey.

Many of the Roman sites form clusters on roddons and include saltmaking in their associated activities. An exception, COW 21, is isolated and on low silt/clay soil adjacent to the Decoy Farm roddon.

VII. Medieval

(Fig. 108)

Only two sherds of pottery were considered to be of possible Saxon date though these were not positively attributed to this period. Both were from the silt land to the north of the modern village. One (COW A4) came from a long-lived Roman site. Therefore little trace was found of the Saxons who inhabited a similar landscape north of the River Glen. Nevertheless, it should be pointed out that only a tiny proportion of the equivalent silts were surveyed in Cowbit.

Cowbit village developed during the 13th century (Hallam, H.E. 1965, 39) along New Fendyke (the modern Stone Gate). Land to the north of New Fendyke was largely arable in the medieval period as is evidenced by the widespread surface pottery finds which are probably the result of manuring. The increasing use of the rich silt land as an arable resource created an imbalance in the traditional farming pattern to the extent that, in 1198, there occurred the famous invasion of the Crowland

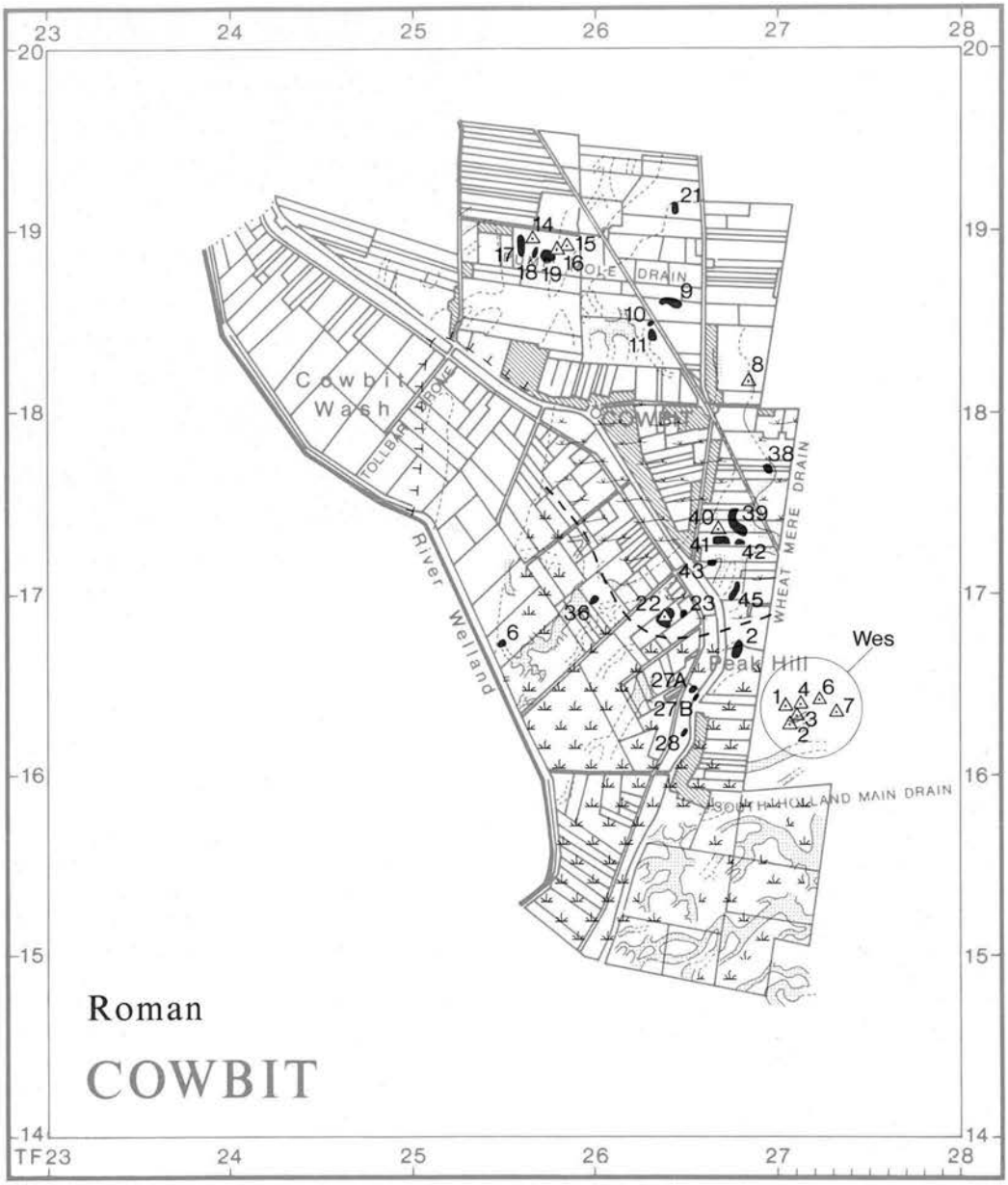

Figure 107 Cowbit: Roman

Abbey precinct by the Men of Holland in search of common or pasture. It was recorded that 'their own marshes have dried up', and 'they have converted them into good and fertile ploughland'. (Hallam, H.E. 1965, 25-6). How much of this drying evolved naturally and how much was due to their drainage and reclamation activities goes unrecorded. There was without doubt pressure on the economically important fen. Despite this, the embanking by the townships of Holland continued and within *c.* 20 years a further, more southerly, bank (Goldyke) was constructed along the course that was later taken by the South Holland Main Drain. It provided more land for potential arable use but indicators of such use, scattered pottery, are mainly confined to the north of this intake and its general use was more likely to have been meadowland.

Another embankment, Marsh Bank, a forerunner of Barrier Bank, existed east of the new Welland to afford Cowbit some protection against the waters of Deeping Fen.

The Welland at this time was a tidal, if sluggish, creek prone to silting. When the Commissioners of Sewers attempted to instigate improvements in 1352 by ordering the town of Spalding to scour and repair the Welland from Spalding to Brotherhouse (Crowland) some reluctance was expressed and the town people explained that this had 'long been an arm of the sea, wherein tides did ebb and flow twice in 24 hours' (Coles 1772, 215-6). The flow had improved little by 1395 when the river was 'choked up from Pegbridge unto Brotherhouse' (Hallam, H.E. 1953, 13) or indeed as late as 1605 when 'the great elbow by Cubbet and Peakell ... much hindered it's [the Welland's] course to the outfall' (Coles 1772, 380). Overflowing of the tidal waters deposited a band of silts, up to 200m wide, and this now partly seals the Roman sites COW 27 and 28 and Iron Age salterns COW 24, 26 and 46.

Between New Fendyke and Goldyke, Spalding Priory established the 'Grange of Golewilw' (Goll Grange) soon after 1294. The site is now ploughed and bisected by

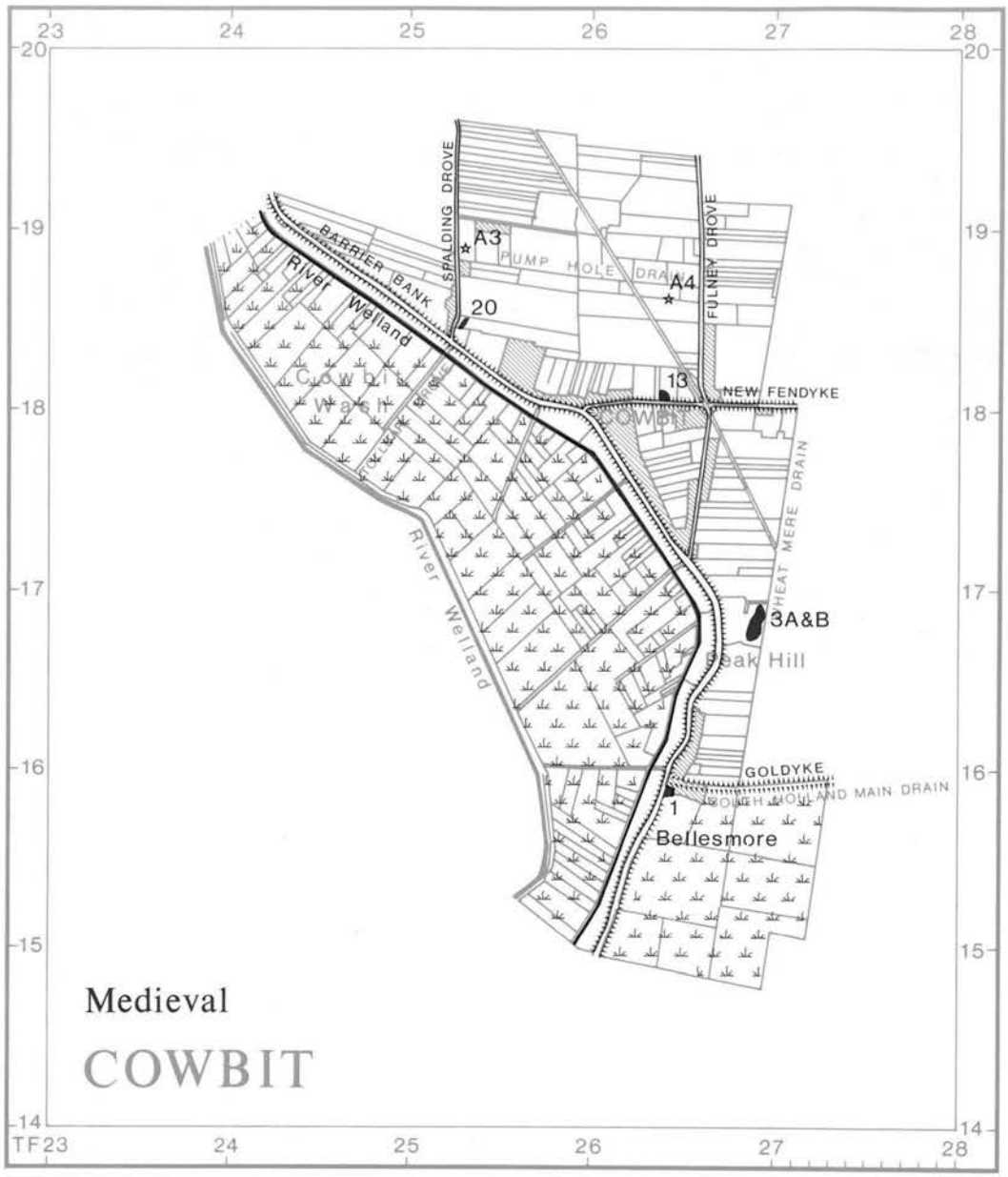

Figure 108 Cowbit: Medieval

Wheat Mere Drain, the modern boundary with Weston. Initial ploughing of the site in Weston has taken place within the last decade. The Grange had its own curious square arrangement of strips. Hallam, H.E. (1953, 17) suggested that these were used for arable purposes though few surface pottery sherds, the usual indicators of arable land use, were found. The very low density of finds from the strips contrasted little to the adjoining areas. On the Cowbit side of the Wheat Mere Drain are two distinct mounds. The most southerly, COW 3A, is the higher, up to 1.5m above the ground surface. Both mounds have sparse rubble and tile, more especially around the lower flanks. COW 3B has more pottery and bone though overall quantities on both areas are small. The pottery is mainly late medieval dating from the later stages of the Grange's existence. The mounds seem unlikely dwelling places despite the elevation, and the habitation centre of the Grange may have been in the unsurveyed part in Weston where, according to a local farmer, many 'large stones and other bits and pieces' were exposed during the initial conversion of the land to arable.

West of the Grange the medieval access to Deeping Fen was over 'Peckebridge'. This was well in existence by the late 13th century for by this time the Monks of Spalding had neglected to repair it (Owen 1971, 51). The nearby hamlet of Peakhill developed alongside Goldyke and by 1396 had its own chapel (Owen 1975, 20). An elevated area of silt adjoining Marsh Bank and Goldyke yielded late medieval wares (COW 1). Other medieval pottery sites found were COW 13 abutting north onto Stone Gate (New Fendyke) with pottery from the 12th/13th century onwards and COW 20, near Tollbar House, again with material from at least the 13th century.

Figure 108 depicts the early 14th century landscape with Goldyke limiting the northern extent of fen, and the Welland its eastern edge. Elsewhere the land was in arable use and fragments of strips (dylings) occasionally survive, as in a small disused field near to the railway crossing on Stonegate.

VIII. Conclusion

Cowbit's early landscape is deeply buried by a succession of alluvial deposits. The area first became flooded by freshwater during the Neolithic period. Early in the Iron Age the surface of the land, that is now in Cowbit Wash, was covered by peat which had developed over a saltmarsh. At sometime between 400 and 150 BC, salt was being produced along the naturally formed banks of the old River Welland. There appears to have been less saltmaking taking place during the later part of the Iron Age before the activity increased, along with the population, during Roman times. The area lay at the seaward limits of the peats which covered Deeping Fen to the west, much of Crowland parish to the south, and part of the area to the north.

After the Romano-British population deserted the area it remained largely uninhabited until the early Middle Ages, by which time the course of the Welland had been altered to flow north from Crowland to Spalding. A succession of protective banks abutted onto the river's eastern bank and served to protect Spalding and the silt lands from the worst of the winter flooding. Land to the north of the banks was largely arable but the people of Cowbit also grazed stock on Pinchbeck North and South Fens and later in the Middle Ages were said to have 'paid most of their taxes out of fishing, fowling and the hay harvest' (Thirsk 1957, 28).

17. Market Deeping and Deeping St James

I. Introduction
(Fig. 109)

It is convenient to deal with these two parishes together. Each was only partly surveyed and they have, to some extent, a shared identity, being sometimes referred to as the Deepings. The origin of their twin-like character is to be found in the Middle Ages. Hallam (1965, 115) expressed the view that they were in reality one township, originally known as East Deeping. Market Deeping appears to be the older of the two parishes and its church, dedicated to St Guthlac of Crowland, is likely to be of Saxon foundation. There is an Anglo-Saxon interlace panel in the southern porch (Pevsner and Harris 1973, 602). Pre-medieval human activity is well-evidenced in both parishes. In particular, Frognall, now just a part of Deeping St James, is a place of considerable antiquity. It was known as Frokenhale in 1139 and in Roman times there was an important centre in the Prior's Meadow area, just south of the modern houses.

The Deepings are essentially a riverside settlement at the lowest convenient crossing of the River Welland before it reaches the Fens. This strategic location might have been expected to encourage the growth of a very large settlement, even a city. Perhaps Peterborough, in a similar location but on the River Nene, a little over 10km to the south-east, is the city the Deepings might have been.

The land in the two parishes rests on part of an extensive fan of gravel which borders the Welland and extends north along the fen margin. The original villages were situated just above the river's flood plain, but east of the church in Deeping St James the land has from time to time been flooded and variable amounts of clayey alluvium have been deposited. The dating of these episodes of flooding and alluviation is uncertain but probably spans a considerable period from prehistoric to medieval times, or even later, with much local and small-scale variation. Most of the fieldwork was carried out on land where patchy alluvial clay covered, or was mixed with, the original, more loamy, soils on the fen-margin gravel. Towards the fen-edge the soils are darker, more humose, and there used to be a layer of peat on the surface. Most of the peat has now wasted away, but a little survives along the fen-edge, *e.g.* at Cradge bank, north-east of Barron's Farm, Deeping St James.

The Deepings differ from almost all other parishes in the South Lincolnshire survey area in having virtually no marine alluvium within their boundaries, although there are extensive tracts of Flandrian marine deposits on the Deeping St Nicholas side of Cradge Bank. The Deepings Survey area varies in height from about 5.0 or 6.0m OD in the west to 2.5 or 3.0m OD in the east.

II. Fieldwork
(Fig. 110)

The Deepings were surveyed in the same season as Deeping Fen. Given the limited time available for walking, and the general aims of the project, the initial strategy was to examine as much as possible of the surface up to 3km inland from the edge of the marine alluvium. This was later reduced to 2km to release more time for dealing with Deeping Fen. It was a matter of considerable regret that the Prior's Meadow area could not be surveyed, but any attempt to do this would have made it impossible to complete the survey of Deeping Fen. It was in any case already clear from air photographs and records of previous finds that Prior's Meadow is an area of major archaeological importance.

III. Mesolithic — Early Bronze Age
(Fig. 111)

The Survey produced no clear evidence of human activity before the Neolithic. A few Mesolithic sites, or low-density scatters of microliths, might exist. There is a record of some possible Mesolithic blades found before the Survey in Deeping St James (UA9) but they were in a scatter of mainly Neolithic flints. It seems safe to conclude that Mesolithic activity on this part of the fen margin was minimal.

The Neolithic evidence is lithic rather than ceramic: a statement which applies to the whole of the fen margin discussed in this volume. Only one sherd of undeniably Neolithic pottery was found between Billingborough and Crowland, and that was in a rather mixed collection of material from MAD 3 in Market Deeping. A few hundred metres to the north-east, on MAD 1, another heterogeneous scatter contained some flints (small cores and blades) that are probably Neolithic, as well as reworked flints. The latter were implements which had been discarded, perhaps in the Neolithic, and had acquired a slight patina. At a later date, possibly early in the Bronze Age, they had been found and reworked, cutting through the patina into fresh flint. MAD 1 occupies a slight ridge on the fen-edge, and air photographs examined since the Survey have revealed traces of ditches and a possible round barrow nearby.

Still on the fen-edge in Market Deeping, a small, diffuse scatter of flint artefacts was found across part of a definite round barrow (MAD 4). It is not known whether the flints pre-date the barrow (perhaps being dug up when the barrow was constructed) but their continuation on the modern ground surface to the east suggests that they may be roughly contemporary. Two tantalising pieces of an oblong fire-bar(?) were also found on the site. They were made of rather porous fired clay and occurred with a few indeterminate lumps of similar material. Saltmaking was at first suspected, but the finds are completely different in fabric, form and location, from the considerable quantities of saltern debris found elsewhere in the Lincolnshire Fens. Although they appear to be earlier than the Middle Iron Age, their exact age and function remain a mystery.

Apart from those rather small concentrations of material, occasional flints were found scattered apparently randomly along the fen-edge in both parishes. A few stone axes have been found in the past (*e.g.* UA2 and UA6 in Deeping St James). A leaf-shaped arrowhead was also found at the latter. This suggests widespread but not especially intense human activity from about the middle

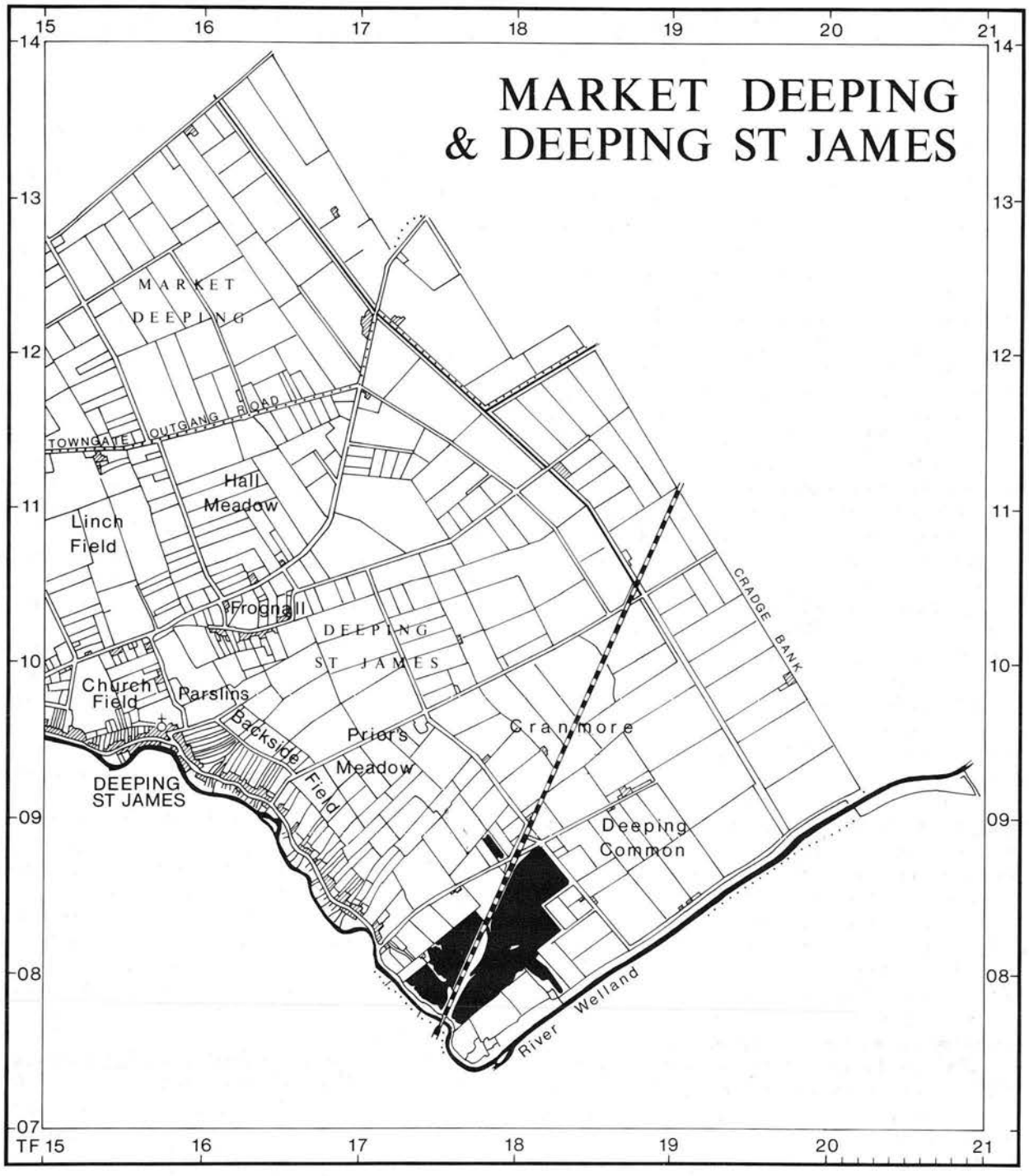

Figure 109 Market Deeping and Deeping St James: The modern landscape Scale 1:40,000

of the Neolithic to the Early Bronze Age. It is tempting to conclude from the virtual absence of Neolithic pottery that the settled population was very low before the Bronze Age, but that would probably be an erroneous inference; the lack of pottery on the surface could be the result of destruction through ploughing and exposure to frost and rain.

The level of human activity appears to have increased in the Early Bronze Age when one of the largest barrow cemeteries known in Lincolnshire was constructed on the edge of Deeping Fen. Barrows were found in both of the Deepings (sites 5 to 10 in Market Deeping, sites 4 and 14 in Deeping St James), and there are four or five more immediately across the Deeping St Nicholas boundary. Several other mounds and features visible on airphotographs are, quite possibly, also barrows but are not shown on Figure 111 as they are too uncertain. Most are simple mounds but on air-photographs two can be seen to be encircled by ditches (site 4 in Deeping St James and U1 in Deeping St Nicholas). They form a loose group of at least a dozen, all previously unknown; an interesting Lincolnshire counterpart to the dispersed barrow-field discovered by Hall (1987, 26) in Borough Fen, about 6km to the south. Before the survey the only barrow recorded in the Deepings was at U1 (Deeping St James). This was further inland than the main group. It was destroyed in 1957.

Figure 110 Market Deeping and Deeping St James: Fieldwork intensity

The pottery evidence also suggests a surge of activity in the Early Bronze Age, with substantial quantities on sites 4 and 5 in Deeping St James. These two unusual sites are on a pre-Flandrian silt ridge, well above any river alluvium on the fen margin. The ridge may have been settled, or at least used as a temporary base, in the Neolithic period; the flint scatter found there has not been precisely dated. It must have been a particularly favoured site because it continued to be occupied at least into the Middle Bronze Age.

IV. Middle Bronze Age — Early Iron Age
(Fig. 112)

As noted in the previous paragraph, site 4 was used at least until the Middle Bronze Age; pottery found there included some dating (approximately) to between 1850-1000 BC. Site 4 is, though, rather exceptional; pottery of that period is common north of Morton but seems to be very scarce on the edge of Deeping Fen. This can only be suggested tentatively because the Survey may have failed to find pottery which does in fact exist (for instance, if it is outside the survey area or buried by river alluvium). Nevertheless, while accepting the need for caution, it is

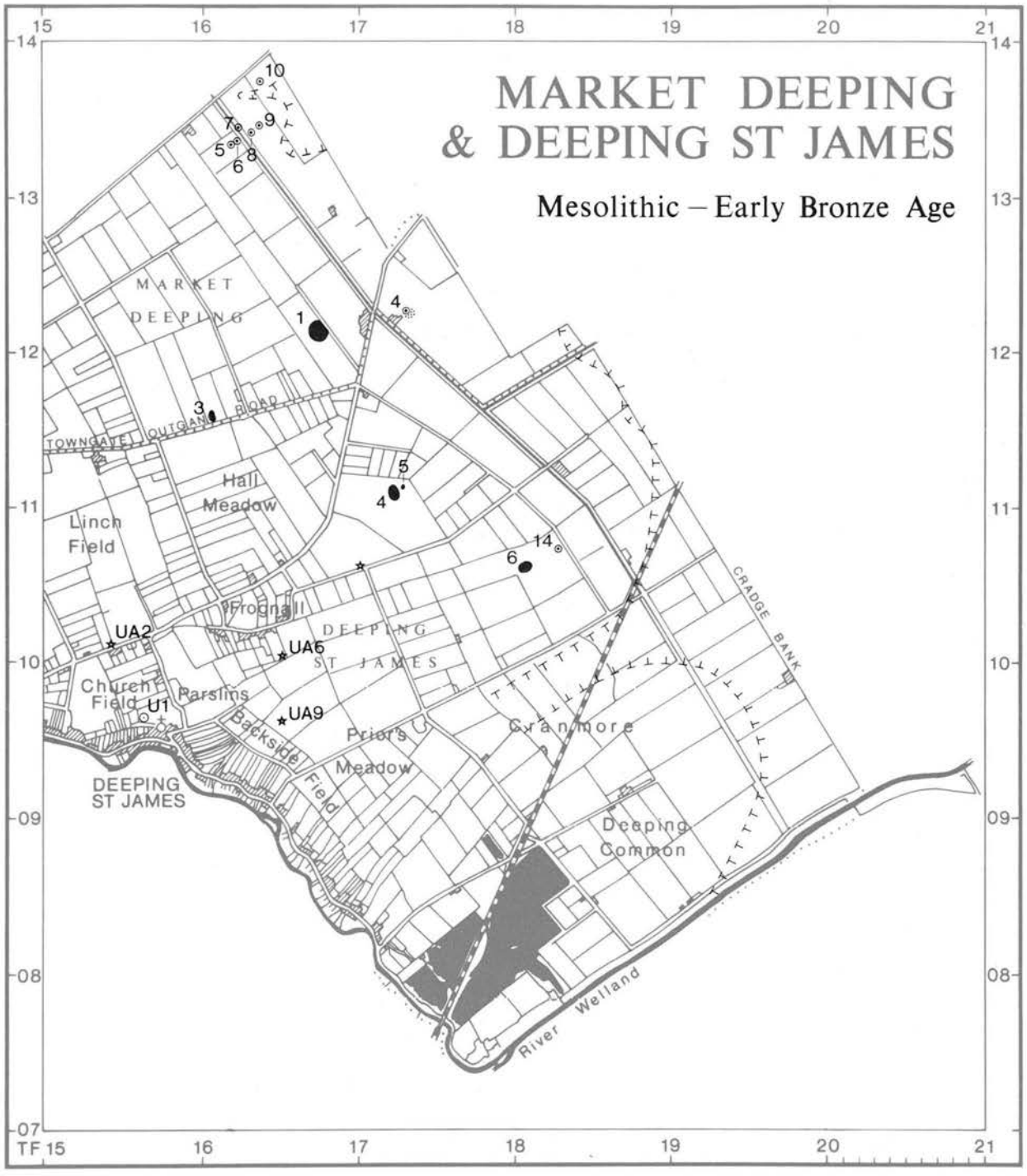

Figure 111 Market Deeping and Deeping St James: Mesolithic — Early Bronze Age

reasonable to suggest that there is a decline in the abundance of pottery on the fen-edge in South Lincolnshire after the Early Bronze Age. On the edge of Deeping Fen the decline may be soon after (perhaps in the earlier part of the period 1850-1000 BC), whereas north of Bourne it may be in the earlier part of the period 1000-400 BC.

These periods of 'ceramic scarcity' are interpreted as evidence of the abandonment of settlement on the fen margin connected in some way with the onset of severe flooding on the adjacent land now known as the Fens. In the case of Deeping Fen, marine clays and silts have buried part of the prehistoric land surface. In the early stages of this marine alluviation Deeping Fen would have become uninhabitable and virtually unusable by the Bronze Age farming communities. It can be seen from Figure 112 that very little land in the Deepings was buried by marine alluvium. It seems likely that at least 2km of land next to the marine sediments was abandoned. Why did the people of the Later Bronze Age not farm the well-drained soils on the fen margin gravel, perhaps using the adjacent uplands for pasture or hunting and gathering wild foods? There seems to have been enough land available on the gravel for a sizable population to exist, ignoring the muddy creeks and marshes to the east. There are several possibilities.

A succession of sea-floods might have destroyed crops

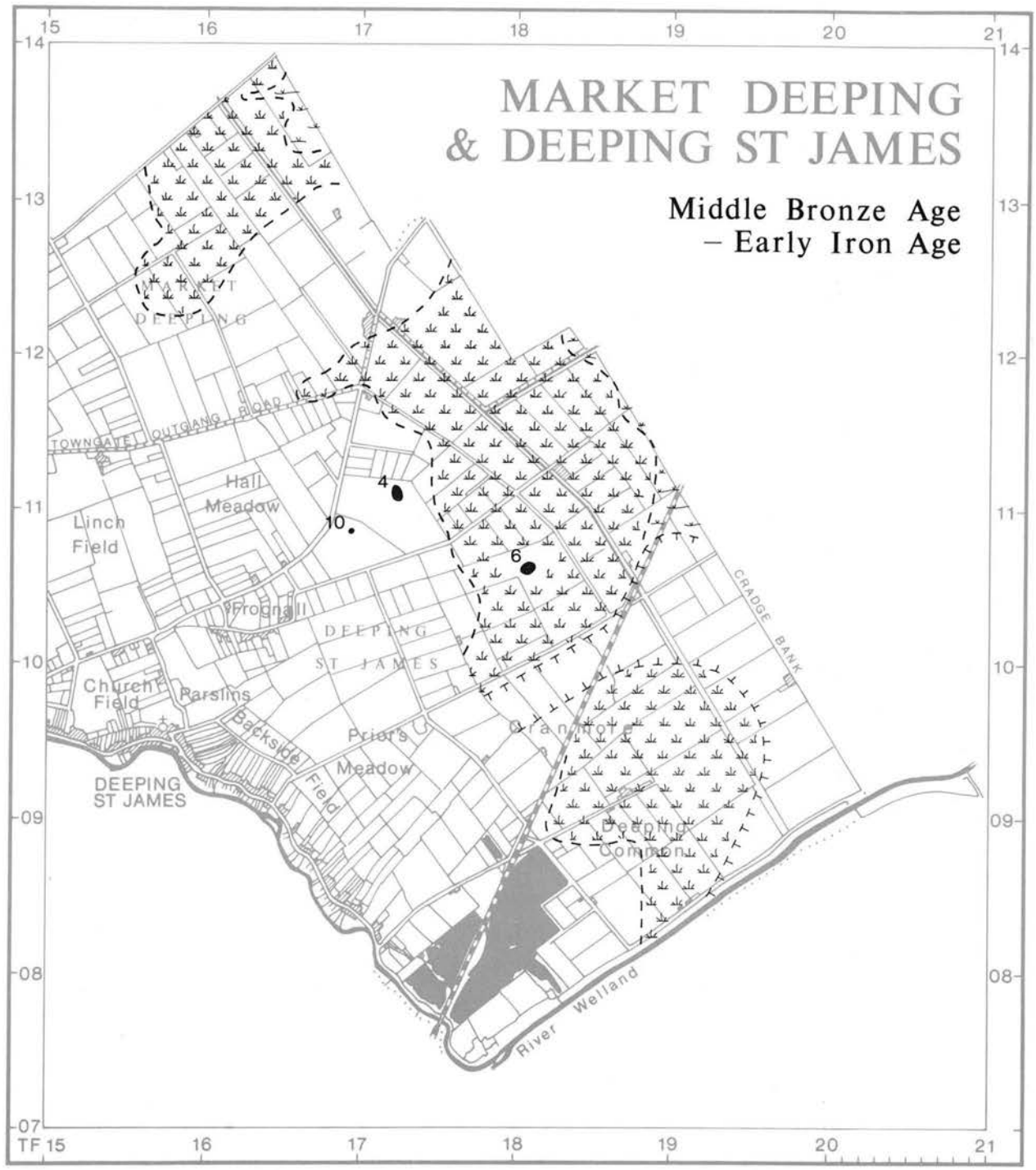

Figure 112 Market Deeping and Deeping St James: Middle Bronze Age — Early Iron Age

and persuaded farmers to abandon the area without being sufficiently prolonged to leave any visible trace in the form of marine alluvium. Although possible, that seems unlikely. People are remarkably resilient and persist in occupying areas which suffer periodic catastrophes; there are many examples from riverside, deltaic and volcanic regions of the world. Freshwater flooding is an alternative: freshwater alluvium covers much of the area and is not properly dated.However, this is not an explanation which would fit the similar abandonment phase north of Morton. Perhaps the farming economy depended on use of the land which came to be covered by marine alluvium, so that when that land disappeared under saline mud the economy was so disrupted that people had to leave. That too seems unlikely, a large enough expanse of gravelly soil remained for use as farmland. Also, there is no evidence that the fen-edge communities used the adjacent fens or marshes to any significant degree. Perhaps the fen margin communities and their fields were affected by saline water percolating into the gravel and flowing up streams when the tides flowed in from the Wash across the new expanse of mud flats, creeks and marshes. These possibilities can only be properly evaluated by excavating sites on the fen margin or, preferably, sites near the fen-edge which are buried under alluvium.

Site 10 in Deeping St James is unfortunately not

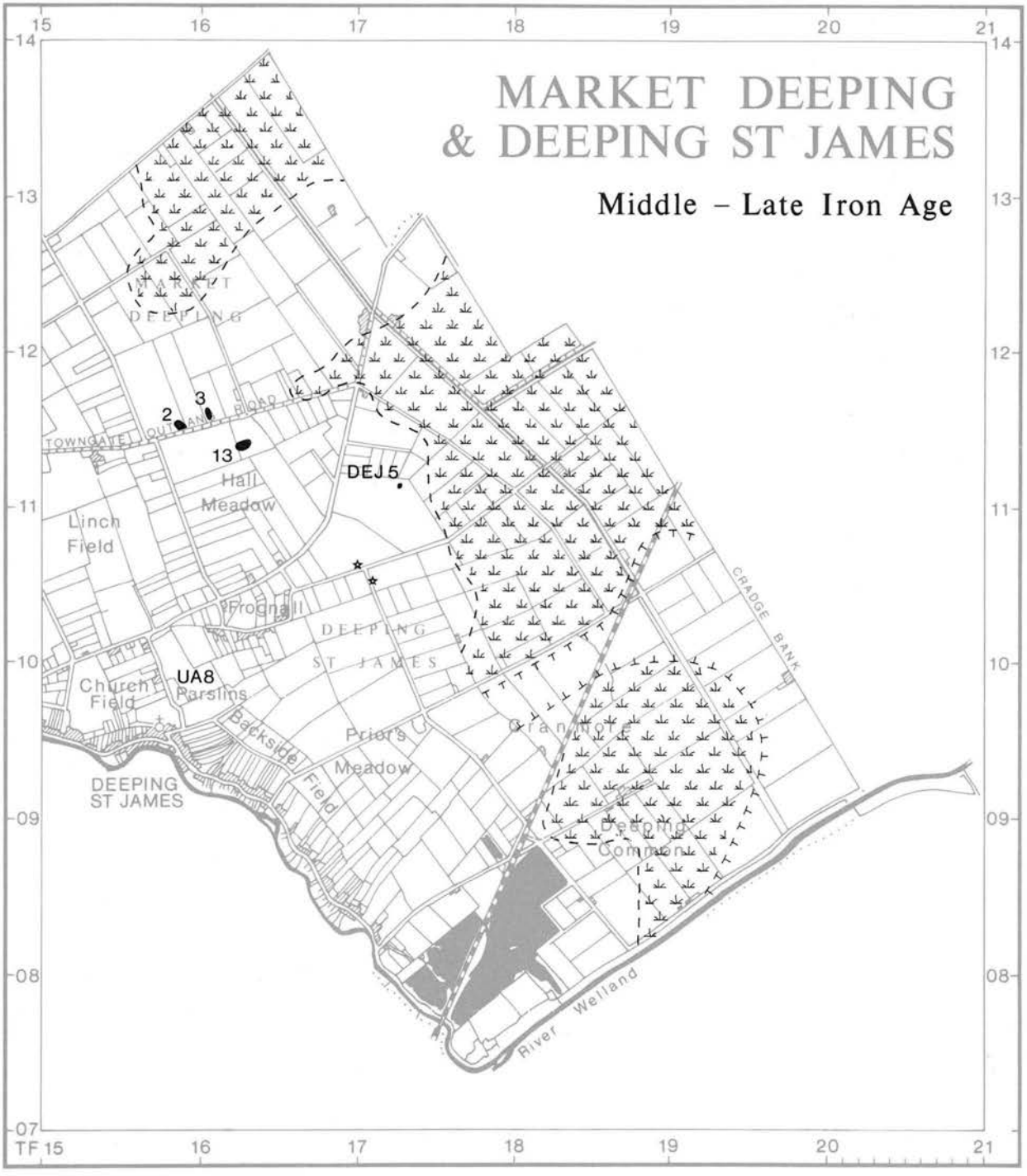

Figure 113 Market Deeping and Deeping St James: Middle — Late Iron Age

securely dated. 45 sherds of very fragile pot were found which may date to the Late Bronze Age/Early Iron Age (1000-400 BC). The site is well inland from the fen-edge but may be partly buried by river alluvium. The sherd scatter was rather linear, as if pulled up by an extra deep plough furrow. The site merits further investigation as it could be an early example of resettlement on the fen margin.

V. Middle — Late Iron Age

(Fig. 113)

No Iron Age saltmaking sites were found on the landward edge of Deeping Fen; they were much further to the east, on the seaward side of the Fen, in Cowbit and between Deeping St Nicholas and Spalding. This finding of the Survey has very important implications for reconstruction of the development of the landscape of the Deeping Fen area. For reasons discussed in various parts of this volume, the implication is that saltwater ceased to reach the fen-edge in the Deepings before the Middle Iron Age, probably during the Late Bronze/Early Iron Age. The absence of saltwater would allow the re-establishment of freshwater vegetation. The natural drainage system would have been impaired. Out in Deeping Fen large areas of marine clay had been deposited and

the creeks which drained the clay in the marine phase filled up with silt as that phase came to an end. The proximity of the Welland would result in an excess of freshwater, encouraging the development of freshwater fen along the fen-edge and, gradually, out across the surface of the former saltmarshes, giving rise to the landscape shown in Figure 113.

The re-establishment of a landscape dominated by fresh, rather than salt, water, is accompanied by a return of settlers to the fen margin (but not to the Fen). Some of the Middle Iron Age sites did not survive into Roman times. Site 3 (Market Deeping) and 5 (Deeping St James) had pottery which appeared to be no later than 150 BC. The latter is interesting because it is the re-occupation of a Bronze Age site, probably with later Neolithic antecedents, quite close to major Roman sites with at least some evidence of a Late Iron Age presence. The abandonment of these two sites may simply have been part of the normal pattern of change as the density of settlement increased.

On some of the Middle Iron Age sites the evidence for continuity through the Late Iron Age into the Roman period is tantalisingly ambiguous. For example, when the sherds collected on site 2 (Market Deeping) were examined by specialists, 92 were judged to be Middle Iron Age and 422 were Roman. None could confidently be ascribed to the period 150 BC-AD 100. Similarly, there were Middle Iron Age and Roman sherds on site 13 (Deeping St James) but no Late Iron material appeared to be present. In this case the sample may not be truly representative as the the site is under pasture and the sherds were collected from molehills and bare patches, but the apparent absence of Late Iron Age pottery is a feature of the south Lincolnshire Fens as a whole (see Lane 1988). Late Iron Age pottery from the Lincolnshire uplands is distinctive, *e.g.* the stamped and rouletted wares and Gallo-Belgic pottery from places such as Ancaster and Sleaford (May 1976, 174-177). Its virtual absence from these Fens may be due to a second phase of abandonment of settlement, due to some unknown environmental or social change; evidence from suitable Fenland excavations is necessary to test this. Alternatively, the fen margin sites may have used hardly any fine pottery. The shell-tempered pottery of the Later Iron Age and Roman periods is not easily distinguishable, especially when the material has been collected from the surface of well-ploughed fields.

Site 7 (Deeping St James) lends some support to the suggestion that the absence of Late Iron Age pottery may in some cases be more apparent than real. Here, in a collection of 849 sherds, 848 were judged to be Roman, and one sherd resembled a fragment of a butt beaker (Late Iron Age). This could be explained as part of a treasured antique brought to the site by its Romano-British founder, but the chances of finding an antique fragment in the small sample of Roman rubbish exposed on the surface of the field cannot be very high. A simpler explanation would be to regard the sherd as a rare example of a recognisable Late Iron Age fineware in a collection of predominantly coarse pottery. The 'missing' Late Iron Age pottery would most probably be undecorated body sherds in a shell-tempered fabric. The proportion of shell-tempered wares at site 7 is 27%, which would be unusually high for a purely Romano-British site.

The evidence has been discussed in some detail to show how the dating of the phases of landscape change has been arrived at, though the phasing took into account evidence from all the parishes, not just the Deepings. The suggested interpretation for this phase is that true fen conditions were well established next to the gravel by the Middle Iron Age. Although there is a possibility of abandonment of the fen margin in the Late Iron Age, the author considers this unlikely. The evidence has been presented so that the reader can arrive at her or his own judgement. Careful excavation and analysis of palaeo-environmental indicators are needed to resolve the problem.

It is worth mentioning the previously recorded find of a Late Iron Age gold coin (UA8) from just west of the survey area. This suggests that the large Roman site complex in the Prior's Meadow area grew out of a Late Iron Age centre of considerable importance, and further reinforces the suspicion that the Late Iron Age is under-represented in the Survey evidence.

VI. Roman

(Fig. 114)

The survey found only the fenward edge of the Roman settlements in the Deepings. Despite the small sample, the location of the Roman sites is interesting when it is related to the medieval landscape. The Roman sites occur where there were none in the Middle Ages, and on land which was not then used for arable agriculture. Was the land different in quality in the two periods? Did the two communities organise or use the landscape differently? Most of the medieval inhabitants of the area lived in villages, with a few in hamlets such as Frognall. Romano-British settlements were, in contrast, widely scattered along the fen margin, so it is not surprising to find them where there are no medieval sites. What is significant is that the Roman sites extend onto land used as meadows in medieval times. This suggests that the Roman settlements specialised in pastoralism, producing animals rather than plant-crops. It is possible that the fen margin was drier in the Roman period. Hall (1987, 28) has suggested that the edge of Borough Fen, only a few kilometres to the south, became wetter between Roman and medieval times. That is certainly a possibility for the edge of Deeping Fen, though the Roman sites would still have been well located for pastoral specialisation, using the fen in summer and the fen margin in winter. More research is needed to clarify these points.

Turning to the sites themselves, it is noteworthy that some appear to be on artificial mounds (Market Deeping site 2, Deeping St James 7 and 13). Others appear to be normal, flat, sites (Deeping St James 1, 2, 3, 8, 9 and 12). Sites on artificial mounds in an area with extensive, shallow, alluvial cover suggest a precaution against occasional flooding, probably more of a nuisance than a threat to life. It may be significant that the mounded sites are those on which definite Iron Age pottery was found. A few possible Iron Age sherds were found on sites 2 and 8, but similar hand-made sherds sometimes occur in definitely Roman forms, so the local Iron Age pottery tradition seems to continue into Roman times. What is clear is that all the Middle Iron Age sherds, and the only definite Late Iron Age sherd, occurred on the mounded sites. From this, one could infer that in the Roman period, perhaps even in the Late Iron Age, the river flooding was controlled and the lower parts of the fen margin were made safe for settlement.

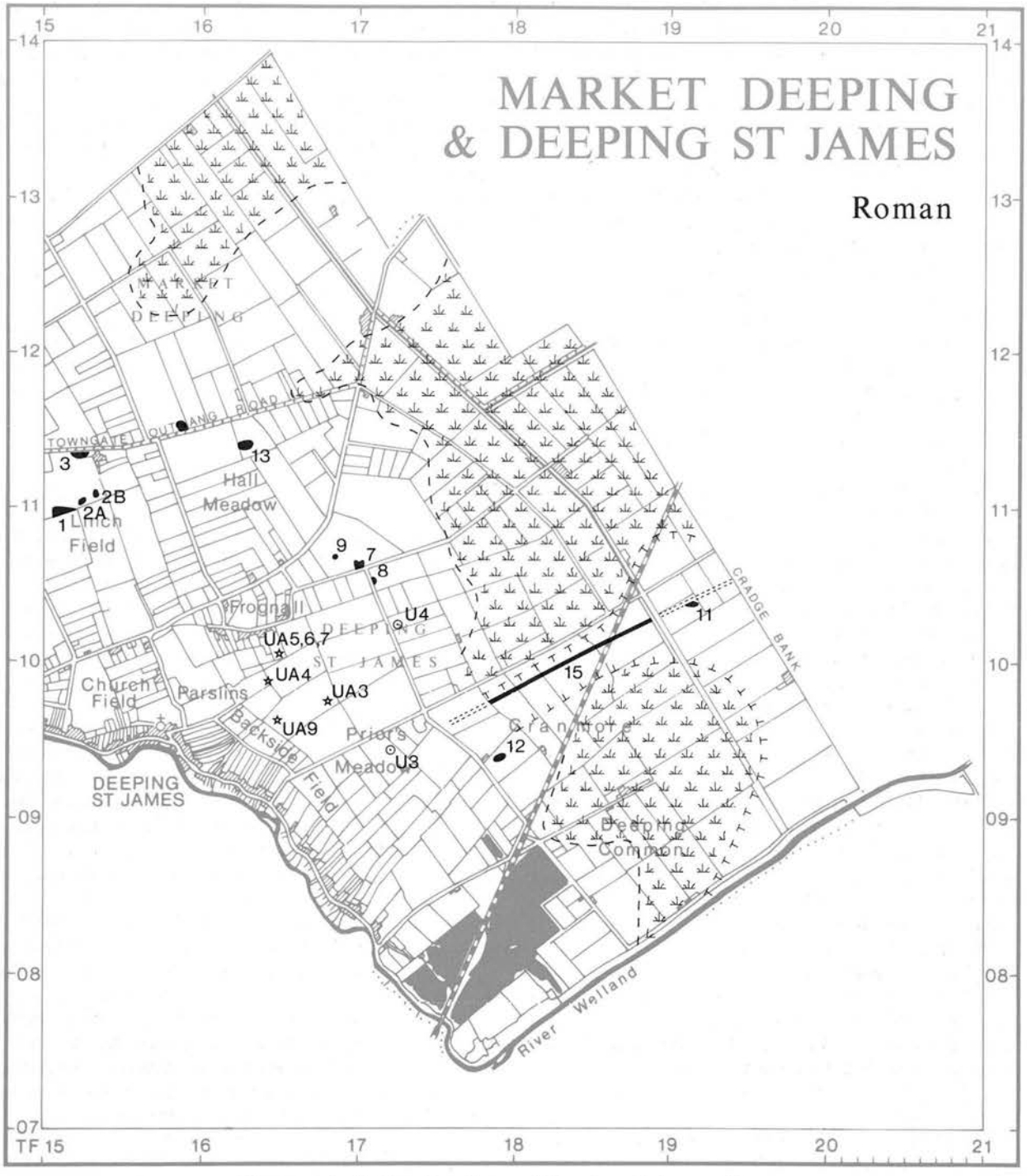

Figure 114 Market Deeping and Deeping St James: Roman

This last inference is speculative, but testable by careful excavation and palaeoenvironmental investigation. The survey did, however, provide an additional piece of evidence which supports the suggestion that the Welland was brought under control in this period; the discovery of an artificial watercourse (Deeping St James 15) cutting across the alluvium-covered fen margin towards Deeping Fen. It was possible to trace the straight artificial watercourse for over a kilometre, using air-photographs and field observation. A newly cleaned dyke provided a section at ninety degrees across the watercourse. This showed that it was about 30m wide and had been cut into grey alluvial clay. It seems likely to have joined the present course of the Welland south of the church at Deeping St James, running through Prior's Meadow, then continuing parallel to Cranmore Drove, passing under Stowgate Farm, into Deeping Fen. However, both ends of the watercourse are uncertain. In Deeping Fen it became obscured by alluvium. It was clearly heading for the main roddon which runs for several miles across the Fen, passing west of Crowland, into Cowbit Wash. At the other end, near Deeping St James, the watercourse was directed towards the major Roman complex in Prior's Meadow (U3). It would therefore have cut off the present bend in the river and the route along the Washes to Crowland. The artificial watercourse must have

provided the Prior's Meadow complex with access by water to the major Iron Age and Roman salt-making area in Cowbit Wash, and thence to the sea.

It was suggested at the end of the last section that the Roman complex at Prior's Meadow may have originated in the Iron Age. The Iron Age evidence is very scanty but the Roman evidence is much more abundant. The map accompanying a report on the discoveries of fragments of three ritual crowns and a coin hoard (UA3-5) by Painter (1971, 319-321) shows nine dense scatters of Roman pottery in the vicinity (now part of scheduled site 179). Air-photographs examined in connection with the Fenland Survey show the site complex (U3) is considerably larger, probably extending over 9 ha. In addition to the coin hoard at UA5 (515 antoniniani, latest date AD 272), another hoard has since been reported from slightly further north (at UA7 near Frognall): 3000 coins, said to date to about the mid-third century AD, were found together with Roman pottery and pieces of chain and harness.

The projected course of the canalised stretch of the Welland described above (Deeping St James 15) runs through the locations of the finds of metalwork and the Prior's Meadow complex observable on air photographs (U3). The artificial watercourse has not been directly dated but it can hardly be doubted that it is Roman. The course of the medieval Welland, along the Washes and through Crowland, is clear, and there are no grounds for suspecting a Saxon 'canal'. It is possible that the first attempts to control the Welland were made in the Late Iron Age but there is no evidence for this. Air photographs show a substantial complex of ditches, and presumably settlement areas, near the probable junction of the natural Welland and the artificial cut. These, together with the chance finds of coins, pottery and pieces of priestly regalia, all point to a centre of some importance. It is unfortunate that a discovery in 1740 cannot be located more precisely than in the river Welland, somewhere in Deeping, because the finds included two Roman swords, two daggers, and the iron frame of a *vexillum* (see UA10 in the Gazetteer, Deeping St James). These perhaps indicate military activity, even a skirmish, at this strategically important location.

VII. Saxon and Medieval

There is a striking contrast in the survey results between the Roman and the Saxon periods. No Saxon sites were found. There was not even a single piece of Saxon pottery among the sherds (in excess of 2000) collected on the Roman sites. Translated into human terms this means that the landscape was completely transformed. There were no longer any houses on a part of the fen margin which had been occupied almost continuously for the previous 2500 years. It is true that at times in the past there would have been only a few inhabitants, perhaps even some temporary periods of abandonment, but there had been nothing to compare with a complete abandonment of settlement which was to last for nearly 1500 years.

Although this part of the fen margin had no permanent inhabitants it would still have been used. The Survey area does not extend far enough westwards to provide proof, but there is every reason to suppose that there were Early and Middle Saxon settlements in the vicinity of the present-day village of Market Deeping, at least as far east as the presumed line of the Car Dyke. The medieval picture is much clearer. The Survey area was used for hay production (meadowland) or pasture by people who lived in Market Deeping, Deeping St James and Frognall.

The depopulation of part of the fen margin and the reorganisation which produced the medieval landscape are remarkable phenomena. When viewed from the perspective of an ordinary inhabitant of the fen-edge in the Deepings the changes that occurred when the Roman period ended appear to have been much more disruptive and disagreeable than the changes brought about by the Roman Conquest. In the Deepings, as in the other parishes discussed in this volume, there is an element of doubt as to the extent of the Late Iron Age settlement of the fens and fen-edge. Lane (1988) has noted the scarcity of Late Iron Age pottery in the area but has used other factors, including the frequent discoveries of Middle Iron Age type pottery on sites of the Roman period, to suggest that a Late Iron Age phase does exist but the pottery has, so far, escaped positive identification. Further work is needed, but unquestionably the transition from Late Iron Age to Roman appears to be one of continuity, expansion and increased material prosperity. In contrast, the Roman to Saxon transition seems to involve discontinuity and contraction.

The date and reasons for the abandonment of the Roman sites remain uncertain. Most of the sites have a wide range of pottery, including earlier and later greywares, samian and colour-coated pottery, but no Early Saxon material. They survived until after AD 275 but must have been abandoned by AD 450. It could be argued that the hoards of coins and other metal objects are signs of political disruption in the later third century, but it is debatable. The sites could have been abandoned by AD 300 or AD 400. The process could have been sudden or gradual. The reason could have been political, economic, environmental, or a combination of factors. It is not safe to reach a firm conclusion on the present evidence.

One consequence of the abandonment of the Roman settlements must have been a failure to maintain the artificial course of the Welland, leading to a renewal of seasonal flooding. Eventually, the artificial course filled up with sediment and disappeared as a landscape feature. The river followed a new course, or became confined to what had previously been a distributary channel, closer to the Crowland peninsula.

It seems probable that parts of the Survey area in the Deepings that were reasonably dry in the Roman period became distinctly wetter, perhaps leading to the formation of peat on the surface, in Saxon times. In addition to the renewal of flooding by an uncontrolled River Welland, the depth of peat in Deeping Fen may have increased as fen conditions spread across land which had previously been saltmarsh.

The restricted area of the Survey and the lack of archaeological evidence make it impossible to be certain about these suggestions, or to produce a satisfactory map of the Saxon and medieval landscape. There is some documentary evidence to support the suggestion that at least some of the land suitable for settlement in Roman times had become waterlogged by the Norman Conquest. Hallam (1965, 116-118) published the historical evidence for the creation of the township of Deeping St James some time before AD 1130. The document in question is apparently in some respects a 'blatant forgery', intended to support claims by the Abbey of Crowland to dominion over the Deepings, but Hallam still considered the

historical event to be basically correct. Parts of the description in the translation used by Hallam (1965, 116) do seem to ring true and are worth quoting:

> 'Richard de Rulos, who had married the daughter and heiress of Hugh de Evermue, lord of Bourne and Deeping, was greatly devoted to agriculture, and much delighted in the multitude of his horses and cattle. When, in order to enlarge his township of Deeping, he was disposed to enclose a large portion of the common fen, and to make several meadow and pasture ... he enclosed from the chapel of St Guthlac, which the brethren of our monastery had built there, when the said township was ours, before the coming of the Danes, all his land on the east up to Cardyke, and then over Cardyke up to Cleilake, outside Crammor. He shut off the river Welland by a very strong embankment, because every year it used to overflow almost all his meadows lying by the bank of the said river with continual inundations, and thus that township was in former times called Deeping, that is, the deep meadow. He built upon the dyke a number of tenements and cottages; in brief, he formed a large township, allotted gardens, ploughed up fields, and in meadows which were recently deep lakes and impassable marshes he found, by shutting out the river, most fertile fields and desirable land, and out of pits and sloughs accursed he made a pleasure garden.'

These events are said to have taken place around AD 1076. Although not completely trustworthy, the account suggests that Early Saxon settlement was west of the Car Dyke (in Market Deeping), with a pre-Danish chapel founded by Crowland Abbey. Deeping St James was used as fen by commoners until it became a new township, in reality an extension of the old township. Meadows were a major element in the agricultural economy, and cattle and horses were important animals. Prevention of flooding by embanking the river was the key to recovering the land formerly settled in Roman times, drainage as such was apparently not required.

VIII. Conclusion

Although only a small part of the Deepings could be included in the Survey, the fieldwork that was carried out provided invaluable evidence. When added to the information from Crowland and Deeping Fen, the results illuminate the development of a part of the Lincolnshire Fens which is rather different from most of the areas discussed in this work. The marine alluvium (silts and clays) that are so characteristic of the South Lincolnshire Fens are virtually absent from the Deepings. Here the physical landscape rests on gravel, in parts affected by peat, with patches of clayey river alluvium deposited in the past by the river Welland. The river has exerted a powerful influence on human activity in the Deepings, which occupy a strategic location at the junction of the Welland Valley and the Fens.

Evidence for Mesolithic activity was as elusive as elsewhere in these Fens. Neolithic people were represented mainly by lithic remains, and one sherd of pottery. Archaeological evidence for human activity remains scarce until the Early Bronze Age. In addition to pottery, domestic or funerary, the survey discovered a significant new barrow cemetery. At least a dozen round barrows were found, right on the edge of Deeping Fen: the Lincolnshire counterpart of the dispersed barrow cemetery found by Hall on the edge of Borough Fen in Cambridgeshire.

The archaeological evidence produced by the survey points to a decline in human activity in the Late Bronze Age/Early Iron Age, perhaps even temporary abandonment of parts of the fen margin. This is interpreted as due in some way to an environmental catastrophe: the inundation of Deeping Fen and the burial of the old land surface under marine silts and clays. This interpretation is reinforced by the important negative evidence obtained for the Middle and Late Iron Age, no saltmaking sites were found on the edge of Deeping Fen. The archaeological evidence places the deposition of the marine sediments in Deeping Fen after the construction of the Early Bronze Age barrows and before the Middle Iron Age, with a high probability that the main sedimentation phase occurred in the Middle Bronze Age.

The Middle Iron Age saw the establishment of several of the fen margin settlements which prospered in the Roman period. The sites appear to be artificially mounded, suggesting that the Welland occasionally flooded the fen margin. Continuity of settlement through the Late Iron Age is problematical. The fen margin was not totally abandoned, but an absence of the fine wares found on upland sites such as Ancaster and Sleaford may indicate a decline in population or prosperity on the fen-edge.

The Roman period was, in general, a time of settlement expansion and prosperity, though no doubt with contrasting episodes not detectable at this scale of investigation. The Welland was brought under control by means of an artificial watercourse across the fen margin, starting near what seems to have been an important settlement complex, possibly originating in the Late Iron Age, in the Prior's Meadow area of Deeping St James, immediately west of the survey area. A very old record of the discovery of Roman military equipment in the river Welland somewhere in Deeping suggests military activity at or near the lowest dry-land crossing point of the Welland.

All the Roman sites were abandoned, but the date of and reasons for the abandonment remain obscure. No Saxon material was found in the Survey area. People ceased to live in the Survey area between about AD 275 and AD 425, and it remained empty for nearly 1500 years. The Welland probably resumed uncontrolled flooding and found a new course. Documentary evidence, though not wholly to be trusted, indicates that the first Saxon settlements were further west, near Market Deeping village, but that soon after the Norman Conquest, the Welland was brought back under control. Settlement then extended to Deeping St James and Frognall. The Survey area seems to have been valuable meadow land but remained uninhabited until post-medieval enclosure and the first attempts to drain Deeping Fen.

18. Crowland

I. Introduction
(Fig. 115)

Crowland, formerly Croyland, is a large parish of some 5443 hectares (13450 acres) abutting the Cambridgeshire border, about 10km north of Peterborough. The town and the remains of Crowland Abbey stand on gravel at the north-east extremity of a long, narrow promontory, or peninsula, surrounded by fen deposits.

The peninsula, a terrace of a proto-course of the River Welland, is marginally higher and wider at its eastern terminal, giving rise to the notion of Crowland as an 'island' although it is connected to the fen margins at Peakirk, some 7km to the west, by a narrow ridge of gravel.

Its initial description as an island comes from Felix, the 8th-century biographer of St Guthlac. Following his topographical description of the Fenland as an area of 'immense marshes, now a black pool of water, now foul running streams, and also many islands, and reeds, and hillocks, and thickets, and with manifold windings wide and long', (quoted in Darby 1956, 8) Felix tells of a man named Tatwine who knew of a particular island 'especially obscure' within the 'wide wilderness' that was the Fenland at that time. It was to this island, Crowland, that he ferried Guthlac in AD 716. Traditionally this is the date associated with the founding of Crowland Abbey though for some, including Hallam, H.E., (1965, 164) a date in the 10th century is preferred. Whatever its origins the Abbey is known to have been well established by the time of the Norman Conquest.

The Abbey church buildings remain an imposing landmark in the generally level landscape. Surrounding the Abbey are many, mainly post-war, housing and industrial developments which all but obscure the gravel surface of the peninsula and with it, the archaeology. Pre-twentieth century accounts of Crowland have implied the existence of many early features including a barrow cemetery and even a possible chambered tomb. Among the most remarkable of the surviving monuments is a medieval tripartite stone bridge under whose western arch the waters of the canalised course of the River Welland entered before continuing either north towards Spalding or south-east along a connecting channel to join a predecessor of the River Nene.

The bridge now stands high and dry for the Welland has once more been diverted off the gravel. The river and its adjacent Washland are major features of the modern landscape.

Crowland's modern parish boundaries almost precisely follow those set out to delimit the precinct of the Abbey. Great and Little Postland are names said to have derived from the precinct (Hallam, S.J., 1970, 35). These areas, like Crowland Common, are sparsely populated. Away from the town, habitation is mainly in dispersed farmsteads, with small centres of population at Dowsdale and The Engine, the site of an early 19th century steam powered drainage machine.

II. Topography

Other than those formed on the peninsula the surface soils all derive from Flandrian alluvium. Crowland Wash is composed of peat intermixed with recent freshwater alluvium deposited during frequent and lengthy inundations from the Welland.

West of Crowland Wash and the modern course of the Welland lies the drained and shallow peat of Crowland Common. The underlying roddons of the prehistoric course of the Welland and its tributaries are visible through the shrinking peat.

Great Postland, east and north of the gravel, is a large tract of marine silty clay sediment which contains an intricate network of extinct creeks. Soil here is locally humose, particularly near to the gravel and the Welland. Elsewhere, the extensive peat which blanketed the Great Postland area from the Iron Age to the Middle Ages has completely eroded.

At the north-east, towards Little Postland, the clays and roddons range into a higher expanse of marine silt. This is generally pre-Roman in origin and rectilinear cropmarks of Roman fields and settlements can be seen on air photographs of the area.

III. Fieldwork
(Fig. 116)

Fieldwork was conducted between January and April 1983. By the time survey commenced in Crowland many of the fields containing oilseed rape, and also certain of those with autumn sown cereals, were too overgrown to be surveyed. Other than on these fields survey in the fen was remarkably complete but less so on the gravel where urban development prevented access to much of the central area.

Extensive areas of Great Postland and Crowland Common were found to be devoid of surface finds. Coverage here was relatively speedy, though slower in parts of Great Postland where the roddon pattern was, in places, often indistinct. There were areas, particularly at the northern end of Great Postland, where it appeared that the roddons had been deliberately levelled, a practice which a number of local farmers made reference to during discussions concerning access.

Much of the siltland at Little Postland was walked at 30m but conditions were seldom ideal and many fields had much of their surface obscured by the growing crops.

IV. Mesolithic-Early Bronze Age
(Fig. 117, Plate IX)

In chapter 1, V. it was noted that the use of the soil scientist's terms for Fenland marine sediments (*e.g.* Barroway Drove Beds) would be avoided in this publication. These terms have, however, been used by Hall (1987) in his corresponding study of the Cambridgeshire Fenlands. Where possible the terms used by Hall have been related to the lithographical descriptions used in the Lincolnshire Survey in Crowland parish, adjacent to Borough Fen, Cambridgeshire.

Until recently, a Neolithic date had generally been attributed to the deposition of silty clays in the southern Fenland (*e.g.* Godwin 1978, 60) classified in the literature

as Fen Clay or Barroway Drove Beds. However, recent research by the Fenland Project palaeoenvironmentalist has demonstrated a wider range of dates for the deposition of this type of sediment within the embayments of the southern Fenland (Waller 1988, 337-8). The precise date of the marine flooding in Borough Fen which adjoins Crowland to the south is yet to be established, but it may have occurred sometime in the Late Neolithic (Hall 1987, 21).

In Crowland the rare (for Lincolnshire) occurrence of one roddon cutting another was noted near Green Bank. It would appear that the later of these channels took a new course at this point when the channel of the main river leaving Borough Fen had become silted. It is not known how long after the main channel had become silted this diversion occurred, but the later roddons are most likely mid 2nd millennium BC in date. Prior to that the main Neolithic channel which drained Borough Fen flowed alongside the Crowland peninsula before turning east between Green Bank and Green Drove. Marine and freshwater alluvial deposits mask its earliest seaward course, but its main channel is unlikely to have been very different from the course adopted by the late channel. If the Borough Fen marine episode is Neolithic in date, by the time of the mid 2nd millennium BC floods, peat would most probably have formed above the marine sediments and pushed north into Crowland.

By late in the Neolithic and early in the Bronze Age, deteriorating conditions would have left the peninsula as a narrow, well-defined feature, a dry, elevated spur surrounded on three sides by a landscape that became increasingly boggy, inhospitable and inaccessible.

Unfortunately, building development in the area of the modern town has left little of the gravel area available for survey so the full extent of the prehistoric and later activity cannot now be established. Instead, reliance has to be placed on antiquarian accounts which provide sometimes vivid, though more often vague, information about the past.

Some Neolithic presence is known in the form of stone axes (CRO UA3 and 7) and flints (CRO UA6). From this flint site a few fragments of pottery were found and these have early prehistoric characteristics. The site is now developed.

A barrow cemetery, presumably dating from the Early Bronze Age, was constructed along the axis of the peninsula. Local SMR's and notes in the Spalding Gentlemen's Society, record the 'taking down' of a tumulus (CRO U6) in 1880. It was 'one of a series which are situated in a line running directly northeast from the Abbey to the hill in Anchorage Field (CRO 42) and southwest from the Abbey to the Steam Mill Lot'. Among the finds from the destroyed barrows and its surroundings were 'rude pottery found in a ditch, cinerary urns (including Roman ware), an urn of lightly baked pottery containing the ashes and calcined bones of a human being, flint spearheads and arrowheads, borers, scrapers, knappers, rubbing stones and a bronze celt'. S.J. Hallam (1970, 274-5) lists evidence of further destruction of mounds in Crowland. One of the last to go (CRO U7, Pl. IX) was severely damaged during construction of the Crowland by-pass and only CRO 42 is known to survive, and that in low relief. It has the conspicuous remains of a medieval building visible on its crest (Plate IX). Barrows are relatively common along this part of the fen margin. Up to thirty are known immediately to the south in Borough Fen (Hall 1987, 26) and others were recorded alongside Deeping Fen (Figs 100 and 111).

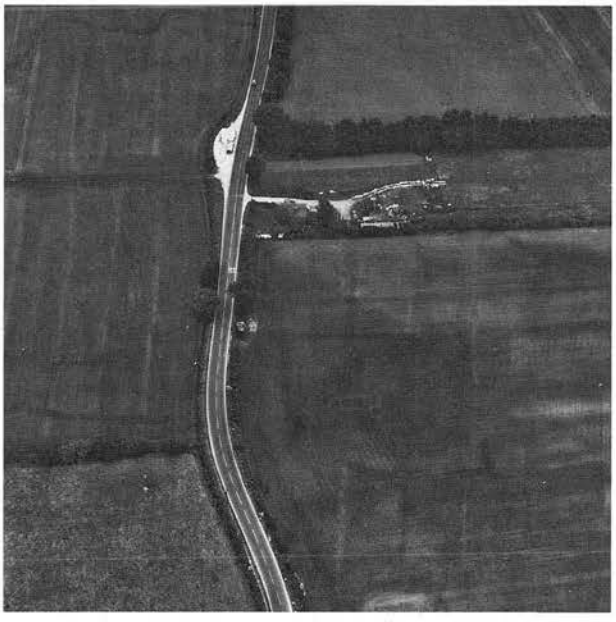

Plate IX Crowland. The marks at the bottom are almost certainly the result of post-medieval gravel extraction. They cut a Bronze Age barrow (CRO U7) which itself has since been affected by construction of the Crowland by-pass. A second, less conspicuous barrow (CRO 43) can be seen further north underlying a medieval building whose distinct foundations outline four rooms. Traces of an aisled extension, or maybe an earlier, more modest construction lead off towards the top of the plate. A ditched enclosure surrounds this complex. *Cambridge University Collection; copyright reserved (AYC 9)*

Further prehistoric activity is known from the same field as CRO U6 and gravel quarrying in the early 1880's revealed 'a layer about 2 inches thick of pure black flint chippings containing many thousand fragments'. These were apparently from a semi-circular hollow about 12 feet across and from 20 inches to 2 feet deep (TLASMR).

An additional and enigmatic feature reveals itself in an early biography of Guthlac. 'There was, on the island, a great mound raised upon the earth' and on one side 'a place dug, as it were a great cistern' (Goodwin, 1848, quoted in Hallam 1954, 5). Whether this description is of a chambered tomb cannot be certain but it helps to indicate that Guthlac's island was more than just an ordinary retreat of dry land within the deep fens; it was a place of prehistoric ritual and burial symbolised by the imposing mounds. Doubtless it created an atmosphere of mystery and wonder conducive to the holy man's self-interrogation, spiritual contemplation and religious worship.

V. Middle Bronze Age

(Fig. 118)

Between Morton and Crowland there exists a regular pattern of extinct creeks, all directed towards a common estuary near Spalding and indicative of marine flooding. A date around the mid 2nd-millennium BC is postulated for this active phase of flooding during which a silty clay

was deposited, of the type classified in North Cambridgeshire as Upper Barroway Drove Beds (Hall 1987, 6-8).

South of the prehistoric course of the River Welland through Crowland Common and the Crowland peninsula the pattern changes and there the creeks drained east towards a broad band of estuarine silt which extends from Great Postland for some 4.5km across to Gedney Hill.

Nothing has been found on the peninsula that is contemporary with the major flooding and, given the unpleasant and unusable state of the surrounding tidal flats, it is likely that Crowland became abandoned.

VI. Iron Age

(Fig. 119)

By the Iron Age the peat, which had already developed along the western fen margins and around the peninsula, would have been expanding eastwards over the silty clay marine sediments.

In Little Postland, to the north-east, a broad band of silt, in total some 2-3km wide, was forming during the late prehistoric period. Its presence most likely represents an unstable estuarine area that flooded sporadically and unpredictably throughout the Iron Age. By the Roman period it had stabilised sufficiently to enable systems of ditched enclosures to be laid out.

Towards the eastern end of the parish, Middle Iron Age and one sherd of Late Iron Age pottery was found near the junction of the silt and the larger roddons. One Iron Age saltern (CRO 32) was also identified from among the more common Roman equivalents. Briquetage in Crowland was found to be generally more homogeneous than that found in other parishes and it is possible that more of the sites are Iron Age than has yet been identified.

The one saltern identified as Iron Age was part of a group of sites including CRO 26 and CRO 27 which yielded prehistoric sherds. CRO 14 had fifteen Middle Iron Age sherds and CRO 7 had one of the few definite Late Iron Age sherds found during the survey. CRO 21 and CRO 23 are both dark sub-circular soil marks containing animal bones and a few sherds of hand-made pottery that are probably Iron Age in date. CRO 1 has a few Iron Age sherds but is chiefly a Roman saltern.

Overall, the Iron Age sherds occupy the periphery of the silts. Further east at Shepeau Stow (TF 3050 1160) wheel-made carinated pottery of apparent Late Iron Age date has been located in a black layer below the surface by a retired farmer. This layer is buried by 1.5m of silt and serves to emphasise the localised nature of sediment deposition.

One Iron Age site (CRO U4) is known from the edge of the gravel. A further, intriguing record relates it to the discovery of Early Iron Age pottery, 4th century Roman and post-medieval wares ploughed from a mound *c.* 30m diameter (CRO U11) sited in Crowland Wash (TLASMR). The mound lies away from the area of barrows and could represent an early saltern, similar to, but more prominent than those found in Cowbit Wash to the north. Its proximity to the Wash bank cannot, however, wholly preclude it from being connected in some way to the construction of the Washes and having re-deposited finds. It has now been levelled.

VII. Roman

(Fig. 120)

Iron Age sites on the silt margins formed the skeletal pattern of settlements and salterns which the Romans greatly expanded. There is, however, a total absence of settlement between the gravel on which the modern town stands, and the east end of Great Postland, a distance of 5km. This would have been an expanse of unreclaimed fen. Similarly, there is no evidence of settlement from the deep peat of Crowland Common.

Little Postland was the focus of Roman settlement in Crowland, although it forms only the western part of a larger settlement area extending across a broad band of silts into Whaplode and Holbeach. Settlements extended in an arc on the silt of Little Postland. Cropmarks of enclosures and field systems relating to these sites indicate that no further deposition of sediments took place after the Roman period in those parts of Little Postland.

Analysis of the Little Postland pottery suggests that the sites in the east (*e.g.* CRO 15, 17, 38) continued in use for a longer period than those on the western silt margin which appeared to have flourished early in the period but did not always continue.

Little was found to indicate settlement on the gravel. Because of the minimal fieldwork coverage that is not surprising, but even so, it remains doubtful whether this end of the gravel was used extensively for habitation. The spur may have been useful as a drove enabling seasonal access to the fen for grazing and perhaps as a transport terminal, the shortest link between the fen margin sites and those on the silts at Little Postland.

One site (CRO U4) is known from the gravel. Elsewhere there are isolated sherds and a coin (CRO UA5). Also of note is the Roman cinerary urn found in the demolished Bronze Age barrow at Steam Mill Lot (CRO U6). An interesting find was made in the late 19th century of twenty or more querns from 'Crowland Common' (Hallam, 1970, 274). It has been suggested that these represent the cargo of a (sunken?) boat. The Roman course of the Welland was through the Common and provides a likely provenance for these otherwise unlocated finds. Water-borne transport was not the only way to traverse the fens. Roman causeways are known from other parts of the Fenland though none that can be dated accurately to the Roman period are represented in Crowland.

Skertchly (1877, 247) recorded one causeway of uncertain date at the edge of the Crowland gravels. It consisted of closely packed stakes of sallow which appeared to be floored with brushwood upon which was laid gravel. It was found *c.* 6 feet (1.9m) below the level of the peat and was associated with large quantities of bone, chiefly *Bos longifrons, Sus scrofa* and also deer and beavers teeth. The man-made artefacts consisted of a single bone pin and a jet disc ornamented with a rude intaglio figure.

S.J. Hallam (1970, 318) suggested that a system of roads, droves and watercourses covered the area in the Roman period, and indeed refers to an 'artificial watercourse network centred on Crowland'. She also identified a 'limiting drove' from aerial photographs. This was marked by two parallel ditches extending in two sections over about 4 miles (6.5km) and was suggested as the limit, or boundary of Roman settlement towards the peat fen. Since, however, the line follows a landscape boundary, between peat and high silt, which existed in Roman,

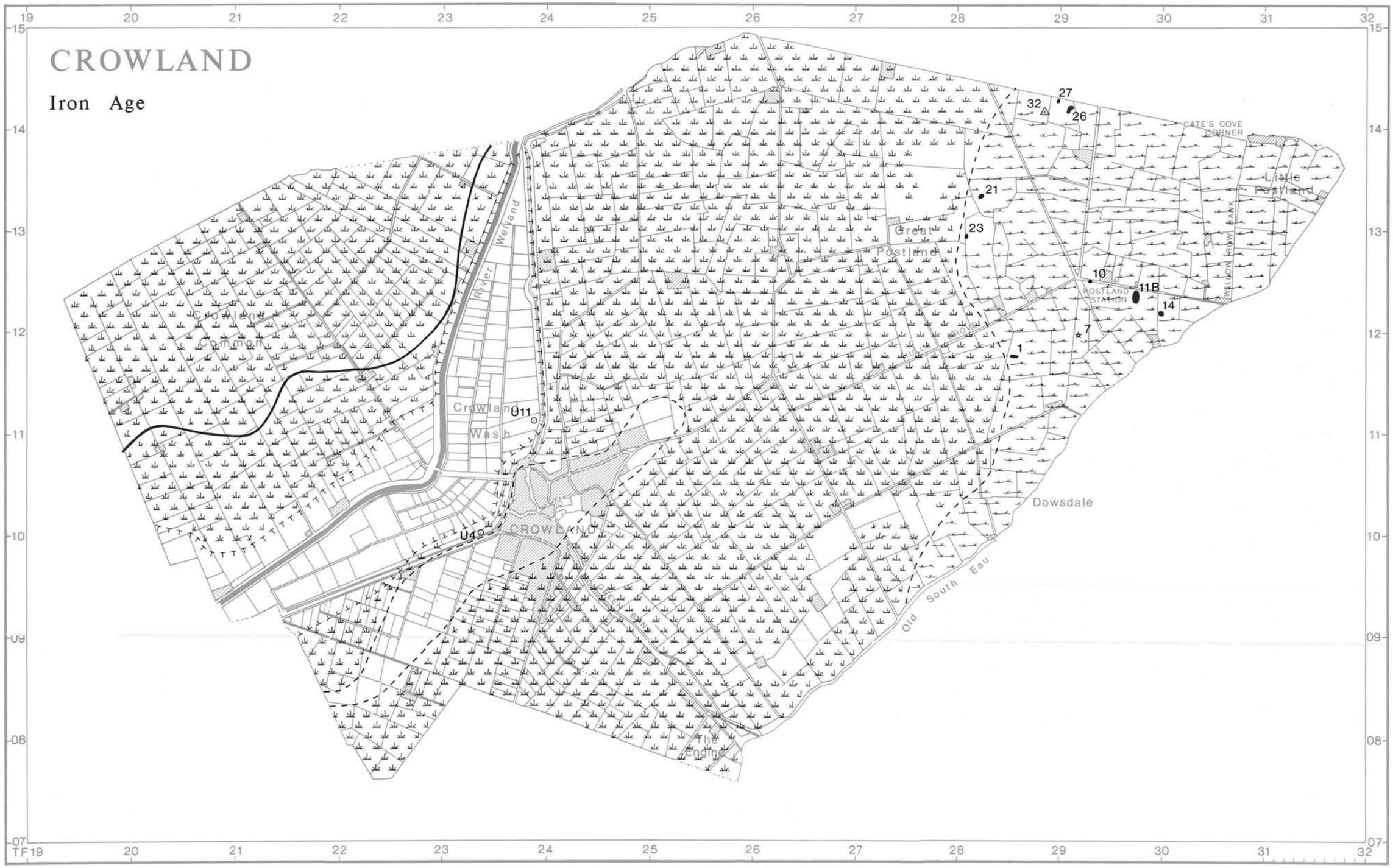

Figure 119 Crowland: Iron Age

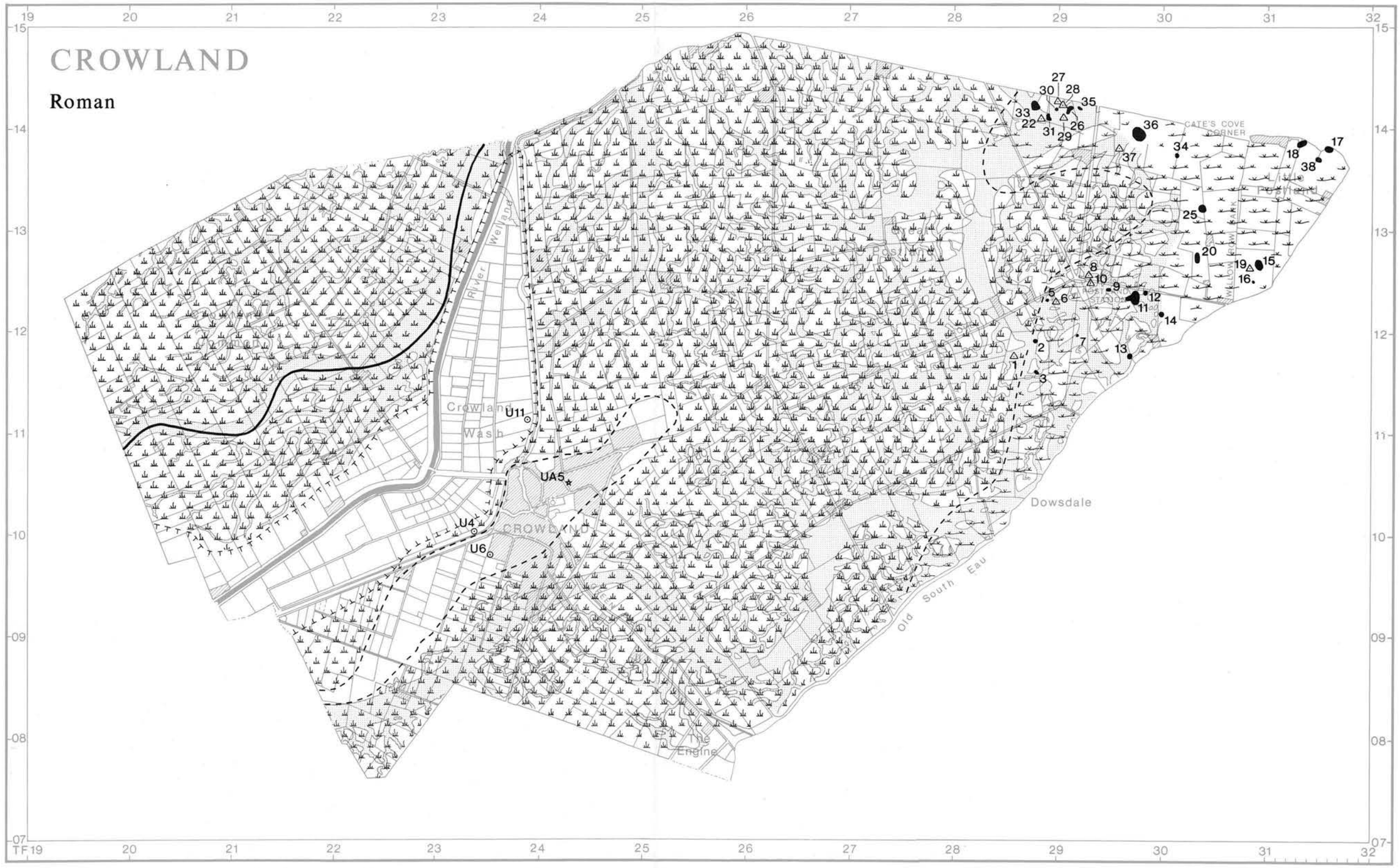

Figure 120 Crowland: Roman

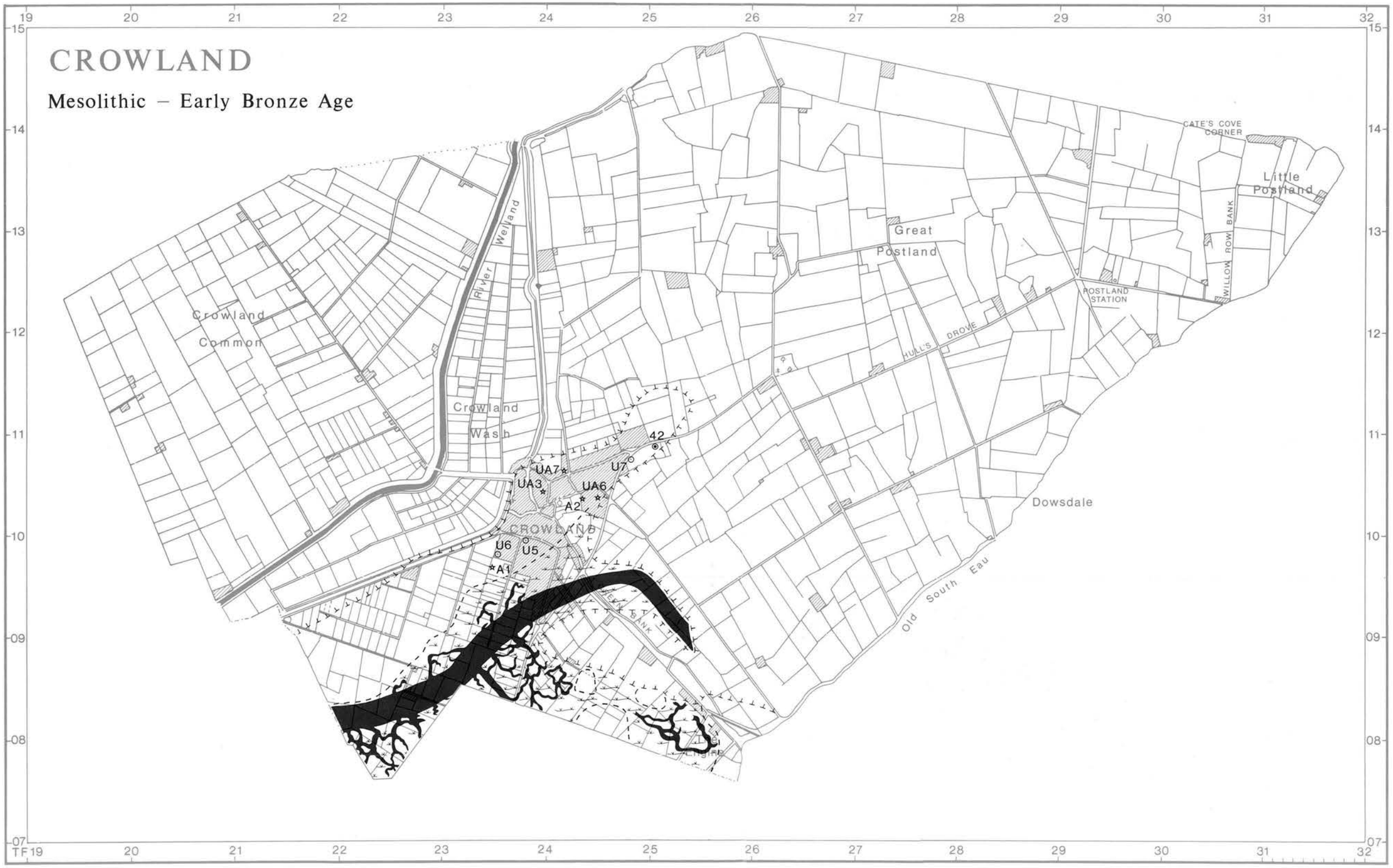

Figure 117 Crowland: Mesolithic — Early Bronze Age

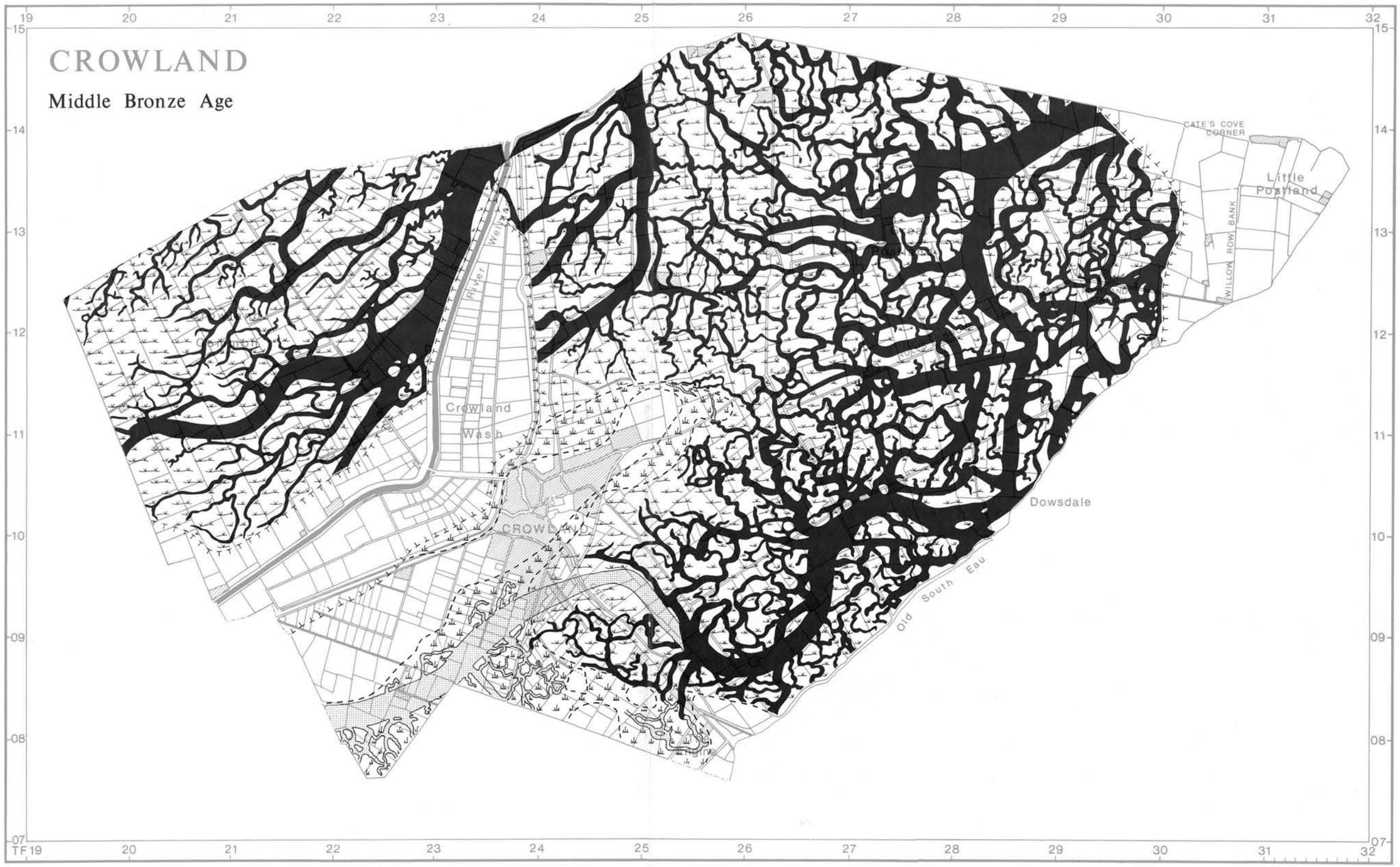

Figure 118 Crowland: Middle Bronze Age

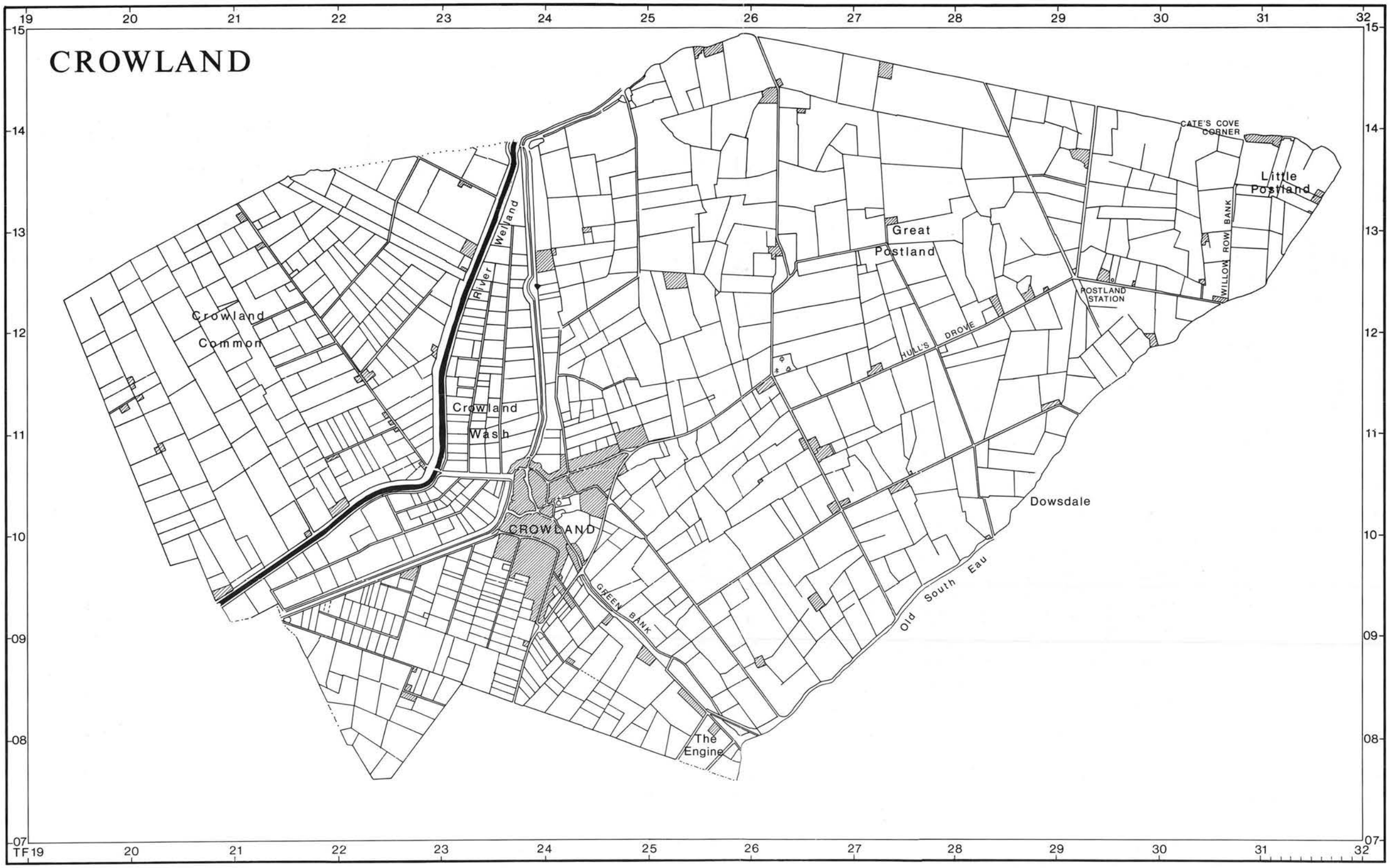

Figure 115 Crowland: The modern landscape Scale 1:40,000

Figure 116 Crowland: Fieldwork intensity

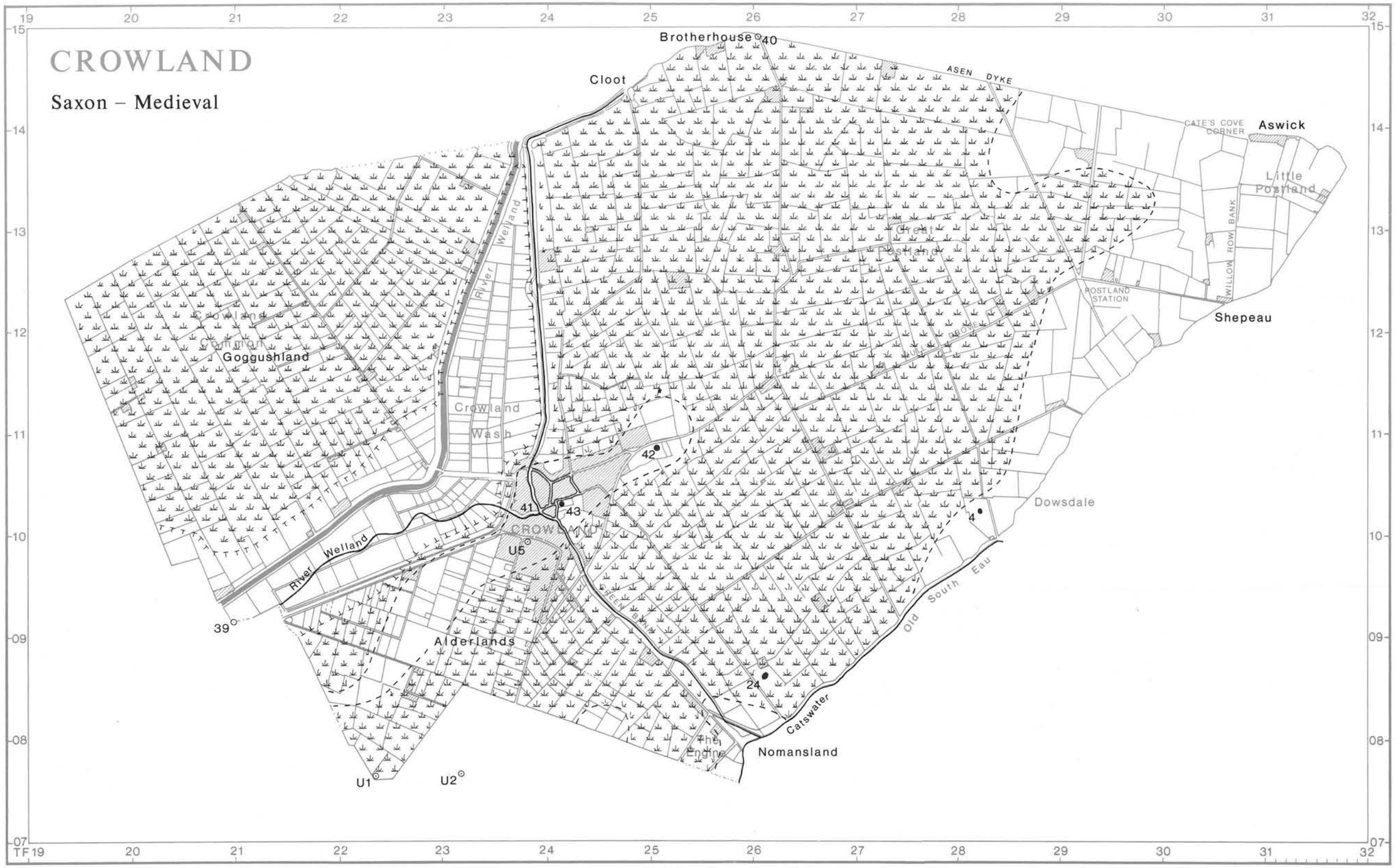

Figure 121 Crowland: Late Saxon — Medieval

Saxon and medieval times, the dating of each section is not clear cut. Given the Roman penchant for constructing ditched enclosures and linear features and, more importantly, the relationship of the features to the known Roman pattern the limiting droves are most acceptable as part of a Roman layout. A course along this landscape junction makes their function as 'droves' unlikely, but the position they occupy would have been ideally suited to that of a defensive fen bank offering habitation sites some protection from the encroaching fens, and similarly guarding the salterns from inundation and the diluting effects of freshwater.

Dating the watercourses in Hallam's system is difficult. Essentially the Welland from Crowland northwards to Spalding has been artificially straightened. At the medieval triangular bridge in Crowland it formerly joined two other watercourses. One of these was simply a continuation of the Welland to the south-west. The other was a channel which ran south-east, near to Green Bank, to join the Catswater at Nomansland. From the information collected on this survey this re-routing of the Welland would appear not to be of Roman but Late Saxon date, for Crowland seems to be of relatively minor importance during the earlier period. In contrast, the Abbey was the centre of a large, highly productive and market-orientated agricultural unit, for which direct water transport would have been a valuable and indispensable asset. Early building work on the Abbey itself would have benefited greatly from the canalised course onto the island and the Barnack Stone said to have been used in its construction could have been ferried directly along the Welland virtually to the doorstep.

VIII. Late Saxon—Medieval

(Fig. 121)

The Saxon and medieval history of Crowland is largely that of the Abbey. Traditionally this is held to have been founded in AD 716. H.E.Hallam (1965, 165), among others, refutes this and supports a probable date in the reign of Edgar in the late 10th century. The foundation cannot have been later than about AD 970 because the Abbey received Dowdyke Grange, near Bicker Haven, at that time (Hallam, H.E., 1965, 42).

Crowland was not included in the royal survey which formed the basis of the *Domesday Book* (1086), although the Abbey is named as a landholder in other areas. Exclusion from the *Domesday Book* indicates that, by that time, the Abbey was well established and in control of the township and the precinct.

The chronicles of pseudo-Ingulph, a Crowland scribe who produced a falsified history of the Abbey's affairs, describe the boundary of the Abbey lands through Crowland Common 'north of the Welland to Wenwarlake, and so to Warenholt and thence upland through the waters as far as Mengerslake and so through hurtlake . . .', (Riley, 1854, 318) so suggesting the Common (then called Goggushland) was a watery area of interconnecting pools and meers. More evidence of the peaty nature of the medieval Common is recorded in 1415 when the men of Spalding did much damage to turf, sedge and bulrushes in 'Goggisland' (Darby, 1956, 91).

Despite this seemingly wild condition some management and drainage had taken place in the fens of the Precinct by 1438 when a presentment against the Abbot of Crowland was heard by the Commissioners of Sewers in Wainfleet. They agreed that 'time out of mind' the Abbot had repaired and should continue to repair a bank along the Welland from Brotherhouse to Plantefield in Thorney. Other banks are mentioned; from Cloot to the side of the Abbey (Wynter Dyke) and from 'Shepes Ee' to Asendike (Coles 1772, 217).

Other banks in Postland are recorded (*e.g.* Riley 1854, 396; Owen 1968, 95). These may have divided portions of the valuable fens of Great Postland in order to isolate and protect the various sources of fen wealth, the hay meadows from the fisheries for instance, or the turbaries from the reed beds. Banks may have been constructed to aid conservation of the fen conditions and would also have served as reminders to the Men of Holland as to who rightfully owned the exclusive rights to the area. Some of the modern roads through Postland are most probably based on this medieval layout. The cropmarks of a triple ditch resembling the traces of Asendike extend across Postland. They appear to be a continuation east from Postland Station and connect with Willow Row Bank. The Records of the Commissioners of Sewers record Pursam (Precinct?) Bank as extending from Dowsdale to Croyland, then to Brotherhouse and then to Catchcold (probably Cate's Cove Corner near Aswick), and then to Shepeau (Owen 1968, 73).

The villages on the siltland north and east of Crowland had increased their arable, pasture and meadowland steadily between the Conquest and 1300, by reclaiming land from both sea and fen. But reclamation simultaneously diminished the common grazing land which was a vital part of their economy. Reclamation was an intensification of land use, not the creation of new land from an unused wilderness. Hallam, H.E. (1965, 25) gives the Prior of Crowland's continuation of the pseudo-Ingulph, which documents the outcome of this process.

> 'But the men of Holland, who are our neighbours on the northern side, strongly desire to have common on the marsh of Crowland. For since their own marshes have dried up (each village has its own), they have converted them into good and fertile ploughland. Whence it is that they lack common of pasture more than most people, indeed, they have very little'.

This lack of common pasture led to an invasion of the Precinct of Crowland by the men of Holland in 1189, when 3,000 people moved onto the fens around Crowland. There followed a famous and lengthy lawsuit, finally resolved in favour of the Abbey by a Charter of King John in 1202, which confirmed the Abbey's rights to the Precinct.

Large scale fen reclamation took place in the neighbouring parishes of Holbeach and Whaplode around 1229-36. Aswick Grange, in Little Postland, was founded by the Abbey between 1236 and 1247 (Hallam, H.E., 1965, 35), and thus falls into the same phase of reclamation. Aswick Grange is on the silts at the edge of Crowland parish, and the areas of medieval settlement, other than Crowland itself, also lie around the borders of the parish, close to the rivers or watercourses and on the largest of silt roddons. There is documentary evidence for Dowsdale, which the Abbey began to enclose 'with great labour' in the middle of the 13th century (Darby 1956, 49), and Nomansland (near the area marked as The Engine on the Ordnance Survey maps). During survey medieval sites were found in both of those areas. Documentary evidence for Cloot and Shepeau was

paralleled by only a few sherds of pottery. No medieval pottery was found at Brotherhouse Bar, but the location of the documented settlement of Brotherhouse is unlikely to have been available for survey. Indeed, all of these subsidiary settlements and granges lie on or just outside the parish boundary, in areas much disturbed by the construction of banks, roads and drainage channels.

Since most of the parish was fen during the medieval period it follows that the area of arable land would have been small. Again, the documentary sources support this. Hallam, H.E., (1965, 179) contrasts the dry wheatlands of Spalding and the wet, marginal lands of most of Crowland. Oats are documented as having been grown in some quantities at Nomansland (mainly in Cambridgeshire) in 1282 and 1298, and at Brotherhouse in 1310 (Page, 1934, 118). Even at Aswick Grange, whose lands included the higher silts, and which mostly lay in Whaplode, the arable was mainly devoted to legumes, barley, oats and rye. Most of Crowland would have been given over to cattle and sheep (the name of Shepeau is at least as old as the mid-12th century and may date to the late 10th century). Environmental factors are undoubtedly one reason for this. Crowland had a much higher proportion of peat and peaty clay land, suitable for grazing but not for large-scale arable, during that period. Other factors are also likely to have been involved. Crowland's population remained unusually small in relation to the land available. Production from the land was absorbed by the Abbey. It was converted into the fabric and the activities of the Abbey, instead of into an increased population. Less wheat was needed for bread, so subsistence needs did not act as an impetus to fen reclamation and drainage. Given the environmental factors, only a substantial price advantage would have justified the labour and expense needed to convert the pasture land into arable. Crowland, therefore, saw little change before the dissolution, and stands in marked contrast to its neighbours to the north and east.

IX. Conclusion

During the Neolithic period, increasing sea-level impeded natural drainage and the water of the Midland rivers ponded back to initiate peat growth. The gravel spur became surrounded, apart from a narrow strip connecting with the fen margin gravels, first by peat and later by tidal marshes. It became a finger of dry land extending into an inhospitable bog, a 7km long cul-de-sac with little allure for the living but serving as a conspicuous, well-defined garden of remembrance for the dead.

The line of Bronze Age barrows constructed along the spur marks the early phase of Crowland's relationship with religion. After their construction the barrows continued in isolation as sea floods turned the surrounding peat bog into tidal mud-flats. Slowly the marine influence subsided and freshwater fens once more developed over all but Little Postland. Some habitation and salt production took place during the Iron Age on the perimeter of the Little Postland marshes. The gravel continued to be an 'island', high, though not particularly dry, set against a backdrop of peaty pools, reeds and rushes. During the Roman period at least one of the barrows was reopened to receive a cremation urn. By this time the marshes to the east had stabilized enabling Roman occupation to take place, often accompanied by salt production. Subsequently, the area became abandoned prior to the legendary arrival of St Guthlac. Once more, a burial mound may have been re-used as Guthlac constructed his cell.

His arrival sparked off an upturn in the area's economic fortunes. It heralded the construction of the Benedictine Abbey set within its own Precinct. In addition to 'farming' in the Precinct the Abbey went on to own and profit from numerous estates elsewhere in the fens and beyond. It became an economic and political centre as well as a religious focus. It gained power and wealth. Some of this was used to instigate civil engineering projects, including re-routing the Welland on to the gravel, and constructing a connecting channel to the Catswater (Nene). The Abbey continued as a focus of wealth and Crowland never recovered after the Abbey was dissolved in 1536. Subsequent years saw changes taking place, not least of which was the arrival of the Adventurers with plans and dreams of draining the area.

Of all the Fenland parishes dealt with in this volume, Crowland is perhaps the most enigmatic. A complex but coherent pattern of soils and sediments relates to the changes in the environment. Protruding from the southwest is the gravel spur which so shaped the destiny of the parish; unfortunately its current inaccessibility for fieldwork means that it has only been possible to extract a vague impression of the archaeology, whereas, had similar surveys been conducted prior to the town's expansion it is felt that some more dramatic results would have been possible. To the archaeologist, Crowland peninsula is the equivalent of receiving a present without being able to remove the wrapping paper. We know its shape and size, but cannot quite be certain of its content.

It is altogether a curious place, cocooned in its Precinct whose boundaries have hardly changed in a thousand years. It retains the ambience of its religious and ritualistic past, something Tatwine, St Guthlac's ferryman, recognised early on for he had given up attempts to live there on account of 'manifold horrors and fears' (Hallam, H.E., 1954, 5). Hallam himself recognised it and observed that the rest of Holland considered Crowland to be 'different, something primitive and slightly alien'. Holland's uncertainty about Crowland may stem from its perpetually strained relationship throughout the medieval period when Crowland embarked upon frequent, bitter and protracted disputes with all its neighbours, but in particular the men of Holland.

The inhabitants of medieval Crowland appear to have suffered frequent 'acts of violence', or, at best, 'the haughty and threatening gestures' of their rival neighbours to the north, (Darby 1956, 86-92). It must be said, however, that, in the main, Crowland fared well in the lawsuits and legal wranglings that accompanied the feuding, due in no small part to their supply of scribes skilled in forging charters. The pen was a mighty weapon in the hands of a Crowland monk.

Perhaps these several centuries of apparent persecution, coupled with their own expansionist outlook, have helped to create the special character of the place. Perhaps it is the physical insularity that has given Crowland its sense of place. Perhaps it is the rich contemporary descriptions by visitors that have breathed some life into Crowland; accounts of 'ague stricken fen men with lustreless, opium blearied eyes' (Skertchly 1877, 54), of 'foule and flabby quagmires, yea and most troublesome Fennes, which the very inhabitants themselves, for all their stilts, cannot stalke through' (quoted in Darby 1983,

53), of 'this so famous monastery lying amongst the deepest fens and waters stagnating off muddy lands' (Camden, quoted in Miles 1965, 9). Those early post-medieval descriptions are important for, at that time, the landscape would have altered little over a period of several centuries.

Subsequently though, Crowland's lansdscape did change. Peat was fast disappearing from Great Postland. By the mid-19th century it had 'vanished from considerable tracts in the neighbourhood of Bourne, Spalding and Croyland', and Skertchly (1877, 134) went on to foresee how there could be 'little doubt that 20 years hence the peat boundaries drawn by me will include areas over which scarcely a trace of peat can be found'.

Today there is little or no peat in Great Postland and that on Crowland Common is shallow and eroding. The early prehistoric sites of the fen-edge on the western boundaries will soon lose their protective coating. Already gone is the varied vegetation which characterised the different environments; the grasses of the Little Postland marshes, the rushes and reeds of the fens of Great Postland and Crowland Common, and the cultivated plants on the strip of upland gravel. Now the gravel can be picked out by the knot of executive homes while the remainder of the Precinct is blanketed by cereals, sugar beet and oilseed rape.

The place-name Alderlands continues in use as a reminder of the once watery nature of the place, though sadly, the splendidly onomatopoeic Goggushland is now, rather blandly, called Crowland Common.

Other than the Abbey church and the triangular bridge, there is little left to indicate Crowland's once great past. However, as with many archaeological sites, it is not necessarily those with the greatest visual impact that have the best story to tell.

19. Summary of the Parish Surveys

I. Introduction

It is the aim of this chapter to summarise and combine the results of the individual parish surveys and to offer, through a series of maps, a chronological account of the development of the western fens as a whole.

On each of the regional maps the line of the Hacconby-Morton parish boundary is indicated. This boundary marks the approximate junction of the earlier (southern) and later (northern) marine transgressions and separates the areas discussed in parts 1 and 2 of this publication.

On the regional maps the modern landscape information has been deliberately kept to a minimum in order to show more clearly the changes that took place in the ancient landscape. The relationship between ancient and modern landscapes has already been given on the individual parish maps, and a location map of the parishes (Fig. 2) is provided near the front of part 1.

II. Pre—Mid 2nd Millennium BC
(Fig. 122)

Over much of the area the early prehistoric land surface remains buried by later sediments. Many early and variously intact sites and monuments are assumed to lie deep in the Fenland basin. Their current condition is dependent upon their length of exposure to decay prior to flooding, and on the abruptness, velocity and thus destructiveness of the floodwaters which overwhelmed them. Many of them are destined to remain interred beneath deep, semi-liquid silts, protected for posterity, safe from the prospect of decay, though also beyond the scope of current archaeological inquiry. Although these sites may not be a short term problem, their long term security as waterlogged sites is essential. More alarming at the moment is the immediate risk to shallower sites, particularly those sealed by the 'vanishing fen': the desiccating peat.

There is little evidence of large-scale early prehistoric activity on the upland areas adjoining the fens. Where survey extended onto the lower slopes of the Jurassic limestone, in Billingborough, and Pointon and Sempringham, only sparse scatters of flints were found. Flint scatters were equally isolated on the gravels bordering the fen. The pattern of finds suggests that prehistoric communities had no great interest in the region prior to its change to wetland. It should be noted that, in general, only the immediate limits of the marine clay soils were investigated, especially in the south. Further inland the gravels are notably rich in cropmark sites (*e.g.* in the Welland Valley, Pryor *et al* 1985, figure 3).

Although the scarcity of flints and of Neolithic and Early Bronze Age pottery may be due in part to the extent and intensity of the survey, it nevertheless appears to be significant that few non-ritual sites were found that pre-dated the mid-2nd millennium BC. However, a number of round-barrows (Early Bronze Age?) were located, more commonly in the south of the region. The true number of barrows may be higher. Barrows are known from Crowland (Fig. 117), mainly through antiquarian accounts, and on the edge of Deeping Fen at least two exist at the very limit of the later marine flooding (Fig. 122). Others may lie further east, beneath the marine clay. The close proximity of barrows to the ancient marsh is useful for dating purposes. They are unlikely to have been constructed during the period when the marsh was active and must, therefore, pre-date the marine phase.

The Market Deeping barrows are now visible as gravelly mounds protruding through the peat and freshwater alluvium. There is a good chance that the ditches of the more easterly of the barrows contain remains that have been waterlogged almost since the construction of the monuments, for the deteriorating conditions that preceded the marine phase must have commenced shortly after their construction. They are, however, greatly at risk from desiccation.

Alongside a stream in Dowsby the cropmarks of many ring ditches identify the cemetery known as Hoe Hills. Other, more geometric, cropmarks, perhaps of later square barrows (Pickering 1988, 41), are known from this cemetery and much Early Saxon pottery, including decorated sherds, has been located there during survey. The position of barrows alongside the stream at Dowsby is similar to that recorded at Thurlby where ring-ditches have also been identified well inland from the fen-edge in the valley of the River Glen (T. Zeffertt pers. comm.)

III. Mid 2nd Millennium BC
(Fig. 123)

South of Hacconby, in a landscape which had, by this time, already become watery and covered by peat, there occurred large-scale flooding from the sea. Tidal conditions reached far inland, causing sediments to accumulate. A network of creeks drained the area towards an estuary in the vicinity of Spalding. Peat would have fringed the flood-free upland but its precise limits in this period cannot be drawn with certainty from the survey evidence, for the peat later expanded several kilometres eastwards over the marine clays towards the Wash. As the Rivers Welland and Glen continued to flood into the already waterlogged basin, peat would also have crept westward onto the higher ground.

Despite an increased ground water level, Crowland would have remained essentially dry land while experiencing increasing isolation as a diminishing land-mass in watery surroundings. A narrow band of peat, not depicted, would have formed around its periphery. To the south-east peat would have begun to fill the Borough Fen embayment and progress into Lincolnshire.

It is not certain how far to the north the flooding reached, for north of the modern Glen the sediments and creeks of the southern pattern are obscured by later flood deposits (Fig. 123). The southern floods may have penetrated towards Dunsby and Rippingale in what was, in effect, a separate embayment formed by a chain of low islands, which protrude through the marine sediments. The islands extend south-east from the Pointon and Sempringham/Dowsby boundary, and continue south in the form of a partly submerged ridge of glacial clays and gravels between Rippingale and Guthram Gowt in

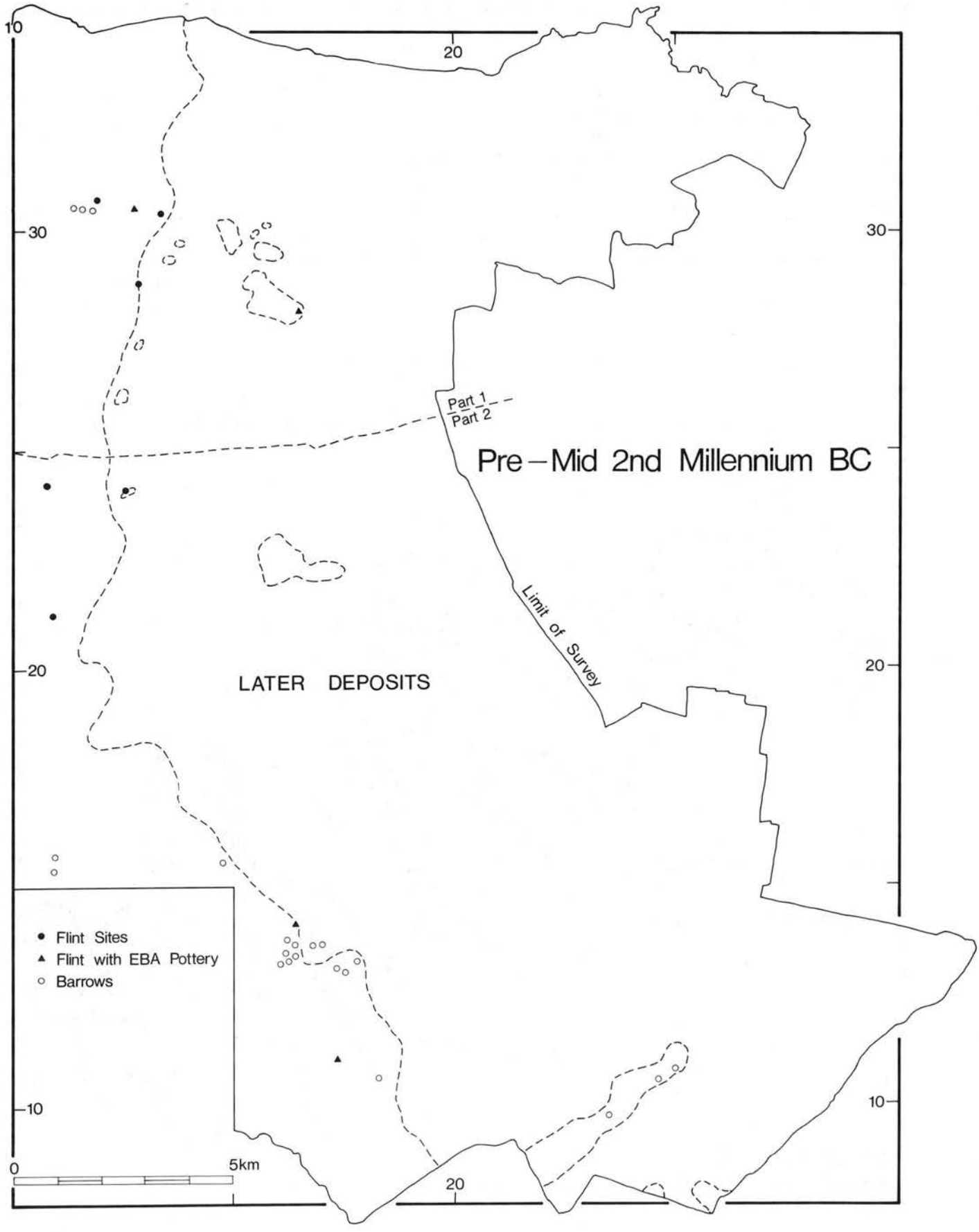

Figure 122 Pre-Mid 2nd Millennium BC Scale 1:125,000

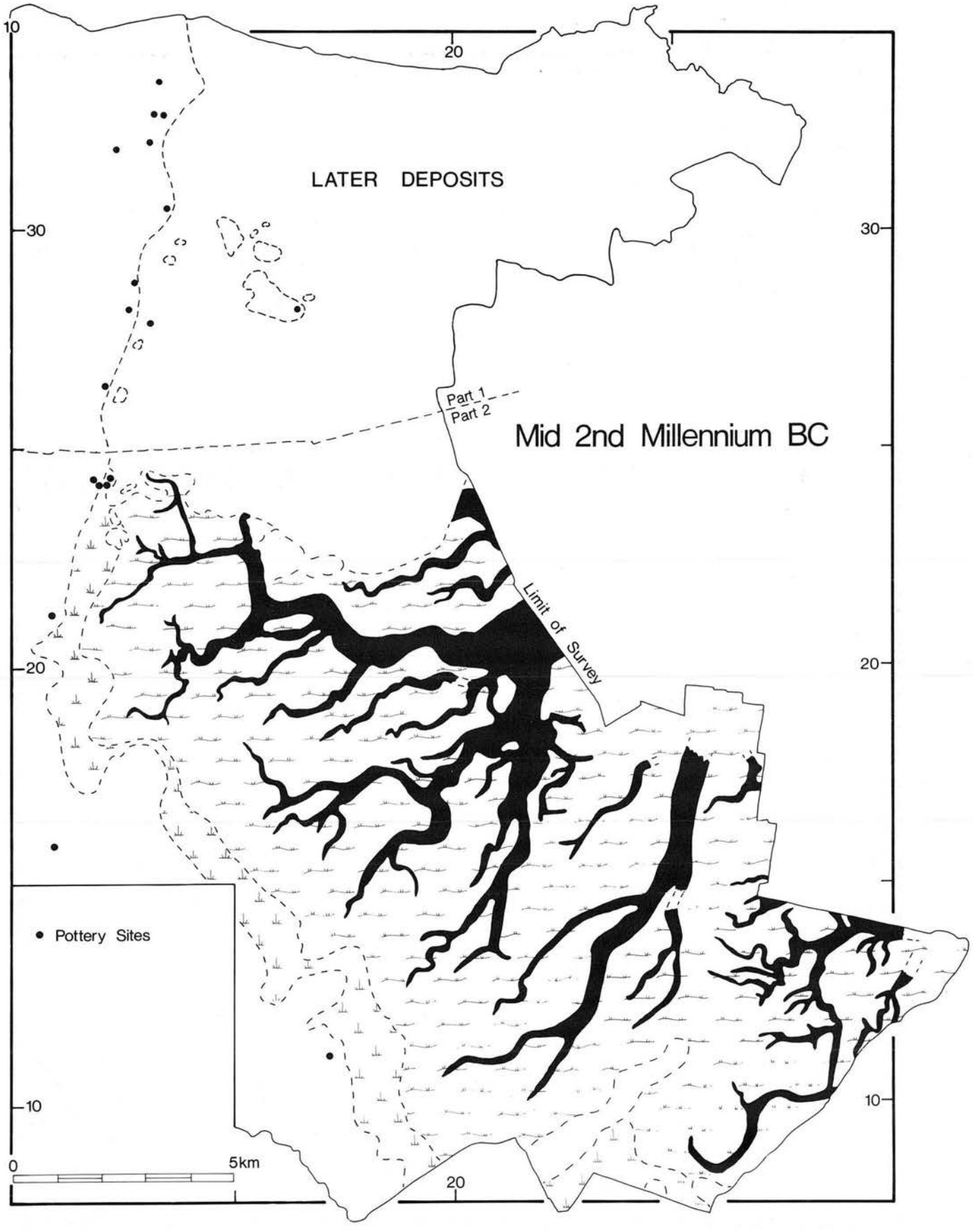

Figure 123 Mid 2nd Millennium BC Scale 1:125,000

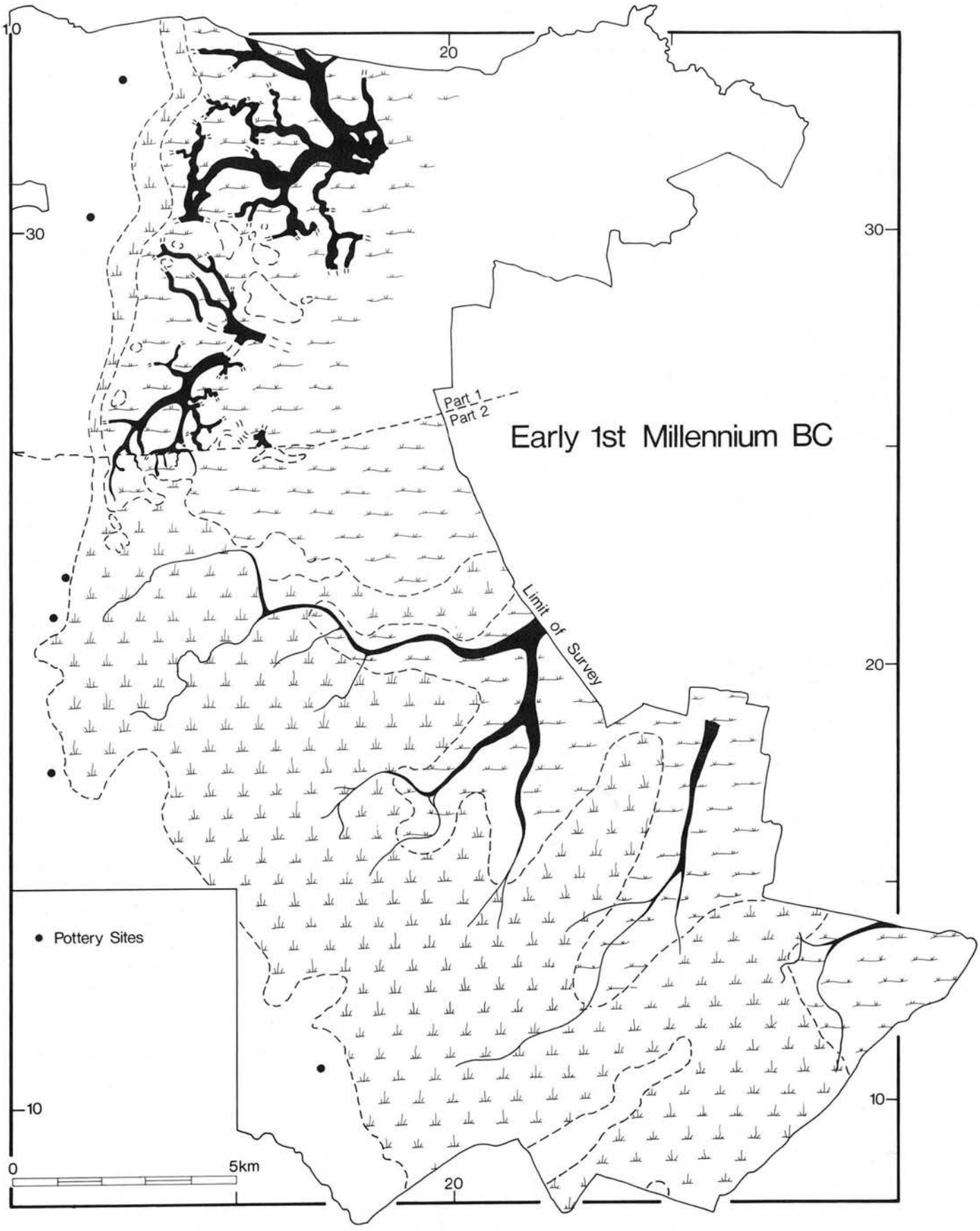

Figure 124 Early 1st Millennium BC Scale 1:125,000

Bourne parish. During the mid 2nd millennium BC the territory covered by part one would have become increasingly affected by freshwater as the marshes slowly encroached and caused streams to overspill.

An indication of the comparatively dryer conditions in the north is given by the greater density of sites along the fen-edge there (Fig. 123). One of the most northerly of the sites, in Billingborough (BIL 2), has undergone excavation. Although the full report on this site is still awaited, interim statements have been published (Chowne, 1979; 1980). Recently Chowne (1988, 166) pointed out that Billingborough was predominantly a dryland site whereas the broadly contemporary fen-edge site at Fengate, near Peterborough (Pryor, 1980), had a more marginal setting. Chowne (1988, 165) also noted the different economies indicated by the finds made on the two sites. In Billingborough there was 'evidence of cereal production comprising four-post granaries and storage jars' while analysis of the animal bones suggested that the cattle were being used for traction and the sheep/goats for meat. Finds on the fen-edge site at Fengate (less than 10km south of Crowland) suggested a local economy based more on pastoralism with the main function of the cattle being suppliers of milk for dairy produce. The environmental boundary between the northern and southern areas (as indicated on Fig. 123) is the likely division between these economic zones.

IV. Early 1st Millennium BC
(Fig. 124)

When widespread marine flooding reached the north the pattern of creeks indicates that it emanated from an estuary in the region of Bicker Haven. It remains uncertain whether flooding simultaneously affected the whole of the area discussed in part one. For example, the creek system south of the islands (and immediately north of the Morton/Hacconby boundary) may have taken longer to breach the ridge between Rippingale and Guthram.

As far as can be seen there were few settlements on the margins contemporary with the main sedimentation phase. Freshwater flooding which preceeded the main marine phase may have forced an abandonment of the fen-edge.

The earlier (mid 2nd Millennium BC) sites in the north by this time lay adjacent to, and in some cases partly covered by, the marine clays. This relationship of Middle Bronze Age settlements to the clays in the north, like the relationship of the Early Bronze Age barrows to the clays in the south, demonstrates that the northern marshes post-date the Middle Bronze Age pottery sites (Fig. 123) in the same way that the southern marshes post-date the barrows.

In Rippingale the marine incursion partly buried the Middle Bronze Age site RIP 19 (Fig. 44) and is important for the site could now provide a wet, and well preserved, range of remains to enhance the data secured from the similar, and already excavated (dry-land), site on the gravels at nearby Billingborough (Chowne 1980).

Only two sites are known to be broadly contemporary with the marine incursion in the north. The most northerly of these is the excavated site at Billingborough (saltmaking phase). From this phase comes the radiocarbon date of HAR-3101 2490 ± 100 BP (810-415 Cal.BC) making it the earliest saltmaking site known in the county. Later silting has obscured the pattern of creeks in the north-east of the survey area.

In the South there is also little evidence of fen-side settlement. However, this may not be a true reflection of the settlement pattern, for the scarcity of surface material remains in the Late Bronze Age/Early Iron Age is well-known (*e.g.* Pryor *et al* 1985, 306). Sites that were noted all lay adjacent to the widening fen and may have served as bases for pastoralists as at Fengate (see above and the following chapter). The flooding which was occurring at Fengate at the outset of the 1st millennium BC may not have had any direct effect on these more northerly fen sites.

Perhaps the most curious of the individual sites is in the Bourne South Fen (BOU 27). It lies on a tiny sand island and would have been in some considerable risk of inundation. At this stage all that can be done is to draw attention to what might turn out to be an important site and, perhaps, the focus of future investigation.

V. Later 1st Millennium BC
(Fig. 125)

Tidal marshes continued to deposit sediments in the north. The width and exact courses of the active channels within the broader levees are not easily determined and therefore the creeks appear in a slightly stylised form on Figure 125.

Only one saltern datable to this period was located north of gridline 30. This was close to the Ouse Mere Lode in Billingborough. In the same area many settlements were strung out along a complex of enclosure ditches connected by a single meandering ditch which ran from the springline in the west towards, and then parallel with, the fen. Many of the enclosures are likely to have been pens used for the over-wintering of livestock. The lack of Iron Age saltmaking debris in this area is puzzling, given that there is positive evidence of saltmaking in the Roman period. It may be due, however, to the slow development of peat in a relatively gently sloping area of the fen.

It is tempting to think of the sparse scatters of Middle Iron Age pottery (06) found on the levees of the creeks in the marsh as the isolated domestic debris of the herdsmen and shepherds who tended their stock on the grassy marshes during summer. However, it has been shown that similar activities in the medieval fens left scarcely any archaeological trace. The more abundant Middle Iron Age material may therefore be evidence of a more prolonged human presence, though not necessarily any more than seasonal settlements connected with pastoralism and saltmaking.

The creeks that formed south of the main group of islands, near Dowsby, and north of the Morton/Hacconby boundary, have a pattern of associated surface finds which contrasts with that further north in the Billingborough area. It suggests that this creek system remained more open and tidally energetic. No evidence of late prehistoric activity east of the peat was found within this system, other than one site on the edge of an island. Instead, a group of settlements and salt-producing sites clustered around its western limits. Most of these lie on the landward (dry) side of the peat fringe. Broad expanses of peat for fuel were available both to the north-east and south-east. In addition to the peat, areas to the west of the surveyed parishes would have supported dense

woodland which could also have been exploited as fuel for the salterns.

These differences between adjacent roddon networks emphasise the subtle changes that occurred within the environments of the Fenland and the range of economic opportunities within one small area. They highlight the reasons why 'The Fens' cannot be thought of as a single economic and topographic unit, and the dangers inherent in trying to interpret the character of the entire region from one small surveyed block, one recorded ditch-section, or one excavation. The Fenland comprises many sub-regions each with its own archaeological character and micro-topographical distinctions.

The saltmarshes of the south, having flooded earlier, had by the later 1st millennium become stable; tidal activity was limited to the eastern edge of the area. Vegetation covered the mature marsh and this was soon inundated by the freshwaters which poured relentlessly into the southern fens, predominantly from the Welland and Glen. Peat formed above the marsh clays and silts, and advanced seaward. As the band of peat broadened it became a barrier to communications and formed a physical division between those dwelling on the fen margins and those on the marshes several kilometres to the east.

The extent of the peat has been judged using a combination of saltern distributions and relative heights of the land surface. Naturally the highest roddons would have resisted the freshwaters longest but, though there are no traces of peat on the highest levees towards the east of the area, these levees were flanked by peats and are therefore classed as being in a freshwater-dominated environment.

Like their neighbours north of Bourne, the occupants of the group of sites on the southern edge of Deeping Fen were also presented with new opportunities. Though the adjacent peat may have offered a marginally poorer grazing resource than that on the marshes, the presence of the peat is likely to have ensured a relatively high ground water table on the adjoining broad band of gravels, limiting arable value of this soil but serving to provide potential meadows and grazing. The mounding of certain Iron Age sites, such as MAD 2, may be seen as indicating a damp setting. These sites could also have been expected to benefit from the fen resources of fish, wildfowl, turves and rushes.

The Thurlby settlements, based along the River Glen at Kate's Bridge, were similarly sited at the fen limits, with the broad gravel plain lying adjacent to the south-east. The Kate's Bridge area was, if not continuously, then frequently used for settlement from the Bronze Age to early in the Saxon period. It is an important area for its range of sites, some of which have been protected by river alluvium.

East of the peat the marshes were colonised by people using 06 (Middle Iron Age) pottery. Many also manufactured salt, particularly those on the levees of the Welland in what is now Cowbit Wash. Extensive improvements to the drainage of these southern fens within the last two to three hundred years have destroyed much of the surface peat. However, the creation of Washlands at Cowbit and Crowland not only preserved a band of this surface peat, and partly sealed it with river alluvium, but also ensured that, due to frequent and lengthy spells of flooding, it could not be ploughed until the 1950's. The land is now entirely arable. Ploughing of the Washes has revealed many Roman and Iron age sites but has also brought about the rapid disappearance of the protective cover of peat. The sites located in Cowbit Wash represent a rare opportunity to recover good quality data about the Iron Age.

By no means all the cultural material on the Iron Age marshes derived from salt production contexts. In Pinchbeck South Fen site PIN 55 yielded over a hundred pottery sherds with large quantities of animal bone, and nothing further was present to suggest the site represented anything other than habitation.

VI. Roman

(Fig. 126)

Uncertainty has been expressed above as to the precise extent of settlement in the Fenland immediately prior to the Roman period.

What is clear from the mass of data compiled during the survey is that the Roman period was one of expansion on to the fen. Whether any degree of political or military pressure motivated the move, or whether new economic opportunities were seized by the upland population, is unclear, but the use of the wetlands as a human habitat intensified.

On the periphery of the peat, settlement flourished both on the margins and the marshes, where salt continued to be produced. Peat continued to prevent settlement over much of the intervening areas. Continued expansion of the peat resulted in the Romano-British sites on the marshes being located slightly to the east of their Iron Age counterparts.

Various engineering projects improved the communication network and opened up the Fenland to trade. Among the known imported goods were pottery from the Midlands and the Nene Valley and millstone grit from the Pennines. Unfortunately the type of goods that might be exported from the Fenland are not likely to survive on dry sites, thus cross patterns of trade cannot be detected. The potential for exports from the fens was great and, as previously stated, might be expected to include salt, turves, reeds, rushes, fowl, fish from either freshwater or inshore marine habitats, basketry either as finished items or as withies, livestock and their by-products such as dairy produce, fleeces and hides. Penhay (1987, 4) has suggested that the Roman Fenland became a major producer of leather.

Among the improvements that made the marshes more accessible was a canal linking the wealthy fen margins near Frognall to the Welland (Fig. 114), a causeway, the Baston Outgang, connecting King Street south of Thurlby to the Spalding area (Fig. 102) and a canal, possibly also a causeway, which served to unite another large and wealthy area, Bourne, and the marshes (Figs 74 and 82).

It would seem these were constructed in response to the economic up-turn of the area. No evidence was found of any comprehensive schemes to 'drain the Fens'. Indeed, with the variety and abundance of natural products freely available, drainage might not represent the best and most economic use of the landscape. Certainly some lengths of 'canal' may have had a dual drainage and transport function, such as at Rippingale, but it is difficult to envisage this as of more than local significance.

Some management of the environment might be suggested by the lengths of double parallel lines that are

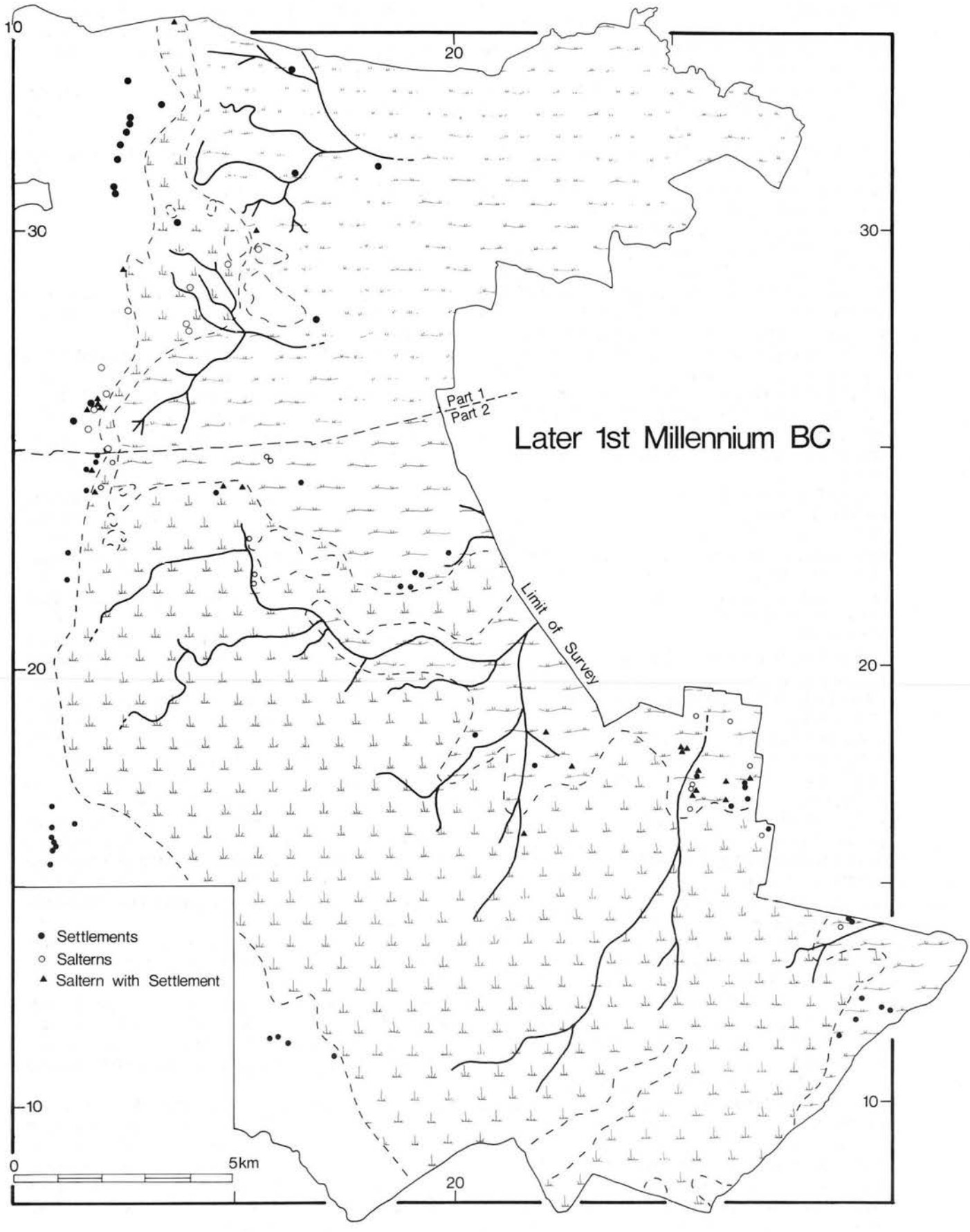

Figure 125 Later 1st Millennium BC Scale 1:125,000

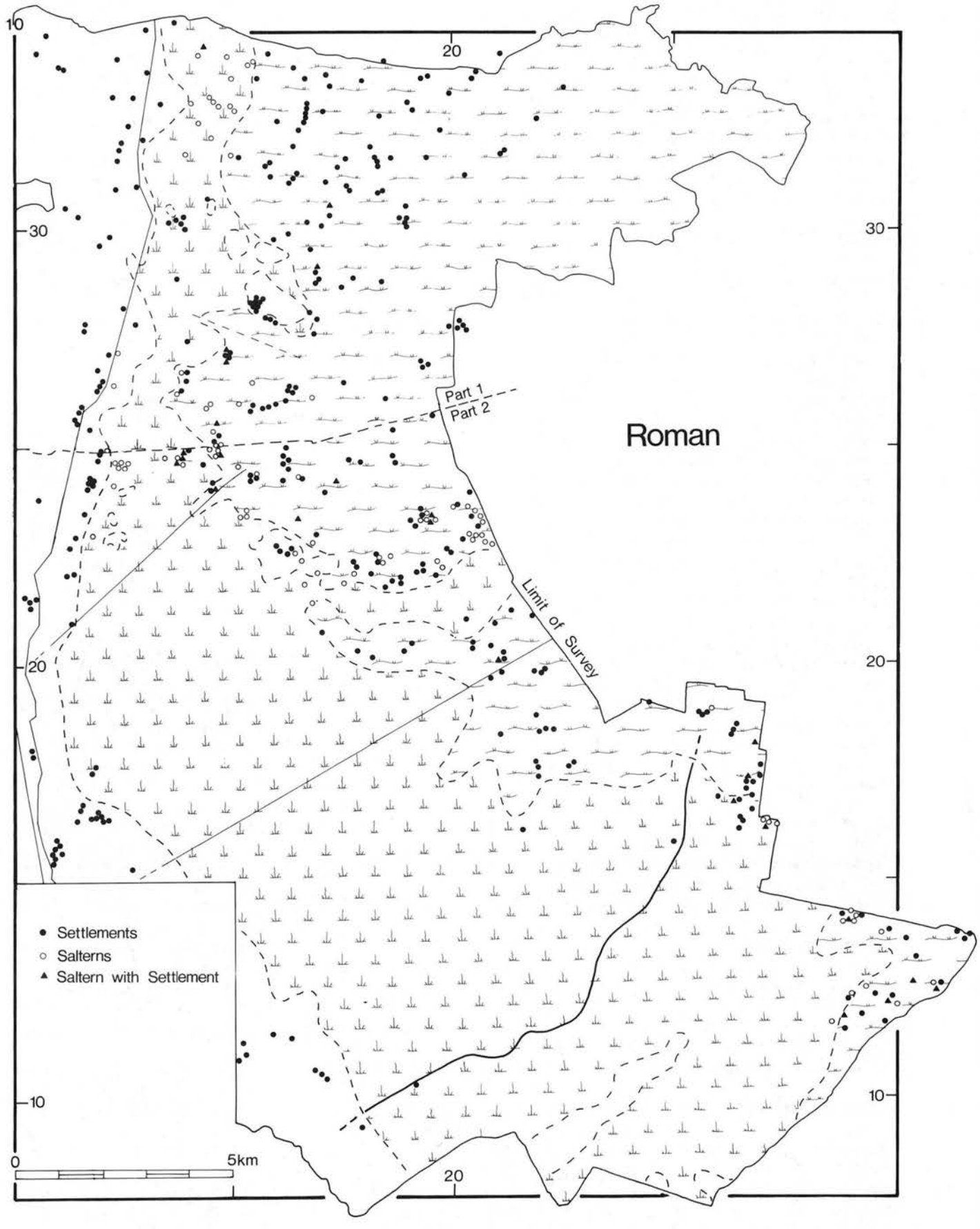

Figure 126 Roman Scale 1:125,000

visible on aerial photographs. Many of these were plotted by Mrs. Hallam who suggested that they were 'limiting features' or 'limiting droves' (Hallam 1970, 30-1). Their position at the edge of the fen makes them unlikely droves, but they could be, in effect, the forerunners of the medieval fen banks. The ditches identified by cropmarks could have been linear quarries, providing upcast bank material, probably supplemented by turves, and serving to protect the marsh settlements against the winter floods from the fens. The longest stretch, in Crowland, would have protected the comparatively densely settled area on the silts at Little Postland. A length adjoining the Baston Outgang in Deeping Fen (Hallam 1970, Map 8a) extends north over the clays but makes no sense as a drove, either commercially or topographically, for it runs adjacent to, but west of, a large high roddon. Sites along this roddon could only have benefited if it had constituted a means of protection.

Just who constructed these features is another puzzle. Salway (1970, 9) attributes the work to 'official surveyors' and it may well be so, but it is not beyond reason that they were the result of a community effort made by, and in the interest of, those who would benefit directly, in the way that modern communities who find themselves snowbound tend to dig themselves out rather than await rescue by the local authority. The original layout of straight lines would not be particularly difficult to achieve over essentially featureless terrain.

Many sites in the southern sector flourished early in the Roman period but then, as the pottery suggests, soon dwindled, and the overall picture south of Morton is of 3rd and 4th century decline.

Roman activity between Billingborough and Hacconby resembles the Iron Age pattern with continuing stability of the marshes in the north. The main creeks continued to be tidal, enabling salt to be extracted, at least in the early part, though the cropmark system of enclosures extending across a major branch in Gosberton, and Pointon and Sempringham suggests that the creek may, eventually, have completely silted.

The long-lived and wealthy sites in the north extended across the marshes, almost to Bicker Haven and, perhaps, beyond. Some had limestone rubble and tile fragments, albeit sparse quantities but even these are enough to suggest investment in permanent buildings. A range of pottery came from the sites but, overall, the kilns in the Nene Valley emerge as major suppliers to the Fenland communities, particularly those north of Morton.

South and east of the islands near Dowsby, the landscape was less predictable. Saltmaking continued up to the junction of the dry land in Hacconby and Morton. Localised attempts were made to improve the condition of the fen as with the construction of a channel at Rippingale. In Pinchbeck local flooding may have been a frequent event (chapter 10 and Figs 66, 74, 88) for some of the sites there appear to be partly buried by silt.

This summary of the Romano-British period has concentrated on aspects of settlement and environment emphasised during the survey. The pottery evidence and interpretation is considered in chapter 22. No evidence has been forthcoming to add support to or repudiate claims that the Roman Fenland was an Imperial Estate. No buildings similar to that at Stonea (Potter and Jackson 1982) were observed. If anything, survey has emphasised the initial variability and the continuing changes of the Fenland environment leaving us to ponder on whether, and how much, the Fenland was viewed as a single geographic entity, ripe for reclamation, by the early emperors. A further factor that might affect any future consideration of the Fenland as an Imperial Estate is the extent of existing pre-Roman settlement. Problems with the Late Iron Age have been discussed above. Would the existence of pre-Roman Iron Age communities in the Fenland have affected the Roman takeover of the area?

As for the Car Dyke, long regarded as a catchwater drain (Simmons 1979; Salway 1970, 11) and a Hadrianic enterprise (Frere 1987, 268), survey has provided a great deal of evidence to confirm that settlements were founded on either side of the dyke, in a pattern that appears to pay no heed to the monument, except, perhaps, for a short distance in Rippingale and Hacconby.

The Car Dyke is just one element in a Roman landscape that may be puzzling but is, at least, extensive and highly visible. Possibilities for research into the nature of the Roman Fenland are boundless.

VIII. Early and Middle Saxon

(Fig. 127)

The popular view of the post-Roman fens is one of neglect, of tangled weeds and sedimentation blocking essential drainage channels. This may not be entirely without foundation. Where local drainage or water management schemes had existed in the Roman period, their disrepair would have led to a 'return to the wild'. It is a question of how wild and how localised that state was.

It is difficult to assess how the Saxon Fenland developed. It was a varied and changing landscape, one which saw Roman flood silts in Pinchbeck North being utilised for settlement early in the Saxon period (Figs 66 and 67). Longer term effects may have resulted from Roman attempts at water-management (for instance, a Roman sea bank in Quadring?) altering the natural sequence of landscape development in unforeseeable ways.

What is known is that the Saxons used the fens, some living on sites that had been used in the Roman period, others on new locations (Hayes 1988). They are known to have settled on the less active part of the marshes and their sites almost certainly continue east of the surveyed area. Saxon settlement was much less intensive than Roman and, perhaps, resembled in extent, if not character, Iron Age settlement on the southern marshes. Like the Iron Age, the Early and Middle Saxon settlements seem to have gone ahead with little evident need for networks of artificial watercourses and embankments.

The distribution of Early Saxon settlements falls into two groups situated either side of the expanse of fen which adjoined the gravels.

As the tidal range of the marshes continued to retreat the freshwater fen would have advanced, resulting in a broader spread of fen than that present in the Roman period. This seaward movement continued into the Late Saxon and medieval periods and a series of defensive banks charts its later progress.

On the landward side, particularly in the north, the pattern was of Early Saxon settlement away from the fen margins. In contrast to the Iron Age and Roman pattern (Figs 125 and 126), which featured many fenside settlements, these Early Saxons showed little direct or obvious interest in living near to the fens and this may indicate a change in economic direction away from market

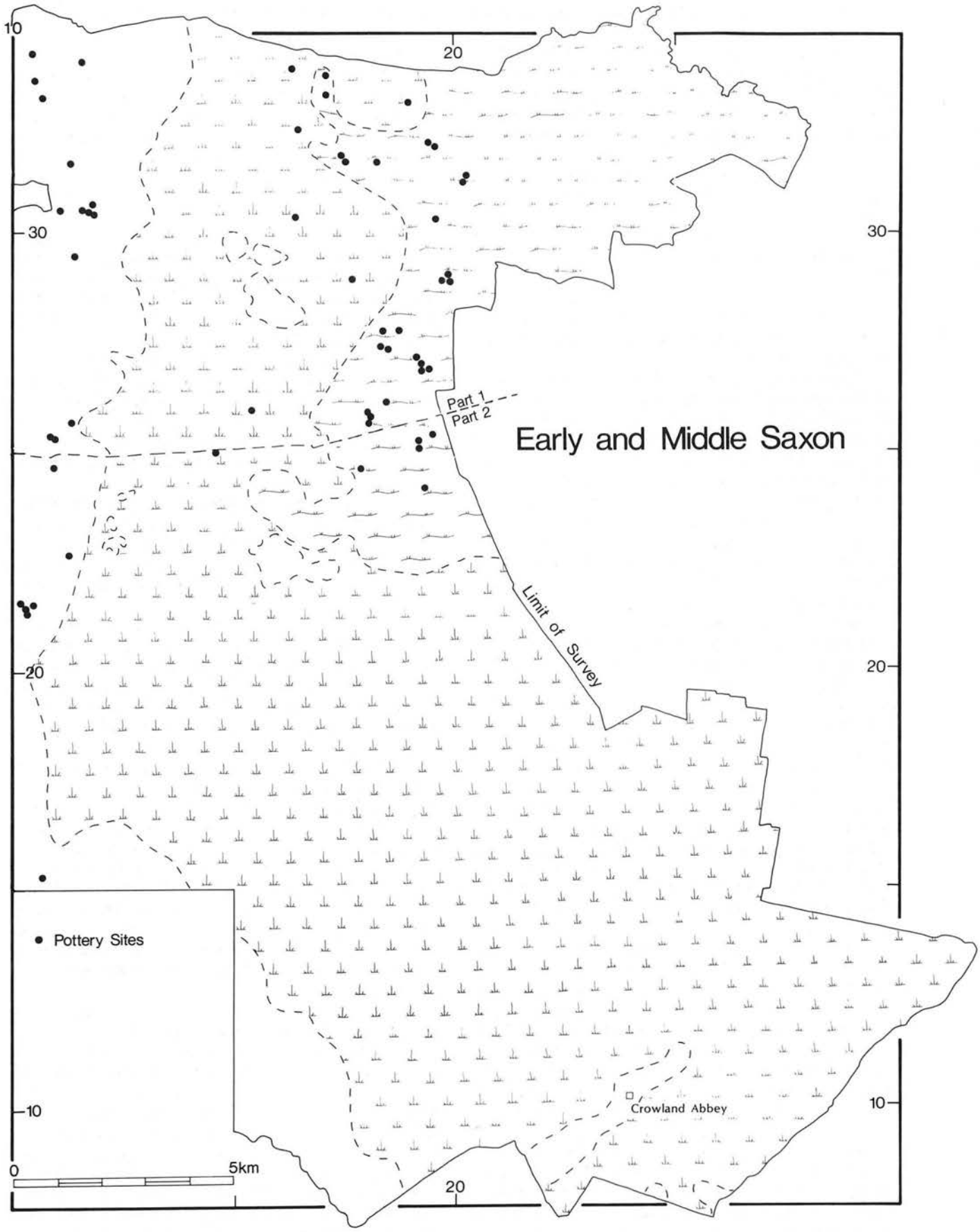

Figure 127 Saxon Scale 1:125,000

orientated mass production (of livestock related produce) to a more subsistence-based mixed arable regime though with, perhaps, some minor exchanges of goods taking place with their marshland contemporaries.

The concentration of sites around the Hoe Hills cemetery on the borders of Pointon and Dowsby (north-east of gridline 10-30 on Fig. 127) may represent a local centre, a village on which the surrounding farmsteads focussed, and the point from which access across the fens, *via* the islands, was most convenient.

A lack of scattered Middle Saxon sites on the fen-edge suggests that these formerly dispersed sites had concentrated into villages by *c.* AD 650 (Hayes 1988, 324). However, their contemporaries in the fen continued in isolated 'farmsteads' near to the seaward edge of the fen into the 9th century.

It is thought that the Middle Saxon settlements in the marshes were used by a historically attested tribal group, the Spaldas, whose name survives in 'Spalding', the largest town in the area.

Abandonment of the scattered Middle Saxon sites in the Fenland, and their centralization into villages, broadly coincided with the onset of Scandinavian power and influence. At present it could be equally argued that nucleation was a defensive response to potential attacks from the Scandinavians, or re-location enforced by the Scandinavians, or an environmentally determined necessity, or simple economic expediency.

There is little chance of determining directly and solely from survey which of these applies, for the influx of people from across the North Sea and their political takeover seems to be undetectable in terms of discarded artefacts. Whichever one, or more likely, combination of several, factors prompted the change it was one that was completed well in advance of the *Domesday Survey*.

Other than the relatively dry and sparsely settled marshes of Pinchbeck South, virtually all of the southern fens had reverted to a freshwater dominated environment. Some high silted patches to the east may have escaped the freshwaters and even become dry, but the majority of the land was either covered by peats or pools. The legendary journey by Guthlac in the 8th century, was through a 'vast wilderness', a 'hideous fen of a huge bigness', to Crowland 'situate in the midst of the lake, but, in respect of its desertness formerly known to very few'. It was from this seclusion that Crowland was later to emerge as one of the major religious centres and landowners in Lincolnshire.

Traces of the marsh settlements noted in the north extend into Pinchbeck South. On the landward side of the fen the Early Saxon settlements in Morton, Bourne and Thurlby are closer to the fen than in Billingborough and Pointon, and characteristically adjacent to streams.

A large settlement at Kate's Bridge, Thurlby, commanded the area where the Glen was crossed by the Roman road King Street. It is probably no accident that this important crossing point continued to be inhabited after Roman control ceased.

Much of the Later Saxon activity in the Fenland occurred to the east of the survey area. Many of the sea banks, including those around the inlet at Bicker Haven, existed by the time of the *Domesday Survey* and a number had already been superseded by later examples.

The distribution of scattered Late Saxon sherds in Quadring (Fig. 19) suggests that little or no arable land was available (or, alternatively, required) west of the Donington-Spalding road. By the Late Saxon period the fen had extended east, beyond the zone of Middle Saxon fen sites, to the 'Old Fen Dike' (Figs 18 and 34). This constitutes a rapid expansion compared to the events of the previous millennia.

Only one Middle Saxon fen site (QUA 33) appeared to survive into the later period but the quantities of later Saxon pottery from there are small and a later temporary re-occupation of a prominent site cannot be ruled out.

VIII. Medieval

(Fig. 128)

By the time of the *Domesday Survey* there had formed a pattern of well-established villages, one group on the higher ground to the west, the other on the virtually dry silts to the east. Separating them was a broad band of freshwater fen against which the siltland villagers had erected defensive banks.

Well established banks also surrounded Bicker Haven, a broad estuary, at the head of which salt was produced at the time of the *Domesday survey*. During the Middle Ages the Haven became naturally silted and the salt makers followed its seaward retreat. Mounds of waste silt within surviving embankments are a spectacular reminder of the industry.

The true fen, fringed by meadows, was an important resource in which each village had rights of use and responsibilities of maintenance. The responsibilities consisted mainly of clearing watercourses and repairing seabanks, and of ensuring that the resource was not over-exploited.

In addition to the villagers, certain religious foundations used the fens. Gilbertines, based at Sempringham, had a grange in the fen at Rigbolt. An embanked road led across the fen from Sempringham to Neslam, where a considerable pottery scatter was found. From there the road went to Rigbolt, but cannot now be traced.

Spalding Priory also had a grange, New Hall, in Pinchbeck Fen. It, along with Rigbolt, is shown as being in the fen. However, at the time when they operated, the fen would have retreated approximately to the dashed line to the west of those sites on Figure 128.

Almost the entire southern area was dominated by freshwater fen. It was a landscape of reed-fringed lakes, pools and turbaries, passable in most summers but inundated for long spells each winter. In contrast much of the siltland east of the area was being given over to ploughing, leading to a demand for the once abundant resources of the fen.

There were many alterations to the watercourses, both major and minor during the medieval period. It is probable that, in the Late Saxon period, the Welland had been diverted on to the gravel at Crowland in order to enable direct access by water during construction of the Abbey. A further course had been made, probably at the same time. This connected with the Catswater to give access to the Nene waterways and the southern Fens. Spanning the Welland at its junction with the connecting channel in Crowland was the remarkable medieval 'triangular' bridge which still stands, although the river has long since been re-aligned away from the island.

Crowland Abbey was the base for a powerful religious and economic force in the area. Its precinct covered in excess of thirteen thousand acres of the fens surrounding

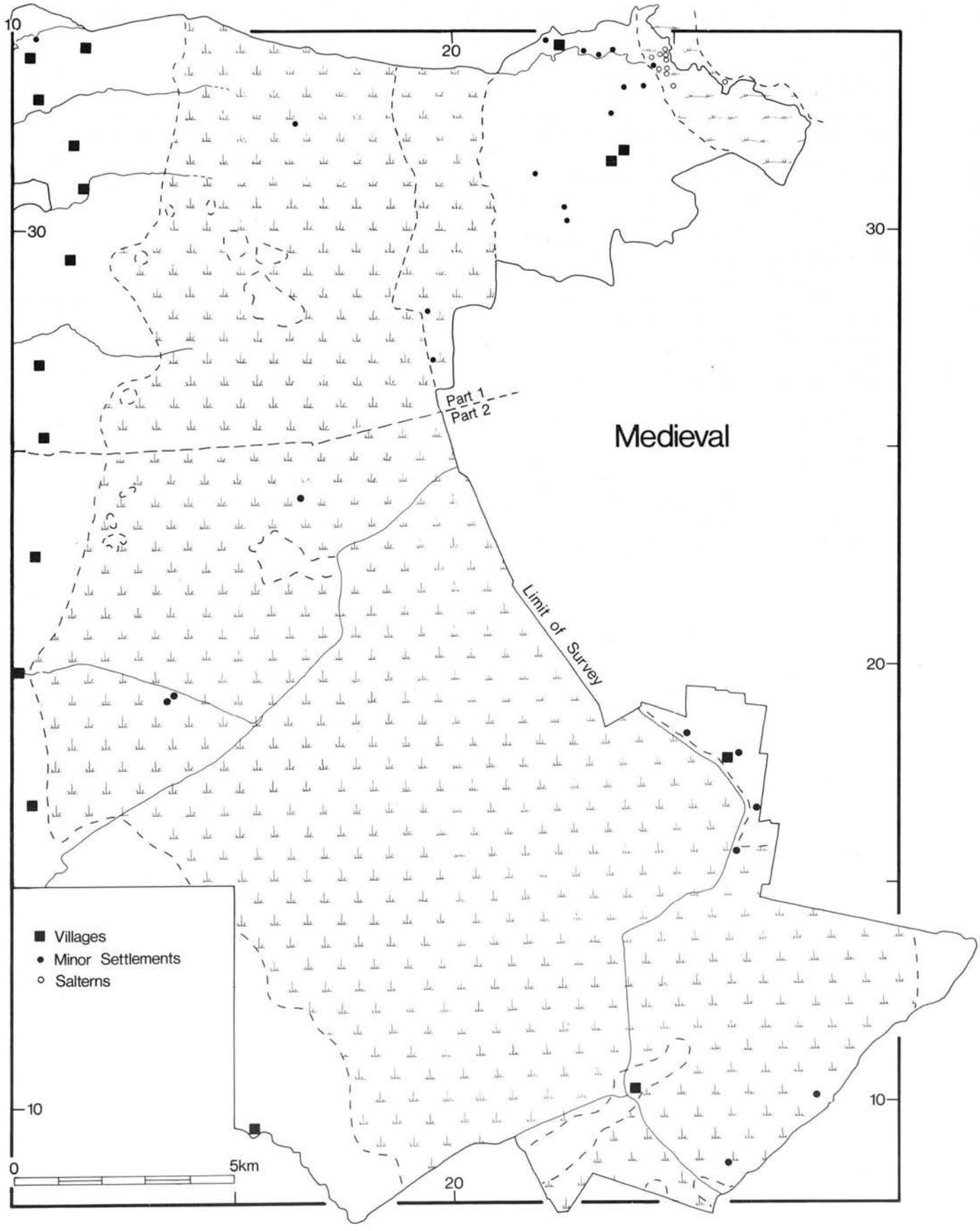

Figure 128 Medieval Scale 1:125,000

Crowland. In addition, the Abbey farmed extensively throughout the Fenland and beyond.

Much of the area surveyed continued to be dominated by freshwater fen conditions. Either side lay two contrasting landscapes. To the west, on the landward margins, a line of villages and secondary settlements crowded together along the fen-edge, many little more than 2km inland from the fen. Many of their fields are identifiable and comprise 'Midlands type' ridge and furrow. Supplementing, or tied in with this basic arable economy was use of the fens and also, for many, the extensive woodlands which existed on their western fringes.

Little of the siltland to the east came within the surveyed area and, therefore, many of the conclusions reached in Herbert Hallam's (1965) historical account of the siltlands still have little archaeological confirmation. The general picture of the medieval siltland painted by Hallam is one of prosperity and population increase (Hallam 1965, 200). Using archaeological evidence Silvester (1988, 328) has drawn similar conclusions for the Norfolk Marshland area adjoining the Lincolnshire silts.

Within the limited siltland zones surveyed in Lincolnshire (primarily Quadring and Gosberton) can be seen some of the region's economic stimulants: a fertile soil divided into groups of ditched strips (dylings); phases of reclamation creating more land from both fen and marsh; a saltern industry, although one which declined rapidly in the 16th century; and, of course, the freshwater fen landscape. The importance of the latter has already been demonstrated (chapter 18 and Hallam 1965, 25) by the Men of Holland whose 'own marshes having dried up' desired the use of the extensive tracts of freshwater fen in Crowland and in Deeping Fen.

Despite some similarities in the development of the Lincolnshire and Norfolk siltlands there are also differences. Most notably Greens, around which many of the Marshland villages centred, are, as far as we know, less of a feature within the Lincolnshire siltland. However, further survey is needed on the silts before comparative studies between the Lincolnshire and Norfolk (and indeed Cambridgeshire) silts can be usefully undertaken.

It was the intention of this survey to examine the main landscape zones: fen-edge, clayland, siltland and the peat. This task has been achieved with the result that the environmental zones and their junctions are much more precisely identified and understood. A disadvantage has been that the work has concentrated on economically marginal zones. Also, unlike the Marshland area in Norfolk, no single environmental and economic zone has been totally investigated. For the peats in the south of the area this is not too great a problem for they join the more extensive peats of Cambridgeshire investigated by Hall (1987). However, the examination of more of the siltland to the east would bring a sharper focus on Saxon and medieval developments.

20. Iron Age And Roman Salterns In The South-Western Fens

by Tom Lane

I. Introduction

How strange to have shrunk so many fruitful problems to a typology of industrial waste (Bradley 1975, 20)

In the 1970's archaeologists focussed much attention on artefacts retrieved from salt production centres, perhaps too much in the opinion of some respected writers (see above) whose own approach to studying saltmaking concentrated more on the economic impact of the finished product. Well over a decade later this contribution is once more an examination of the artefacts, essentially 'a typology of industrial waste'. The justification for this analysis is that the end result has:

a) enabled the identification of a broad chronological sequence within the overall assemblage.
b) provided additional information with which to chart variations in the contemporary environment and landscape.

During survey in the area described in this volume 192 salterns were recorded. Material from so many sites of a specific function has rarely been systematically collected and recorded. It became clear as the survey progressed that recognisable variations existed in fabrics and forms of briquetage on certain sites and some worthwhile information could be gained from an examination of the finds. Initially, these variations in the briquetage and some of the associated finds hinted at pre-Roman saltmaking east of the fen margins. In order to prove or disprove the presence of Iron Age activity it was crucial to find a way to date individual salterns. Two major difficulties emerged regarding the dating of the sites:

a) many of the salterns (in total 72 or 38%) had no domestic pottery associated with the briquetage;
b) the possibility existed that some of the saltern areas continued to be occupied after the site went out of use as a saltern. In such cases briquetage and unrelated domestic wares would share the same location (*e.g.* BIL 21 where Middle Iron Age pottery, Romano-British pottery and briquetage were found clustered on a low mound).

In order to identify more closely the differences in the briquetage and in an attempt to identify a chronological sequence within the overall assemblage, the many thousands of baked clay fragments that make up the assemblage were examined. Constraints of time ruled that the analysis of the finds could only take the form of a rapid, visual assessment. A microscopic analysis of the fabrics and inclusions would clearly refine and, no doubt, modify the conclusions reached during this analysis, but such work falls outside the scope and capacity of this project. Results of this initial examination are presented here along with the methods used.

II. Background

The presence of salterns has long been known in the surveyed area. Roman saltmaking in particular has been the subject of considerable comment (*e.g.* S.J. Hallam, 1960 and 1970, Nenquin 1961, and Simmons 1975b and 1979). Chowne (pers. comm.) has recorded a Late Bronze Age saltmaking phase at Billingborough where an associated radiocarbon date of HAR-3101 2490 ± 100 BP (810-415 Cal.BC) makes this the earliest known saltmaking site in the area. Simmons (1975b and c, 1980) identified Iron Age salterns along the western margins of the Lincolnshire Fens. Hallam S.J's (1960, 71) conclusions hinted at possible Iron Age saltmaking activity seaward of the fen-edge though this was not confirmed by her fieldwork. Elsewhere in the county Iron Age salterns have been revealed by tidal erosion along the coast north of Skegness (Swinnerton 1932; May 1976, 143-55; Baker 1960, 1975), and inland from there through fieldwork and commercial excavations (Kirkham 1975, 1981).

Medieval salterns around Bicker Haven in the north-east of the surveyed block have been studied by H.E. Hallam, (1960) and Healey (1975). These sites are distinctive in appearance, and their remains take the form of mounds of waste silt, often in excess of 2m high. Briquetage is not generally found on the surface of these mounds. The sites are situated some 12km east of their Roman and Iron Age counterparts.

III. Identification of Saltern Sites

Salterns in the area were identified by local concentrations of fired clay fragments. Generally these were associated with dark soil-marks. Fired clay was so abundant on certain sites that the soil itself appeared red. In the marine clay areas the salterns were, like most settlements, almost invariably on or just beside roddons. A number of the sites were visible as low mounds. These are particularly vulnerable to damage by ploughing though there have been no systematic studies on which to assess the extent or rate of damage.

Fieldwalking represents the only reliable method of locating the sites. Many can be seen as dark marks on aerial photographs but such marks are generally indistinguishable from numerous others which are created by the humose soils in natural hollows. Where contemporary salterns occur on, or adjacent to, Romano-British settlements they are often incorporated within the ditch line complexes visible on aerial photographs (see Plate VI) but the salterns usually remain indistinguishable from the air as separate components within the cropmarks. Isolated salterns are rarely associated with the cropmarks of ditches.

IV. Briquetage

Briquetage is an overall term used to define all the fired clay debris associated with salt production. During the survey briquetage was found in over 190 areas in sufficient quantities to apply the term 'site'. In only a handful of instances did it appear sparsely scattered on other,

predominantly domestic, sites and then in very small numbers (*c.* 5-15 fragments per site). Such small quantities were not deemed to represent production centres and were not listed as salterns. No briquetage was found on upland sites away from the fen margin. Briquetage found on each individual site generally appeared to be homogeneous with very few sites yielding mixed fabric types.

V. Classification

Essentially material from each site was classified into broad categories ('Types') each represented by a 'Type Site'. Some further similarities enabled several Types to be amalgamated into four chronological 'Groups' ranging in date from the Middle Iron Age to Roman periods. Whereas domestic pottery found on individual sites may or may not be a reliable indicator of the date of the industrial usage of that particular site, the frequency with which domestic pottery of the same broad date range is found on sites associated with similar 'Types' of briquetage was considered significant. For example, only 4% of the Type 3 sites had Iron Age pottery but more significantly 54% yielded Roman sherds and a Roman date has been suggested for this briquetage. Of the sites yielding briquetage identified as Type 1 35% had associated Iron Age pottery and none had Roman. Therefore these were regarded as being Iron Age. Superficially the dating appeared less straightforward for certain types. Type 8 briquetage sites were often found with pottery of different periods and it was calculated that 48% of these sites contained some Iron Age and 44% some Roman pottery. However, Type 8 briquetage sites lie within the main Roman occupation zone and many are close to Roman settlements from which residual pottery sherds may have derived. Roman pottery in various quantities was collected from 12 of the Type 8 salterns but, of these, seven also yielded Iron Age pottery. To settle the confusion Type 8 briquetage was matched against other Types. It was seen to resemble strongly Types 1 and 7 which are dated to the Iron Age. Therefore, despite the presence of Roman domestic pottery on certain of these sites, the salt production phase associated with Type 8 briquetage is suggested as being Iron Age.

The identification of different Types ensured that, even on the sites with no domestic wares, a date could

Type	*Inclusions*	*Resilience*	*Vessels Thickness Cm*	*Vessles Rims*	*Comments*
T1	Shell, sparse small flints and vegetation	Medium/soft	*c.* 0.5	Plain, flat, many cut	Shell commonest in vessel frags. Type site: MOR 13
T2	Sparse small stones or grog. Chopped vegetation	Hard	*c.* 0.8-1.0	Sparse, plain	Characteristically harder and larger. Type site: MOR 9
T2A	Some chopped vegetation	Mainly soft, some hard	0.5-1.0	Sparse, plain	Some elements of T2 but with a few T3 type yellow coated pieces.Type site: MOR 22
T2B	Silt and sparse chopped vegetation	Medium soft	0.5-1.3		Similar to T2A but with additional silt. Type Site: COW 14
T3	Abundant chopped vegetation. V. sparse stones	Soft	0.8-1.0	Plain	Commonest type. Many pieces have distinctive soft dull yellow or whitish coating. Some fabrics yellow throughout. Type Site: MOR 1
T3A	Abundant chopped vegetation. Sand/silt	Soft	0.8-1.4	Sparse, plain	Similar to T3 but with additional sand and silt. Type Site: CRO 19
T4					Fired clay not now considered briquetage
T5	Chopped vegatation. Stones and flint up to 10mm	Hard. Some soft yellowish pieces	0.7-1.3		Only found on Type site. Large pieces, many with yellow/whitish coat. Type site BIL 21
T6	Abundant shell. Sparse chopped vegetation, stones, flints	Mostly hard. A few yellowish pieces	*c.* 1.0-1.4	Plain, flattened	Distinctive red/brown colour. Some flat clay slabs *c.*1.0-1.4cm in section. Type Site: POI 26
T7	Sparse vegetation, stones and shell	Medium	0.5	Sparse, and flattened	Brown/red fabric similar to T1 but v. few shells. All small sherds. Type Site: MOR 31
T8	Sparse vegetation, sand and silt	Medium	0.5-0.8	Sparse, plain	Brown/red fabric with frequent purple tinge. Resembles T1 & T7 but much sandier/siltier. Mostly small sherds. Type Site: COW 24
T9	V. sparse vegetation, sand and silt	Hard	0.5-0.8		Brown fabric, mostly small sherds. Vessels predominate though no rims present. Type Site: DEN 16

Table 6 Briquetage: Definition of Types

Type	*Total No. of Sites*	*Sites with I.A. Pot (excl. Single Sherds)*	*Sites with Roman Pot (excl. Single Sherds)*	*Sites with Single I.A. Sherd*	*Sites with Single R-B. Sherd*	*Sites with No Pottery*
T1	17	6 (35%)	0	0	3	10 (59%)
T2	20	1 (5%)	7 (35%)	0	1	11 (55%)
T2A	5	0	1 (20%)	0	1	3 (60%)
T2B	12	2 (17%)	9 (75%)	0	0	3 (25%)
T3	87	4 (5%)	47 (54%)	0	9	31 (36%)
T3A	8	4 (50%)	6 (75%)	0	1	1 (13%)
T4	—	—	—	—	—	—
T5	1	1	1	0	0	0
T6	9	2 (22%)	1 (11%)	0	3	5 (55%)
T7	5	3 (60%)	0	0	1	2 (40%)
T8	27	13 (48%)	12 (44%)	1	0	6 (22%)
T9	1	1	0	0	0	0
Totals	192	37	84	1	19	72

Table 7 Domestic sherds on briquetage sites

be inferred by relating the briquetage to that found on other, more firmly dated sites.

Once established, the broad chronology was then used to relate the sites to their contemporary environment. Like any industry dependent on natural resources, salterns operated where these were most readily and abundantly available. Basic requirements of the industry were:

a) salt water or saline muds
b) fuel to enhance the evaporation process
c) clay for manufacturing the vessels

The salt water would have been most easily controlled and extracted at the low energy inland parts of the tidal creek systems and the most obvious source of the fuel was peat and/or wood from the fens. Clay would have been available within the area of earlier marine flooding and also on the uplands adjacent to the fens.

The salt water and fuel are products of two specific environments, saltwater marsh and freshwater fen. It is suggested that the locations of the salterns identify the approximate junction of these two environments, the optimum position where both are accessible.

Types

Numbers designated during initial classification have been retained for ease of data handling. Sub-groups 2A and 2B were so-called because of initial resemblance to Type 2 though in the subsequent analysis they were considered to belong in Group B rather than in Group C to which Type 2 was placed.

It was felt that separating out sites which only produced one sherd was justified for the following reasons. Many of the sites identified as Iron Age on the Fen margins lay within the area of Roman occupation and isolated finds of Roman pottery were not uncommon in the area. Similarly in Cowbit and Crowland on the silts the Iron Age sites were inter-mixed with a heavy concentration of Roman settlements, therefore increasing the likelihood of stray finds. The effect of separating out single-sherd sites is to reduce, slightly, the apparent, but false, Roman dominance. For instance, two of the three sites with one Roman sherd in Type 1 had predominantly Iron Age pottery. The remaining site had just a single Roman sherd and reliance on the single sherd would have given an incorrect date. One further point, the percentages in Table 14 relate the number of sites with pottery of a particular period to the total number of sites with that Type of briquetage. As some sites have pottery of more than one period the percentages when added across the line need not necessarily total 100.

VI. Groups

Once the Types had been established certain of them could be seen to include broadly similar characteristics. For example, Types 1, 7, 8 and 9 differed mainly in terms of fabric but the overall style of the briquetage and associated finds was sufficiently analogous to group them together. In the same way, Types 2A, 2B, 3 and 3A bore

Group	*Types*	*Total No. of Sites*	*Total Sites with I.A. Pot (Excl. Single Sherds)*	*Total Sites with R-B. Pot (Excl. Single Sherds)*	*Total Sites with No Pot*	*Suggested date of Briquetage*
A	1, 5, 7, 8, 9	51	24 (47%)	13 (25%)	18 (35%)	Mid Iron Age
B	2A, 2B, 3, 3A	112	10 (9%)	63 (56%)	38 (34%)	Roman (?Early)
C	2	20	1 (5%)	7 (35%)	11 (55%)	Undated
D	6	9	2 (22%)	1 (11%)	5 (55%)	Undated
Total		192	37	84	72	

Table 8 Briquetage: Identification of Groups

Group	*Total No. of Sites*	*No. of Sites on which Bars Occur*	*No. of Bars with % of Overall Total No. of Bars*	*Square Section*	*Rectangular Section*	*Circular Section*	*Oval Section*	*Misc*
A	51	3 (6%)	4 (7%)	0	2 (1T)	0	2 (1T)	0
B	112	8 (7%)	11 (20%)	2 (1T)	2 (2T)	3	2	2
C	20	9 (45%)	30 (56%)	3 (1T)	9 (2T)	4 (1T)	12	2
D	9	5 (45%)	9 (17%)	0	3	4	1	1
Total	192	25	54	5	16	11	17	5

(T = Taper)

Table 9 Briquetage: Bars

a strong resemblance to each other. These were classed as Groups A and B respectively. Types 2 and 6 were still seen as distinct both from each other and from Groups A and B and so formed their own Groups C and D. The Groupings are listed below with the broad date range of associated pottery.

VII. Fired Clay Objects

While much of the briquetage assemblage constituted amorphous baked clay fragments, some objects were identifiable. These fell into two main categories termed here Bars and Supports.

VIII. Bars

(Fig. 129)

These are elongated fired clay objects often described in literature as fire-bars. Below they are subdivided by shape of cross-section. The category of oval section incorporates examples referred to extensively by Hallam and others as cigar shaped. Certain examples of bars taper towards the end and these are listed adjacent to the relevant totals. No complete bars were found.

Few bars were found in groups A, B and D. There remains even less evidence of Group A bars if the two examples from site MOR 6, which has both Types 1 and 2 briquetage, are considered to belong to Group C. One of the two remaining examples is unparalleled elsewhere. It measures a mere 50mm x 120mm in section and is therefore not a 'firebar'. Group C's total is boosted by site MOR 69 which yielded 20 bars. It is sited on the landward Fen-edge, bordering a large Romano-British settlement and is the westernmost of the salterns.

Substantially more bars occur on Group C sites than on any other sites. They may imply a different, or a developing, salt extraction process but it is worth noting that the sites do not appear to represent either the earliest or latest in the chronological sequence.

There is no evidence to suggest careful manufacture of the bars, or indeed any of the briquetage. A variety of bars exists including one example from MOR 69 of a straight bar of circular section with an off-centre axial perforation (Fig. 129 No. 3) similar to Norfolk examples (Gurney 1986, 128-9). Others also broadly relate to recognised types. These include tapering rectangular section bars (Fig. 129 No. 4) which resemble the Class C examples of Bestwick (1975, 68-9) from Roman contexts at Middlewich.

Briquetage bars

(Fig. 129)

1. **Irregular incomplete bar**. Red/brown. Organic inclusions and one small fragment of flint. Morton (MOR 69).
2. **Hard-fired incomplete bar**. Fabric mottled off-white and pale brown. Patchy thin off-white surface deposit. Sparse crushed stone inclusions. Billingborough (BIL 21).
3. **Hard-fired incomplete bar**. Off-centre void. Dark grey fabric with sparse organic inclusions. Morton (MOR 69).
4. **Tapering bar**. Red/brown fabric. Organic inclusions. Morton (MOR 69).
5. **Tapering bar**. Red/brown fabric. Organic and flint inclusions. Morton (MOR 69).
6. **Tapering bar**. Red/pink fabric with dark grey exterior. Dense organic inclusions. Morton (MOR 69).
7. **Rectangular section bar**. Off-white/light grey fabric with dark grey exterior. Dense organic inclusions. Morton (MOR 69).

Group	*Total No. of Sites*	*No. of Sites on which Supports Occur*	*No. of Supports (with % of Overall Total No. of Supports)*	*Hourglass*	*Cylindrical*	*Other*
A	51	18 (35%)	100 (79%)	83	6	11
B	112	14 (13%)	18 (14%)	8	5	5
C	20	6 (30%)	8 (6%)	1	1	6
D	9	1 (11%)	1 (1%)	1	0	0
Total	192	39 (20%)	127	93	12	22

Table 10 Briquetage: Supports

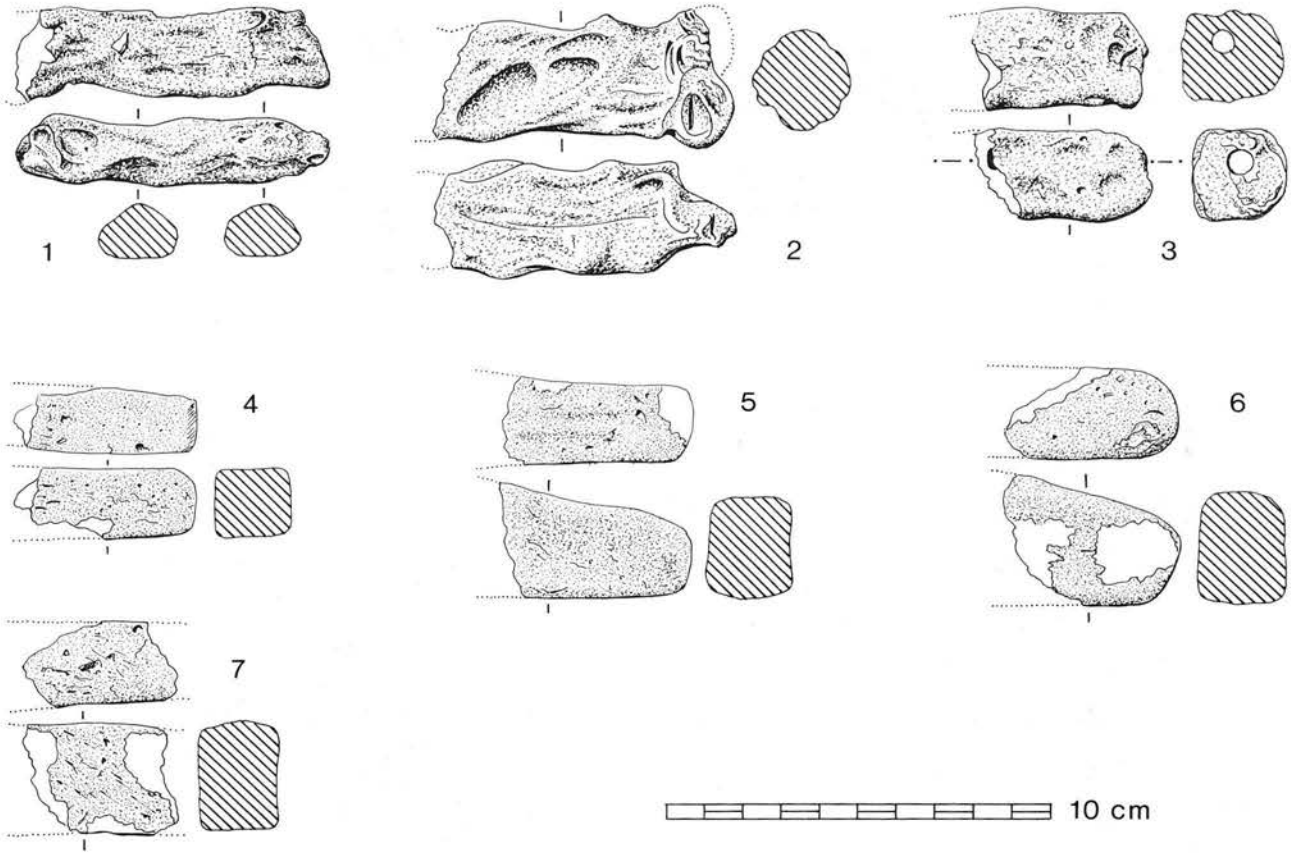

Figure 129 Bars 1. MOR 69; 2. BIL 21; 3-7. MOR 69

IX. Supports and Clips
(Fig. 130)

Supports, like bars, are individually and crudely manufactured and apparently designed to hold in position and/or to stabilise a tray or trough used in an evaporation phase of salt production.

A variety of shapes and sizes was recorded. Supports were divided into two categories: Hourglass supports and Cylindrical supports. The former, so called because of the distinctive pinched middle of many examples, is generally 2-3cm high with splayed ends *c.* 1.5-2.0cm diameter. They are overwhelmingly a feature of Group A (Iron Age) sites. Some examples appeared to have been used in an upright position as vertical supports (Fig. 130 Nos 1-4) while others of superficially similar shape were probably used as spacers or clips (Fig. 130 Nos 5-9). Many of these have impressions of vessel rims indicating they were used horizontally to secure parallel troughs by means of bridging with plugs of wet clay. Similar objects are known from the Iron Age salterns at Ingoldmells (Swinnerton 1932, 249 Nos 9A and 9B; May 1976, 150 No.3).

Clips were found which had been used on vessels with curving walls and others from vessels that had near vertical sides (Fig. 130 Nos 9-11). A few clips were found with rim impressions at one end and flattened at the opposite end. These presumably held trays secure against walls. Due to their basic similarity in size and shape and because in many cases their exact position when in use cannot be determined, (vertical) hourglass supports and (horizontal) clips have been grouped together.

Cylindrical supports tend to be less pinched, of greater dimensions, up to 8cm tall by 4cm diameter, and have an apparent vertical use. Complete examples are illustrated (Fig. 130 Nos 12 and 13). Many variations exist within the size and form-range of cylindrical supports. A variety of other forms of variously complete supports was recorded (Fig. 130 Nos 14-17)

The apparent imprint of a trough base on one support suggests it was first used in a wet, unfired state. Later re-use in a fired form would have been possible.

Group	*Total No. of Sites*	*Total No. of Sites with Bars and/or supports*
A	51	20 (39%)
B	112	20 (18%)
C	20	12 (60%)
D	9	6 (67%)
Total	192	58

Table 11 Briquetage: Bars and Supports

Briquetage. Supports and clips
(Fig. 130)

1. **'Hourglass' support**. Light brown/red fabric. Organic inclusion. Morton (MOR 13).
2. **'Hourglass' support**. Red/brown fabric with off-white deposit on top and bottom surface. Morton (MOR 13).
3. **Incomplete 'hourglass' support**. Red/brown fabric. Morton (MOR 13).
4. **'Hourglass' support**. V. hard fired. Red/brown fabric. Cowbit (COW 24).
5. **Clip**. V. hard fired. Red/brown fabric. Morton (MOR 54).
6. **Clip**. Red/brown fabric. Hacconby (HAC 25).
7. **Clip**. Pinkish red fabric with patchy off-white surface areas. Morton (MOR 13).

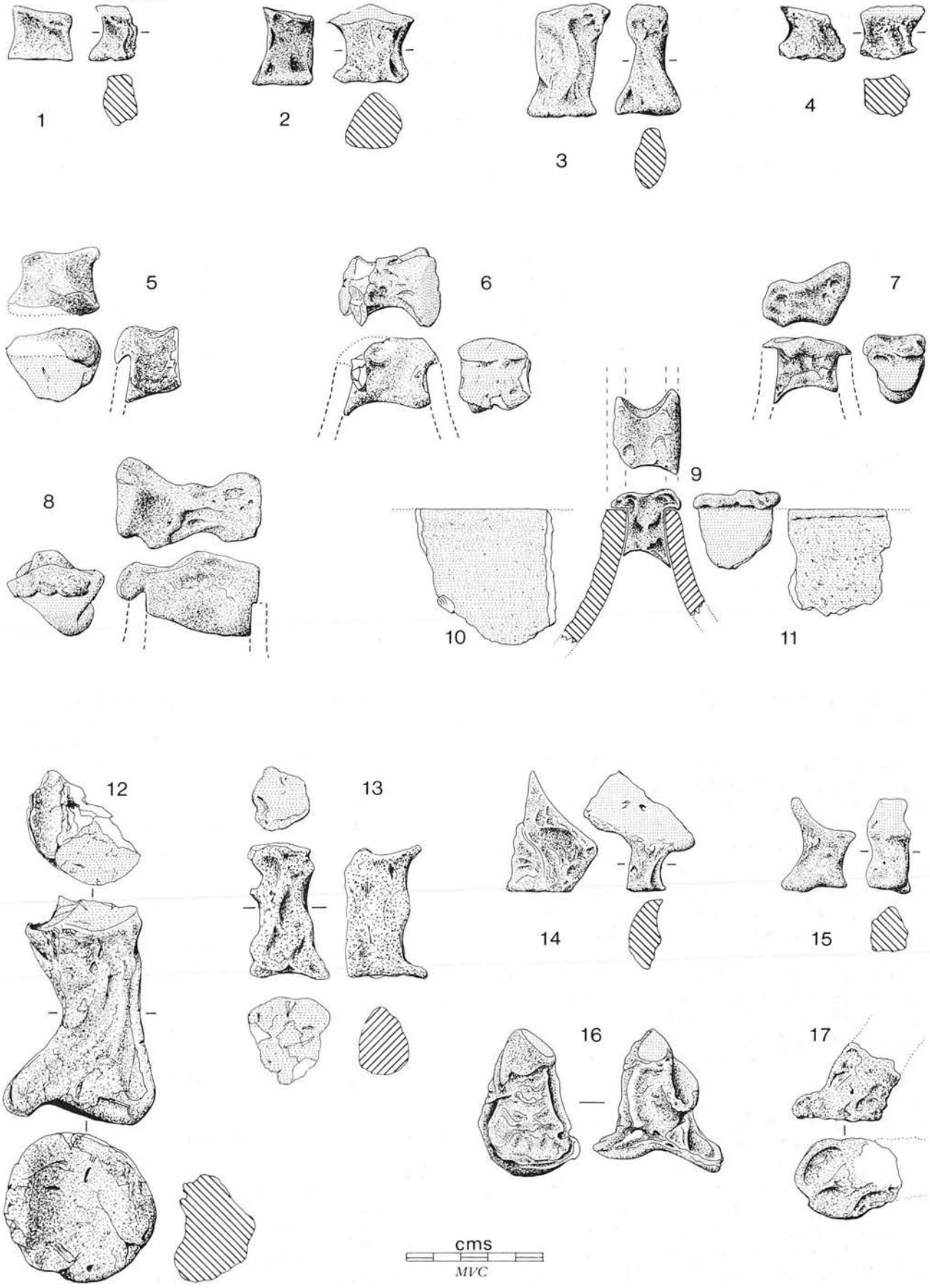

Figure 130 Supports and Clips 1-3. MOR 13; 4. COW 24; 5. MOR 54; 6. HAC 25; 7. MOR 13; 8. BIL 21; 9-11. Clips and rims MOR 13; 12. MOR 49; 13. COW 32A; 14-15. MOR 13; 16. BIL 21; 17. COW 32B

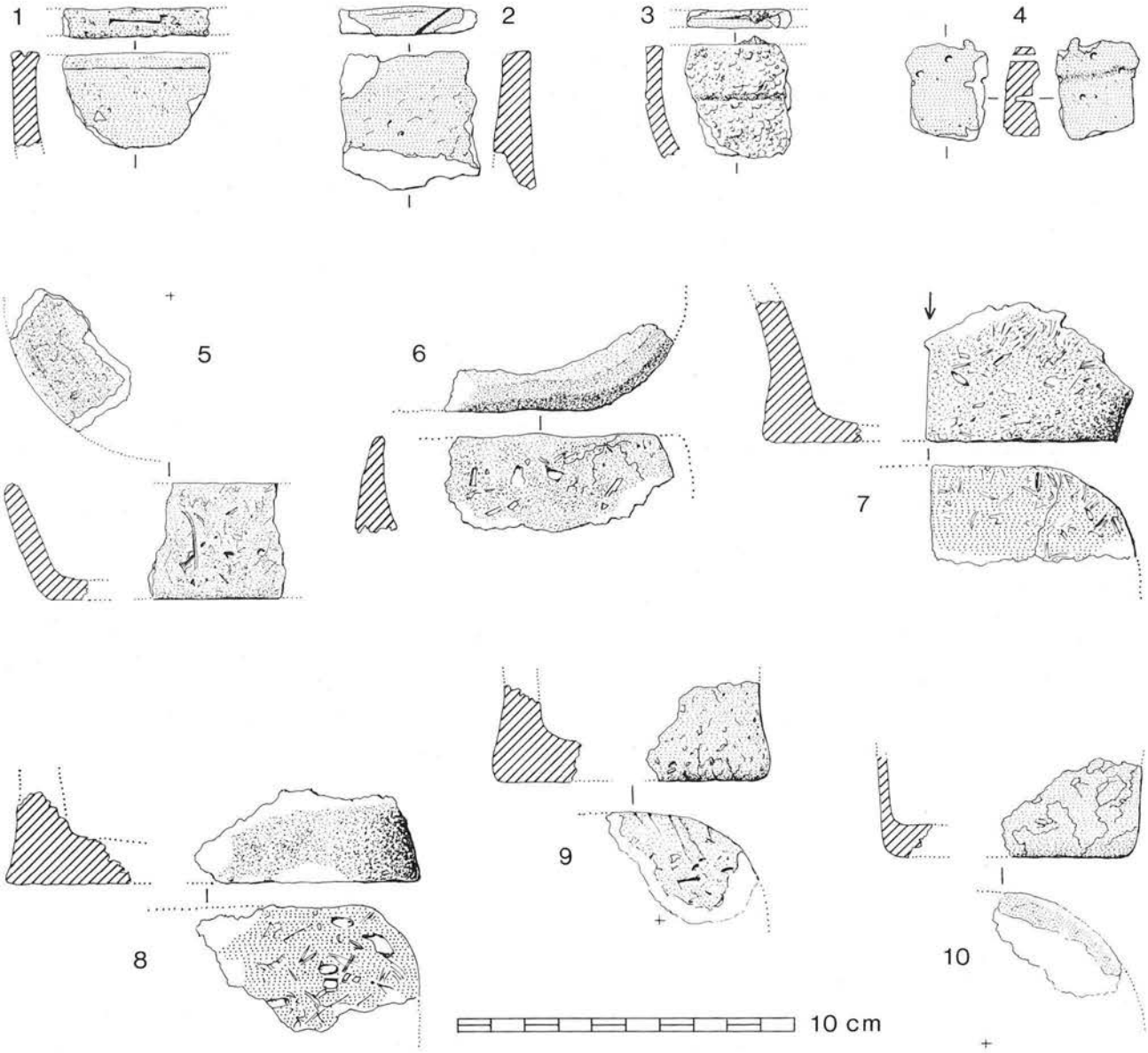

Figure 131 Vessels 1. MOR 13; 2. MOR 69; 3. RIP 20; 4. MOR 69; 5. MOR 49; 6-8. BIL 7A; 9-10. MOR 69

8. **Clip**. Reddy brown and in places off-white fabric. Off-white or yellow surface deposit. Crushed flint inclusions. Billingborough (BIL 21).
9. **Clip**. Reddy pink fabric. Morton (MOR 13).
10. **Flat rim vessel fragment**. Reddy/brown fabric with off-white or yellow deposit on external surface. Crushed shell inclusions. Morton (MOR 13).
11. **Flat rim vessel fragment**. Reddy/brown fabric. Morton (MOR 13).
12. **'Cylindrical' support**. V. hard fired. Pinkish red fabric with external off-white surface coating. Morton (MOR 49).
13. **'Cylindrical' support**. Pinkish red fabric with patchy external off-white deposit. Cowbit (COW 32).
14. **Support?** Red/light brown fabric. Organic impressions. Morton (MOR 13).
15. **Support?** Pale grey fabric with brownish tinge. Morton (MOR 13).
16. **Support**. V. hard fired. V. light brown fabric with stone inclusions. Billingborough (BIL 2).
17. **Incomplete object (support?)** Red/brown fabric. Cowbit (COW 32).

X. Vessels

(Fig. 131)

Fragmentary sherds of vessels appear on many of the sites. These are thought to be from trays or troughs but none survived in sufficient detail to reconstruct forms or to estimate the size. Some rim sherds were found and these are generally from non-circular vessels. Wall sherds were generally narrow and unlikely to have been derived from deep vessels. The only full profile from a vessel (MOR 48 Fig. 131 No. 5) shows it to have been no more than 4cm high.

Several of the sites with Type 1 briquetage yielded vessels with a narrow wall (*c.* 0.5cm) which had, before being fired, a linear incision made *c.* 1.0cm below, and parallel with, the rim. Some are from vessels with near vertical sides (Fig. 131 Nos 1-2). On certain examples the rim was formed by cutting the clay prior to firing. In the case of one (RIP 20, Fig. 131 No.3) the incision did not fully truncate the clay and the remaining intact clay was broken after firing. Similar cuts have been noted on

briquetage found in Iron Age contexts in Dorset (Farrar 1975, 16-17).

Remains from sub-rectangular troughs were found on the Group B site BIL 7A (Fig. 131 Nos 6-8). One had received a vertical cut prior to firing (Fig. 131 No.7). This site also has sherds from a more standard type of circular pot but in a briquetage fabric. Possible parallels to these troughs are known from Ingoldmells (Swinnerton 1920; Baker 1960 and illustrated by May 1976, 148)

Briquetage vessels

(Fig. 131)

1. **Rim sherd**. Hard red/brown fabric. Single incised line c. 50mm below and parallel with rim. Morton (MOR 13).
2. **Rim sherd**. Red/brown fabric. Morton (MOR 69).
3. **Rim sherd**. Red/brown fabric. Crushed shell inclusions. Single incised line c. 1.5cm below rim. Rippingale (RIP 20).
4. **Body sherd**. Red/brown soft fabric. Two complete and two partial perforations. Morton (MOR 69).
5. **Sherd of shallow vessel**. Off-white fabric on inside and outside, grey in middle. Organic inclusions. Morton (MOR 49).
6. **Rim sherd**. From corner of vessel. Hard red/brown fabric. Organic inclusions. Billingborough (BIL 7A).
7. **Base sherd**. Predominantly off-white fabric with red/brown internal surface. Organic inclusions. Billingborough (BIL 7A).
8. **Base sherd**. Off-white fabric with pinkish tinge. Red/brown internal surface. Organic and grog inclusions. Billingborough (BIL 7A).
9. **Base sherd**. Hard fired. Pinkish/red fabric. Inclusions of small stones and sparse organic material. Morton (MOR 69).
10. **Base sherd**. Hard fired. Pinkish/red fabric with some dark grey deposits on external surface. Organic inclusions. Morton (MOR 69).

XI. Miscellaneous Briquetage

(Fig. 132)

Other items found on saltern sites during the survey have parallels elsewhere. A wedge-shaped piece from the Iron

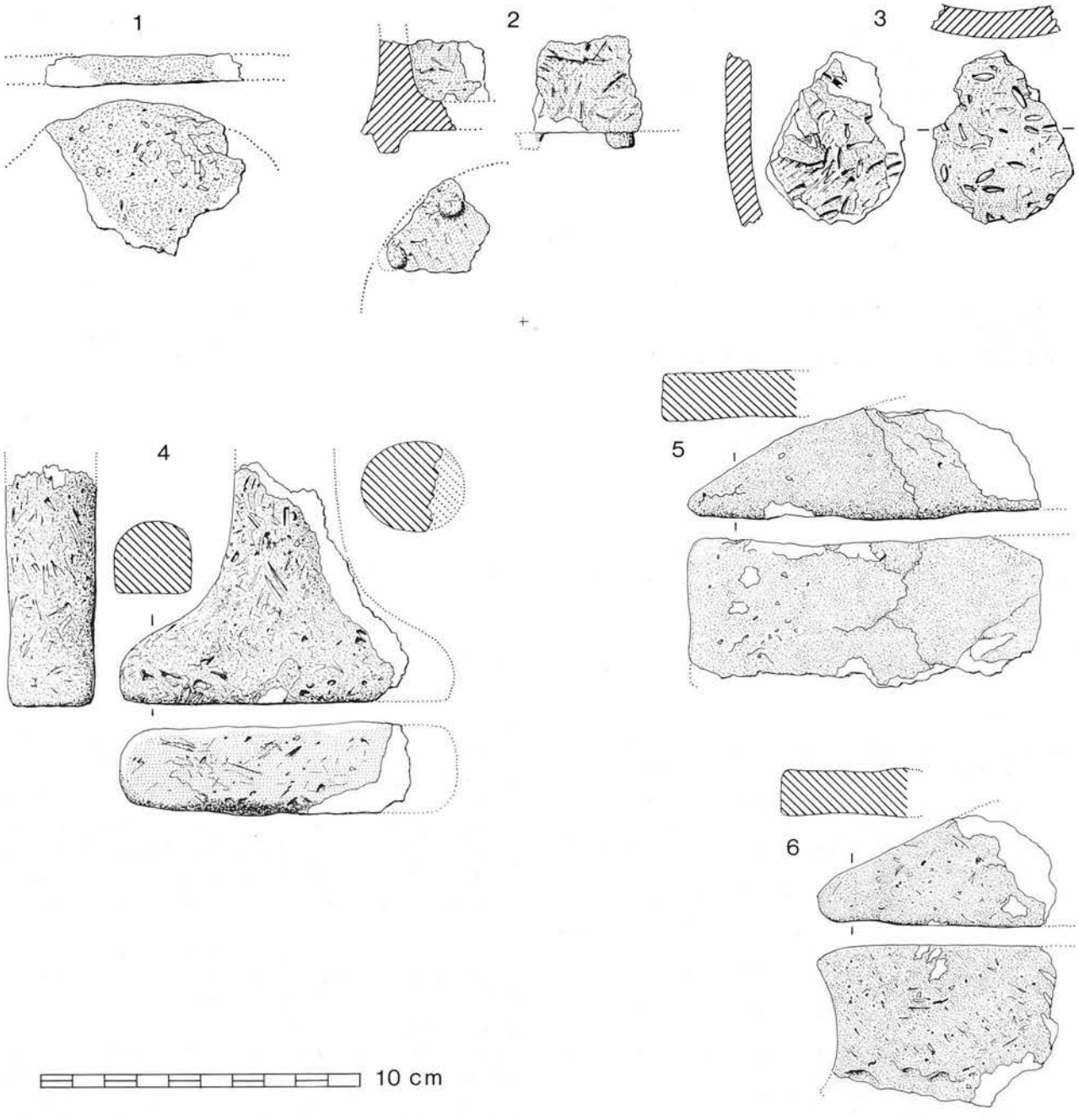

Figure 132 Miscellaneous Briquetage 1. MOR 15 (Lid?); 2-3. MOR 67; 4. MOR 66; 5. MOR 13; 6. BIL 21

Age site MOR 13 resembles others described as fire bars in de Brisay (1973, 33) and those in Riehm (1961, 188). A 'T' shaped bar from MOR 66 (Fig. 132 No.4) is similar to an excavated example from Helpringham (Simmons 1975b, 35). The base with protruding stud (MOR 67, Fig. 132 No. 2) is thought to be unique. Part of a circular slab of fired clay on MOR 15 (Fig. 132 No. 1) is a possible lid with a reconstructed diameter of 12cm.

Miscellaneous briquetage
(Fig. 132)

1. **Fired clay sherd**. Possible vessel lid. Grog inclusions. Red/brown exterior with patchy off-white surface deposit. Morton (MOR 15).
2. **Base sherd of ?vessel**. Off-white/yellow fabric with dense organic inclusions. Morton (MOR 67).
3. **Vessel body sherd**. Light brown fabric with dense organic inclusions including voids of seeds. Morton (MOR 67).
4. **Incomplete support**. Fabric reddy/brown exterior, off-white interior. Patchy off-white surface deposit. Organic inclusions. Morton (MOR 66).
5. **Wedge-shaped piece**. Hard fired. Incomplete. Generally light-brown but redder and blacker near broken end. Crushed shell and limestone inclusions. Morton (MOR 13).
6. **Wedge-shaped piece**. Hard fired. Incomplete. Extensive off-white surface deposit on red/brown fabric. Small stones and grog inclusions. Billingborough (BIL 21).

XII. Distribution

South from Morton extensive tracts of peat created by the debouchment of the rivers Bourne Eau, Glen and Welland spread seaward during the Iron Age and denied tidal waters access to the fen-edge. However, between Morton and Rippingale to the north, where the peat was narrower and a creek continued in use into the Roman period, a group of mainly Iron Age salterns was aligned along the fen/dry land junction. North of Rippingale, well away from the influence of larger rivers, no evidence of similar sites was found. Here the gravels shelve gradually beneath the shallow marine sediments and probably the peat did not develop there sufficiently to enable early 'industrial' exploitation. The distribution of Group A (Iron Age) sites is shown (Fig. 133).

In Morton and Bourne a few Iron Age salterns were in use on the seaward side of the peat. In Morton these have been affected by later silting which all but obscures MOR 37, 38 and 39 and may well mask other contemporary sites. BOU 2 and 3 occupied the most northerly branch of the Spalding roddon some 4km east from the fen-edge. Further south Iron Age salterns were thinly scattered along other branches of this creek system in Deeping Fen. A major concentration of Iron Age salterns was found in Cowbit on the levees of the prehistoric course of the Welland. These sites have been provisionally dated to 3rd-2nd century BC by associated domestic pottery (Fig. 137 Nos 26-30 and Lane 1986, 10-12). In Whaplode parish, some 8km east of Cowbit, Hallam's site 3218 (1970, 308) yielded 'a hand made calcite-gritted bowl in the Iron Age A tradition', suggesting a more extensive distribution of Iron Age culture.

Group B (Romano-British) sites (Fig. 134) were generally found on the seaward limits of the peat, often further east than their Iron Age equivalents. A similar pattern has been recognised on the fen margins north of the survey area (Simmons 1980, 61).

The more westerly Roman sites, mainly in Morton, were beside a creek which drained east through Hacconby and Dunsby. In Pinchbeck South Fen many sites were recorded along a major roddon bordering the low lying Pode Hole area (Lane 1986, 9). Few Group B salterns could exist on the wide silt expanses of the Spalding roddon which had become, by the Roman period, largely inactive.

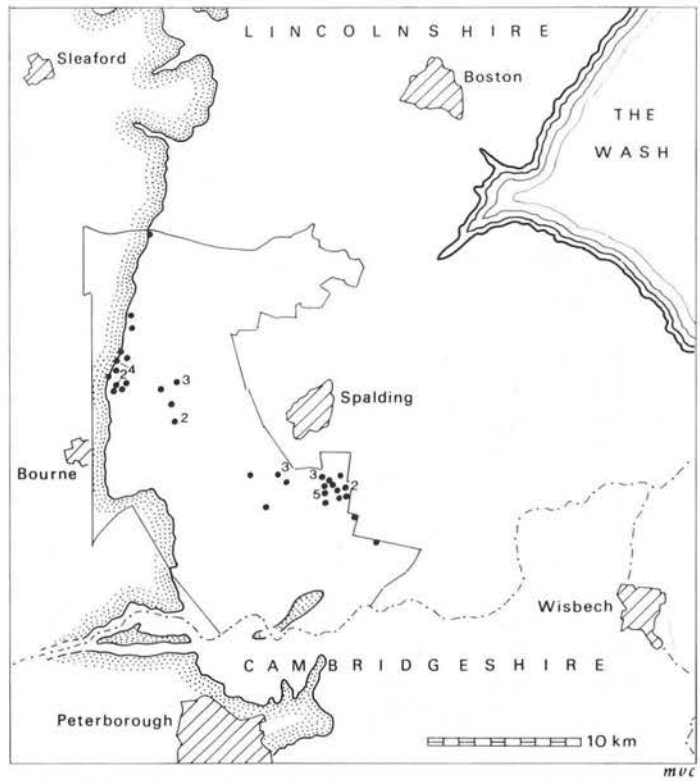

Figure 133 Distribution of Salterns (Group A) Scale 1:500,000

The overall impression is that the Roman saltern phase was predominantly early in the period, though continued post-industrial use and re-use of saltern areas as habitation sites prohibits close dating within the Roman period. Hallam, S.J. (1970, 70) concluded that salt production in the Lincolnshire Fens was related solely to the early phase of Roman activity. Similarly, in Hampshire, Bradley (1975, 25) noted the decline of the briquetage around 100 AD and suggested that this was due to a refinement of the technique to one leaving no archaeological trace. However, dates in the late 2nd/early 3rd century AD were recently suggested for Roman saltmaking at Denver, Norfolk (Gurney 1986, 137).

Group C sites (Fig. 137) are not well dated by pottery. Type site MOR 9 has Middle Iron Age (06) pottery whereas seven of the remaining nineteen yielded Roman sherds. Distribution of these sites broadly overlaps with that of the Group B sites. The exceptions, MOR 24, HAC 14, DUN 2 and RIP 22 occupy landward positions similar to the Iron Age salterns. Perhaps an intermediate phase is represented.

Dates for the Group D sites (Fig. 136) are also inconclusive. Pottery was present on two of the nine Group D sites (one site had both Iron Age and Roman sherds). Iron Age pottery was found on POI 25 and DSN 3, though finds on the latter were predominantly Roman. DSN 3 was also the least certain site of those assigned to that particular briquetage group and was the most distant from the main distribution area of Group D sites which centred on the low islands in Dowsby and Rippingale Fens.

Peat is likely to have fringed these islands in the Iron Age and provided suitable fuel for saltmaking. Perhaps significantly, Roman salterns were also noted seaward of these islands in Gosberton and are the most easterly such sites in the area. In Rippingale a canal of presumed Roman origin truncates the Group D salterns. Its precise date of construction is not known but its use would clearly have affected the natural development of the creeks. If its construction did not entirely post-date the salterns it would certainly have caused their demise. Topographical evidence is suggestive of a pre-Roman date for Group D salterns but, as their distribution does not relate wholly to the recognised (middle) Iron Age pattern perhaps an intermediate date would again be more suitable. If such an intermediate phase existed in Cowbit and Crowland its discovery remains lost for the present in the complexities of the fabric sub-types. Briquetage from the edge of the silts in Cowbit and Crowland is generally less distinctive than that from the northern parishes.

This homogeneity of briquetage fabrics in the south doubtless arises from the continued use of the same local sources of marine clays which are generally siltier and sandier than those found on the fen-edge in the north of Morton.

The characteristic crudity of manufacture suggests the briquetage was produced on site. However, sparse stone and concretions infrequently occur among the chopped vegetation in some fabrics. Study of the marine clays in Billingborough Fen (Hayes 1985b, 245-60 and 1987a), shows that such stones would not occur naturally in the marine clays near the surface except close to islands.

Before it was fired, the clay had undergone a certain amount of preparation. For instance, the Type 1 'vessel' fragments have moderately dense shell tempering, though in many cases supports on the same sites have no such inclusions.

Chopped vegetation was abundantly mixed with the Type 3 briquetage and is more sparsely present in other Types. Mr. R. Alvey examined a number of sherds from selected sites in each group. He concluded that tempering was generally cereal waste rather than naturally

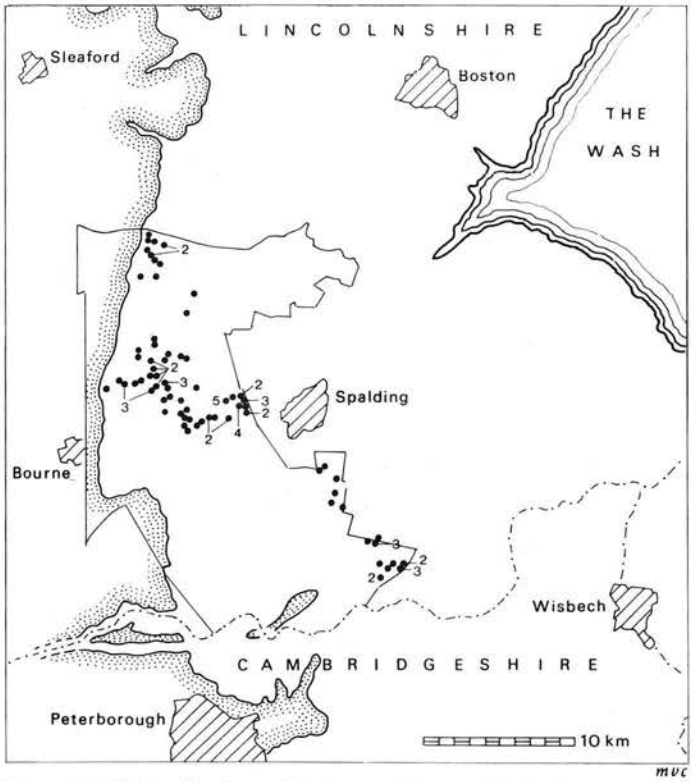

Figure 134 Distribution of Salterns (Group B) Scale 1:500,000

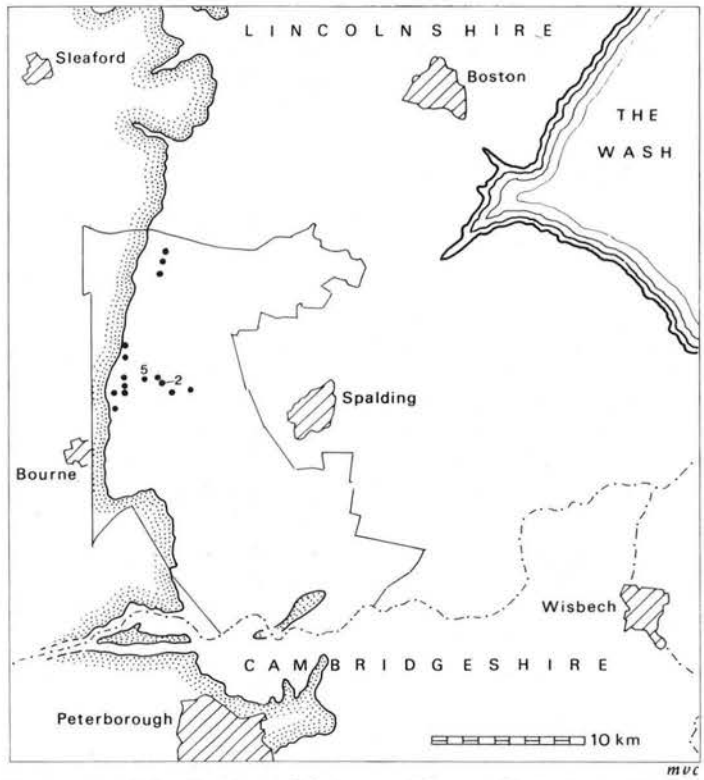

Figure 135 Distribution of Salterns (Group C) Scale 1:500,000

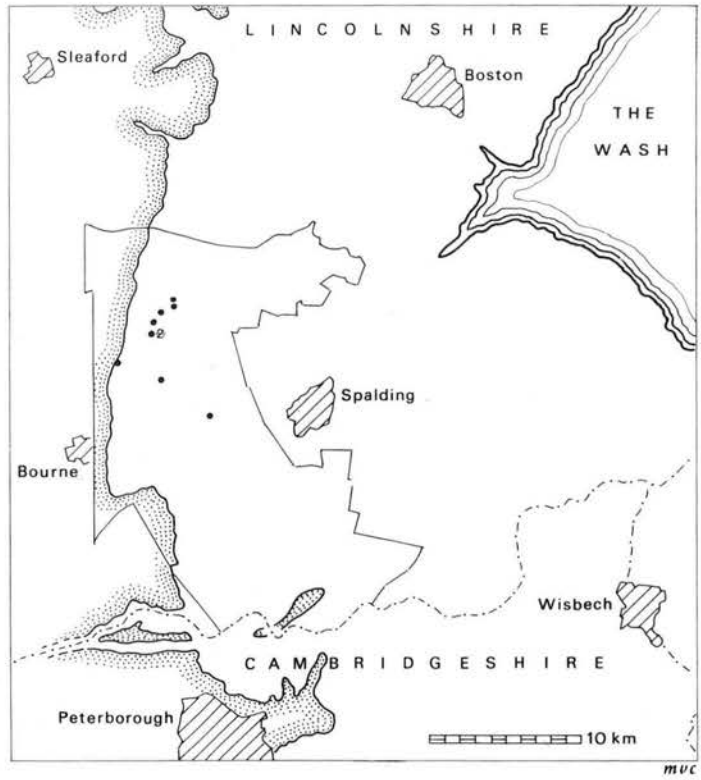

Figure 136 Distribution of Salterns (Group D) Scale 1:500,000

occurring wetland vegetation. On some fragments seed impressions were also evident and the following species were identified:

Group A (Iron Age): *Bromus*, Emmer
Group B (Roman): *Bromus*, Emmer, Spelt, *Hordeum, Avena*
Group C (Undated): *Avena, Hordeum*
Group D (Undated): no positive identifications

It was Alvey's opinion that the inclusions in the briquetage represented waste from thrashing and that, prior to the removal of husk, spikelets *etc.*, the cereal must have undergone the process of drying. The briquetage from Denver (published in Gurney 1986, 134) was also found to include material which was interpreted as 'largely the waste from the processing of spelt and six row hulled barley'.

Spelt had previously been identified in briquetage from Lincolnshire (Hallam, S.J. 1970, 63), and spelt and weeds of cultivation were also used in briquetage in Hampshire (Bradley 1975, 23).

Though some cereals were doubtless grown on the highest siltland in the Roman Fens, cereal and salt production could hardly have co-existed. If briquetage was manufactured on the site the threshing waste can only have been a deliberate and integral part of its manufacture to the exclusion of the more widely available local vegetation. The deliberate addition of cereal to the clays is further suggested by its discovery in the finds from salterns with no associated settlement and therefore no likelihood of accidental inclusion (if the briquetage was made on that site).

XIII. Summary

In this chapter no attempt has been made to speculate on the methodology of the salt extraction process. That is beyond our brief. The contribution the Fenland Project has made to the question of salt producing sites has been to record the distribution of salterns, to relate them to environments, to suggest that the analysis of briquetage is worthwhile in order to draw conclusions regarding chronology, and to emphasise that salt making took place in the Iron Age well to the east of the fen-edge. Now the artefacts have been examined we are eager to learn how saltmaking can be viewed and expressed in economic and social terms. Was it really an 'industry' rather than a part-time subsistence activity? If so we need to understand its production capacity, its markets, its labour requirements, its value to the economy, its longevity, its controllers and organisers and the basic techniques of manufacture.

The findings of the briquetage classification are, at least, pointers for future research. Briquetage from Lincolnshire could usefully be compared to that from the neighbouring Fenland counties. A spectrographic analysis of the clays and a study of diatoms within the briquetage would be beneficial. Above all, selective excavation on the Type sites is needed to enhance knowledge of the sites and their chronology.

21. Prehistoric Ceramics
by Tom Lane

I. Introduction

While prehistoric pottery did not dominate the overall ceramic assemblages recovered during the survey, it did offer a broader chronological and typological range and a greater abundance of sherds than had been anticipated.

It was recognised early in the survey that the sherds, in particular the Iron Age wares from the Fen, were to become vital pieces of evidence in attempts to interpret the chronology of landscape changes. After initial recognition of the pottery as pre-Roman, further opinions were sought from the Trust's prehistorian Peter Chowne (now with the Trust for Wessex Archaeology). It was considered that, with the limited time available, the specialist could, initially, simply suggest a range of dates for as many sherds as possible. It was also agreed that some supplementary research on the Iron Age wares would be neccesary in order to understand more fully the nature of the previously unrecognised Fenland settlements. Due to the unprecedented quantities of pre-Roman sherds that were found and the time necessary to process such numbers there remained little time in which to undertake research on the previously unrecognised pottery types.

In the following report, compiled in Dr. Chowne's absence, the method of analysis has been outlined but no attempt has been made to describe individual sherds or discuss the various forms or fabrics.

Code	*Period*	*Approximate Date Range BC (Calendar Years)*	*Wares*
01	Early-Middle Neolithic	pre 2850 BC	Giants' Hills, Skendleby, Tattershall Thorpe, Grimston, Mildenhall
02	Late Neolithic	2850-2250 BC	Peterborough, Grooved Ware, Early Beaker
03	Earlier Bronze Age	2250-1850 BC	Late Beaker, Food Vessel, Collared Urn
04	Later Bronze Age	1850-1000 BC	Billingborough
05	Late Bronze Age/Early Iron Age	1000-400 BC	Billingborough, Maxey, Washingborough
06	Middle Iron Age	400-150 BC	Billingborough, Ancaster, Fiskerton, Helpringham
07	Late Iron Age	150 BC—AD 100	Billingborough, Sapperton, Old Sleaford
08	Prehistoric	pre- AD 100	

Table 12 Ceramic Chronology—Prehistoric

II. Method

Pottery was initially sorted by the Survey Officers and any recognised prehistoric sherds were forwarded to the specialist along with any of uncertain but possible prehistoric origin. Where the presence of earlier sherds was suspected in predominantly Romano-British collections these assemblages were sorted by the prehistoric specialist. Some prehistoric sherds were also identified during analysis by the Roman ceramics specialist and transferred to the correct assemblage.

Each prehistoric sherd was examined and provisionally dated using form, style, fabric, decoration, and parallels with known vessels. Sherds were then assigned to one of seven categories (01-07) each representing a specific range of dates (Table 12). A further code number, 08, was used for sherds recognised as prehistoric but not more closely datable at the time. A selection of sherds representing each dated group is illustrated (Fig. 137).

III. Results

In total 2447 sherds of prehistoric pottery were subjected to analysis. These were listed as follows:

Code	*01*	*02*	*03*	*04*	*05*	*06*	*07*	*08*
Number Found on Survey	0	1	69	451	109	1247	3	567
% of Overall Total	0	0.04	2.82	18.43	4.45	50.97	0.12	23.17

Table 13 Prehistoric Sherds: Quantities and percentages by period

IV. Regional Distribution

On surveys of this scale and intensity site distribution patterns can reflect with accuracy the preferred areas of habitations or industries for the majority of archaeological periods. In the Fenland these patterns can also be related to, and often explained by, changes in natural environment.

In order to examine the preferred choice of site location (as indicated by discarded pottery) in relation to the natural environment the prehistoric pottery sherds were quantified and grouped according to their provenance within the following environmentally distinct areas.

1. *Northern Fen Margins:* flood-free 'upland' bordering the marine deposits between Billingborough and Hacconby. *i.e.* the fen-edge parishes in part 1. The border between Hacconby and Morton is the natural boundary between different phases of marine flooding.
2. *Northern Islands:* flood-free ridges of pre-Flandrian soils north of Hacconby.
3. *Northern Fenland:* the area affected by marine sedimentation and peat development between Billingborough and Hacconby.

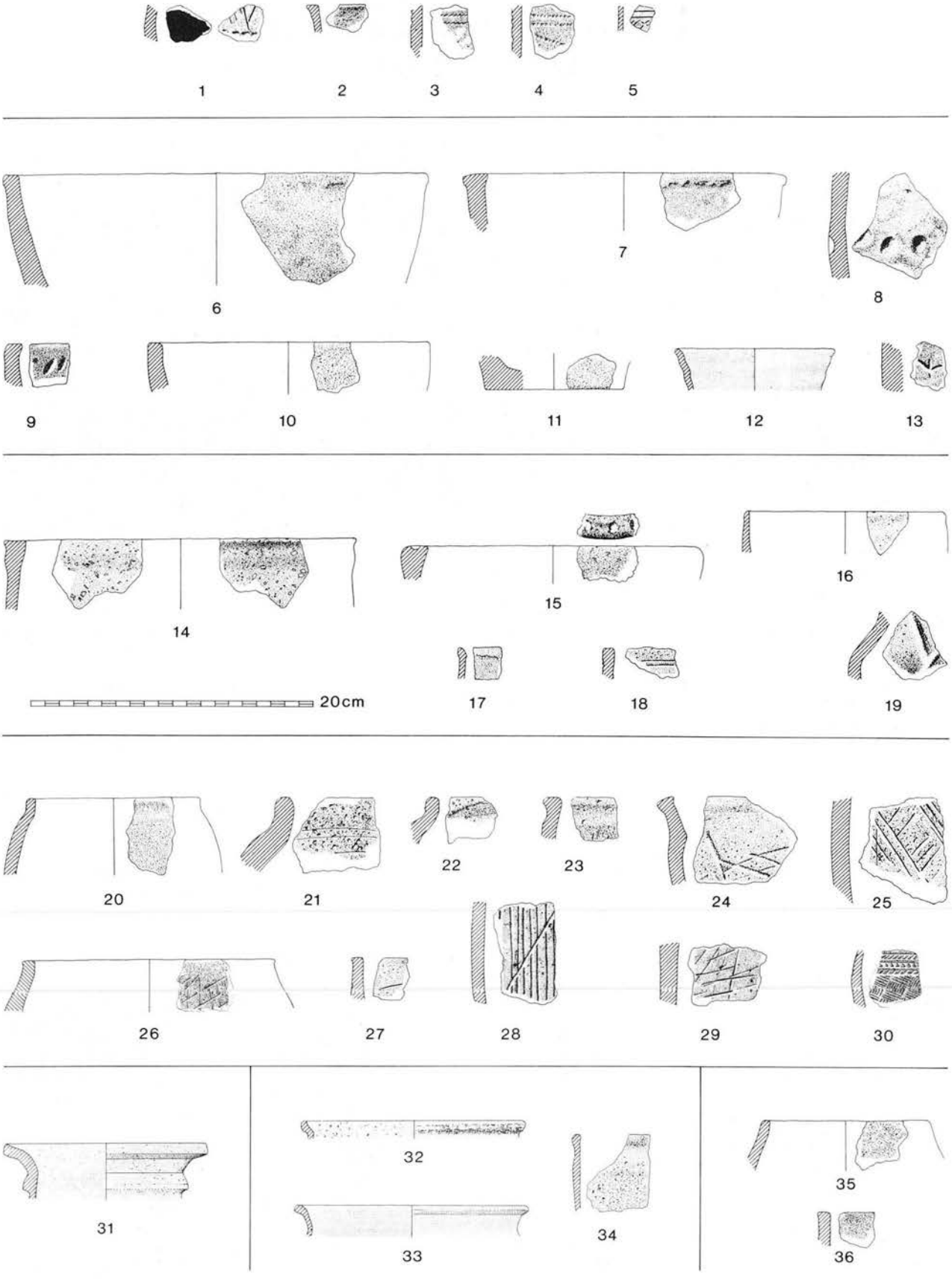

Figure 137 Prehistoric pottery 1-5. 03; 6-13. 04; 14-19. 05; 20-30. 06; 31. 07; 32-34. 07/08; 35-36. 08

4. *Southern Fen Margins*: flood-free 'upland' bordering the marine deposits between Morton and Crowland, *i.e.* the fen-edge parishes in part 2.
5. *Southern Islands*: flood-free ridges of pre-Flandrian soils south of Hacconby.
6. *Southern Fenland*: the area covered by marine sedimentation and peat development between Morton and Crowland.

	Fen Margins	*Islands*	*Fenland*
North	20%	1.5%	5%
South	47%	0.5%	25%

Table 14 Distribution of prehistoric sherds expressed as percentage of total assemblage

Similar tables have been produced for certain periods with the values expressed as percentages of the total sherd count for that individual period. No table has been prepared for the 03 finds because of their relative scarcity. However, most of those that were found came from the southern margins. Of the total of 69 sherds of 03 pottery 50 came from one site in Deeping St James. Nearby a second site yielded 119 sherds identifiable only as 03 and/or 04 and subsequently for these purposes regarded as 08.

	Fen Margins	*Islands*	*Fenland*
North	46%	8%	8%
South	38%	0%	1 sherd
Total of sherds = 451			

Table 15 04 (Later Bronze Age)

Table 15 indicates a relatively even distribution of sherds along the margins although Figure 123 indicates that the density of sites is greater in the north. The addition to Table 15 of the 119 sherds from DEJ 4 which are known to be either 03 or 04 would tip the balance in favour of a southern fen-edge domination.

The pottery in the northern Fenland comes from sites that were buried by the later marine sedimentation but have now been disturbed by agricultural activity and the finds incorporated into ploughsoil.

During the Later Bronze Age the area of the southern Fenland would have been characterised by tidal marsh conditions. It is known that at the landward edge in Bourne these marine conditions soon reverted to a freshwater dominated regime.

There probably existed along the southern fen margins a short period when the retreating marshes became mature enough to permit seasonal grazing and, at the same time, the encroaching peat fens were insufficiently developed to provide a major barrier in terms of access. This period would have come late in relation to the 04 pottery or early in the date range of 05. Such a phase may explain the presence of at least some of the sparse settlement occurring on the periphery of the active marsh, a location not favoured during similar inundations of the northern Fenland (see below).

Table 16 suggests a preference for habitation on the fen margins south of Hacconby during the Bronze Age/Iron Age transition (05). Such a preference (if this term may be used given the small number of sherds) may relate to the above mentioned suggested use of the

	Fen Margins	*Islands*	*Fenland*
North	13%	0	0
South	85%	0	2%
Total of sherds = 109			

Table 16 05 (Late Bronze Age/Early Iron Age)

southern marshes as a short-term seasonal grazing resource organised from the fen margin settlements. The date of 05 pottery also coincides with the onset of severe flooding from the sea in the north (Fig. 124). The decline in site density on the northern fen margins would appear to refute the idea that loss of land to the oncoming marine flooding further east created an intensification of land-use on the margins. A rising ground-water level and freshwater flooding would have preceded the arrival of the marine conditions. In practical terms the idea of living adjacent to the active and muddy marsh is likely to have been, at least during the initial stages of marsh formation, economically (and environmentally) unattractive.

	Fen Margins	*Islands*	*Fenland*
North	18%	0	5%
South	48%	1 sherd	29%
Total of sherds = 1247			

Table 17 06 (Middle Iron Age)

Table 17 indicates a greater capacity for utilisation of the longer established marshes of the southern Fenland area when compared to the immature, but developing, contemporary marshes in the north (Fig. 125). Many of the southern Fenland sites on which domestic pottery was collected were used for salt production during the Iron Age.

There are noticeable concentrations of sites on the southern margins, particularly around Thurlby and Market Deeping. These sites generally yielded more sherds than those further north. The average number of sherds per findspot on the southern margins is 27.0 compared to 12.6 in the north. Many of the northern margin sites also served as salterns while those on the southern margins were solely for habitation. The difference in abundance of finds is not, however, exclusively related to the non-industrial use of the southern sites. None of the individual sites within the cropmark enclosures at Pointon and Sempringham on the northern margins were connected with saltmaking but the average number of sherds on these sites, 13.88, is close to half that of the southern margins domestic sites.

The average for the southern Fenland sites is 17.3 sherds per findspot.

	Fen Margins	*Islands*	*Fenland*
North	8%	0	7%
South	26%	1%	58%
Total of sherds = 567			

Table 18 08 (undated prehistoric)

In Table 18 the 119 sherds from DEJ 4 have been excluded for they are known to be either Earlier (03) or Later (04) Bronze Age. If included in the table they would

boost the southern margin figure to 42% and reduce the southern Fenland to 46%.

The bulk of the remaining 08 sherds were considered by the specialist to be 'most probably' Iron Age in date. Indeed, the 08 distribution most resembles that calculated for 06 (Middle Iron Age). The bulk of the unidentified pottery was found in the southern Fenland, an area where no prehistoric pottery had previously been recorded.

V. Discussion

The subjective impression of the Field Officers has always been one of less early prehistoric activity along the western fen-edge when compared to that adjacent to the northern fens in the area of East and West Keal and the Toyntons.

The disparity of the archaeology in the hinterlands adjoining these respective fens also indicates a difference. Inland from the northern fens are the Lincolnshire Wolds, acclaimed for their pre- 2nd millennium BC finds and ritual monuments. Long barrows, common in the Wolds, are absent from the Jurassic limestone ridge bordering the western fens (May 1976, 42).

Within the area covered by this volume a further contrast was noted; this was between the Early Bronze Age activity on the northern and the southern margins. Excluding the Hoe Hills cemetery in Dowsby (Fig. 37) there was little previously recorded or published evidence of activity occurring prior to the Later Bronze Age from the fen margins north of Bourne. Little has been added to that picture. However, a greater early presence is indicated further south nearer the larger rivers, where ring ditches are now known to be relatively common. The prehistoric landscape in the south of Lincolnshire resembles that surveyed in north Cambridgeshire (Hall, 1987). A contrast in cropmarks generally between the north and south zones, and the regular occurrence of ring ditches on the southern margins has recently been noted during aerial reconnaissance (Pickering 1988, 39)

Early sherds formed only 13% of the Bronze Age total (03 and 04). However, the nature and condition of the two ceramic groups is different, the earlier finds being generally smaller, more friable and from finer vessels. The 04 pottery is almost exclusively coarser and more robust and therefore has a greatly enhanced chance of survival. Most 04 pottery resembles that excavated in quantity at Billingborough (Chowne 1980, 297; survey site BIL 2) and commonly found in excavated and ploughsoil contexts elsewhere in the south of the county (Chowne, 1977).

Quantification of the prehistoric pottery highlighted the remarkable imbalance between the totals of Middle (06) and Late (07) Iron Age pottery. Only three sherds, or less than 0.5% of the Iron Age total could be positively attributed to the century preceding the Roman Conquest. This compares with 1247 sherds identified as Middle Iron Age (06). Possible reasons for such a contrast could be summarised as either:

a) Non-survival in the ploughsoil of Late Iron Age ceramics;
b) Non-recognition of Late Iron Age ceramics;
c) Late Iron Age de-population;
d) An aceramic phase.

Late Iron Age pottery is known elsewhere in Lincolnshire. It was found during excavations at semi-urban sites such as Old Sleaford (Brown and Simmons 1985), Ancaster and Dragonby (now in South Humberside) (May 1976, 175-191). Late Iron Age wares have also been recovered both from the field surface and excavated areas at Sapperton (Simmons 1976, Whitwell 1982, 42). Sherds from these sites would seem sufficiently durable to survive in ploughsoil. Pre-Roman pottery has been found in rural contexts at Tattershall Thorpe (Chowne, *et al* 1986), though all the finds were sealed in the upper layers of ditch fill.

At Billingborough there were very few Iron Age sherds on the surface considering the size of the assemblage recovered during excavation of one side of an Iron Age enclosure ditch (Chowne, 1980). Recent work in the Welland Valley has demonstrated that the number of Iron Age sherds surviving in ploughsoil compared to those sealed in undisturbed underlying features was far less than for those of the Roman period (Crowther 1983, 35).

Whether all the 06 pottery really does belong in the 400-150 BC date range is not entirely proven. The presence in the assemblage of previously unknown fabrics renders positive identification of many sherds uncertain. Some vessels have similar decorative traits to published examples from the fen-edge sites at Fengate, Peterborough (Pryor, 1974, 28-9 and Pryor 1984, 140-1) where a date in the fourth century BC is suggested for the start of the Catswater settlement (Pryor 1984, 156). The fabrics of the Lincolnshire vessels are, however, dissimilar to Fengate types (P. Chowne pers. comm.).

How long the pottery lasted in Lincolnshire is unknown but it has been implied that some may have almost bridged the conventional Late Iron Age phase (Lane 1988, 320). What is certain, and surprising, is that few wheel-turned ceramics of the pre-Roman period were found.

Some of the comparatively abundant hand-made calcite-gritted wares found on predominantly Roman settlements south of Bourne may be from pre-Conquest forerunners of the sites though in general this 'shelly' pottery remains notoriously difficult to date.

It is possible that there was a late continuation of essentially Middle Iron Age potting traditions. If so, one reason for this could be isolation from cultural influences, particularly in respect of the sites seaward of the peat.

By the Middle Iron Age the developing peat would have all but severed direct routes, and reduced contact, between those on the southern margins and their contemporaries dwelling and making salt on the marshes several kilometres to the east. In this relative isolation indigenous ceramic styles may have evolved. Established traditions may even have become influenced by styles introduced by immigrants (though there are no positively identified vessels of foreign origin).

Another reason for the possible late continuation of styles may relate to social and political changes that are implied by the apparent creation of proto-urban centres in Lincolnshire late in the Iron Age (May 1984, 18). This development may be indicative of an economic, and perhaps social, restructuring which concentrated the wealth and the new wheel-turned pottery in the towns, with very little filtering back to the rural sources.

The problems of chronology and the late prehistoric sites of the Lincolnshire Fenland can be overcome but the recovery of a well stratified and accurately dated sequence of pottery is a fundamental requirement to further research.

22. Roman Pottery and Landscape Archaeology in the South Lincolnshire Fens

by P.P. Hayes, T.W. Lane and J.R. Samuels

I. The Aims of This Chapter

In many archaeological reports separate sections are set aside for the analysis of pottery and other artefacts by specialists and these 'specialist reports' are often published as appendices. This chapter adopts a different approach, bringing together elements of the field survey results and post-survey work on the Roman pottery, under the co-authorship of the survey officers and the pottery specialist. The intention is to combine spatial information from the field survey with typological information provided by the pottery analysis. The Roman pottery has been classified and analysed to answer questions generated by the survey. Care has, however, been taken to ensure that the detailed work on the pottery has been carried out so as to produce a wealth of factual information capable of being used not only in future Fenland studies but also in connection with wider topics. The classification system is capable of being adopted for subsequent analyses of Roman pottery throughout Lincolnshire and the East Midlands.

The pottery classification system is based on the earlier work of many other researchers in this field, in particular Simmons 1975c; Darling 1977; Whitwell 1979 and Buckland *et al* 1980. It was reviewed by Samuels (1983) in a special study of Roman pottery in the East Midlands and the present system is a revised version.

All the pottery is divided into nine major categories (such as grey-wares). Each major category is subdivided on the basis of form and decoration. The first subdivision in each category covers the bulk of the survey finds: formless, undecorated fragments. The list of subdivisions is open-ended, so that new forms can be added if necessary. In some cases a particular manufacturing area, kiln or special fabric can be recognised. The classification system allows this additional information to be noted, again using an open-ended notation scheme which will accommodate any future discoveries. Thus the system is very flexible and the results can be analysed at various levels of detail.

II. The Purpose of the Pottery Analysis

In the course of their fieldwork the survey officers formed impressions about the landscape history of individual parishes and groups of parishes. It appeared that in all periods, not just the Roman, there were considerable differences between the north and the south of the Survey area. In general, changes in the natural landscape seemed to occur later in the north than in the south, and there were analogous disparities in the archaeological evidence. Thus, Early Bronze Age sites (including barrows) were common along the fen-edge in the south, whereas the north appeared to have an abundance of Middle Bronze Age sites. To take another example, later Roman wares seemed to be more common in parts of the north than in the south. This general observation needed to be scrutinized and clarified because it had fundamental implications for the interpretation of the survey information.

In the field the survey officers had mapped the courses of roddons, the locations of archaeological sites, and the approximate extent of peat (or former peat), marine alluvium, freshwater alluvium, and pre-Flandrian deposits such as the fen margin gravel. These were all found to be strongly and consistently patterned. With the aid of a few assumptions based on knowledge of present-day fens and saltmarshes it was possible to suggest a typical sequence of landscape development: fen formation, abandonment, saltwater flooding, saltmarsh formation, saltmaking and re-colonisation of the marshes. This sequence made sense of the field observations, both archaeological and environmental. The interpretative maps which form the majority of the illustrations in both parts of this volume rely heavily on this model of landscape development though they do not slavishly follow it. Each area was considered individually, and it was found that the interpretation of the evidence from each parish built up into a coherent pattern across the whole of the survey area. The consistently successful correspondence between the interpreted pattern of environmental change and the rather more objective archaeological evidence (such as the date range of settlement sites and the locations of salterns) satisfied the field officers that the landscape changes had been correctly interpreted. Nevertheless, there were some difficulties, and there was a risk of indulging in circular reasoning, so one of the main objectives of the analysis of the Roman pottery was to test the basis of the landscape interpretation by examining a suitable study area with greater precision.

The suggested sequence of landscape development, particularly the displacement of marsh by fen, has recently been used to explain large-scale patterns of change observed in the south Lincolnshire Fens in the Iron Age (Lane 1988) and Roman to Middle Saxon periods (Hayes 1988). Hallam (1970, 47) suggested a somewhat similar explanation for settlement changes in the Roman Fenland. Hallam's explanation was, however, different in that it envisaged a single trend (a settlement zone which simply moves seawards, abandoning the encroaching fen). The sequence of landscape changes inferred from the Survey evidence involves two trends. In addition to the seawards trend, the cycle of marine flooding, alluviation and fen formation starts near rivers and spreads towards their watersheds. In the south Lincolnshire Fens, therefore, there is a south to north movement (from the Welland toward the Slea/Witham) as well as a west to east movement (from the fen margin towards the Wash).

The pottery analysis takes advantage of the very large quantity of pottery systematically collected by the survey, and the fortunate presence of a Roman pottery specialist with an interest in spatial distributions, to investigate in

more detail three questions that are fundamental to our understanding of the results of the survey:

1. Is the 'two trends' model of landscape change better than the single trend model, or does neither seem satisfactory?
2. Is there any evidence to support, and perhaps elucidate, the subjective impression that the south of the survey area is 'older' than the north?
3. Is there anything in the distribution of pottery that suggests variations in wealth, either between different parts of the survey area or at different times within the Roman period?

The third question is relevant to archaeological and historical questions such as whether the fen margin settlements were richer than those out in the marshes, or even 'owned' or controlled them in some way. More importantly for the purposes of the survey, question 3 is relevant to answering questions 1 and 2.

Spatial analysis of pottery on this scale opens up new possibilities. The subtlety and precision of interpretation of the evidence is greatly increased by examining fluctuations in number rather than by simply noting presence or absence. A deteriorating environment may result in a decline in economic activity and prosperity that falls short of the abandonment of settlements. Such a change would not easily be detectable using normal distribution maps but it should lead to an observable change in the quantity and quality of the pottery 'consumed' in the area.

III. The Regional Pottery Background

Generally, little use has previously been made of fieldwalking collections mainly because of the difficulties of identification and analysis. However, the direction had already been indicated by K.F. and B.R. Hartley (1970) and Simmons (1975c). As a result of a more recent study of Romano-British pottery production in the East Midlands (Samuels, 1983) it was felt that an analysis based on a constructed typology would be possible. An experimental survey was carried out on fieldwalking collections housed in Lincoln Museum. The results appeared to have some validity and the method forms the basis of the classification scheme set out below.

The importance of regional pottery studies has been indicated by Corder (1957, 11) and more recent East Midlands publications have followed this suggestion (Todd 1968;1973, 119-225; Whitwell 1970, 106-112 and Darling 1977; Buckland *et al* 1980). However, for south Lincolnshire there is, at present, a dearth of published material. The only previous published survey of this area (Phillips 1970) makes great use of pottery studies to provide dating evidence but fails to show what it is based upon. This is unfortunate since that survey attempted to distinguish sites within 50 year periods. Only samian and mortaria studies are sufficiently well advanced to justify that approach; the rest of Romano-British pottery remains an imperfect study.

In the Roman period south Lincolnshire does not appear to have produced its own pottery on the same scale as north Lincolnshire. The only kiln to have been excavated in the area, at Bourne, produced jars and dishes in a shell-gritted fabric in the 3rd century (Samuels 1983, 784). Although other putative sites are known at Hacconby, Horbling and Wrangle (Samuels 1983, 326) none of these seems to have been part of a large-scale production industry.

Excavations on settlement sites on the fringe of the area at Sapperton (Simmons 1976; Samuels unpub.) and Ancaster (Todd 1981) and the earlier survey of fieldwalking collections in Lincoln Museum indicate that pottery was drawn from either the major production centre in the Nene Valley or from smaller production centres at Lincoln and on the Lincolnshire Wolds. More specialised pottery such as samian and amphorae would have been imported from further abroad and a limited distribution of vessels, mainly mortaria, from the Mancetter/Hartshill kilns near Birmingham has already been noted by Simmons (1975c). However, there is also the additional problem of pottery types, Dales Ware in particular (Loughlin 1977; Samuels 1983, 244-251), for which there is no known kiln source although it was produced on a large scale and has a strong Lincolnshire distribution.

Pottery trading patterns are unlikely to have remained constant during the Roman period and there is another potential complication in that the boundaries of either provinces or *territoria* may also have been significant factors affecting trading patterns (Frere 1974, 231; Jones 1972, 151-185).

The dating of Roman pottery is still relatively imprecise. It can only be based on association with datable objects, usually coins, and requires securely stratified deposits. It is only samian and mortaria which can be dated with any degree of certainty because of their distinctive characteristics and because they have been the most thoroughly studied. All other Roman pottery types require a regional chronology based on well-stratified and datable deposits. For the East Midlands this is not easily achieved. Despite the large number of excavations that have taken place on Roman sites, relatively few contexts have produced significant groups of pottery that may be considered securely stratified: Dragonby (May, unpub.), Old Winteringham and Winterton (Stead, 1976), all in the north of the region, Lincoln (Darling 1977, 1984) and Great Casterton (Corder 1951). However, bearing those limitations in mind, it has been possible to propose a regional pottery chronology (Samuels 1983, 140-178). Lincolnshire has produced a large number of pottery kilns (see Swan 1984, 141-43 for complete list of sites) and the range of pottery types can be broadened if this dating evidence is then applied to the excavated kiln groups (Samuels 1983, 179-251).

IV. Classification of the Pottery

(Fig. 138)

All of the Roman pottery recovered during field walking as part of the survey, was classified on the basis of fabric and form using a standard record sheet, an example of which is reproduced as Figure 138. The coding system is set out in detail below. By way of example, on Figure 138, which relates to site 24 in the parish of Gosberton, the fifth entry (beginning A5a) records three sherds, all from different vessels, of medium sized grey-ware jars with everted rims. The eighth entry records three more fragments (and vessels), similar in form but manufactured in the Nene Valley.

A. Grey-Wares

1. Formless fragments
2. Shallow dishes with/without bead rims
3. Lipped dishes and bowls:
   a Plain lip

NO. FENLAND SURVEY POTTERY ANALYSIS

GOS 24 ROMAN

FABRIC/FORM CATEGORY	KILN OR FABRIC SUB-CLASS	NO. OF SHERDS	MIN. NO. OF VESSELS	COMMENTS
E1	/	2	1	
A1	/	15	/	
A3a	/	3	2	
A7b	/	1	1	
A5a	/	3	3	
A4b	/	1	1	
A1	NV	26	/	
A5a	NV	3	3	
A8c	NV	1	1	
B1	/	18	/	Some may be IA
B3	/	1	1	
B4a	/	5	5	
F2	?NV	1	1	
G1				
G4	NV	1	1	+ bones + oyster shell
	TOTAL	81	20	SUGGESTED DATE RANGE: C1-4

Figure 138 Roman pottery classification: standard record sheet

b Grooved lip
c Flanged

4. Beakers:
   a Bead rim
   b Everted rim
   c Recurved rim
   d Roughcast
5. Medium-sized jars:
   a Plain, recurved rim
   b Lid-seated
   c Everted rim
   d Internal groove
   e Carinated
   f Indented
   g Rusticated
   h Dales Ware type
6. Large jars with/without handles
7. Narrow-necked jars:
   a Flagons
   b Narrow-necked
   c Narrow-necked with lid-seating
8. Wide-mouthed bowls:
   a Colanders
   b Small to medium sized
   c Large
9. Cheese-presses
10. Lids
11. Imitation samian

B. Shell-Gritted Wares

1. Formless fragments
2. Shallow dish with/without bead rim
3. Lipped dish
4. Medium sized jar:
   a Plain, recurved rim
   b Lid-seated
5. Large jar
6. Small to medium sized wide-mouthed bowl
7. Large wide-mouthed bowl

C. Stone-Gritted Wares

1. Formless fragments
2. Medium-sized jars
3. Large jars
4. Lipped dishes/bowls

D. Black-Burnished Ware (BB1)

1. Formless fragments
2. Shallow dishes with/without bead rim
3. Lipped dishes and bowls
4. Flanged bowls
5. Beakers
6. Medium-sized jars

E. Samian

1. Undecorated fragment
2. Decorated fragment

F. Mortaria

1. Formless fragment
2. Hooked rim
3. Reeded rim
4. Wall-sided

G. Colour-coated Wares

1. Formless fragment
2. Flanged bowl
3. Medium-sized jar with plain re-curved rim
4. Flagon
5. Narrow-necked jar
6. Wide-mouthed bowl
7. Roughcast beaker
8. Imitation samian
9. Shallow dish
10. Indented beaker
11. Lid
12. Lipped dish/bowl
13. Castor box
14. Everted rim jar
15. Beaker

H. White Ware

1. Formless fragment
2. Shallow dish with/without bead rim
3. Flanged bowl
4. Medium-sized jar with plain re-curved rim
5. Flagon
6. Narrow-necked jar
7. Wide-mouthed bowl

J. Amphora

1. Formless fragment
2. Dressel 20

These broad categories can be refined by the addition of information, where known, about kiln source or more specialised fabric description.

Code	Kiln, Manufacturing Centre of Fabric
B/G	Bourne/Greetham (Unpub. Bolton 1968)
C	Claxby (Bryant 1977)
DA	Dales Ware—source unknown (Loughlin 1977)
DB	Derbyshire ware (Gillam 1939)
LC	Little Chester (Brassington 1971)
LR	Lincoln Racecourse (Corder 1950)
LTC	Lincoln Technical College (Baker 1937)
LW	Linwood Warren (Baker 1942; 1951)
MH	Mancetter/Hartshill (Hartley K, 1973)
MR	Market Rasen (Unpub)
NH	North Hykeham (Thompson 1958)
NV	Nene Valley (Hartley, B. 1972, Howe *et al* 1980)
PA	Parisian ware (Corder 1957, Rigby 1976)
RL	Rookery Lane (Webster 1960)
SC	South Carlton (Webster 1944)
SW	Swanpool (Webster & Booth 1947, Whitwell 1979)
FG	Fine greyware—source unknown

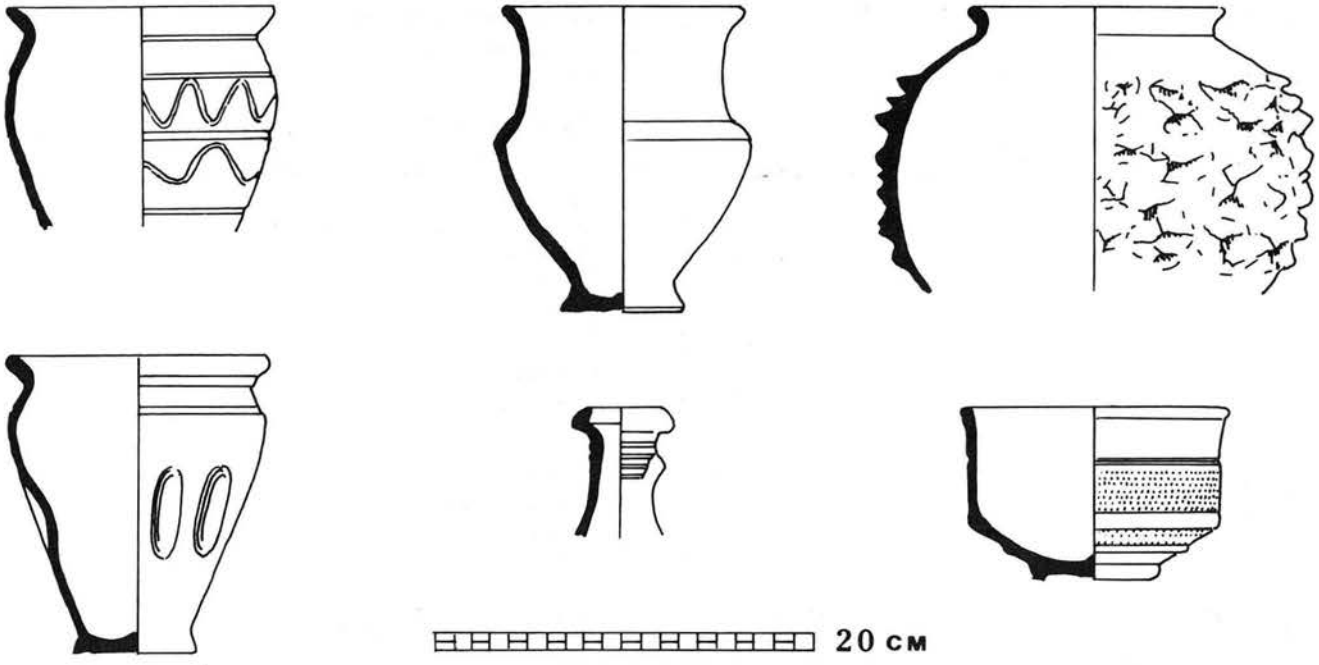

Figure 139 Roman pottery: early indicators A5c, A5e, A5g, A5f, A7a, A11

V. Quantification and Chronology
(Figs 139, 140)

It has been argued that full quantification of pottery can only be achieved by weighing each sherd and assessing the proportion of vessel represented (Orton 1975) although it has been recognised by the Roman Pottery Study Group that more empirical methods may be necessary (Young 1980). In this case because of the large quantities of pottery involved, each sherd was counted and an estimate made of the minimum number of vessels represented for each identifiable form. Where possible a suggested date range was given for the whole assemblage based on the stratified evidence discussed above.

The information now available from the initial analysis can be used in various ways. Pottery trading patterns can be identified, an indication given of the relative wealth of communities and a date range given for the period of occupation. It is the last aspect which is of most interest to the current Fenland Survey and to that end some refinement to the suggested date range for the whole assemblage can be made.

Samian ware and the colour-coated wares of the Nene Valley both have fairly well-defined limits of production and can be used as complementary to each other. Samian was available from the late 1st century AD to the early 3rd century. Although production of Nene Valley Colour-Coated wares started early in the 2nd century the main production period appears to start in the late 2nd century, so there is a relatively short overlap between samian and Nene Valley Colour-Coated wares, say 50-75 years.

Anonymous grey-wares are more difficult to date but during the analysis of Roman pottery in the East Midlands certain chronological features became apparent (Samuels 1983). Although it would be foolish to give particular forms definite date ranges, there are some forms which seem to be chronological indicators, not alone but in association with other forms. On this basis the fabric/form categories A5c, e, f, g, A7a and A11 (Figure 139) tend to be early (late 1st to late 2nd century) and A3c, A5b, A7b, A7c, A8c, B4b, G2 and G9 (Figure 140) tend to be late (late 3rd to late 4th century). The geographic plotting of these does seem to bear out the assumption that they are significant and by comparison with other data provides an interesting new insight into the study of Roman pottery from fieldwalking collections.

VI. The Study Area
(Fig. 141)

The graphical analyses presented in this chapter depend for their validity on a representative collection of pottery from an area that can be divided into blocks that are equal in area and contain a similar arrangement of landscape zones (fen margin, marine clay and silt). The area chosen (Figure 141) is north-east of Bourne. The zones are regular, narrow enough to fit conveniently onto a page, and have boundaries running approximately north-south. Division into four blocks A to D, aligned with the Ordnance Survey National Grid, provides a large enough sample of pottery in each block. Block D, containing Morton Fen and parts of Bourne and Pinchbeck South Fens, has a 'southern' landscape history, characterised by extensive Iron Age activity in the Fens, a high proportion of peaty or humose soils, and relatively little sign of Saxon activity. Blocks A and B are 'northern' in character, with less Iron Age activity on the Fens, less peat and more Early and Middle Saxon evidence. In the organisation of this volume Block C has been treated as 'northern' but it was recognised in the field as a transitional zone, sharing some of the characteristics of north and south (Hayes 1985a, 49-51).

The study area has been chosen to provide the best practicable sample. In view of the intensity of fieldwork, the ease with which Romano-British settlements can be detected over most of the area, the good air-photograph coverage, and past fieldwork by Hallam (1970) and the Car Dyke Research Group, few settlements are thought

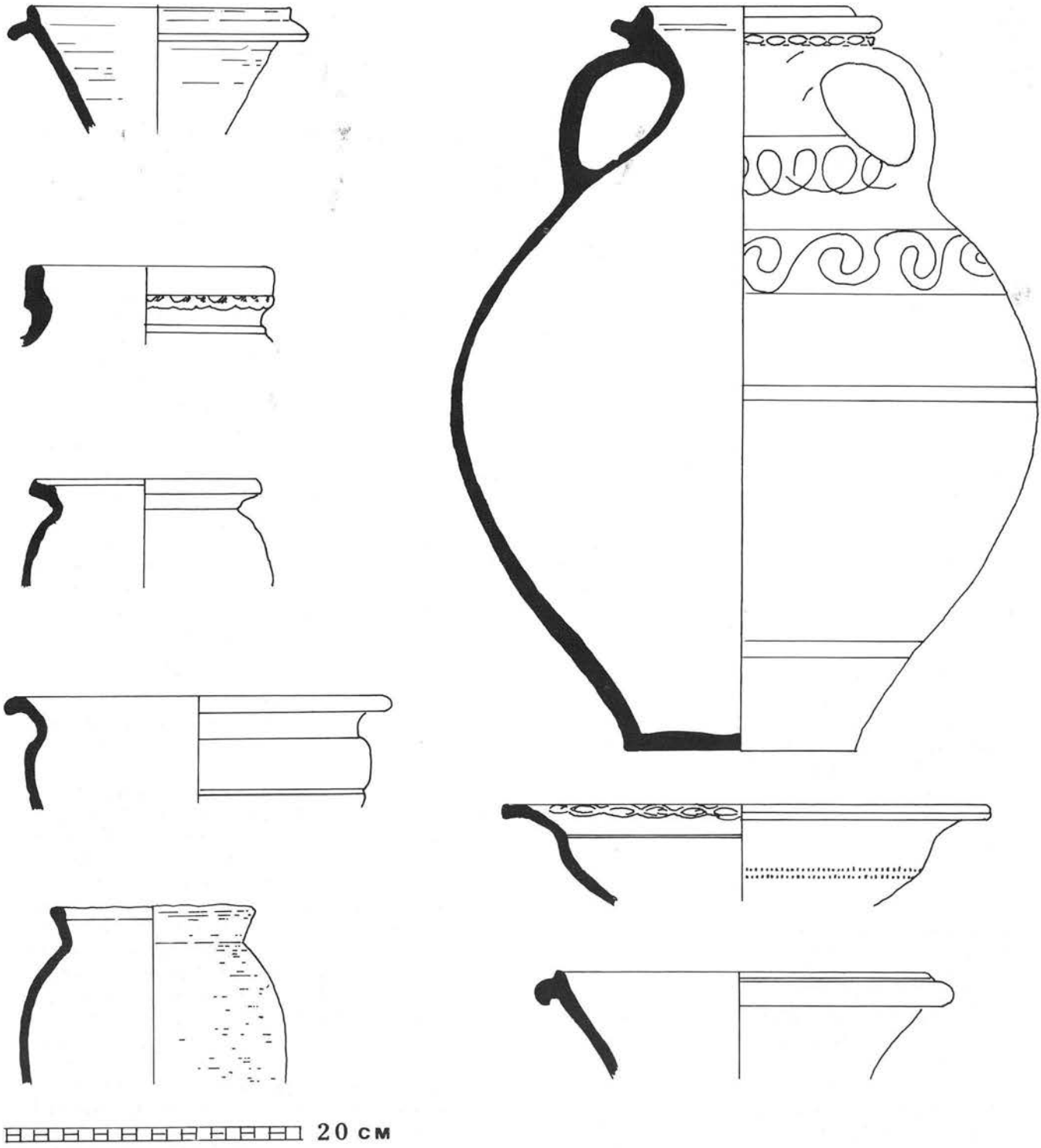

Figure 140 Roman pottery: late indicators A3c, A5b, A7b, A8c, B4b, A7c, G9, G2

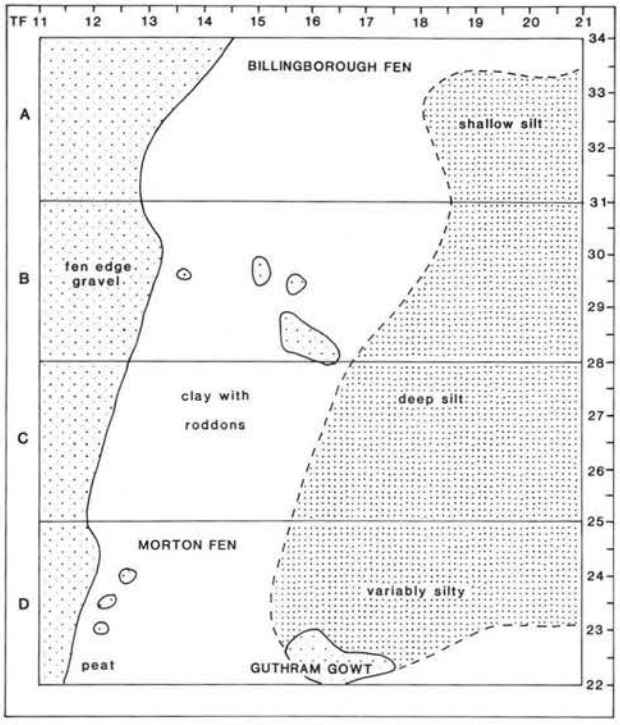

Figure 141 Roman pottery analysis: the study area

to have been missed. As far as possible pottery was collected from sites only when artefact visibility was good. Although some sites had to be sherded in less than ideal conditions, these were the exception and are most unlikely to have significantly affected the total sample. Each site was visited once and all pottery noticed on the surface was collected.

VII. Pie-Charts

(Fig. 142)

Figure 142 shows the total number of Roman sherds and the proportions of the main pottery classes found in each block. Block C has the smallest sample (6342 sherds) but this is adequate. In the whole study area (A to D) 30644 sherds were collected.

It is hardly surprising given the size and quality of the samples that within each block the main categories of pottery are present in similar proportions. Grey-wares predominate, totalling 17926 and ranging from 53.9% to 63.0%. Shell-gritted wares are the second commonest category (6044), followed by colour-coated (5244). When analysed graphically the shelly wares appear, from their spatial distribution, to be earlier than colour-coated, as if continuing an Iron Age tradition.

The earlier categories of pottery, samian and (perhaps) shell-gritted, are commoner in Blocks C and D. The later category, colour-coated, is commoner in Blocks A and B. This tends to bear out the field observation that the south seemed 'earlier' and the north 'later'. However, it is difficult to compare the pie-charts. They give a good impression of the proportions within each block, but the different sample sizes and the interrelatedness of the categories create problems when trying to compare blocks. For example, there are significantly more colour-coats in Block A (1402) than in Block C (1078) but they form similar percentages within each Block (17.9 and 17.0% respectively). So the pie-charts are intended only to give an overview; more detailed analyses and comparisons are made in the next and succeeding sections.

VIII. North-South Variation: Deviation Bar-Graphs

(Fig. 143)

For the purposes of the pie-charts each block was treated separately. This gave a good picture of the block but made it difficult to see, for example, how many colour-coated sherds were found in each block. The deviation bar graphs overcome that problem by treating each category of pottery separately. It is easy to see on Figure 143 that colour-coated wares are commoner in Block A than in Block C. The deviation bar-graphs show, for each of four categories of pottery, the proportion (percentage) found in each block. Since each Block is equal in area, the proportion (in each block) should be roughly equal (about 25%) assuming that the size, wealth and tastes of the population of each block were similar. It is accepted that there will be some variation due to idiosyncrasy and chance, but reasonably large differences in wealth or population size should still have a noticeable effect on the bar graphs. On Figure 143 the 'normal' or 'expected' share of pottery (25%) is marked by a 'baseline' running vertically through blocks A to D. The length of the bars and their direction (left or right) show the extent to which the pottery found in a block deviated from the block's 'fair share' of 25%. In the case of samian in Block D there was no deviation; exactly a quarter of the samian sherds were found there, so there is a bar neither to the right nor to the left.

The deviation graphs use two 'early' and two 'late' pottery types. It is clear that the later pottery (late grey and colour-coated wares) is commonest in the north (Blocks A and B). The picture for the earlier pottery is slightly less clear. Blocks A and B each had less than 25% of the total samian and earlier grey wares found in the study area. Block D certainly has an 'early' look about it, with 25% or more of both early indicators, and less than 20% of both late indicators. The problem area is Block C, which has the largest share of samian but the smallest share of early grey-ware. Since both are 'early' the bars ought to point in the same direction. Assuming that the samples are reliable, the discrepancy could be due to a slight chronological difference between the samian and early grey wares. If the latter reached their peak of abundance fifty years or so before samian then the bar-graphs would be consistent with the northward progression of a period of prosperity followed by economic decline. This would fit the suggested model of environmental change but it will have to remain a speculative interpretation until the ceramic chronology is improved or selected sites are excavated.

Block C contains some rich sites including a complex of buildings in Dunsby Fen with tiled roofs, a rarity on the marine sediments. It is possible that the samian/early grey-ware inconsistency is economic or cultural in origin rather than chronological. The block may have had fewer but richer occupants, owning relatively more fine wares. In a later analysis when the colour-coat and late grey-wares are compared, Block C will again appear to be anomalous, offering a similar choice between chronological and economic explanations.

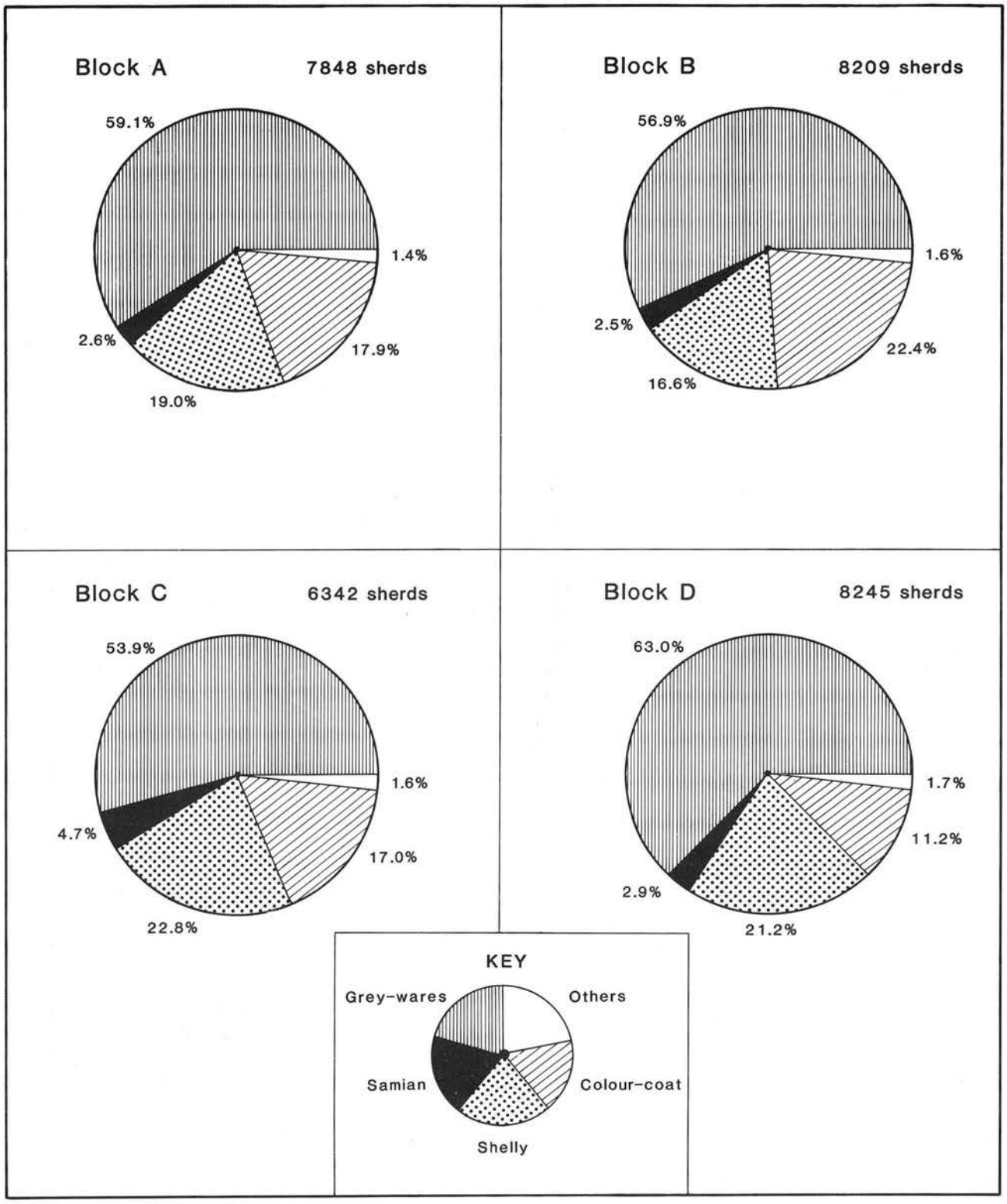

Figure 142 Roman pottery: block totals and percentages of main classes

It might be argued that the samples are small and the variations shown on Figure 143 are not significant. However, there were 5244 colour-coat sherds, and even the samian sherds totalled 952. The early and late grey-ware totals are smaller (332 and 189 sherds respectively) but appear to be adequate. Using the chi-squared test of statistical significance it is safe to reject (at the 0.1% level) the null hypothesis that there is no significant difference in the number of early grey-ware sherds found in Blocks A and D. The late grey-wares give a similar result. In plainer English, the odds are 1000 to 1 against the difference in the numbers of datable grey-ware sherds collected in the blocks being due to chance.

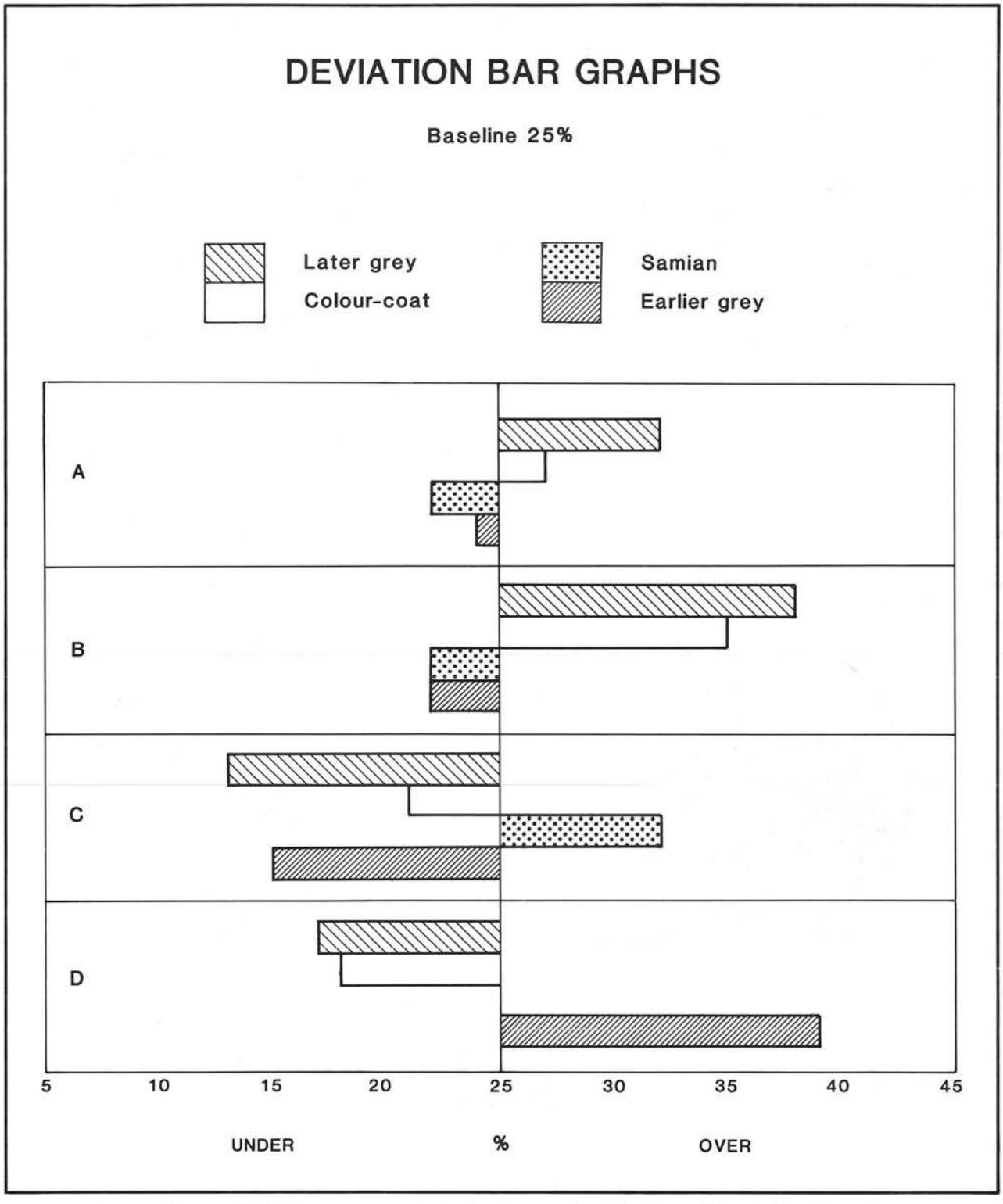

Figure 143 Roman pottery: deviation bar graphs of early and late indicators

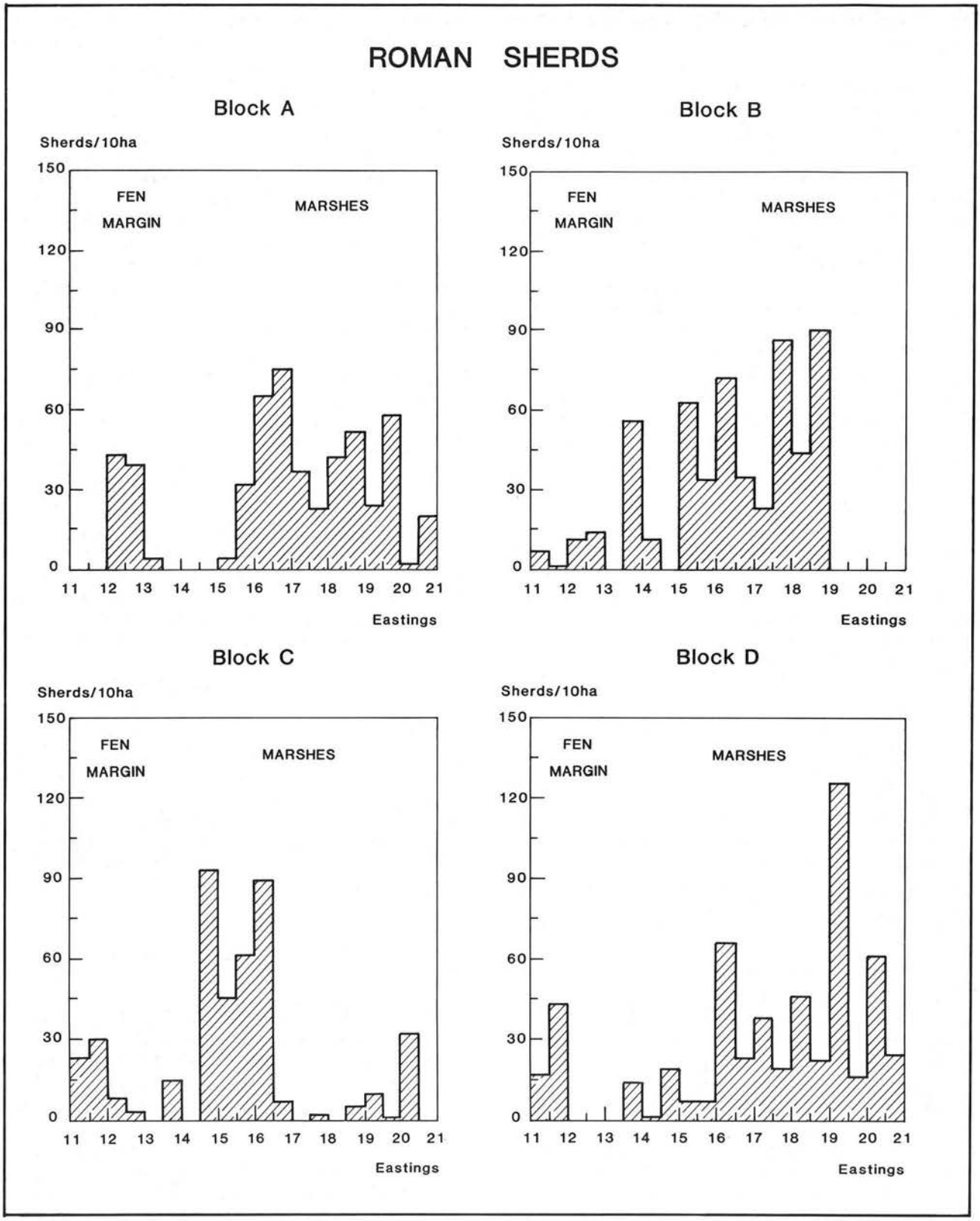

Figure 144 Roman pottery: graphs of west-east distributions (total sherds)

IX. Total Sherd Densities: Absolute Values
(Fig. 144)

So far the analysis has looked at whole blocks. This has been useful in giving an overall impression of each block and it has been possible to make some general statements about the study area, but only north-south comparisons have been made and there has been no examination of the detail within each block. In particular, the question of west-east migration has not been explored. To remedy this the rest of the analyses will use a different approach.

The analytical method behind the west-east graphs is simpler than it appears at first sight. Gridline 31 on Figure 141 may be imagined as the base line for Block A, represented by the horizontal axis on Figure 144. Block A on Figure 144 is notionally divided into strips 0.5km wide, running north-south. Thus, the first strip lies between eastings 11.0 and 11.5, the second between 11.5 and 12.0, and so on. The sherds of Roman pottery found in the strips have been counted and the totals used to plot the graph on Figure 144, in effect as if the sherds found in each strip were piled up on the base line. As the blocks are more or less perpendicular to the major landscape boundaries, such as the fen-edge, the graphs produce a generalised picture of the pottery found in the block. However, Figure 144 does not show the actual number of sherds found in each strip. Instead, the totals have been converted into the number of sherds per 10ha in order to give a standardised estimate of the minimum number of sherds to be found on the surface at any time. It may be possible in future to compare these densities of surface sherds with estimates from other parts of Britain.

It would be wrong to try to interpret minor fluctuations in the graphs, but given the systematic nature of the fieldwork and the number of sherds collected (over 30,000) the broader patterns should be reliable. Roman pottery was clearly widespread and abundant in the study area, and most households must have used coarse wares for storing, preparing and possibly serving food. The numbers of sherds in a strip, especially coarse ware sherds, should approximately reflect the number of people that lived there. Although rich households might have had higher stocks of pots, and poor households might have taken greater care not to break them, it still seems reasonable to regard the number of pots 'consumed' as a rough indicator of population and disposable wealth. The topic of wealth distribution will be taken up again when discussing later graphs.

One of the features of all the graphs on Figure 144 is that sherds were less abundant on the fen margin than on the former marshes. On the fen margin the sherd density is under 50 sherds per 10ha, whereas values of 50-90 are common on the marshes, even reaching 120 in Block D. This is a surprising discovery. The fen margin appears to be a very favourable location for settlement and has an almost continuous history of human occupation. Its loamy soils over gravel are inclined to be clayey but they are nevertheless easily tilled, well-drained and fertile. The relative scarcity of pottery contrasts with the size of many of the Roman sites on the fen margin, which commonly included limestone buildings roofed with tiles. It was noticed during fieldwork that pottery was usually not very abundant and that some sites consisted mainly of building debris.

A second recurring feature on Figure 144 is the existence of a small but distinct gap, an absence of pottery, just east of the fen edge. This 'empty' area is clearest in Block A, between eastings 13.5 and 15.0, and was very noticeable in the field, especially because all the Block A salterns were found there. In the other blocks the 'gap' was less distinct, being partially obscured by settlements that took advantage of unusual local landscape features, such as an exceptionally large roddon in Block C, or an area of small 'islands' and shallow marine alluvium in Block B (13.0 to 15.0). This empty area near the fen-edge is important because according to the model of environmental change which is being tested the gap contained true (freshwater) fen which should show signs of spreading from west to east and from north to south, to the detriment of nearby settlements. Succeeding graphs will show how (excluding the fen margin) the sites nearest the gap do indeed 'consume' proportionately less later pottery than earlier, indicating that they declined relative to sites further east.

The third notable feature on Figure 144 is that extensive silting on the east of the study area is reflected in a reduction of sherd densities in the silty parts of Blocks A-C. In Block A there is a slight decline east of 20; in Block B there is a complete blank east of 19; in C the area between 16.5 and 20.0 is almost empty, though some sherds were found which, in the field, seemed to be from sites more or less buried under shallow silt. There is an empty area of silt in Block D but it is confined to the north-east corner of the block; it does not show up on the graph because the sites along the south side of the silt effectively screen it from view.

The sherd densities in Figure 144 are dominated by coarse wares, especially grey wares. As these would have been mainly used for ordinary domestic purposes, Figure 144 probably reflects population density more closely than wealth distribution. The two are inter-connected and difficult to separate, but the question of wealth can be pursued further by examining the distributions of the commoner fine wares, samian and colour-coated. Figure 145 does this by using a similar graphical technique but with one refinement, the use of relative values (percentages).

X. Fine Wares: Relative Values
(Fig. 145)

Only two fine wares are sufficiently plentiful to be analysed in this way, samian and colour-coated. Figure 145 illustrates their west-east distributions. The two categories differ considerably in abundance: 200-300 sherds of samian per block compared to 900-1800 of colour-coat. In order to display both categories on the same graph without problems on the vertical scale, the numbers of sherds have been converted to percentages. It is important to realize that these percentages relate to the whole study area, not to individual blocks, and that the two categories of pottery are treated independently. For example, the number of samian sherds found in any strip is expressed as a percentage of the total number of samian sherds found in Blocks A to D combined. Thus on any graph the samian and colour-coated lines are independent of one another, a change in one does not affect the other.

The graphs on Figure 145 show each strip's share of the samian and colour-coat found in the study area. It is obvious that the centre of block C acquired the largest share of samian and that sites next to the empty silts in

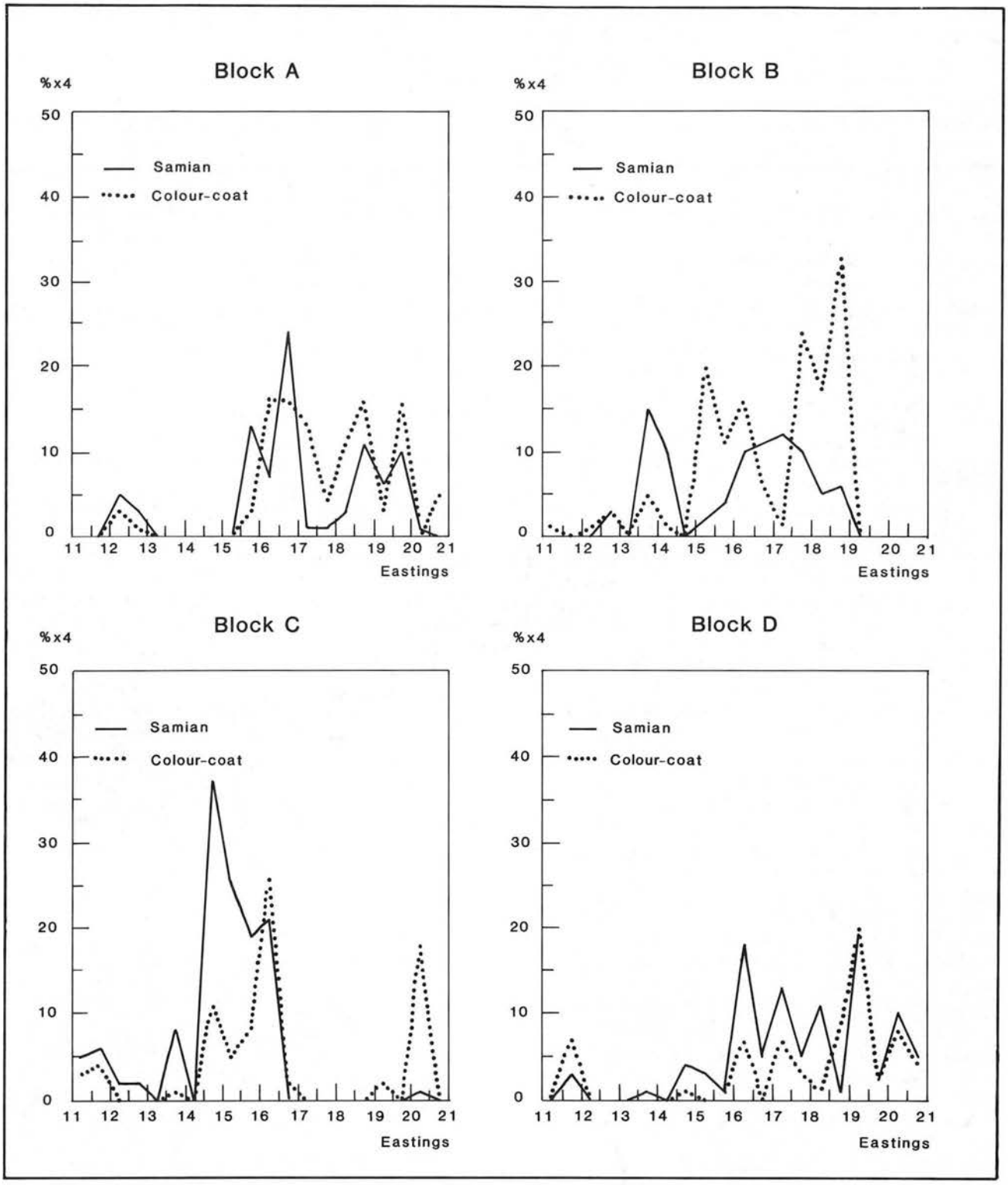

Figure 145 Roman pottery: graphs of west-east distributions of samian and colour-coated wares

Blocks B and C took a high proportion of the colour-coated wares which came into the study area, but the graphs offer other, perhaps more interesting, insights.

On the question of wealth distribution, it is suggested that if the inhabitants of a strip had, in total, an above-average amount of disposable wealth then they would have acquired a larger than average share of the fine pottery, resulting (if our sample is representative) in a noticeable 'peak' on the graph. If that is accepted then the inhabitants of the fen margin seem to be distinctly poor, with even smaller shares of fine wares than of total pottery. It has been suggested that the graphs for total pottery give a better reflection of population density than wealth. If so, Block D, which is possibly the poorest block in terms of fine wares (especially colour-coated), seems to have been populous rather than wealthy. Block D contained parts of the long-established peat fens around Bourne and Morton, and it is the block with the most evidence of Iron Age activity in the marshes. It is interesting that the areas with the least sign of Iron Age activity, the marshes of Blocks A, B and C, contain the highest fine ware peaks.

It is difficult to resist the conclusion that there was less disposable wealth on the fen margin than on the marshes but this does not necessarily mean that the people on the fen margin were poor, or that those on the marshes were rich. The graphs demonstrate the relative distribution of 'wealth' within the study area, but without comparable information from other areas the actual level of prosperity remains uncertain. The fen margin sites, though 'poorer' than those on the marshes, might still be 'richer' than most sites on the uplands; a comparable survey on the uplands is needed before that point can be decided.

It was noted earlier that the ceramic poverty of the fen margin sites often contrasted with an abundance of broken tiles and limestone rubble suggestive of a greater investment in buildings than was usual on the marshes. Are the survey results biassed, making the fen margin appear poorer than it was? For example, Romano-British rubbish might have been buried less deeply in the marshes, perhaps because of a high water-table, so that modern ploughing is bringing a higher proportion of the pottery to the surface. But that does not explain why the fen margin's share of the fine wares was even smaller than its share of all classes of pottery; surely fine wares were not buried even more deeply than coarse wares? Another possibility is that more of the fen-margin pottery has been destroyed by ploughing because parts of the fen margin have been ploughed many more times. This is not very convincing because some fen margin sites are on land which has only recently been ploughed, having probably been under grass since the Roman period. In any case, it should not be assumed that cultivation reduces the number of sherds in the soil. Indeed, ploughing might increase rather than decrease the sherd totals, by fragmenting the pottery, especially in the case of colour-coated wares, which do not so readily disintegrate as samian when frosted.

The simplest explanation of the existing evidence is that the marsh dwellers acquired more and finer pottery than their neighbours on the fen margin. Perhaps the marshland landscape discouraged investment in buildings. Mobility and an eye for quick profits may have been the key to a successful life on the marshes. The fen margin farms may have been unable to take advantage of the environmental changes which occurred on the marshes and it is possible that a greater proportion of their surplus wealth was taken away by taxes or rents paid to absentee landlords.

XI. Fine Wares as Chronological Indicators

The samian and colour-coated graphs on Figure 145 have another use — to look for different patterns in the earlier and later parts of the Roman period. As explained above, most of the samian is likely to have been acquired in the 2nd century, although a little may date to the late 1st or early 3rd centuries. The colour-coated wares are mainly 3rd and 4th centuries. Although there is possibly some overlap in the late 2nd-early 3rd centuries, samian essentially represents the earlier Roman period and colour-coated the later. Figure 145 is designed to reveal differences in the distribution of fine wares in the study area in the two periods and, especially, to see whether there is any sign of the west-east movement predicted by the environmental model. The results are unexpectedly revealing.

There are signs of change in Block A but it is fairly stable compared to B and C. West of easting 17.5 the earlier peaks (samian) are higher than the later (colour-coat). This suggests that the 2nd century inhabitants of the western part of Block A were able to acquire a bigger share of the available fine wares than their successors in the 3rd/4th centuries. The difference is not very substantial and it is more or less equalled by the increased share east of 17.5, so the relative wealth of the block as a whole is scarcely different. It needs to be stressed that the lines on the graphs reflect percentage shares, not absolute values. Thus, though the centre of Block A had a smaller share of the colour-coated wares than of the samian, the actual number of pots acquired was much higher. If the whole survey area became much richer in the 3rd-4th centuries then the middle of Block A may have become richer in absolute terms; the graph indicates that it did not fare so well as in the past in relation to some other parts of the study area.

Block B is, in contrast, very unstable. The colour-coat peaks are higher than the samian and the two do not coincide when measured along the base line. The predicted west-east shift is quite clear. The group of sites unusually situated in what might have been expected to be empty fen (13.5 to 14.5) have a much reduced share of the later fine wares. Those sites are in Aslackby Fen (Pointon & Sempringham parish), in the previously mentioned area of small islands and shallow marine alluvium. Further east there is a considerable change in the distribution of wealth, culminating in a spectacular increase in relative wealth on the edge of the empty silt.

Block C is also unstable. Figure 145 shows that the twin peaks of sherds in the centre (also visible in Figure 144) are associated with an easterly shift and a decline in relative prosperity. As in Block B, those sites that are situated deep in the true fen (13.5-14.5) decline in the later period, just as predicted by the 'encroaching fen' model. The sites next to empty silt again increase in relative prosperity.

Finally, Block D resembles Block A in some ways. There is little or no sign of lateral instability, *i.e.* the pattern of the earlier and later peaks is similar and is not displaced sideways. There is, though, a marked decline in the height of the peaks on the inner marshes (only the

19.0-19.5 strip holds its own) so that the block's share of fine wares sinks to a low level in the 3rd-4th centuries. The fen margin behaves differently; the sample is small, so this may be a chance effect, but proximity to the supposed Roman town at Bourne may have been economically beneficial in the 3rd-4th centuries.

This analysis has identified two blocks (B and C) in which the fluctuations in fortune are more extreme and in which there is a marked increase in relative prosperity on the east during the 3rd-4th centuries. The other blocks (A and D) are more stable, although even in these there is evidence of a decline in relative wealth on the inner marshes. These results lend strong support to the suggested model of landscape change used in interpreting the survey results. A strip's share of the fine wares increased in the later period if, on Figure 145, its colour-coat line is higher than its samian line. It can be seen that such increases tended to occur on the eastern side of the blocks (with the converse on the western or inner marshes). The predicted south to north decline through time turns out to be true but an over-simplification, at least at this scale. The southernmost Block, D, certainly has a reduced share of the later fine wares, and this is accompanied by a concentration of wealth near easting 19 (on the edge of the 'hidden' silt). Equally, it is true that the northernmost block does not decline and its fine wares become slightly more equally distributed. However, between the two there are the 'unstable' blocks, B and C. These were the areas where the spread of the fen could be, and was, challenged by human intervention. The Rippingale Canal, cutting across the boundary between B and C just east of easting 14, looks as though it must have been a water-management structure; unlike the Bourne-Morton canal it led nowhere. Its construction seems likely to have been a factor in the shifts of prosperity implied by the graphs on Figure 145. In Block D the environmental changes were irresistible, they had progressed too far, and in Block A the problem was only just beginning.

XII. Datable Grey-Wares

(Fig. 146)

In the introductory discussion of quantification and chronology (above) two groups of grey-ware fabric/form categories were identified as chronological indicators, using evidence from excavations. Their distributions provide an interesting comparison with the samian/colour-coat patterns. The datable grey-ware graphs (Figure 146) agree with Figure 145 in depicting Blocks B and C as unstable, *i.e.* there is a sideways displacement of peaks of different periods. In Block B the later grey-wares, like the colour-coated wares, show a decline at the precariously located sites at Aslackby Fen (13.5-14.0), a rise in the fortunes of the 'island village' (15.0-16.0), and a huge rise in prosperity on the edge of the silt (17.5-19.5), producing a higher 'peak' than anywhere else in the study area. In Block C the pattern of change in the centre is the same as on the fine ware graphs, but the scale is different: on the fine ware graphs the peaks are much higher, compared with those in other blocks. This may indicate that these are unusual sites, a suggestion supported by the large quantities of tiles found between 16.0 and 16.5. The colour-coat peak east of 20 on the fine ware graph (Block C) is scarcely visible on the grey-ware graph. A difference in the scale of the fine ware and coarse ware changes is also apparent in Block D, but in reverse; in Block D the high levels of earlier grey-ware suggest a populous rather than especially prosperous area in the earlier period. This is followed by a severe decline (in grey-ware terms) or a decline and concentration of wealth (in fine ware terms).

In Block A, however, there is much similarity between the two sets of graphs (Figures 145 and 146). Perhaps the inconsistency springs from a slight difference in chronology. Comparison of the datable grey-wares may give a more extreme pattern than comparison of samian and colour-coated wares. The earlier grey-wares may paint a slightly earlier picture than samian; the later grey-wares may paint a slightly later picture than the colour-coats because they are thought to be mainly 4th century whereas colour-coated wares were very common in the 3rd century, though probably continuing into the 4th century in the study area.

If it is true that the colour-coated wares depict the 3rd to 4th centuries and the later grey-wares show the position in the 4th century, then the graphs indicate a continued decline in the south (C and D) during the 4th century, reaching very low levels; there is even a retreat from the silt in the north (Block A). The fen margin settlements seem to take a larger share of grey-wares in the 4th century than in the 2nd, but this could be a reflection of reduced prosperity of the sites on the southern marshes rather than a true increase in prosperity on the fen margin.

The chronological problems can only be resolved by improving the ceramic chronology, especially for the coarse wares, and that can only be achieved by excavation. However, the problems should not be overemphasised: the fine ware and datable coarse ware graphs agree in most respects. The north fared better in the later Roman period than the south, 'later' peaks commonly rise higher than 'earlier' in Blocks A and B on both sets of graphs. Block D obviously declined, no 'later' peak on the marshes rises above the earlier peaks. Block C is intermediate in character.

XIII. Summary and Conclusions

This chapter has not attempted a synthesis of earlier research. The intention has been to apply new techniques of analysis to some of the survey data in order to answer questions that are fundamental to the reliable interpretation of the fieldwork results. The chapter is not intended to be an exhaustive exploration of the Roman pottery evidence nor does it provide a complete account of the study area in the Roman period. The graphical methods were chosen because they can be understood without specialized statistical knowledge. There is still much to be done with the Roman pottery but the graphs are sufficient for the purposes of this volume.

The first of the three questions posed at the beginning of the chapter was whether the 'two trends' model of landscape change was more accurate than the 'single trend' model. A definitive answer will probably not be possible until there is more palaeoenvironmental evidence and some of the sites are excavated. But even if the survey evidence is too indirect to be indisputable, it remains compelling. If the pottery collected during the survey is a representative sample of the pottery originally acquired by the inhabitants of the study area, and if it is accepted that the quantity of pottery they acquired is a useful (if inexact) measure of their numbers and disposable wealth,

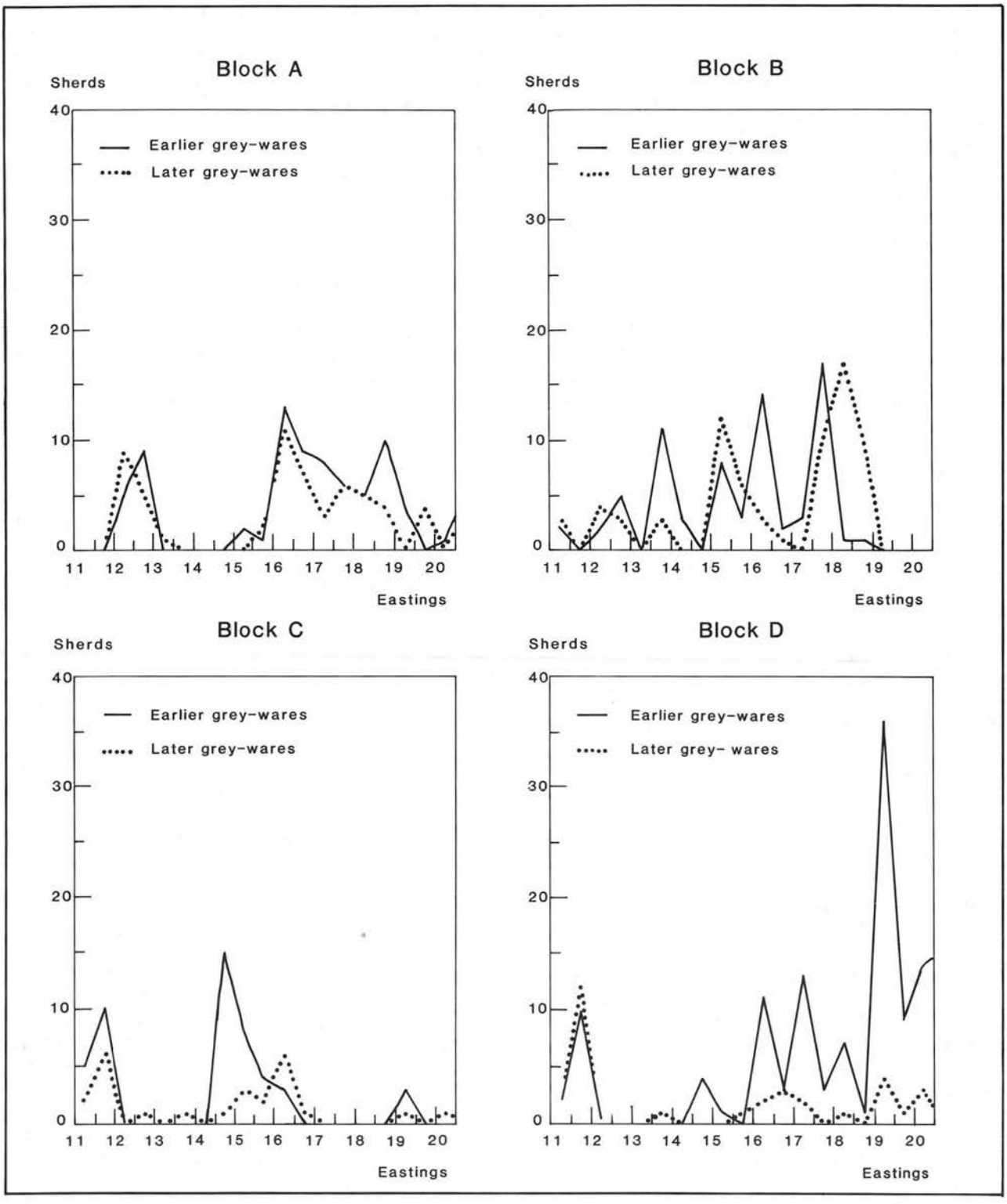

Figure 146 Roman pottery: graphs of west-east distribution of earlier and later grey-wares

then it is difficult to deny that the inner marshes declined in population and/or prosperity during the Roman period, relative to the outer or silt-edge marshes. Similarly, all the analyses support the suggestion that the southernmost block (D) suffered the greatest decline, that the northernmost block (A) experienced little or no overall change, and that Blocks B and C were unstable, with B tending to improve and C to decline. The 'two-trend' model (west to east and south to north) therefore appears to be better than the 'single trend' model (west to east only). It is difficult to imagine a suitable alternative to the suggestion that these changes came about because uninhabitable freshwater fen invaded the landward fringes of the occupied saltmarshes. Starting near the Welland, the fen spread towards the watershed and seawards, causing a decline in prosperity and eventual abandonment of settlement wherever freshwater fen replaced saltmarsh. It is uncertain whether human activity and water-control measures in the 'unstable' areas were able to control the environmental changes. It is even possible that attempts to prevent marine flooding, or to encourage the formation of new land by marine alluviation, inadvertantly accelerated the change from marsh to fen.

The second question addressed by this chapter was whether there was any demonstrable support for the impression gained in the field that the south was 'older' than the north. Some support for the subjective impression is provided by the analyses. They show that a much smaller share of the identifiably later pottery was found in Block D than in the other blocks. Also, according to the deviation bar graphs Blocks A and B had more of the later pottery and less earlier than might be expected from a random distribution. However, the Roman period is too short and the study area too small to provide a complete answer to this question. The analyses point in the right direction but it would be more satisfactory to look at the whole survey area and to consider a longer time-span, perhaps from the Early Bronze Age to the Middle Saxon period.

The third question was whether spatial or temporal differences in wealth could be detected in the study area within the Roman period. Unfortunately, all three questions are inter-connected, and there are difficulties in distinguishing between wealth and populousness. The graphical analyses show that the total quantity of pottery (which may reflect population size more than wealth) and the quantities of fine wares (which may more closely reflect wealth) are not randomly distributed. The pottery distributions have patterns, both across the study area and through time, and these patterns suggest the existence of unstable, high-risk, areas with the potential for great fluctuations in wealth, in contrast to more stable or slowly declining areas.

On the strength of the results of the analyses it is reasonable to accept that the landscape reconstructions contained in the parish essays and larger scale summaries are soundly based. The interpreted fieldwork evidence interlocks to form a consistent whole that has withstood detailed scrutiny. The analyses have indicated some problems that need to be tackled by excavation and palaeoenvironmental investigation, and they also make it possible to identify particular sites and locations which it would be most profitable to investigate.

23. The Saxon Pottery
by Hilary Healey

I. Introduction

Middle Saxon pottery from the Lincolnshire Fenland was first published over thirty years ago, although at the time it was believed to be of Iron Age date. It was Mrs. S. Hallam who drew attention to a small collection of sherds from the parish of Fleet which had been in the Museum of the Spalding Gentlemen's Society since about 1912. A note and drawings of two Middle Saxon rims (with others of Late Saxon date) were published in 1955 (Thompson 1955, 5 and fig. 1, nos. 2 and 3, facing p.10).

Following the excavation of the Middle Saxon settlement at Maxey and the recognition there of the distinctive shell tempered fabrics (Addyman 1964, 47-58) similar pottery was identified from a site at Normanby le Wold in north Lincolnshire (Wilson 1970, 11), where limited excavations were carried out. At the same time further finds of similar material were being recorded elsewhere in the county (Addyman and Whitwell 1970).

As a result of fieldwork in the Holland Division of Lincolnshire in the 1970s, four new findspots for Ipswich and Maxey-type Wares were identified. This resulted in publication of a short note on local Middle Saxon pottery which also included the re-assessed Fleet material (Healey 1979). All these sites were close to the centres of medieval siltland villages and it was suggested that this 7th century pottery represented the only firm evidence, other than that of place-names, for the re-settlement of the silt fens after the assumed abandonment of the area late in the Roman period.

Courtney (1981) did not investigate Lincolnshire ceramic evidence, but his reconsideration of the historical sources led him independently to conclude that parts of the Fenland would have been occupied during both the Early and Middle Saxon periods. More of the Middle Saxon pottery scatters that he had predicted as well as, for the first time, Early Saxon wares were collected during the Fenland Project's systematic programme. These were located away from the centres of the medieval and modern villages and formed a dispersed pattern of settlement close to the landward edge of the silts. Similar sites are likely to exist further east, beyond the designated limits of the research area.

II. The Pottery

Almost two thousand sherds of Early and Middle Saxon pottery were collected during the survey. Many were small, abraded, undecorated body sherds, some in previously unrecognised fabrics. In order to understand more fully this important assemblage a system of analysis was devised in which each sherd was examined macroscopically and classified according to fabric and form. On the analysis sheets (see Fig. 147 for example) fabrics were categorised first according to texture and secondly according to appearance. Principle inclusions were noted, that is those visible either to the naked eye or with a hand lens. The general fabric groups given below are numbered 1 to 5 and the predominant types of inclusion are lettered a to m.

NO. FENLAND SURVEY POTTERY ANALYSIS

PIK 8 Early and Middle Saxon

FABRIC	WARE	SHERDS No	Wt	COMMENT
2	1	3	6g	E. Saxon
2 dfh	1	1	5g	E. Saxon
2 eg	1			
2 j	Max	8	33g	One unusually thin, flat rim.
2 h	1	6	65g	Fabric (& form of one piece) suggest E. Saxon.
3 c		1	5g	Thick. One v.large s/stone. Other inclusions. + fired clay, stones, slag.
		20	119	SUGGESTED DATE RANGE: Early to Middle Saxon

Figure 147 Saxon pottery; Record sheet

Fabric
1. Unclassified
2. Fine sandy
3. Medium sandy
4. Coarse sandy
5. Pimply

Major Inclusions
a. Unclassified
b. Vegetation
c. Sandstone
d. Granitic
e. Ironstone
f. Biotite
g. Limestone
h. Oolitic
i. Fine shell
j. Medium shell
k. Coarse shell
l. Quartz
m. Grog

Existing named wares, for example Ipswich and Maxey fabrics, were noted where they occurred. They represent a basic fabric division between sandy and shell-tempered wares respectively. In the detailed fabric classification Ipswich wares are fabrics 2, 21 and 5 and the Maxey ware shell-tempered fabrics appear as 2i, 2j or 2k.

III. Sandy Wares
(Figs 148, 149)

The term 'sandy' embraces a wide range of fabrics from coarse, sand-tempered hand-made pots to fine Ipswich wheel-made vessels.

Several sites produced pieces with typical Early Saxon decoration including fragments bearing grooved lines, stamps and applied features such as a boss and a part of a lug. Examples of all these are illustrated and described fully below (Figs 148 and 149 Nos 59-73). A few sherds show burnishing on one or both surfaces. Since these are

field collections little can be said regarding complete forms but within the assemblages are rims of straight-sided vessels (Fig. 148 Nos 1-12), necked vessels (Fig. 148 Nos 13-19) and inward leaning examples (Fig. 148 Nos 20-35). The problem of distinguishing between local sandy Early and Middle Saxon products requires more detailed study and is outside the scope of the present survey.

IV. Oolitic Gritted Wares

The distinctive rounded inclusions derived from oolitic limestone occur in a number of sherds from different sites, but only one rim of any size has been recorded (Fig. 148 No. 36).

V. Shell Tempered Wares

These are generally coil-made and undecorated vessels comparable to those at Maxey (Addyman 1964, 50, 57). Again the vessel profiles are incomplete but a number of known forms are recognisable. These include bowls, vessels with upstanding pierced lug, straight-sided vessels, and others with inward leaning, often flattened rims. Examples of these are illustrated in Figure 148 (Nos 37-50). All the base sherds recorded appear to belong to flat bottomed vessels (Fig. 148 51-2). The shell tempering has not been precisely identified and it is possible that some of it may be fossil shell, the nearest source of which is the Jurassic limestone. However, the conclusions at Maxey were in favour of 'an original marine source for the shell.' (Addyman 1964, 51).

VI. Discussion

Other minerals noted in the sandy fabrics suggest contact with the western hinterland. Much of the Lincolnshire/Northamptonshire limestone available close to the fen margins is oolitic, although oolite is not one of the most common types of tempering. The Grantham area is the nearest source of ironstone and, further west, the Charnwood Forest region of Leicestershire is a likely source for the granitic inclusions. The sandstone may have one of a number of origins either west or north of the Fens.

The presence of Ipswich Wares on the Fen sites is evidence of an established pattern of trade and contact with eastern regions. However, a noticeably smaller proportion of Ipswich Ware vessels have been found on Lincolnshire Middle Saxon sites compared with those in topographically similar locations in north-west Norfolk *e.g.* at Terrington St Clement (Rogerson and Silvester 1986).

VII. The Illustrations

(Figs 148 and 149)

All the material illustrated is handmade with the exception of nos 53-58. These are wheel-made, but since the sherds are all small and do not allow for very accurate diameter calculations the possible diameter is suggested in writing rather than being drawn.

Complete diameters are reconstructed only for nos 25 and 37. All sherds are shown as a left-hand profile with the position of a hole, or added clay, indicated in the section. The exterior view of the sherd is shown to the right of the section. Information given is in the order of: site code, fabric, colour and any additional information.

Group 1 Early Saxon form upright rims, sandy fabrics

1.	GOS 37 2c	Black
2.	HAC 11 2ce	Dark grey
3.	HAC 12 2d	Dark grey, burnished interior
4.	HAC 12 2h	Dark grey
5.	QUA 33 2	Black/dark grey, burnished exterior
6.	QUA 36 2	Oxidised, pinkish buff, part dark grey core
7.	PIN 5 2	Dark grey, partly buff exterior
8.	QUA 37 2c	Dark grey, very little actual rim
9.	POI 19 3	Grey to grey/brown
10.	THU 24 2	Black, slight external burnishing
11.	THU 24 2	Black, one layer of clay over rim missing. External smoothing/wiping mark
12.	THU 24 2h	Dark grey, browner exterior, edge of hole. Traces of interior deposit

Group 2 Early Saxon rim forms with slight neck

13.	THU 24 3bdef	Dark grey, burnished surfaces
14.	THU 24 4df	Dark grey, slightly oxidised below surface
15.	THU 24 4df	Black
16.	POI 19 2	Dark grey. Form similar to Ipswich types (see 26, 28)
17.	THU 24 2	Dark grey, slightly burnished surfaces
18.	MOR 18 2e	Buff exterior surface, remainder dark grey
19.	THU 24 2c	Black, slight external burnishing

Group 3 Early/Middle Saxon types with inward leaning rims

20.	GOS 2B 3	Dark grey, slightly paler exterior
21.	GOS 20 2c	Black
22.	POI 19 2df	Medium grey/brown. Hole 1cm below rim
23.	POI 2 2c	Black, lighter coloured exterior. Flat rim
24.	THU 24 2	Light grey, black interior and top of rim. Rim flattened firmly to give slight overhang
25.	PIK 9A 2c	Dark grey exterior, paler interior, light grey and oxidised core
26.	QUA 17 3c	Dark grey. Flat rim
27.	THU 24 2gh	Black with slight oxidisation below exterior surface. Almost a flattened rim
28.	THU 24 2c	Dark grey. Flat rim
29.	POI 44 2c	Dark grey. Probable inturned rim, but additional clay on one side could indicate re-interpretation as an upright rim with part reinforcement, as near a lug
30.	GOS 37 2	Dark brown. Sherd with later cuts
31.	POI 19 2	Black. External surface hollows probably caused in firing
32.	QUA 33 2	Medium grey/brown, patchy appearance. No hole, but uneven rim as if close to a lug
33.	THU 24 3bdef	Dark grey/brown. Noticeably coarse fabric
34.	QUA 37 3	Oxidised light reddish buff surfaces, dark grey core. Hole 4mm below rim, but difficult to tell if rim fragment here is at correct angle. Part of external fabric, possible reinforcing layer (see 29) flaked off.
35.	PIK 9A 4cl	Dark grey. Exceptionally coarse, hard fired fabric. Very small amount of actual rim, but hole suggests it may be near a lug. Hole estimated c. 2cm from nearest rim

Group 4 Oolitic gritted fabric

36.	BIL 17 2h	Dark grey, oolitic gritted

Group 5 Shell tempered fabric, all sherds in fabric code 2j

37.	GOS 37	Black. Hole 7mm diam., 15mm below rim
38.	GOS 37	Medium grey core, light brown surfaces. Hole c. 7mm diam. and 22mm from top of rim
39.	GOS 37	Medium grey/light red. Hole c. 7mm diam. c. 22mm from nearest part of rim
40.	THU 24 2hj	Dark grey. Part of lug with hole, latter cut from both sides. Hole c. 1cm from nearest part of rim
41.	QUA 33	Dark reddish grey. Upright lug, slight edge of hole estimated 32mm below rim

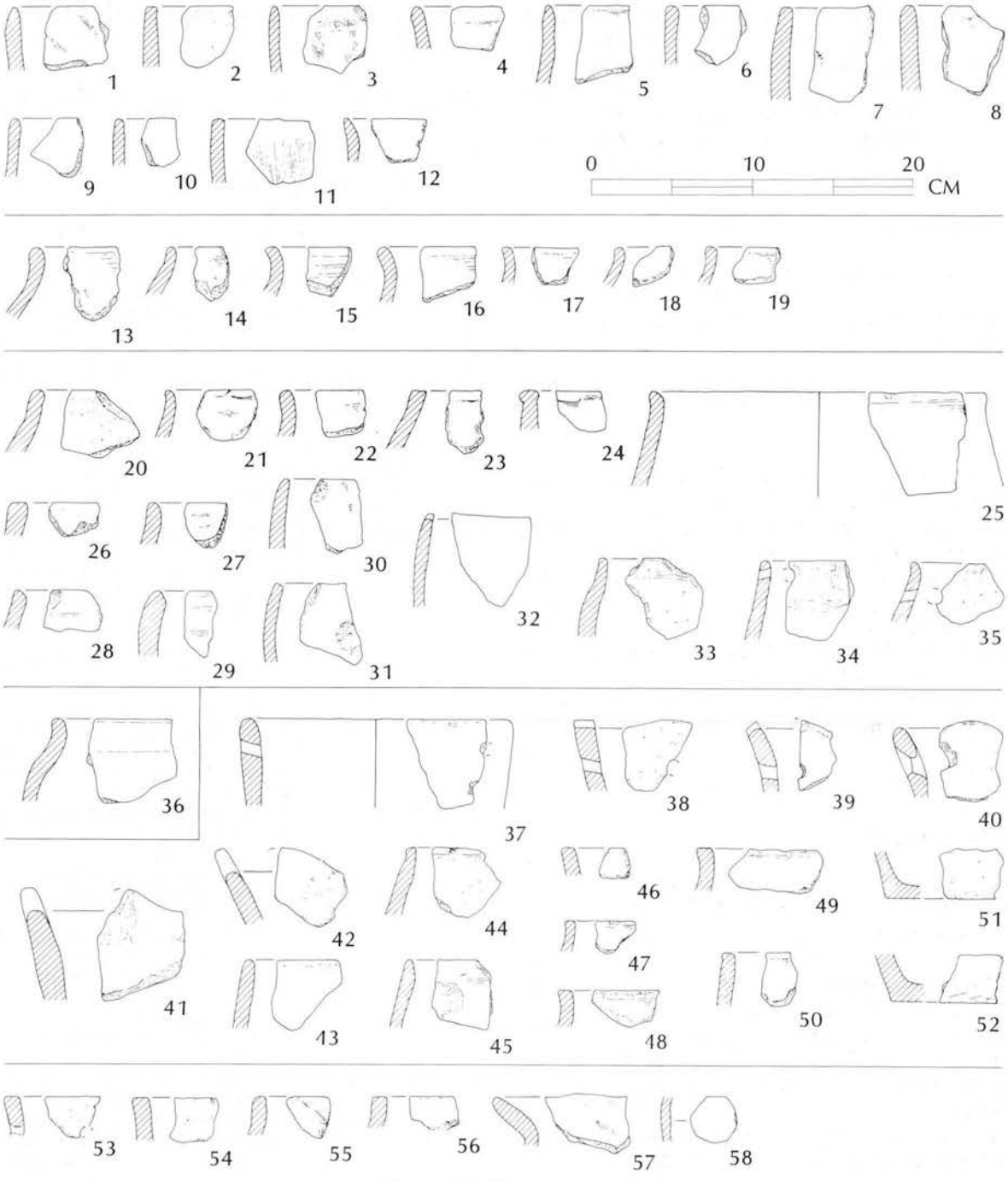

Figure 148 Saxon pottery

42.	PIN 9C	Medium grey core, red surfaces. Flattened rim of upright lug with edge of hole c. 32mm from nearest rim
43.	PIN 3	Medium grey/brown with redder surfaces
44.	GOS 37	Medium grey/brown. Later cut on rim
45.	THU 24	Dark grey. Edge of hole 32mm below rim
46.	GOS 37	Buff. Very worn, only short length of rim edge
47.	GOS 37	Medium grey /brown. Flat rim
48.	QUA 33	Medium grey core, grey/red surfaces. Flat rim
49.	GOS 37	Medium grey/brown, red internal surface
50.	QUA 33	Dark grey exterior, redder core and interior surface
51.	GOS 37	Medium grey/brown. Flat base
52.	GOS 37	Brownish red. Flat base

Group 6 Ipswich Ware fabrics and rim forms. All are light to medium grey.

53.	GOS 22 21	Hole 2cm below rim. Rim diam. 17cm, hole diam c. 5mm
54.	GOS 22	No diameter possible because of later cuts on rim edge
55.	QUA 26 2	Rim diam. 16.5 cm. External surface damaged by later cuts
56.	QUA 39 21	Rim diam 11cm
57.	HAC 3 2df	A curious rim; unevenness caused either by it being close to a lug or being not wheel made
58.	GOS 22 2	Body sherd, later cut to sub-circular shape, probably for use as a counter

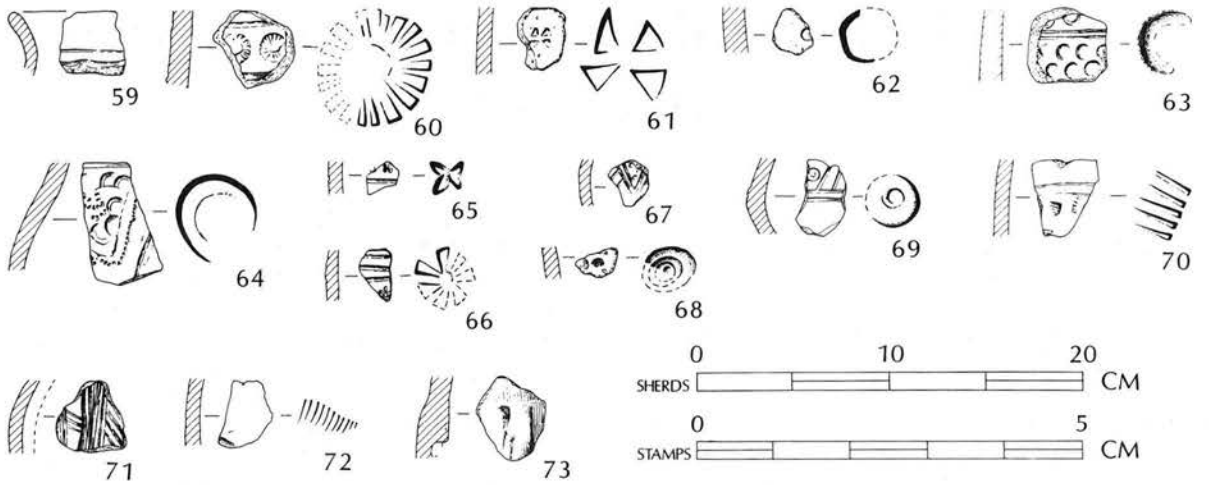

Figure 149 Stamped Saxon pottery

Group 7 Decorated sherds, Early Saxon type

59. BIL 17 2f — Dark grey. Rim and two uneven horizontal grooves made using a pointed implement
60. DOW 4 — Grey/brown with redder exterior. Two grooves and two large rosette stamps
61. POI 19 3df — Dark grey, exterior slightly oxidised. Very weathered cross stamp
62. POI 19 2df — Black. Deep impression, possibly from a plain circular stamp
63. THU 24 4l — Medium grey, darker exterior. Shallow grooves, parts of 7 C shaped or part impressed circular stamps and two of concentric rings
64. THU 24 2e — Dark grey, exterior partly oxidised. Highly decorated shoulder piece with infilled rough chevron shape outlined by marks from a small roulette stamp or the end of forked tool, which appears within the chevron as a detached impression. Also stamps of rosette and a C shape or half impressed circle.
65. DOW 4 3 — Grey/brown. Grooved straight line and part of a three-lobed stamp
66. POI 19 2df — Dark grey. Three grooves and part of a rosette stamp
67. GOS 16 2 — Dark grey, buff exterior. Tiny grooved chevron shape with slight jabs which appear deliberate
68. DOW 2 4 — Dark grey. Tiny sherd with parts of four concentric ring stamps
69. MOR 18 2b — Black with part red/brown exterior. Almost carinated sherd. Straight grooves at two different angles (probably horizontal and diagonal) with ring and dot stamp
70. GOS 16 2c — Dark grey/black. Grooved line and stamps of fossil or lightly impressed comb
71. DOW 4 3 — Black with pale grey core. Double boss (pushed out from inside vessel) with vertical grooves and diagonal lines on the boss
72. QUA 33(2) 2 — Medium grey. Slight mark of another possible fossil stamp
73. PIK 6 2l — Dark grey with buff exterior. Sherd with half a lug (probably vertical) broken off at place where hole starts

24. A Note on the Presence/Absense of Animal Bones

Consistently fewer animal bones were found on Romano-British and medieval sites than on those of the Saxon and Iron Age periods. Until sufficient sites have been excavated it will not be known whether the differences in quantities of animal bones on the surface of sites arise from differences in food preparation or rubbish disposal or differences in the economic activities carried out on the sites. For instance, seasonal occupation, permanent occupation, dairying or livestock production for meat, would generate different surface debris and some such difference may account for the disparity of surface finds in sites of different periods.

In order to demonstrate the disparity between the surface remains of Roman and Saxon sites all the animal bones from the sites located in Quadring, Gosberton, Pinchbeck North and Pinchbeck South were quantified. Sites found on the Transect Survey were eliminated because of possible differences in collection strategy for bone fragments. Where sites had to be sub-divided (*e.g.* GOS 10A, 10B, 10C) each sub-division was counted as one site. In all, 123 sites were examined, 101 Romano-British and 22 Saxon. The animal bones were quantified and divided into four groups ranging from 0-10 bones per site to over 50 bones per site. The following table resulted:

	0-10 bones	*11-25*	*26-50*	*50+*
Roman (101 sites)	82	18	1	0
Saxon (22 sites)	6	3	4	9

Table 19 Quantities of animal bones on Roman and Saxon sites

The majority of Roman sites had less than 10 bones and none had more than 50. In comparison 9 (or 41%) of Saxon sites had over 50 bones. Sites with both Roman and Saxon pottery were not included in the analysis, but a number of these have high bone counts. For example, GOS 25 has 125 bones, GOS 37 has 105 and GOS 16 has 91. These high counts would appear to be due to the Saxon influence.

All animal bones were collected on each site and all the sites were on similar clay/silt alluvial soils. It is assumed that each site has experienced similar cultivation and bone-preservation in conditions over a broadly similar timespan. The majority of the sites was walked in Class 1 or 2 conditions.

Conclusions

The finds on these sites have interesting implications for field survey. First, they show that all scatters of bone should be investigated, for any of them may contain a few sherds of pottery by which the site can be dated. A number of the Saxon sites produced very few sherds of pottery and it was the presence of bones which first drew attention to the site. Roman sites that have large quantities of bone may be of more than one period and sherds of earlier or later date may be present. These may well be small, undistinguished and rare in comparison to the Roman sherds. In short, the presence and quantities of animal bones located during field surveys are significant.

25. Stone Axes

(Fig. 150, Table 20)
A total of ten stone axes, in varying states of completeness, was found during the survey; these axes were submitted for petrological examination (Table 20). The implements have been recorded for the Implement Petrology Committee of the Council for British Archaeology by Mr. T.H. McK.Clough: six of them were attributed to Group VI by Mr. Clough after macroscopic examination, and the remaining four were thin-sectioned and were identified by Mr. R.V. Davis. Two more Group VI identifications were confirmed, and the unusual axe/adze or pestle (Fig. 150 No. 2) from the island at Pinchbeck was attributed to Group XX, derived from the Charnwood Forest area of Leicestershire. The axe from Gosberton was further referred to Dr. A.R. Woolley for additional comment.

Group VI axes are commonly found in Lincolnshire. Over 73% of the County's stone axes had been allocated to this group by 1976 (May 1976, 53). Regionally, current results show that nearly 60% of all grouped implements, or nearly 40% of all implements examined, from the East Midlands Counties, are attributed to Group VI (Clough & Cummins 1988, Table 20). These figures are achieved despite the source of the rock, the axe factory sites in the Great Langdale and Scafell Pike area of Cumbria, being some 200km from the Lincolnshire border.

While these finds fall in line with established patterns of distribution and exchange in the Neolithic, the axe from Gosberton (Fig. 150 No. 4) raises the possibility of links with areas further afield. It has been identified by Dr. Woolley as a garnet amphibole pyroxenite. Although the precise location of this rock has yet to be determined, it is thought to lie somewhere in the Alpine region of northern Italy, southern Austria or Switzerland (Woolley, *in litt.*).

Parish	*Grid Ref.*		*Petrology*	*Petrology No.*
Pointon and Sempringham	TF 1244 3048	Flake	VI (ns)	L1 467
Pointon and Sempringham	TF 1200 3275	Flake	VI	L1 468
Pointon and Sempringham	TF 1012 3262	Flake	VI (ns)	L1 469
Pointon and Sempringham	TF 1344 3260	Frag.	VI (ns)	L1 470
Pointon and Sempringham	TF 1585 3204	Frag.	VI	L1 471
Morton	TF 1188 2406	Frag.	VI (ns)	L1 473
Thurlby	TF 1094 1583	Axe	VI (ns)	L1 474
Pinchbeck	TF 1651 2817	?Tool	XX	L1 478
Gosberton	TF 1621 3050	Axe	-	L1 479
Market Deeping	TF 1674 1215	Flake	VI (ns)	L1 481

ns = not sectioned

Table 20 Petrology of Stone Axes found during Fenland Survey

Prehistoric Tools

(Fig. 150)

1. **Polished flint axe**. Grey and light brown. Cutting edge chipped and re-worked in antiquity. Dowsby (A3 in gazetteer).
2. **Stone adze or pestle?** Green/grey. Broken at top. Group XX. Pinchbeck (PIK 11)
3. **Polished stone axe**. Green. Flattened sides. Group VI. Thurlby (THU 12).
4. **Polished stone axe**. Dark green. Garnet amphibole pyroxenite (Jadeite). Gosberton (A1).
5. **Polished stone axe**. Green. Flattened sides. Broken. Group VI. Pointon and Sempringham (A4).

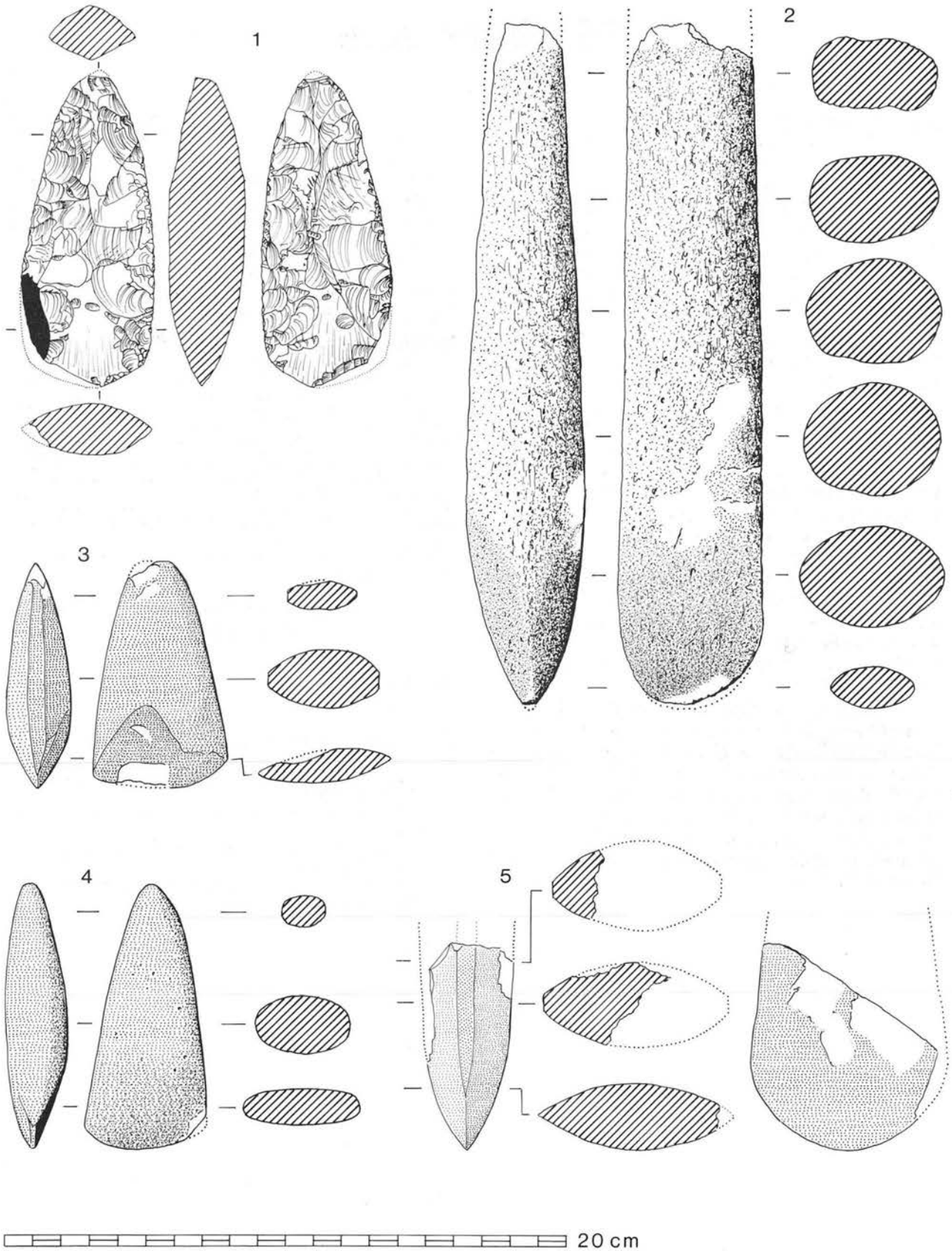

Figure 150 Prehistoric tools 1. DOW A3; 2. PIK 11 (Hoe?); 3. THU 12 (Group VI); 4. GOS A1 (Jadeite); 5. POI A4 (Group VI)

26. Conclusions

In concluding the first of the Fenland Project's published survey reports Hall (1987, 66) emphasised the success of ground survey as a technique, one that has added much to the existing knowledge of the Cambridgeshire Fenland. The work reported in this volume has had a comparable impact on the understanding of the Fenland in Lincolnshire; it has identified the presence of unknown generations of 'dwellers in the mud', generations that both preceded and succeeded the Romans. Their presence was previously unknown and unsuspected and their discovery says much for the value of large-scale survey.

The collection, processing, identification and dating of the artefacts found during this survey has formed a major aspect of the work. Use has been made of the finds in order to identify centres of habitation or industry and to suggest patterns of settlement shift within the landscape; advancing technological skills have been recognised in lithics and ceramics. In addition to these uses of the finds they have, by their relationship to the patterns of sedimentation detectable on the ground, provided relative dates for flooding phases within the Fenland. Without the finds information, given the paucity of radiocarbon dates from the surveyed area, it would have proved very difficult even to speculate on the date of the deposition of the marine (non-organic) sediments.

The archaeology itself has proved to be spectacular, if hundreds of plough-damaged sites on thousands of unbroken arable hectares can be thus described. For example, the discovery of a probable Middle Bronze Age settlement (RIP 19) sealed by *c.* 50cm of later sediments, and identified only by pottery sherds scattered for *c.* 80 metres along a drainage ditch, is a spectacular find. The potential for this site for adding environmental data to the stratified information and dating evidence recorded on the similar (in terms of pottery) and neighbouring dryland site already excavated in Billingborough is enormous. The rewards of excavating a site such as RIP 19 would be as great as the cost of undertaking the work. Equally, the rewards of preserving the site for future generations would also be enormous. Such work would only need to be undertaken if the site is currently waterlogged, and is also maintained in a comparable condition *ad infinitum*. Surface survey has demonstrated that a wealth of sites are present in the Fenland. Until subsurface investigations take place on a number of these sites their overall importance is in question. The chequerboard grid of dykes and ditches in the region testify to an efficient drainage system which, in order to serve the needs of intensive agriculture, is sucking the landscape, and the sites, dry.

Whereas continual lowering of the field-surface is a constant reminder of the effects of drainage in the peat areas, the unchanging face of the silt and clayland masks the transformation (the drying out) taking place below those surfaces.

Threats to the peats may be easier to monitor (by measuring the continuing lowering of the surface of fields) than similar threats to the clays. But the threats in the clay and silt fens are real, long-term and largely irreversible. Sites that are now protected may next year, or the one following, come within the range of the plough. It will be at that point that the environmental rot will set in.

Both the strength and weaknesses of dyke survey, the other main mode of investigation in the peat fens, have been outlined (Crowther *et al*, 1985). On one hand the recording of buried sections of the landscape can contain much of value (the remarkable site at Flag Fen (Pryor *et al* 1986) was discovered during dyke survey) but the cleaning of Fenland dykes, other than 'Slubbing-out' the weeded bottoms, is an irregular event, one which often takes place at short notice and without an archaeological presence. Because these schemes come at short notice they are also difficult to fit into a tight and often long-planned archaeological budget.

Although there are concerns about the future of the archaeology of the Fenland, we should emphasise that survey is usually, as in this instance, a first stage in a series of complementary investigations and assessment.

For the time being there is much surface information to assimilate. Certain sites, or groups of sites, discovered in Lincolnshire mirror happenings elsewhere in and around the Fenland. The round-barrows alongside Deeping Fen are an example. They represent an extension of the barrowfields of Borough Fen in Cambridgeshire (Hall, 1987), and occupy a similar fen-side location. Many of the settlements associated with these cemeteries probably lie inland, away from the survey area, for the land to the east was becoming increasingly wet during the suspected time of their construction.

If the barrows reflect a pattern already known to exist in Cambridgeshire then the Iron Age sites (Lane 1988) would seem to be a new, and more specifically Lincolnshire phenomenon. The Iron Age saltmaking sites of the Fenland, particularly those from Cowbit (chapter 16 and Fig. 106), will demand that careful consideration (and in certain cases some reconsideration) is given to the traditionally held concepts of Romans and the virgin Fenland. Is it possible that the Romans 'conquered' the Fenland in same way as the Brazilian rain forest is being won today? That is to regard the area as virgin territory apart from the natives who live there.

On the inland edge of the peat there are also some remarkable Iron Age sites, a number which also have prolific quantities of early Roman wares. DEJ 13 is a mounded site in pasture, with Iron Age and Roman sherds present in the molehills and some Bronze Age sherds from the adjacent ploughland. Further investigation of this site is essential.

The Roman landscape of the Fenlands has been admired by archaeologists for many years. The density and comparative regularity of its cropmarks have been plotted (notably by Hallam 1970), and generally regarded with some awe and curiosity by the many private and military aviators who ply the Fenland skies. In both Hallam (1970) and this volume (Fig. 126) the density of Roman settlement in the Fenland has been emphasised. Every fieldwalking exercise and every aerial reconnaissance appears to add more of the same type of information. An apt assessment of the Roman archaeology of the Lincolnshire Fenland has already been written, remarkably fifty-five years ago. At the time C.W. Phillips was considering the county of Lincolnshire as a whole. His words are now equally applicable to the Fenland as a separate region as well as the whole county.

'When the number of important Romano-British sites in Lincolnshire is taken into consideration it is remarkable how little is really known about any of them. A proper assessment of the significance of this period requires a mass of data which we do not at present possess for Lincolnshire, because of the almost complete absence of any scientific excavation. We are therefore reduced to making a record of facts which are visible in the field and drawing such tentative conclusions from them as we may.'

C.W. Phillips (1934, 110)

While not all the conclusions from the record of facts visible on the field are 'tentative' a scientific excavation of a number of sites is a desirable next step in understanding the Romano-British Fenland.

One of the most unusual aspects of the survey has been the recognition of what appears to have been a Saxon social or political boundary. It divided two tribes tentatively identified as the Bilmigas and the Spaldas (Courtney 1981, 92; Hayes 1988, 324). The tribes occupied territory either side of a distinct physical barrier, a band of freshwater peat fens which separated the rising ground of the Jurassic ridge from the silt land bordering the Wash. The social development of these tribes was not synchronous; the change from a dispersed mode of settlement into a nucleated form came earlier to the upland tribe.

A landscape divided by a band of fen which was, if not intractable, then not easily negotiable, and a recognisably diachronous pattern of population movement either side of that fen strongly suggests that the fen formed a significant boundary. The presence or otherwise of this putative boundary and further insight into the nature of, and relationship between, the Saxon settlements on the fen margins and the silts could be obtained by extending the surveyed area both to the north and to the east. Ekwall (1960, 43) has suggested that Billinghay, on the edge of the Witham Fens some 20km north of Billingborough, was an 'island or stream of the Billingas' (Bilmigas). If both places were controlled by the Bilmigas it seems likely that the overall patterns of Saxon settlement and movement would be similar in the intervening area between the two centres. Comparable survey on the silts would ascertain whether the pattern of mounded sites and later nucleation similar to that identified in Quadring, Gosberton and Pinchbeck continues to the north or whether it changes in relation to the distance from Spalding, the presumed centre of power and commerce of the siltland tribes.

Spalding has identified itself as a key area in the understanding of the South Lincolnshire Fenland, even though it is outside the surveyed area. It can now tentatively be seen to have been sited on the common estuary of the prehistoric course of the rivers Glen and Welland. Silts accreting in the estuary would have provided a suitable and strategic settlement area from at least the Roman period and most probably before. Hallam, S.J. (1970, 60) also concluded that Spalding 'stands out on distribution maps'. An extension of the surveyed area to the east to include Spalding could provide welcome insight into the development of the region's 'capital'. Even if no further survey is forthcoming then every possible opportunity should be taken to investigate the Spalding area. Archaeological evaluation in advance of any future building development in and around the town is essential.

One further area of interest lies at the south-west extremity of the survey block. Frognall lies to the east of the modern settlements of Market Deeping and Deeping St James (chapter 17) on the wide fen-edge. The periphery and extreme fen-edge, where survey did take place, was found to be rich in barrows, Iron Age and Roman sites. The surface of the area around Frognall is comparatively level, much of it formerly peat covered but with patterns of apparently pre-Flandrian silt ridges marking the tortuous routes of very ancient channels. DEJ 4 and 5, for example, which have Bronze Age pottery and Neolithic flints, are sited on one such prominent ridge.

The archaeological richness of the Frognall area can be inferred from study of the Sites and Monuments data. Prehistoric urns, Roman sherds, coin hoards and ritual crown fragments all testify to the importance of the area. Aerial photographs indicate settlement, including one of apparent Roman layout covering *c.* 9 hectares. The decision not to survey the Frognall area as part of the Fenland Survey was based on the strict time limits set on the work conflicting with the certain knowledge that finds in the area would have been numerous and therefore too time consuming to enable all the fen area to be examined. What is required at Frognall is a separate, rapid assessment survey, based on the techniques adopted by the Fenland Survey. Only when the extent of its surface archaeology is known can the true worth of this tantalising area, and its relationship with the rest of the fen-edge, be properly understood.

Palaeoenvironmental research in south Lincolnshire prior to the commencement of the survey was limited to investigations in Bourne Fen by Shennan (1982; 1986a and b) and in Billingborough Fen by Hayes (1985b; 1987a). Since then, Shennan has maintained an interest in the area and his research into the archaeological possibilites of Remote Sensing has been supplemented by sub-surface investigations, made in conjunction with Martyn Waller of the Fenland Project. Preliminary results of this work, including the radiocarbon dates, are beginning to filter through and are encouraging in that they appear to corroborate the findings of this survey. It must, however, be stressed that much more needs to be undertaken in the way of palaeoenvironmental research in South Lincolnshire. The predominantly marinc origin of deposits here may make the task arduous using conventional techniques, but it is hoped that the region may prove suitably attractive to those currently pioneering equipment for use in dating and analysing sediments.

Survey has demonstrated that a wealth and range of archaeological information is present in the western fens. Most of the hypotheses, suggestions and interpretations that have been made are testable by further research and it is hoped that at least some of this will go ahead despite the usual constraints of time and finance.

A number of the areas covered in this volume have already been singled out as being worthy of further research. Over fifty sites have been outlined for more detailed studies which includes, in some cases, assessments of the survival potential of the sub-surface archaeology. These studies will offer information on which to base future policy decisions concerning Fenland archaeology.

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